Poroid fungi of Africa

L. Ryvarden, C. Decock, D. Mossebo & A. Masuka

With photos by D. Mossebo and drawings by I. Melo

Synopsis Fungorum 45

Fungiflora

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1. Preface

It has been our intention to provide a general overview of the hugely under-explored African poroid fungi for over a decade now. Since our first systematic collections of poroid fungi in the 1970s in various parts of Africa, it has become apparent to this day that each collection foray yields more undescribed species. We hope this rather belated publication will be an additional updated and practical tool to examine the vast under-explored poroid fungi of Africa. Although the collection of poroid fungi has been done in many parts of the continent, even larger parts remain unexplored. As many a collector would be aware, many basidiocarps are rather ephemeral in the tropical climate, so frequent collecting, within and between seasons, is necessary to obtain a reasonable understanding of the diversity of mycota in an area. Contamination of basidiocarps compounds this problem, so drying facilities to reduce the incidence of moulds are needed for each daily collection.

Readers and users of this book are encouraged to familiarize with the terms used in the family, genera and species keys and descriptions by referring to the general introduction which can be found and is downloadable from www.fungiflora.no/introduction-to-poroid-fungi.

The taxonomy within the poroid fungi is in still a flux. Increasing DNA investigations show that the current systematic arrangement is partially artificial and does not necessarily reflect the true phylogenetic relationships within certain groups. We have opted to retain the traditional taxonomic arrangement since this book is primarily a manual for the practical identification and determination of poroid fungi and not a taxonomic treatise. Additionally, the vast majority of the African poroid fungi have not been a subject of detailed DNA investigation. This is a field which has to be prioritized and to which future work should be focused.

The species descriptions in this book are set up in a standardized manner. In many cases the species hosts are omitted since they are, invariably, angiosperms. We have deliberately omitted descriptions of the size and shape of basidia, since they are all tetrasterigmatic and do not convey any substantial discriminating characters for species. The genera and species distribution are broadly stated except for those countries we have specifically examined specimens.

The authors collectively have over 150 years' experience of collecting in Africa. We therefore, hope that this should inspire confidence in others to pursue this worthwhile endeavour. We have variously lobbied for the provision of much needed funding for the systematic investigation of the rich African mycota, constituting Africa's heritage, and have advocated for the development of heritage-based education to further motivate its study. This lobby and advocacy must continue.

2. Physiography and vegetation of Africa

Introduction

A general descriptive overview of the physiography and vegetation of Africa has been provided by White (1983).

Geology and Physiography
Geologically, Africa is an "old continent". It is, therefore, largely more stable than other continents. With the exception of the Atlas mountain to the north, and the Cape to the southernmost tip, the continent is considered to be a continuous basement of complex pre-Cambrian origin, overlaid in most parts by sedimentary rock outcrops on metamorphic basements. Mt Kilimanjaro, at 5895 metres above sea level (masl), is the highest peak on the continent, and also the most recent volcanic of the mountains on the continent. If divided in two by a line from Angola to Ethiopia, Africa consists of two broad low and high elevation areas – generally below 1 000 masl to the north and predominantly above 1000 masl to the south.

There are also other prominent features on the continent, including the Sahara, the biggest desert in the world, the smaller Namib desert, and the African Rift Valley. The African rift valley system prominently stretches from Tanzania to Ethiopia, linking with Turkey, and is identifiable to Beira in Mozambique, Okavango in Botswana and the Zambezi in Zimbabwe and Zambia. It is generally accepted that the islands in the Indian Ocean and Atlantic are from old volcanoes, while Madagascar and Seychelles are parts of the continent.

Climate
Climate in Africa is very varied and evidence exists of past wet and dry patterns and warmer and cold cycles everywhere on the continent during the past million years (Wild, 1983). The effects of climate change on flora and fauna distribution are generally disputed, but it is perhaps indisputable that quaternary fluctuations in climate influenced soils, drainage and land formation and, therefore, to some extent present-day vegetation patterns and types.

Rainfall is perhaps the single most important determinant climatic factor, for flora and fauna distribution. Generally, the rainfall is highly variable from nil to over 5000 mm per year in places. At about 30°C north and south of the continent, there are high pressure wind belts that give rise to characteristic rainfall, in the area called the Inter-tropical Convergence Zone (ITCZ). During November to March, the ITCZ stretches from DRC to Madagascar, and brings summer rains to this miombo ecozone and with it, the characteristic polypore flora, and many other symbiotic mushrooms often restricted to this region on *Bracyhstegia*, *Julbenardia, Isoberlina* and *Uapaca* tree species. Climatic zones, therefore, assume some symmetry around the Equator. From May to September the ITCZ brings rains to the north of the Equator.

Temperatures vary widely. In the tropical forests, daily variations are greater than seasonal variations in temperatures, but in the drier environments seasonal variations are more than daily variations.

In Africa, perhaps as elsewhere in the world, soils and vegetation patterns do not always correlate to each other regarding distribution; however it is presumed that vegetation is closely related to present climatic conditions.

Fire has shaped vegetation evolution in many regions, but uncontrolled fires can be destructive. Africa's flora is both rich and diverse, but other tropical continents have higher biodiversity and species.

Vegetation
There are up to 16 types of vegetation recognized in Africa with various areas of endemism (White, 1983) but there are nine broad categories, which would suffice for the purpose of the associated poroid fungi distribution.

This book is concerned about the polypores south of the Sahara, however, it should be noted that the Sahara (Region 1) is a vast desert, some 8.5 million square kilometres and comprises some of the harshest conditions on the continent with little or no rainfall and very high temperatures often associated with extreme diurnal ranges. The flora and fauna is limited but specialized.

The Sahel and desert transition zone (Region 2) represents the transition from the Sahara to the tropical grasslands in the north, in large part, while the Kalahari represents the transition to tropical grasslands in the south of the continent. Being south of the biggest desert in the world, Sahel conditions are generally unsuitable for cropping so livestock rearing predominates. In these transition zones rainfall fluctuates cyclically and ranges from 150 to 500 mm per year, falling in summer followed a prolonged dry season. This 400 km wide belt is generally 600 masl. The flora of the Sahel has up to 1 200 plant species, with perhaps no endemic genera. The vegetation is bushland and

grasslands with woody species being predominantly *Acacia, Commiphora, Balanites, Boscia* and *Bauhnia*. The Kalahari transitional zone comprises some 3000 plant species and is mostly 850 to 1 000 masl. Rainfall is 250 to 550 mm per year. Forests are dominated by *Acacia, Anthephora* and *Schmidtia* species, but there are also *Colophospermum* and *Welwitschia* species.

Open grassland (Region 3) is often termed Savanna. In many publications Savanna has not been used in a classificatory sense (Wild, 1983) although the term is very much widely used, much like Sahel. It lies between the transitional zones of the Sahel and Kalahari and deciduous forests (Region 4). The deciduous forest zone and Savanna cover about 50% of tropical Africa. The area stretches from 3° S to 26° S from the Atlantic to the Indian Ocean, and covers large parts of central and southern Africa. The area is covered by the Great Plateau and is generally above 900 masl, and rises to 2 500 masl in places.

Most of the deciduous forest region is drained by the Zambezi River, and to the north by the Congo River. Rainfall varies from 500 to 1 400 mm per year. There are large seasonal variations in temperature, and three seasons, one wet and two dry, are found. Frost is a common feature in this region in winter. There are over 8 500 plant species, with over half of them endemic to this region. Although there are no endemic families in this region there are several endemic genera, including *Bolusanthus, Colophospermum, Diploryncus*. Notably, the centre of variation of *Brachystegia* and *Monotes species* are in this region. Deciduous forests, include the Zambezian area, covering Tanzania, Mozambique, Malawi, Democratic Republic of Congo, Central Africa Republic, Zambia, parts of Botswana and parts of South Africa. It is the largest phytochorion in Africa after the Sahara desert. Floristically, Miombo is unique being dominated by *Brachystegia*, *Julbernadia* and *Isoberlina*.

The tropical rain forest (Region 5) extends north and south of the equator and the area is generally below 1 000 masl, from Ghana, through central Africa to the Democratic Republic of Congo. The area receives 1 600 to 2 000 mm, which is less than other tropical forests in Latin America and Asia. Rainfall above 3000 mm is only in a very small part in Guinea and southern Liberia. There are generally two rainfall peaks in this region. Mean monthly temperatures do not vary much throughout the year. The rain forests contain high species diversity in excess of 8000 plant species. The more endemic species comprise members of the Dioncophylaceae, Hoplestigmataceae, Huaceae, Lepidobotryceae, Medusandraceae, Octojkneemaceae, Pansdceae, Pentaiplandraceae and Scytopetaleaceae, while endemic plant genera belong to the Caesalpinioideae.

The Montane and Afromontane forests (Region 6), include the Ethiopian Highlands and a small portion to the southernmost tip of the continent and the Atlas mountain in Morocco. These areas have typical afromontane species, and together with other higher mountains, contain the coniferous forests of Africa. Most of the Ethiopian highlands are formed from basalt, but there are some Precambrian rock outcrops. *Juniperus, Podocarpus ?Widringtonia, Hagenia, Arundinaria* species are found in this area. Rainfall is 1 000 to 5000 mm per year.

The East African mangrove occurs in coastal areas (Region 7) from Somalia, Kenya, Tanzania to Mozambique, but there are portions of this forest in the Eastern Cape of South Africa. This coastal belt penetrates no more than 200 km inland and, therefore, lies below 200 masl. Rainfall varies from 800 to 1200 mm annually, with wet and dry seasons. There are some 3 000 plant species with many endemic genera such as *Rhizophora, Avicennia, Bruguiera*, but *Heritiera* is confined to the east African coast.
The Mediterranean region (Region 8) is confined to a thin strip along the coast in Morocco, but is also pronounced in the Southern Africa Cape, which is a centre of endemism. In southern Africa, folded mountains dominate this area, which is 1 00 to 1 500 masl, but with some peaks at 2 000 masl. Rainfall varies from 250 mm to 2 500 mm per year and some local areas have as much as 5 000 mm annually. During winter there are snowfalls. There are about 7 000 plant species in this region, and about half are thought to be endemic to this region. Endemic families include the Bruniaceae, Geissolomataceae, Penaeaceae, Retziaceae, Roludulariceae and Stilbaceae.

The Karoo (Region 9) has 3500 plant species, with many endemic species. The vegetation has been classed as busy Karoo, saccullent Karoo, dwarf Karoo and montane Karroo. Other characteristic families include Ericaceae and Proteaceae. The whole Cape region has over 200 genera confined to this area, which is generally dominated by fynbos, and sclerophyllous shrubland. In the inner margins of the Cape region, there is an arid fynbos transition to Karoo vegetation with predominant *Chrysocoma, Hermannai, Euryops, Pretonia, Eriocephalus* being well represented, and showing an absence of Ericaceae. There are also bushy karroo and scrubland Karoo to the north to Namibia. The Karoo is generally dry with rainfall between 50 to 250mm annually.

Introduced Plantations

The introduced industrial timber plantations are more prominent in Southern Africa being *Pinus, Eucalyptus, Acacia* and *Populus*. The Food and Agriculture Organisation (2010) estimates that there are over 153 million hectares of timber plantation worldwide, of which 26 million hectares are in Africa, on 7 % of the land area. There are also increasing plantations of indigenous species such as *Acacia.* and *Sclerocarya*. There are some fungi confined to the introduced industrial timber plantations. These fungi were most probably introduced with these species.

Biodiversity Loss

Biodiversity loss is a real challenge for many African regions. It has been suggested, that at current rates of deforestation, many fungal species will eventually disappear before they are scientifically described. Agricultural activities are by far the most important in shaping vegetation and forests in Africa, and this anthropogenic loss has been a cause of concern and a source of action at local, regional and continental and international levels. With issues of climate change clearly at the fore, and the predicted climatic shifts being generally more deleterious to many African countries, than other parts of the world, the call to conserve forests, and by consequence the fungi associated with these, are growing stronger. Africa is the least capable of all continents at withstanding climatic shocks, and is the least financially able, without assistance, to implement climate adaptation and mitigation strategies.

Myco-geography

The distribution of fungi follows closely the distribution of their hosts, but generally wood inhabiting fungi, such as polypores, tends to be less host - specific compared to many parasitic and symbiotic fungal species, with the remarkable exception of *Phylloporia* species. Therefore, some afromontane species such as *Fomitopsis widdringtonniae* Masuka and Ryvarden, tend to be host specific. The broad distinction between angiosperms and gymnosperms, and respectively their associated white rot and brown rot, which is of taxonomic significance especially at genus level, broadly delimits where some genera of polypores can be found. Predominantly African genera include *Amauroderma* and *Ganoderma.*

3. Keys to families and genera

MAIN KEY

1. Spores pale brown to yellowish with double wall, the inner one ornamented and yellow to brown, the outer one, smooth and hyaline ..... **Ganodermataceae**
1. Spores hyaline to rusty brown, spore wall simple **2**

2. Basidiocarp brown, generative hyphae with simple septa; dark brown setae absent or present; cystidia absent..... ..... **Hymenochaetaceae**
2. Basidiocarp variably coloured, generative hyphae with clamps or simple septa; dark brown setae never present, cystidia absent or present..... **Poroid genera from other families**

KEY TO GANODERMATACEAE

1. Spores with small discrete round papillae, a few irregular small fused outgrowths may occur **2**
1. Spores with coarse longitudinal ridges or crests or with a coarse, angular, coherent and more or less hexagonal pattern of low ridges..... **3**

2. Spores distinctly truncate, basidiocarps sessile to stipitate, frequently on wood, more rarely on the ground .... **Ganoderma**
2. Spores round to elliptic, basidiocarps stipitate, mostly on the ground..... **Amauroderma**

3. Spores with coarse, longitudinal crests or ridges..... **Haddowia**
3. Spores with hexagonal and angular patterns..... **Humphreya**

KEY TO HYMENOCHAETACEAE

1. Basidiocarp pendant or more or less centrally stipitate, usually on the ground; setae never present **2**
1. Basidiocarp resupinate or pileate, sometimes with a lateral, tapering base; setae present or absent..... **3**

2. Basidiocarps pendant, small, spores finely ornamented..... **Coltriciella**
2. Basidiocarps more or less stipitate, spores smooth..... **Coltricia**

3. Hyphal system dimitic with skeletal hyphae; basidiocarps mostly woody..... **4**
3. Hyphal system monomitic or predominantly so, basidiocarps mostly fragile when dry, annual; species growing on living bushes belong here..... **5**

4. Basidiospores non-dextrinoid ..... **Phellinus**
4. Basidiospores dextrinoid..... **Fomitiporia**

5. Context distinctly duplex, upper loose part often separated from the lower dense part by a black zone; setae absent; spores usually abundantly present, elliptic, pale yellowish, shorter than 4.5 µm; mostly on living trees or shrubs..... ..... **Phylloporia**
5. Context homogeneous; setae present or absent; spores hyaline to rusty brown; longer than 4.5 µm, on dead wood. ..... **Inonotus**

KEY TO POLYPORACEAE AND POROID GENERA OF OTHER FAMILIES

1. Basidiocarp more or less centrally stipitate (including all species with numerous pilei from a common base). **Key A**
1. Basidiocarp resupinate to pileate, sometimes with a tapering lateral base or stipe..... **2**

2. Hymenophore hydnoid, lamellate, daedaleoid to sinuous..... **Key B**
2. Hymenophore with angular to round pores, sometimes slightly split and dentate in the dissepiments **3**

3. Spores ornamented..... **Key C**
3. Spores smooth..... **4**

4. Spores, cystidia or hyphae amyloid or dextrinoid ..... **Key D**
4. No amyloid or dextrinoid reaction in spores, cystidia or hyphae **5**

5. Generative hyphae with simple septa ..... **Key E**
5. Generative hyphae with clamps **6**

6. Tubes and context brown, purplish black, orange, brick or cinnabar red ..... **Key F**
6. Tubes and context white, ochraceous, yellow to pale brown 7

7. Cystidia present in hymenium or context ..... **Key G**
7. Cystidia absent in hymenium or context **8**

8. Hyphal system monomitic ..... **Key H**
8. Hyphal system di- or trimitic ..... **Key I**

KEY TO POLYPORACEAE AND OTHER FAMILIES WITH POROID SPECIES (including lamellate genera)

Key A

Basidiocarps pendant or stipitate

1. Hymenophore lamellate ..... **Lentinus**
1. Hymenophore poroid **2**

2. Spores ornamented **3**
2. Spores smooth **4**

3. Spores finely asperulate, amyloid ..... **Amylosporus**
3. Spores coarsely ornamented, dextrinoid ..... **Diacanthodes**

4. Basidiocarps 2-6 mm wide, pendant ..... **Porodisculus**
4. Basidiocarps wider than 1 cm, centrally to laterally stipitate **5**

5. Basidiocarps arising from a sclerotium in the ground ..... **Lignosus**
5. Basidiocarps on wood, or if on the ground, from roots **6**

6. Hyphal system monomitic basidiocarps fleshy ..... **Albatrellus**
6. Hyphal system di-trimitic, basidiocarps mostly tough 7

7. Basidiocarps on the ground, pileus often more than 1 cm thick, fleshy when fresh, stipe expanded towards the stipe mostly wider than 1 cm, gloeopleurous hyphae present, spores broadly elliptic to subglobose **8**
7. Basidiocarps on wood, pileus rarely above 5 mm thick, tough and coriaceous when fresh, stipe more or less of even thickness, rarely above 6 mm wide, spores cylindrical to oblong elliptic **9**

8. Basidiocarps brown to bright yellowish, often large, generative hyphae with simple septa ..... **Laetiporus**
8. Basidiocarps white to cream, generative hyphae with clamps ..... **Abortiporus**

9. Pileus tomentose to smooth, hyphal system trimitic, skeletal hyphae present ..... **Microporus**
9. Pileus glabrous to hirsute, hyphal system dimitic, arboriform binding hyphae present ..... **Polyporus**

Key B

Basidiocarps sessile to resupinate; hymenophore hydnoid, lamellate, daedaleoid to sinuous

1. Context dark sepia brown to black ..... **Gloeophyllum**
1. Context differently coloured **2**

2. Generative hyphae with simple septa; skeletocystidia present **3**
2. Generative hyphae with clamps **4**

3. Hydnoid surface white ..... **Irpex lacteus**
3. Hydnoid surface yellow ..... **Flavodon flavus**

4. Hydnoid and irregular surface violet when fresh, hymenial cystidia present ..... **Trichaptum**
4. Hymenial surface different coloured, hymenial cystidia absent **5**

5. Basidiocarps resupinate to effused reflexed; spores elliptic; capitate hyphal ends scattered in the hymenium; hyphal system dimitic ..... **Schizopora**
5. Basidiocarps pileate; spores cylindrical; capitate hyphal ends absent; hyphal system trimitic **6**

6. Hymenophore daedaleoid to sinuous, context tan to ochraceous; causes a brown rot ..... **Daedalea**
6. Hymenophore lamellate to sinuous, context white to pale yellow, causes white rot 7

7. Hymenophore regularly to irregularly lamellate; context homogenous ..... **Trametes**
7. Hymenophore labyrinthine to daedaleoid; context with a black line below tomentum ..... **Cerrena**

Key C

Basidiocarps sessile to resupinate; hymenophore poroid; spores ornamented

1. Hyphal system monomitic ..... **Trechispora**
1. Hyphal system dimitic **2**

2. Spores cylindrical to elliptic, non-amyloid, longer than 6 µm ..... **Pachykytospora**
2. Spores globose to elliptic, amyloid or non-amyloid, shorter than 6 µm ..... **Wrightoporia**

Key D

Basidiocarps sessile to resupinate; hymenophore poroid; spores smooth; spores, cystidia and hyphae individually amyloid or dextrinoid in Melzer's reagent

1. Spores amyloid **2**
1. Spores non-amyloid **5**

2. Basidiocarps more or less stipitate ..... **Amylosporus**
2. Basidiocarps resupinate to applanate pileate, mostly broadly attached **3**

3. Generative hyphae with simple septa ..... **Rigidoporiopsis**
3. Generative hyphae with clamps **4**

4. Skeletal hyphae hyaline and dextrinoid, basidiocarps light coloured and resupinate ..... **Wrightoporia**
4. Skeletal hyphae yellow to pale brown and non-dextrinoid, basidiocarps brown to pale yellow, mostly pileate ..... **Amylonotus**

5. Basidiocarps stipitate, spores ornamented ..... **Diacanthodes**
5. Basidiocarps resupinate or pileate, spores smooth **6**

6. Basidiocarps pileate, context punky to soft, spores thick-walled, elliptic or navicular **7**
6. Basidiocarps resupinate or pileate, context or subiculum hard or fibrous, spores truncate if thick-walled **8**

7. Spores navicular or boat shaped, 11-15 µm long, skeletal hyphae dextrinoid ..... **Navisporus**
7. Spores elliptic, 5-6.5 µm long, skeletal hyphae amyloid ..... **Pseudopiptoporus**

8. Pores shallow, usually less than 1 mm deep, dendrohyphidia present, but often difficult to find in dry specimens, hymenium lining the bottom of the tube walls, spores thin-walled **9**
8. Tubes mostly longer than 1 mm, dendrohyphidia absent, hymenium restricted to the vertical tube walls, spores thick-walled **10**

9. Substrate with reddish zones, basidiocarps bluish green to black with a white lining of hymenium, hyphal system monomitic, generative hyphae thin to thick-walled and coloured, dendrohyphidia absent..... **Porogramme**
9. Substrate without reddish zones, basidiocarps light coloured pale brown, bluish-grey or blackish when old, hyphal system dimitic, dendrohyphidia present ..... **Grammothele**

10. Basidiocarps light coloured in tubes and context ..... **Perenniporia**
10. Basidiocarps reddish in tubes and context ..... **Pyrofomes**

Key E

Basidiocarps sessile to effused reflexed; hymenophore poroid; spores smooth; spores, cystidia and hyphae negative in Melzer's reagent; generative hyphae predominantly with simple septa

1. Cystidia present..... **2**
1. Cystidia absent..... **4**

2. Basidiocarps black, pileate with distinct black cuticle ..... **Nigrofomes**
2. Basidiocarps white, ochraceous to grey or black but without black cuticle **3**

3. Pore surface white to cream or pale brown, rather soft and fragile, if hard, then with very small pores and pileate, cystidia of only one type..... **Oxyporus**
3. Pore surface vivid orange, pinkish brownish, ochraceous to grey or black, encrusted cystidia and smooth, small mammillate cystidia present ..... **Rigidoporus**

4. Basidiocarps sappy and orange when fresh paler and cheesy when dry, dimitic with binding hyphae ..... **Laetiporus**
4. Basidiocarps differently coloured..... **5**

5. Basidiocarps resupinate..... **6**
5. Basidiocarps pileate, effused-reflexed **9**

6. Hyphal system monomitic, generative hyphae mostly, 2-8 µm wide..... **7**
6. Hyphal system dimitic..... **8**

7. Pore surface white to ochraceous ..... **Macrohyporia**
7. Pore surface black ..... **Melanoporella**

8. Spores more or less globose ..... **Physisporinus**
8. Spores allantoid to elliptic ..... **Ceriporia**

9. Spores allantoid, pore layer gelatinous when fresh..... **Gloeoporus**
9. Spores globose to subglobose, pore layer dense when fresh..... **Rigidoporus**

Key F

Basidiocarps sessile to effused reflexed; hymenophore poroid; spores smooth; spores, and hyphae negative in Melzer's reagent; generative hyphae with clamps; tubes and/or context black, dark brown, orange to cinnabar red

1. Context cinnabar red ..... **Trametes**
1. Context cinnamon brown to black..... **2**

2. Context cinnamon, cherry red with KOH..... **Hapalopilus**
2. Context cinnamon, brown to black, no reaction or black in KOH **3**

3. Hymenophore irregular, daedaleoid, sinuous to lamellate **4**
3. Hymenophore regular, poroid **5**

4. Hymenophore lamellate to sinuous, basidiocarps tough and flexible, apically encrusted cystidia present, spores longer than 7 µm..... **Gloeophyllum**
4. Hymenophore poroid-sinuous to daedaleoid, basidiocarps woody hard, apically encrusted cystidia absent or present, spores 4.5-7 µm long ..... **Daedalea**

5. Basidiocarps lilac to deep bay, hyphal system dimitic ..... **Nigroporus**
5. Basidiocarps deep ochraceous, rusty brown to dark brown **6**

6. Hyphal system monomitic, basidiocarps soft to fleshy **7**
6. Hyphal system di to trimitic, basidiocarps hard to tough **8**

7. Basidiocarp cinnamon, cherry red to violet with KOH ..... **Hapalopilus**
7. Pileus dark brown to black, pore surface whitish when fresh, darkening when touched and when dry, no reaction with KOH ..... **Ischnoderma**

8. Spores always abundantly present and finely tinted, up to 5 (6) µm long ..... **Abundisporus**
8. Spores absent or present, hyaline, usually longer than 5 µm **9**

9. Basidiocarps flexible, less than 2-3 mm thick, pileus with brown tomentum ..... **Datronia**
9. Basidiocarps hard to tough, usually above 4 mm thick, pileus glabrous or with light coloured tomentum **10**

10. Pores angular, large to medium, rarely smaller than 3 per mm, context brown, spores longer than 12 µm ..... **Hexagonia**
10. Pores small to medium, rarely up to 1-2 per mm, context white to ochraceous, spores shorter than 12 µm ..... **Trametes**

Key G

Basidiocarps sessile to resupinate; hymenophore poroid; spores smooth; all structures negative in Melzer's reagent; generative hyphae with clamps; context and tubes light coloured; cystidia present in hymenium or context

1. Hyphal system dimitic with skeletal hyphae; pore surface pinkish, cocoacoloured, yellow to pale brown or violet **2**
1. Hyphal system monomitic; pore surface white to discoloured sordid ochraceous when dry **3**

2. Basidiocarp pileate; pileus grey to ochraceous or white; pore surface often with violet shades when fresh, cystidia mostly apically encrusted, spores cylindrical, longer than 7 µm ..... **Trichaptum**
2. Basidiocarp resupinate to rarely pileate; cystidia club shaped, formed by the outer encrusted parts of skeletal hyphae; pore surface ochraceous, cocoabrown, pinkish to yellow; spores shorter than 7 µm ..... **Junghuhnia**

3. Cystidia tubular, thin-walled and smooth ..... **Chaetoporellus**
3. Cystidia clavate to ventricose, smooth to encrusted **4**

4. Causing a brown ro ..... t **Oligoporus**
4. Causing a white rot ..... **Tyromyces**

Key H

Basidiocarps sessile to resupinate; hymenophore poroid; spores smooth; spores, cystidia and hyphae negative in Melzer's reagent; generative hyphae with clamps; tubes and context light coloured; cystidia absent; hyphal system monomitic.

1. Basidiocarps resupinate **2**
1. Basidiocarps pileate **5**

2. Basidia urniform with 4 to 8 sterigmata; hyphae with numerous oil drops and with scattered ampullaceous swellings at the septa ..... **Sistotrema**
2. Basidia clavate with 4 sterigmata; hyphae without oil drops and without ampullaceous swellings **3**

3. Pore surface pale pink to deep reddish; tubes dense and gelatinous; hymenium continuous over the poremouths; context white and cottony ..... **Gloeoporus**
3. Pores differently coloured; hymenophore not gelatinous; dissepiments normally sterile; context more or less of same colour as tubes **4**

4. Basidiocarp resupinate; causing a white rot ..... **Ceriporiopsis**
4. Basidiocarp resupinate to pileate; causing a brown rot ..... **Oligoporus**

5. Spores dropshaped to globose, thick-walled ..... **Spongipellis**
5. Spores differently shaped, thin-walled **6**

6. Pileus adpressed velutinate and dark brown or glabrous with a black, in part velutinate, wrinkled surface; pores and tubes whitish to pale brown when fresh ..... **Ischnoderma**
6. Pileus white, greyish to discoloured, but never with a black wrinkled surface 7

7. Tube layer buff, grey to blackish ..... **Bjerkandera**
7. Tubes and context more or less of same colour, or tubes at least not grey to almost black **8**

8. Basidiocarps effused reflexed; distinctly monomitic without thickened hyphae; causing brown rot ..... **Oligoporus**
8. Basidiocarps distinctly pileate, usually with no effused part; with thickened hyphae, which may be interpreted as skeletal hyphae; causing white rot ..... **Tyromyces**

Key I

Basidiocarps sessile to resupinate; hymenophore poroid or lamellate; spores smooth; generative hyphae with clamps; tubes and context light coloured; cystidia absent; hyphal system di- or trimitic

1. Hymenophore lamellate ..... **Lentinus**
1. Hymenophore poroid **2**

2. Spores truncate to broadly elliptic, thick-walled ..... **Perenniporia**
2. Spores allantoid to elliptic, thin-walled **3**

3. Dendroid binding hyphae present, skeletal hyphae absent **4**
3. Dendroid binding hyphae absent, skeletal hyphae present, short tortuous binding hyphae present or absent **5**

4. Basidiocarp resupinate to effused reflexed ..... **Dichomitus**
4. Basidiocarp pileate, stipitate or fan shaped to dimidiate with a contracted base ..... **Polyporus**

5. Basidiocarp soft and watery when fresh, mostly white to sordid brown when old or dried, short lived and annual; binding hyphae absent; skeletal hyphae relatively few in the context and generative hyphae dominate in the basidiocarps ..... **Tyromyces**
5. Basidiocarp woody hard to tough, perennial or annual, but long lived; pileus glabrous to hirsute, white, yellowish to sordid brown or black to reddish because of cuticle spreading from the base, binding hyphae present, but; skeletal hyphae totally dominating in the basidiocarp **6**

6. Skeletal hyphae in the dissepiments finely encrusted; species with a pale orange pore surface belong here ..... **Skeletocutis**
6. Skeletal hyphae mostly smooth, occasionally with scattered large crystals 7

7. Skeletal hyphae with a wide lumen totally dominating; generative hyphae often difficult to find; basidia longitudinally septate; pore surface often discoloured pale brown when dry; rare species ..... **Protomerulius**
7. Skeletal hyphae thick-walled to solid; generative hyphae normally easily observed; basidia not septate; pore surface variable; many common species **8**

8. Causing brown rot, rare species in tropical Africa **9**
8. Causing white rot, common species **10**

9. Basidiocarp mostly woody hard to tough, perennial; pileus white, sordid brown to black or reddish .... **Fomitopsis**
9. Basidiocarps pliable to tough, most annual or biennial, pileus with pale colours ..... **Antrodia**

10. Basidiocarp tough to hard; annual species but long lived in the season; context white to brown, pileus, glabrous to hirsute, in some species with a black line between pileus tomentum and context ..... **Trametes**
10. Basidiocarps tough to pliable, never woody hard, context pale coloured, never brown, black line not present in context, all resupinate species belong here **11**

11. Basidiocarps pileate to rarely resupinate, spores elliptic to cylindrical, usually less than 5 µm long ..... **Antrodiella**
11. Basidiocarps resupinate, spores allantoid to cylindrical, 4-10 µm long ..... **Diplomitoporus**

4. Descriptions of genera and species

ABORTIPORUS Murrill,

Bull. Torrey Bot. Club 31:421, 1904.
Basidiocarps annual, substipitate and infundibuliform to sessile and dimidiate; context white to pale buff, duplex, upper layer soft, spongy, lower layer firm, fibrous; pores angular to daedaleoid; hyphal system monomitic to dimitic; generative hyphae with clamps; chlamydospores present or absent in upper context; cystidia present or absent; basidiospores hyaline, smooth, subglobose to elliptic, negative in Melzer's reagent. Causing a white rot.
Type species: *Boletus distortus* Schw. = *Daedalea biennis* Bull.: Fr.
Remarks. The genus seems to be related to *Spongipellis*, sharing with it the duplex context, monomitic hyphal system and slightly thickwalled spores. Basidiocarps of the type species are highly variable in shape and size and it has repeatedly been described as new. A survey of the genus and the many synonyms and forms of the type species are provided by Fidalgo (1969).

Key to species:

1. Pileus white to ochraceous, hyphal system monomitic, chlamydospores present, ...**A. biennis**
1. Pileus pink, fading when dry, hyphal system dimitic, chlamydospores absent .....**A. roseus**

Abortiporus biennis (Bull.: Fr.) Singer, Fig 1.

Mycologia 36:68, 1944. - *Daedalea biennis* Bull.: Fr., Syst. Mycol. 1:332, 1821.
Basidiocarps annual, laterally or centrally stipitate to sessile; stipe buff, tomentose, up to 5 cm long and 1.5 cm thick; pilei usually solitary, sometimes imbricate, almost circular to dimidiate, up to 15 cm in diam when circular; upper surface whitish to pale brown, azonate or faintly zonate, tomentose, shallowly sulcate or adpressed fibrillose around the margin, pore surface light buff, the pores angular or daedaleoid, 1-3 per mm, with thick, entire dissepiments that become thin and lacerate; context tan, upper portion softfibrous, light buff, the lower part firmcorky, creamcoloured, the whole up to 8 mm thick; tube layer concolorous and continuous with the lower context, up to 6 mm thick.
Hyphal system monomitic; generative hyphae with clamps, hyphae of upper spongy context hyaline in KOH, thinwalled, rarely branched, 35.5 µm in diam; some hyphae with very few clamps and difficult to separate from proper skeletal hyphae.
Gloeocystidia infrequent to abundant, highly refractive in Melzer's reagent, irregular in shape, broadly clavate to cylindrical with swellings and constrictions, 7.5-8.5 µm in diam, up to 7-5 µm long.
Basidiospores 4-6.5 x 3.55 µm, broadly elliptic to ovoid.
Chlamydospores 7-10 µm in diam, hyaline, smooth, subglobose, present in context.
Substrata. Numerous hardwood genera, rarely on conifers.
Distribution. A cosmopolitan species, widely distributed throughout the world.
Remarks. *A. biennis* differs from similar stipitate polypores in its abundant gloeocystidia and chlamydospores. When fresh the pore surface has a distinct reddish tint, and typically the pores will vary considerably within a single basidiocarp.

Abortiporus roseus (D. A. Reid) Masuka & Ryvarden,

Mycotaxon 41:246, 1992. - *Heterosporus roseus* D. A. Reid, Microscopy 32:449-450, 1975.
Basidiocarps annual, stipitate, round, spatulate or flabelliform, stipe central to lateral, pileus up to 8 cm wide, up to 1 cm thick near the stipe, probably soft when fresh, brittle when dry, pileus flat to slightly infundibuliform, azonate and somewhat irregular and undulating, velvety soft to touch and with an adpressed tomentum, pinkish when fresh, pale ochraceous to buff when dry, stipe up to 6 cm long and 1.5 cm in diameter, expanded upwards and with decurrent pores, buff to ochraceous and soft to touch when dry, homogenous in section and ochraceous, pores

angular, thin walled, 1-3 per mm, radially elongated towards the stipe where they are rather shallow and incomplete reminding of a reticulate pattern of sinuous ridges, pore surface ochraceous to pale buff, tubes up to 4 mm deep, concolorous with pore surface, context duplex, upper part cottony and loose, lower part distinctly fibrous in the radial direction, each layer up to 2-3 mm deep, context as tubes in colour.
Hyphal system dimitic, generative hyphae thin-walled to slightly thick-walled, fairly wide, 3-7 µm and with large clamps, freely mixed with glassy and almost solid skeletal hyphae, 2-5 µm wide.
Gloeocystidia hyaline to weakly yellowish, bladder-like to elongated often with an apical papilla, up to 50 µm long.
Basidiospores 4.5-6 x 3-4 µm, broadly elliptic to sub ovoid, thin-walled, hyaline and with an oil-drop.
Substrate. On the ground, probably on rotten wood.
Distribution. Known from Nigeria, Kenya and Zimbabwe.
Remarks. The occurrence of gloeocystidia is somewhat variable, a feature also seen in *A. biennis*. The distinct duplex consistency is typical for the species.

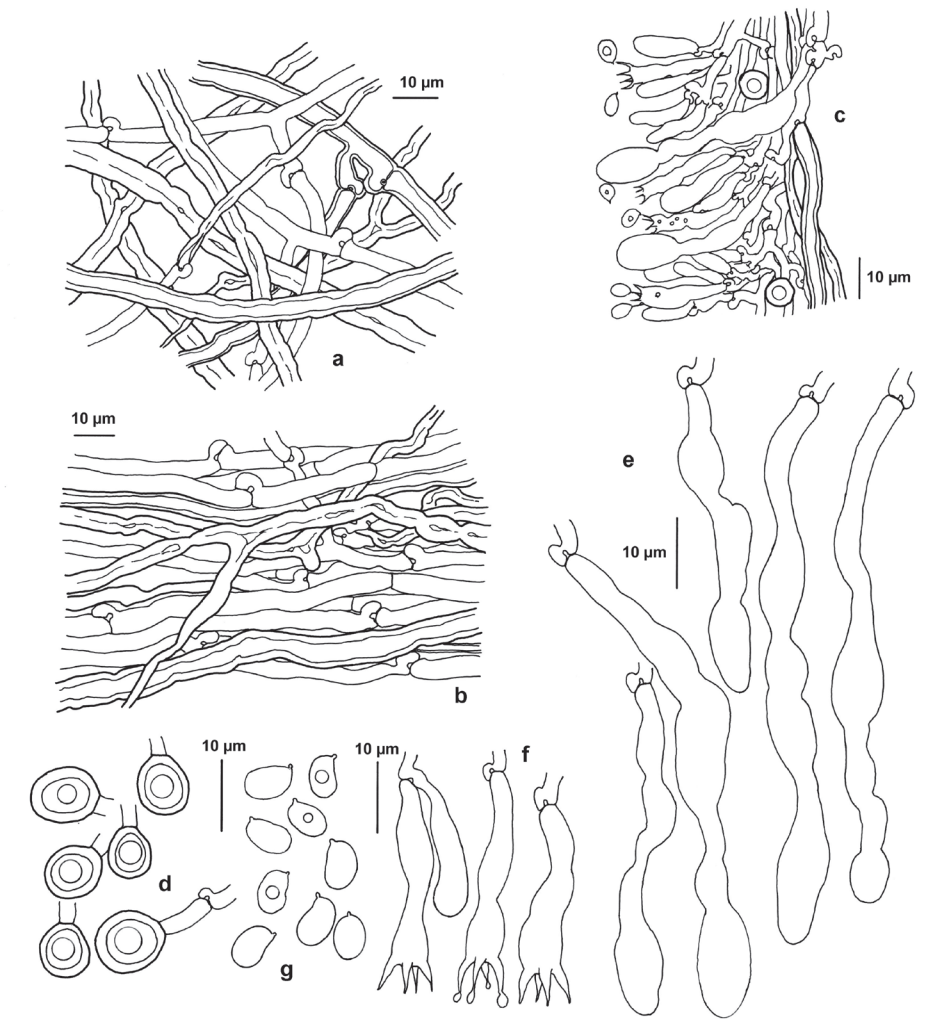

Fig 1. *Abortiporus biennis*, a) section of context, b) section of tubes, c) part of hymenium, d) chlamydospores, e) gloeocystidia f) basidia, g) basidiospores, coll. Melo 5721, del. I. Melo.

ABUNDISPORUS Ryvarden,

Belg. J. Bot. 131:154, 1998.
Basidiocarps resupinate to pileate, annual to perennial, pileus when present glabrous, mostly sulcate, grey, brown to fuscous, pores small to medium, entire, round to angular, pore surface more or less of same colour as pileus, tubes concolorous with pore surface, context homogenous and brown to dark fuscous, hyphal system tridimitic, generative hyphae with clamps, skeletal hyphae yellow to brown, binding hyphae present or absent, cystidia none, spores thin to thickwalled, pale yellow, elliptic to truncate and variably dextrinoid.
Type species: *Polyporus fuscopurpureus* Pers.
Remarks. The genus is characterized by the deep brown slightly purplish colour throughout the basidiocarps, the di- to trimitic hyphal system and the very abundant, small yellow basidiospores and a lack of any sterile organs in the hymenium.

Key to species

1. Basidiocarp resupinate ..... **A. resupinatus**
1. Basidiocarp pileate..... **2**

2. Pores 3-4 per mm, spores 5–6.5 × 2.5–3.7 µm, pileus pale brown with violet tinges ..... **A. violaceus**
2. Pores 7-9 per mm, spores 2.2-3.2 x 1.5-2 µm, pileus dark brown ..... **A. fuscopurpureus**

Abundisporus fuscopurpureus (Pers.) Ryvarden, Fig. 2

Belg. J. Bot. 131:154, 1998 *Polyporus fuscopurpureus* Pers., in Gaudichaud-Beaupré in Freycinet, p. 172, 1827.
Basidiocarps perennial, solitary, broadly attached or dimidiate with a contracted base, applanate to slightly conchate or ungulate, woody hard, up to 12 cm long, 8 cm wide and 3 cm thick at the base, pileus first finely tomentose and umber brown, then glabrous, dark umber, fuscous to vinaceous brown or black, often ochraceous to pale brown along the margin, sulcate in concentric zones and frequently radially striate or rugulose, some warts may occur, cortex present, up to 150 µm thick, black in section, margin acute to rounded, often deflexed in dry specimens, pore surface first pale, pinkish to buff with age, chocolate or vinaceous brown, pores very small, 79 per mm, tubes concolorous with the pore surface or darker, often stratified, 13 mm in each stratum, up to 20 mm deep at the base, context up to 3 mm thick, chocolate to deep vinaceous brown.
Hyphal system tri-dimitic, generative hyphae with clamps, 2 4 µm wide, skeletal hyphae thickwalled, mostly 36 µm wide, but in the context some hyphae up to 10 µm wide, pale yellow to fuscous brown.
Basidiospores 2.2-3.2 x 1.5-2 µm, elliptic to slightly angular, often with one side flattened, pale yellowish, thickwalled and slightly dextrinoid with age. Always abundantly present.
Distribution Paleotropical species, widespread in Central Africa. Described from Java.
Remarks. The species may can easily be confused for a *Phellinus* species, but presence of clamped generative hyphae and small and slightly thick walled spores, will immediately exclude that genus.

Fig. 2. - *Abundisporus fuscopurpureus*, photo D. Mossebo.

Abundisporus resupinatus Decock & Ryvarden,

Synopsis Fung. 44: xx, 2021.
Basidiocarps perennial, resupinate, 4 x 4 cm and up to 3 mm thick, tough, pore surface probably first pale, greyish to pinkish to buff with age, margin district, pale cocoa coloured, up to 2 mm wide, pores round, small, uniform 5-6 per mm, tubes pale pinkish brown, subiculum cottony compacted, pale brown up to 1 mm thick.
Hyphal system dimitic, generative hyphae with clamps, 2 4 µm wide, difficult to observe, skeletal hyphae thickwalled, 2-4 µm wide, pale yellow to fuscous brown.
Basidia not seen.
Basidiospores 4-5 x 2.2-3.2 µm, elliptic, slightly angular, often with one side flattened, pale yellowish, thickwalled and slightly dextrinoid. Abundantly present.
Distribution Known only from the type locality.
Remarks. This is the first resupinate representative in the genus and it shows no sign to forming a pileus even if the margin is distinctly delimited towards the substrate.

Abundisporus violaceus (Wakefield) Ryvarden,

Belg. J. Bot. 131: 154, 1999. - *Polystictus violaceus* Wakefield, Bull. Misc. Inf., Kew: 1916, p 72, 1916.
Basidiocarps perennial, pileate, broadly attached, semicircular, solitary or gregarious, up to 2.8–3.6 cm wide, 1.6–2.5 cm high and 0.6 mm thick, pileus finely adpressed velutinate, dull, slightly tuberculate, pale brown with violaceus shades, margin entire, acute, concolorous with the pileus, pore surface shiny, ochraceous–pink, pores angular, 3–4 per mm, tubes concolorous with the pore surface, up to 6 mm deep, context pale brown, homogeneous, fibrous–cottony, up to 4 mm thick at the base.
Hyphal system dimitic; generative hyphae hyaline, clamped, thin–walled, 1.5–2.5 µm diam.; skeletal hyphae pale brown, thick–walled, 2.5–6 µm diam.
Basidiospores 5–6.5 × 2.5–3.7 µm, abundant, elliptic, hyaline to pale yellowish, thick–walled.
Distribution. Widespread in Central and southern Africa.
Remarks. The species is characterized by pale ochraceous to violet basidiocarps and the angular pores.

ALBATRELLUS S.F. Gray,

Nat. Arrang. Brit. Plants 1: 645, 1821.
Basidiocarps annual, stipitate, terrestrial or on buried wood, fleshy; pileus surface smooth to rimose or scaly; tube layer not readily separated; stipe central to lateral; hyphal system monomitic; generative hyphae with clamps or simple septa, often inflated; cystidia absent; basidiospores elliptic to subglobose, smooth, negative or amyloid in Melzer's reagent.
Type species: *Boletus albidus* Pers. = *Polyporus ovinus* Schaeff.: Fr.
Remarks. The genus belongs to the Hericiaceae where amyloid spores are typical as in many *Albatrellus* species. Most species are probably ectomycorrhizal with trees.

Albatrellus congoensis Ryvarden,

Micologia 2000 (Trento) p. 479, 2000.
Basidiocarps annual, centrally stipitate, single and arising from a sclerotium; stipe cream coloured, wrinkled when dry, up to 5 cm high and 1 cm in diameter, smooth, glabrous, pileus more or less circular, up to 10 cm in diameter, and 1 cm thick at the base, upper surface whitish, somewhat soiled with sand in the holotype,, dull, smooth, azonate, slightly wrinkled when dry, pore surface cream coloured, pore angular, thinwalled, 2-3 per mm, up to 2 mm deep, context slightly duplex, upper part white and cheesy, lower part pale brown with horizontal black resinous lines, up to 5 mm thick at the base, sclerotium up to 5 cm in diameter, covered with fine sand, inner part dense and pale cinnamon brown with strongly compacted hyphae with no apparent structure.
Hyphal system monomitic; generative hyphae hyaline in KOH, thinwalled, with frequent branching, with conspicuous clamps, 410 µm in diam, fragmenting and collapsing in sections from dried specimens and not readily separable.
Basidiospores 5.5-7 x 2-3 µm, ovoid to elliptic.
Substrata. On the ground in hard wood forests.
Distribution. Known only from the type locality in Zaire.
Remarks. This is a remarkable species arising from a conspicuous sclerotium and with a fairly large fleshy white pileus and a duplex context with black resinous lines, at least in a dry condition. There is no other species in Africa that can be confused with *A. congoensis*.

AMAURODERMA Murrill,

Bull. Torrey Bot. Cl. 32:366, 1905.

Basidiocarps annual or reviving for a second season, centrallylaterally stipitate, solitary or in small groups with several fused pilei, consistency coriaceous, corky to woody hard, seldom brittle. Pileus round, reniform to fanshaped, concave, umblicate to strongly infundibuliform, upper surface in varying colours from ochraceous, brown to almost black, finely tomentose to glabrous, dull to glossy with a distinct cortex or crust, often concentrically zoned and radially wrinkled, stipe rather thin and long, finely tomentose to glabrous, pore surface whitish to ochraceous when fresh, darkens when dry to brownish to black, pores usually round and entire, medium to small, tubes seldom stratified, context ochraceous to dark brown, hyphal system trimitic, generative hyphae clamped, hyaline and thinwalled, skeletal and binding hyphae hyaline to golden brown or bay, binding hyphae sometimes difficult to find in the trama, cystidia none, spores hyaline to pale yellow, subglobose to cylindrical, large (617 µm long), bitunicate with the inner wall finely asperulate, the wall always uniformly thickened. A tropical genus.

Type species: *Fomes regulicolor* Cooke, = *Amauroderma schomburgkii* Mont. & Berk.

Remarks. The genus is separated mainly by having rounded spores, and not truncate as seen in *Ganoderma* spp. Usually it is easy to separate the two genera in the field, as most *Amauroderma* species have a dull, non-laccate pileus. The following reference gives a general survey of the genus and may be of interest for those interested in its phylogeny: Costa-Rezende, D. H. et al. 2017: Morphological reassessment and molecular phylogenetic analyses of *Amauroderma* s. lat. highlighted other perspectives in the general classification of the *Ganodermataceae* family. Persoonia 39:254-269.

Key to species

1. Pileus shiny and laccate **2**
1. Pileus dull and without a laccate varnish **3**

2. Spores longitudinally crested 12-17 µm long ..... **Haddowia leptopus**
2. Spores reticulate with low ridges, spores 25-33 µm long ..... **Humphreya**

3. Basidiocarps laterally semistipitate, on dead wood, pileus radially veined ..... **A. africana**
3. Basidiocarps centrally stipitate, usually from roots, pileus often with circular zones 4

4. Pileus pale white, ochraceous to pale cinnamon, glabrous **5**
4. Pileus cinnamon to black, glabrous to adpressed tomentose **7**

5. Pores 1-4 per mm ..... **A. expallens**
5. Pores smaller **6**

6. Pores 3-5 per mm, spores elliptic, 10-14 µm long ..... **A. fuscoporia**
6. Pores 7-9 per mm, spores globose, 7-9 µm in diameter ..... **A. albocontexta**

7. Pore surface orange to rusty red when fresh, spores finely ornamented to almost smooth in microscopical preparations ..... **A. aurantiaca**
7. Pore surface differently coloured, spores visibly ornamented in microscopical preparations **8**

8. Basidiocarp up to 2 mm thick **9**
8. Basidiocarp thicker than 2 mm **10**

9. Pileus glabrous, pore surface umber brown, pores 7-8 per mm ..... **A. kwiluensis**
9. Pileus velutinate, pore surface white, pores 3-4 per mm ..... **A. velutina**

10. Consistency very brittle when dry, pileus with stiff brown hairs, small warts or protuberances, otherwise glabrous ..... **A. ealaensis**
10. Consistency hard to tough, pileus glabrous or adpressed velutinate **11**

11. Spores cylindrical to oblong elliptic, 5.5-8 µm wide **12**
11. Spores globose to subglobose, wider than 8 µm **14**

12. Pores irregular from 2 mm wide to 3 per mm, basidiocarps up to 5 cm high ..... **A. minuta**

12. Pores regular, 3-8 per mm, basidiocarps usually higher than 5 cm **13**
13. Spores almost cylindrical 12-18 x 4.5-6 µm, 3-5 pores per mm ..... **A. argenteofulvum**
13. Spores oblong elliptic, 9-12 x 5.5-7.5 µm, 5-8 pores per mm ..... **A. conjunctum**

14. Spores 15-20 µm long ..... **A. grandisporum**
14. Spores shorter **15**

15. Spores 12-17 µm long ..... **A. fasiculatum**
15 Spores 8-12 µm long **16**

16. Pileus infundibuliform, longitudinally wrinkled, black, glabrous ..... **A. infundibuliforme**
16. Pileus flat to convex, black to brown, dull and finely adpressed velutinate, at least in some zones **17**

17. Stipe and pileus velutinate, pore surface white ..... **A. velutina**
17. Stipe and pileus more or less glabrous, pores surface brown **18**

18. Context white to ochraceous, pileus deep brown to black ..... **A. rugosum**
18. Context cinnamon to dark brown, pileus in brown colours **19**

19. Pileus dull to semiglossy, 26 mm thick, spores up to 9.5 µm long ..... **A. sericatum**
19. Pileus dullvelvety to glabrous, up to 1.5 cm thick, spores longer than 9.5 µm ..... **A. preussii**

Amauroderma africana Ryvarden,

Synopsis Fung. 18:57, 2004.
Basidiocarps perennial, pileate, semicircular to dimidiate with a short lateral stipe, dense and fragile when dry, corky to woody, 10 x 8 x 1 cm thick at the base, upper surface dark brown, flat, dull finely adpressed velutinate to almost glabrous in faint zones, strongly radially veined, probably smooth when fresh, pore surface ochraceous darker brown on older parts, pores circular, about 5-6 per mm with thick pore walls; tube layers concolorous with pore surface, up to 1 mm deep without stratification, context white, distinctly paler than the tubes and up to 6 mm thick at the base with numerous black resinous bands or elongated spots in radial direction, cuticle present, dark brown to black and dense, about 400 µm thick.
Hyphal system dimitic; generative hyphae hyaline, thin-walled, with clamps, 2-5 µm in diam, difficult to observe in dried specimens; arboriform skeletal hyphae abundant, thick-walled, hyaline negative in Meltzer's reagent, lower part unbranched in lengths up to 110 µm and then with a few distal branches, up to 10 µm wide in main stem (in 3% KOH) to 3 µm in the thin apices.
Cuticle: 150-200 µm thick consisting of agglutinated, dark brown, thick-walled, hyphal ends out of which some have widened apex, smooth, IKI-.
Basidiospores 8-10 µm in diameter, globose, finely ornamented, pale yellow.
Substrata. Dead wood.
Distribution. Known only from the type locality in Liberia.
Remarks. This is a remarkable species by having a dimidiate to semistipitate basidiocarp and growing on dead wood. Almost all other species in the genus are distinctly stipitate and grow on the ground from dead or living roots.

Amauroderma albocontexta Ryvarden,

Synopsis Fung. 41: 19, 2020.
Basidiocarps centrally stipitate, pileus up to 7 cm wide and centrally depressed, about 2 mm thick, pileus initially white becoming greyish to light ochraceous, glabrous, slightly radially wrinkled when dry, cortex very thin to apparently absent, stipe single to a few together from the same base, up to 7 cm long and 5 mm wide, brown, dull, longitudinally wrinkled when dry, context white below a thin adpressed tomentum below which there is a thin dark cortex, the core dense with a hollow central core and with a faint dark zone between the core and the outer cortex, pore surface ochraceous, pores round,(6) 7-9 per mm, hardly visible to the naked eye, tubes 1 mm deep, ochraceous, context white, about 1 mm thick.
Hyphal system dimitic, generative hyphae with clamps, hyaline, 2-4 µm wide, arboriform hyphae dominate in the basidiocarp, hyaline, up to 6 µm wide in the main stem, non-dextrinoid.
Basidia semi globose, up to 20 µm high and 12 µm wide, tetrasterigmatic.
Basidiospores 7-9 (10) µm in diameter, globose, pale yellowish when mature, finely ornamented, dextrinoid in Melzers solution.
Substrata. On the ground in tropical forest.
Distribution. Cameroon and Gabon.
Remarks. The species is conspicuous by its pure white context.

Amauroderma argenteofulvum (Van der Byl) Doidge,

Bothalia 5:503, 1950. *Polyporus argenteofulvus* Van der Byl, S. Afr. J. Sci. 24:225, 1927.
Basidiocarp annual, centrally stipitate, pileus flat to umbilicate, up to 5 cm wide, up to 12 mm thick, probably pliable when fresh, fragile when dry, pileus glabrous, ochraceous with numerous brown concentric zones, slightly sulcate, zones more narrow towards the margin, which is obtuse and rounded, stipe up to 4 cm long and 1 cm wide, pale cinnamonbrown, adpressed velutinate, in section with a distinct horny, dark zone below the outer thin tomentum, in the core pale ochraceous and of a loose consistency, pore surface ochraceous to dirty brown when dry, pores angular, thinwalled and somewhat irregular in parts, 2-3 per mm, tubes concolorous, up to 9 mm deep, context distinctly duplex, lower part loose and pale ochraceous, white when fresh (according to Van der Byl) above which there are one or two resinous dark lines extending from the stipe to the margin, above which there is a denser adpressed tomentum, up to 2 mm thick, and which may be agglutinated, but without any cuticle.
Hyphal system trimitic, generative hyphae with clamps, 2-3.5 µm wide, binding hyphae abundantly present in the core of the stipe and the context, sparinglybranched with long whip like sidebranches, very thin, mostly 12 µm thick and solid, very paleyellow in KOH, in the trama arboriform hyphae with a long unbranched lower part and a sparingly branched upper part, 2-6 µm wide, often contorted, undulating and randomly oriented, thus the trama is difficult to tease apart.
Basidiospores 13-18 x 4.5-6 µm, cylindrical, long, finely asperulate, pale yellowish.
Substrata. On the ground among grass, but probably connected to roots.
Distribution. A rare species known only from Tanzania, Malawi, Angola, Zambia and Zimbabwe.
Remarks. The species is distinctive in the genus, partly because of its stipe core and context consisting almost exclusively of very thin binding hyphae, but above all by its long cylindrical spores, unusual in the genus. Further, the glabrous umbilicate pileus, large pores and the fragile consistency are good field characteristics.

Amauroderma afro aurantiaca Sharp & Ryvarden, nomen novum IF 559343

Synopsis Fung. 40:109, 2020.
Basidiocarp annual, centrally to laterally stipitate, flat to umbilicate, up to 7 cm wide and 2 mm thick, hard when dry, pileus concentrically zoned in variable shades of brown to deep ochraceus, glabrous intermittent with hairy cover giving it a velutinate texture, slightly and radially wrinkled and slightly shiny in dry condition, cortex thin, dark cinnamon, stipe, single or twin, up to 4.5 cm long and 5 mm wide, hazel brown, sepia brown towards the base, circular to flattened, extending to 3 cm under the ground where connected to tree roots, pore surface bright rust orange, bruises dark red and then slowly changes to black, fading to greyish when dry , pores round, invisible to the naked eye, 7-8 per mm, tubes pale grey, dense, up to 1 mm deep, context light cinnamon brown, up to 1 mm thick, strongly contrasting the differently coloured tubes.
Hyphal system dimitic, generative hyphae with clamps, hyaline 3-6 µm wide, skeletal hyphae 3-6 µm wide, unbranched, pale rusty brown, thick walled to solid, running parallel to the tube wall, sharply pointed in the dissepiments.
Basidiospores 10-12 µm in diameter, globose, hyaline to pale golden brown, very finely ornamented, ornamentation hardly visible at 1000 x magnification, some spores seemingly glabrous in microscopic preparations.
Substrata. On the ground under *Brachystegia spiciformis*.
Distribution. Only known from the type locality in Zambia.
Remarks. The species is above all characterized by the deep orange to red pore surface when fresh which fades to grey when dry, the globose, very finely ornamented spores and the sharply pointed skeletal hyphae.

Amauroderma conjunctum (Lloyd) Torrend,

Broteria ser. Bot. 18:133, 1920. *Polyporus conjunctus* Lloyd, Lloyd Mycol. Writ. 5:812, 1918. *Polyporus eylesii* Van. d. Byl. S. Afr. J. Sci. 24:225, 1927.
Basidiocarp single, annual, mostly laterally stipitate, pileus semicircular to almost round in fused basidiocarps and then stipe apparently central, up to 12 cm wide, 3-15 mm thick, rather hard when dry, pileus first finely tomentose and then soft to touch, soon glabrous and dull, narrow to wide sulcate zones mostly present representing different stages of development, when dry somewhat radially wrinkled, ochraceous to fulvous brown, margin thin to obtuse, flat or distinctly bent down when dry, in section a distinct cortex is present, dark brown, up to 1 mm thick, stipe up to 8 cm long, 3-10 mm wide, dark brown, finely tomentose to glabrous and with a blackish cortex, 100-300 µm thick, context pale cinnamon and dense, pore surface ochraceous when fresh, soon darkening to dull brown, pores 5-8 per mm, round and rather thickwalled, tubes rusty to dull brown, up to 12 mm deep, context homogeneous, dense and pale cinnamon-brown, distinctly lighter than the tubes, up to 5 mm thick.
Hyphal system as in *A. argenteofulvum* with aciculiform, darkcoloured, parallel skeletal hyphae in the trama, but lightcoloured in the context, binding hyphae difficult to observe.
Basidiospores 9.5-11.5 x 6.5-8 µm, elliptic, hyaline to pale yellowish.

Substrata. On the ground.
Distribution. African rare species, seen only from Uganda and South Africa.
Remarks. The species is above all characterized by its oblong elliptic spores.

Amauroderma ealaensis (Beeli) Ryvarden,

Norw. J. Bot. 19:230, 1972. *Polyporus ealaensis* Beeli, Bull. Soc. Bot. Belg. 62:60, 1929.
Basidiocarp annual, solitary or several fused together, pileate, centrally to laterally stipitate, pileus circular to semicircular, in larger fused specimens irregular and lobed, depressed to distinctly umbilicate in centre or towards the stipe attachment, up to 15 cm wide, and 1.5 cm thick, pileus dark brown, first smooth and covered with scattered hyaline to brown, straight or rarely branched stiff hairs, up to 3 mm high, later glabrous and partly wrinkled and folded with radial streaks and striae, stipe single or several may arise from the same base, dark brown, first finely covered with a velutinate light brown tomentum below which there is a dark thin cortex. The latter becomes exposed with age and stipe then more blackish, context of stipe ochraceous and rather dense, pore surface whitishochraceous when fresh, darkening with age, pores angular and often dentate and irregular, thinwalled, 24 per mm, mostly distinctly decurrent on the stipe, tubes concolorous with the pore surface, up to 8 mm deep, very fragile when dry, context ochraceous to corkcoloured with usually only one dark zone arising from the cortex of the stipe and extending to the margin.
Hyphal system di (tri?)-mitic, generative hyphae in the tubes hyaline, 24 µm wide and with scattered clamps, skeletal hyphae arboriform stronglybranched in the upper part, reminiscent of binding hyphae, but have a long unbranched basal part, hyaline to pale yellowish, up to 10 µm wide in KOH, solid to very thickwalled, strongly intertwined and difficult to tease apart.
Basidiospores 8.5-10.5 x 6-8 µm, broadly elliptic, finely asperulate, pale yellowish.
Substrata. On the ground in rain forests.
Distribution. Widespread in the Central African rain forest.
Remarks. This is a distinct species because of its infundibuliform basidiocarp with a hairy cover which partly wears away, the decurrent fragile and partly irregular, moderately large pores and the tubes and context of the same colour.

Amauroderma expallens (Bres.) Furtado, Fig. 3

Rev. *Amauroderma* p. 170, 1968. *Ganoderma expallens* Bres., Mycologia 17:72, 1925.
Basidiocarp annual, centrally or eccentrically stipitate solitary or several basidiocarps arising from the same base and the pilei often fused, pileus circular, semicircular to reniform, flat or slightly depressed in centre or near stipeattachment, up to 8 cm wide and 1 cm thick, woody hard when dry, pileus ochraceous to dirty brown, concentrically zonate, weakly sulcate, glabrous and with an almost invisible crust which is easily dented by a nail,

Fig. 3. *Amauroderma expallens,* photo D. Mossebo.

stipe up to 10 cm long and 5 mm wide, brownish, when young with a very finely velutinate and adpressed tomentum under which there is a distinct dark resinous cortex which with age may become exposed and stipe then more blackish, in the centre of the stipe another dark zone, circular in section, core of the stipe ochraceous and dense, pore surface whitish brown when fresh and young, darkens with age to dull brown, pores thinwalled and angular, somewhat elongated and sinuous towards the stipe, 14 per mm, tubes up to 6 mm deep, concolorous with the pore surface and somewhat darker than the context, context ochre to pale cinnamon, up to 4 mm thick and with two dark resinous lines continuous with those of the stipe, cutis of the pileus very thin.
Hyphal system trimitic, generative hyphae with clamps, 2-4 µm wide, skeletal arboriform, 1-5 µm wide.
Basidiospores 7-9.5 x 6.5-8 µm, globose to subglobose, asperulate.
Substrata. On the ground, probably connected to roots.
Distribution. Kenya, Uganda and Malawi.
Remarks. The large pores are distinctive.

Fig. 4. *Amauroderma fasciculatum*, photo D. Mossebo.

Amauroderma fasciculatum (Pat.) Torrend, Fig. 4

Broteria ser. Bot. 18:139, 1920. *Ganoderma fasciculatum* Pat., Bull. Soc. Mycol. Fr. 11:8687, 1895. *Polyporus trulliformis* Lloyd, Mycol. Writ. (Letter 42) 4:16, 1912.
Basidiocarp annual, pileate with central to mesopodal or lateral stipe, flat to slightly convex with distinct oblique margin, up to 10 cm wide and 1 cm thick, woody hard when dry, pileus dark brown, distinctly zoned and irregularly sulcate with an uneven slightly undulating surface, first pale brown and velutinate (lens) which with age wears away and then the pileus dark brown to almost blackish when the cortex below the tomentum is exposed, margin obtuse and often steep, stipe slender, up to 15 cm high and 3-8 mm wide, first dark brown and dull because of the fine tomentum, then darker and almost blackish, in section with two distinct rings of black resinous zones, the context between the outer one and the inner one, dense and cinnamon to pale brown, in the marrow or core, light ochraceous and in parts hollow, pore surface dark brown, pores, 6-9 per mm almost invisible to the naked eye, tubes concolorous with the pore surface up to 5 mm deep, context white, cinnamon to pale brown, up to 5 mm thick and usually with two distinct black resinous bands and an upper cortex, the latter about 100-200 µm thick.
Hyphal system ditrimitic, generative hyphae hyaline with clamps, in the hymenium and the central core, 2-4 µm wide, skeletal hyphae of two kinds, in the context arboriform, thickwalled, and with a distinct lumen, golden to pale rustybrown, up to 10 µm in the thickest parts, moderately branched, often tortuous and contorted, in the tubes aciculiform, thickwalled to almost solid, rusty brown and parallel with the tubewall, up to 10 µm wide, in the central part of the trama and in the dissepiments often with apical short and acute protuberances, often looking like hooks and spines.
Basidiospores 12-15 x 10-13 µm, broadly elliptic with large and in part irregular warts.
Substrata. On the ground, probably connected to roots.
Distribution. Specimens seen from Sierra Leone, Zaire, Angola, Liberia, Cameroon and Kenya.
Remarks. Macroscopically this species looks like *A. preussii* but microscopically it is distinct and distinguished by its large and coarsely reticulated spores.

Amauroderma fuscoporia Wakefield,

Bothalia 6:948, 1948.
Basidiocarp annual, centrally stipitate, flat to umbilicate, up to 6 cm wide and 4 mm thick, hard when dry, pileus light ochraceous to corkcoloured, rugulose in concentric zones, radially wrinkled in dry condition, cortex very thin to apparently absent, stipe single to a few together from the same base, up to 5 cm long and 5 mm wide, pale brown, longitudinally wrinkled, in section with an outer ultra-thin adpressed tomentum below which there is a thin dark cortex, the core loose and pale, partly missing or collapsed, thus the stipe appears hollow, pore surface dark brown, pores angular and thinwalled, 3-5 per mm, tubes dark brown, dense, up to 4 mm thick, context light cinnamon brown, up to 2 mm thick.
Hyphal system as in *A. oblongisporum* and *A. preussii*, but cortex of the pileus very thin.
Basidiospores 10-14 x 8-11 µm, broadly elliptic to subglobose, finely ornamented, pale yellowish when mature.
Substrata. On the ground.
Distribution. Only the type from Harare in Zimbabwe has been seen.
Remarks. The species is above all characterized by the pale pileus with or without only a very thin cortex, the medium large pores, mostly thinwalled and angular and the umbilicate shape of the basidiocarp. However, microscopically it is identical to *A. preussii* and it may be that the type only represents a young specimen of that species. The latter has uniform small pores mostly 6-8 per mm, almost invisible to the naked eye.

Amauroderma grandisporum Gulaid & Ryvarden,

Mycol. Helvetica 10:27, 1998.
Basidiocarp annual, centrally stipitate, pileus circular up to 8 cm in diameter and 1 cm thick, woody hard when dry and then brittle, flat or depressed towards the centre, surface undulating with radial furrows, possibly smooth when fresh, dark brown in areas covered with adpressed velutinate tomentum alternating with black glabrous concentrically zoned in narrow to wide sulcate zones, in section with a distinct black cortex, stipe dark brown, solitary, sometimes branched, circular to slightly flattened, up to 15 cm high and 8 mm wide, in section with an outer brown tomentum below which there is a thin dark cortex and below that a loose and light ochraceous, almost duplex context which in old specimens collapses partly, and then the stipe becomes hollow in parts, pore surface whitish when fresh, darkening when touched, on drying and with age cinnamon to dark brown, pores thickwalled and small, 4-5 per mm, tubes white, becoming brown at maturity due to developing spores, up to 8 mm deep, context wood coloured paler than the tubes, homogenous.
Hyphal system dimitic, generative hyphae hyaline and with clamps, 2-4 µm wide, skeletal hyphae, unbranched, thickwalled and dark brown, occasionally dichotomously branched.
Basidiospores 15-20 x 14-16 µm, elliptic, finely ornamented, pale yellowish with age.
Substrata. On the ground, probably connected to roots.
Distribution. Known only from the type locality in Burundi,
Remarks. This species characterized by its spores, larger than in any other *Amauroderma* species known from Africa. Macroscopically it is rather similar to *A. oblongisporum,* even if its pores are slightly larger than in that species (5-8 per mm).

Amauroderma infundibuliforme Wakefield,

Bull. Misc. Inf. Kew 1917 p. 309, 1917.
Basidiocarp annual, solitary, pileate with central to lateral stipe, pileus deeply infundibuliform, up to 8 cm deep from the margin to the centre of the pileus, up to 15 cm in diameter and 1 cm thick, 3 cm thick vertically, woody hard when dry, pileus dark brown to almost blackish, dull when dry, laccate when fresh, glabrous, in section with distinct black crust about 100 µm thick, radially wrinkled and plicate, stipe up to 12 cm long and 1 cm wide, olivaceous brown, laccate when fresh, dull and slightly pruinose when dry, in section with distinct black crust, about 100 µm thick, cork to woodcoloured context and a hard dark resinous zone and within that a cream, loose to hollow core, pore surface purplish when fresh, greyishbrown when dry, pores decurrent, round and small, almost invisible to the naked eye 7-9 per mm, tubes concolorous with the pore surface, not especially contrasting the context, up to 30 mm deep, context ochraceous and with two narrow black zones, one arising from the crust of the stipe, the other (upper) is the continuation of the inner resinous zone between the core and context in the stipe.
Hyphal system trimitic, generative hyphae with clamps, 2-4 µm wide, binding hyphae rare, hyaline and with whiplike thin branches, 12 µm wide, skeletal hyphae of two types, in the tubes mostly aciculiform, pale yellowish up to 8 µm, thickwalled to solid, only few arboriform hyphae present, in the stipe and pileus, context dominantly with arboriform hyphae, randomlyoriented and making the context dense and difficult to tease apart, moderately branched.
Basidiospores 8.5-10.5 x 8-9 µm globose to subglobose, pale yellowish.
Substrata On the ground.

Distribution Known only from Uganda and Kenya.
Remarks. In fresh condition the semi laccate surface of the pileus and stipe is a good field characteristic together with the strongly infundibuliform basidiocarp

Amauroderma kwiluensis (Beeli) Ryvarden,

Bull. Jard. Bot. Nat. Belg. 44:70, 1974. *Polystictus kwiluensis* Beeli, Bull. Jard. Bot. Etat. Brux. 8:250, 1930.
Basidiocarp stipitate, pileus circular, flat to slightly depressed centrally, up to 6 cm in diameter, 2 mm thick at the centre, coriaceous to brittle when dry, pileus evenly brown, smooth, glabrous, narrowly zonate, pore surface umber brown in dry condition, pores small and round 7-8 mm, tubes concolorous with pore surface, up to 1 mm deep, context ochraceous to pale cinnamon, lighter in colour than pileus and pore surface, up to 1 mm thick.
Hyphal system trimitic, generative hyphae with clamps, 24 µm wide, skeletal hyphae thickwalled, solid, paleyellow, randomly oriented and occasionally branched, 2-4 µm wide in the trama, up to 6 µm wide in the context.
Basidiospores globose, 8-10 µm in diameter.
Substrata. On the ground.
Distribution. The Democratic republic of Congo and Cameroon.
Remarks. The species is above all characterized by a pale context, a glabrous, papery thin pileus and globose spores.

Amauroderma minuta Ryvarden,

Synopsis Fung. 38:25, 2018.
Basidiocarp centrally to laterally stipitate, up to 5 cm high, pileus circular to almost fan shaped, slightly depressed centrally, up to 3 cm in diameter, 3 mm thick at the centre, coriaceous to brittle when dry, pileus pale to medium brown, smooth, first slightly scrupose then glabrous, faintly zonate, stipe up to 5 cm long, cinnamon brown, smooth when fresh, wrinkled longitudinally when dry, fine scrupose with a fait cuticle in section, pore surface deep ochraceous, pores angular, thin walled, irregular from 2 mm wide to 3 per mm, tubes concolorous with pore surface, up to3 mm deep, context ochraceous up to 1 mm thick with a thin dark brown cuticle towards the pileus surface.
Hyphal system dimitic, generative hyphae with clamps, 2-4 µm wide, arboriform skeletal hyphae thickwalled, 2-8 µm solid, paleyellow, irregularly arboriform with long distances between branching, faintly dextrinoid.
Basidiospores cylindrical, 10-14 x 5-7 µm, smooth, slightly thick-walled.
Substrata and **Distribution.** On the ground, known only from the type locality in Zimbabwe.
Remarks. This is a remarkable species with smooth cylindrical spores. Repeated examinations in Melzers reagent were unable to reveal any irregular spore surface. The spores are otherwise like those of *A. argenteofulvum*, but shorter. The small size, smooth spores, the irregular angular pores and the dextrinoid arboriform skeletal hyphae make the species distinctive.

Amauroderma oblongisporum Furtado,

Revis. *Amauroderma* p. 208, 1968.
Basidiocarp annual, stipitate, single or a few together and then often with fused pilei, stipe mostly lateral, when central, often lobed because the pileus has become fused behind the attachment of the stipe, pileus up to 10 cm wide and 1 cm thick, woody hard when dry and then brittle, pileus circular to semicircular with rounded margin, more rarely fan shaped, flat or slightly depressed towards the centre or stipeattachment, ochraceous, dull cinnamon to deep brown with age, first finely velutinate and then dull, then more glabrous and semiglossy, mostly concentrically zoned in narrow to wide sulcate zones, when dry more or less radially wrinkled, in section with a distinct black cortex, glabrous and exposed in elder parts, stipe dark brown, solitary, sometimes branched, circular to slightly flattened, up to 15 cm high and 8 mm wide, in section with an outer brown tomentum below which there is a thin dark cortex and below that a loose and light ochraceous context which in older specimens collapses and then the stipe becomes hollow in parts, pore surface whitish when fresh, darkening when touched, on drying and with age cinnamon to dark brown, pores thickwalled and small, 5-8 per mm, almost invisible to the naked eye, tubes dark brown, 2-8 mm long, context cinnamon to pale brownish with age, distinctly lighter and looser of consistency than the tubes, in section with 2-3 distinct dark lines, the lower one is the continuation of the cortex from the stipe and thus absent from the central part of the context, the upper one running across the pileus, often slightlydepressed in the centre, thickest in the central part, disappearing towards the margin.
Hyphal system trimitic, generative hyphae hyaline and with clamps, 2-4 µm wide, binding hyphae abundantly present in the core of the stipe, rarer in the context, stronglybranched with long and very thin, whip like branches, mostly 12 µm thick, skeletal hyphae, thickwalled and dark brown running parallel in an agglutinated matrix, 4-10 µm, in the dissepiments as single rounded ends, often slightly swollen, in the context arboriform skeletal hyphae with a moderately branched upper part.
Basidiospores 10-13 x 6-7.5 µm, oblong elliptic, finely ornamented, pale yellowish with age.
Substrata. On the ground.

Distribution. Throughout East Africa from South Africa to Kenya, Uganda and Democratic Republic of Congo.
Remarks. Macroscopically the species is difficult to distinguish from *A. preussii*, but is microscopically separated by longer spores.

Amauroderma preussii (Henn.) Steyaert,

Persoonia 7:107, 1972. *Ganoderma preussii* Henn., Engl. Bot. Jahrb. 14:342, 1891. *Ganoderma sikorae* Bres., in Zahlbr. Annals. Naturh. Hofmus. Wien. 26:157, 1912. - *Ganoderma rubeolum* Bres., Mycologia 17:73, 1925. - *Polyporus salebrosus* Lloyd, Mycol. Writ. 4 (Letter 42) 4:12, 1912. *Polyporus bathei* Lloyd. op.cit. (Letter 43) 4:2, 1912. *Ganoderma puberulum* Pat., Bull. Soc. Mycol. Fr. 30:345, 1914. *Polyporus confragosus* Van der Byl, S. Afr. J. Sci. 24:225, 1927.
Basidiocarp and **hyphal system** as in *A. oblongisporum.*
Basidiospores subglobose, 8-11 x 7.5-10 µm, finely asperulate, pale yellowish when mature.
Substrata. On the ground.
Distribution. Widespread in Africa and specimens have been seen from Ghana, Liberia, Sierra Leone, Cameroon, Zaire, Uganda, Kenya, Tanzania, Angola and Madagascar.
Remarks. See *A. oblongisporum*.

Fig. 5. *Amauroderma rugosum*, photo D. Mossebo.

Amauroderma rugosum (Blume et Nees: Fr.) Torrend, Fig.5

Broteria ser. Bot. 18:127, 1920. *Polyporus rugosus* Blume et Nees: Fr., Elench. p. 74, 1828. *Polyporus rugosus* Blume et Nees, Nova Acta Acad. Caes. Leop. Carol. 13:21, 1826.
Basidiocarp annual, single or in groups from a common base, pileate with a lateral stipe, more rarely central and then because the pileus becomes fused behind the stipe attachment, flat or convex with deflexed margin, up to 10 cm wide and about 1 cm thick, woody hard when dry, pileus deep brown to black, concentrically zoned and slightly sulcate, in dry specimens also somewhat radially wrinkled, in section with a distinct black cortex, about 100-300 µm thick, stipe up to 12 cm high, 3-8 mm thick, glabrous, deep sepiabrown to black, in section with a distinct outer cortex and inner one, between which there is a whitish to pale woodcoloured context, the inner core whitish and in part hollow, pore surface whitish when actively growing and then darkening when touched brown with age and on drying, pores small and isodiametric, 6-9 per mm, tubes pale brown, up to 5 mm deep, context whitish to cinnamon coloured, fibrous and with two black resinous bands, context up to 4 mm thick.
Hyphal system ditrimitic, generative hyphae in the hymenium mostly thinwalled, shortcelled and with clamps, 26

µm wide, in the stipe core and in the context, and most prominent between the two resinous black bands, but also as longer and very wide ones, up to 3-5 µm wide and with slightly thickened walls. skeletal hyphae almost exclusively of the aciculiform type, thus the more fibrous consistency of the context, slightly tortuous, thickwalled to solid, 3-7 µm wide, very pale yellowish, a few are sparingly branched at the end.
Basidiospores 11.5-13 x 10-11 µm, subglobose, finely asperulate, pale yellowish.
Substrata. On the ground.
Distribution. Widespread in tropical Africa.
Remarks. *Polyporus rugosus* was described on the basis of specimens from Java. The type of Blume and Nees is probably lost, but when a neotype is selected, it should be from that island. We have interpreted the taxon as having a deep brown to black, slightly rugulose crust or cortex and a whitish to woodcoloured context. It is a distinct taxon also because of its hyphal system with a lack of true arboriform skeletal hyphae and the irregular and intertwined organization of the skeletal hyphae in the trama.

Amauroderma sericatum (Lloyd) Wakefield,

Kew Bull. 1917:6, 1917. *Polyporus sericatum* Lloyd, Lloyd Mycol. Writ. 3:120, 1912.
Basidiocarp annual, solitary or a few together from the same base, pileate usually with a central stipe, pileus circular to orbicular or semicircular, flat to distinctly umbilicate, rather thin, 26 mm thick, margin often strongly curled in dry specimens, probably flat in fresh ones, rather fragile when dry, pileus dark brown in concentric zones, as the tomentum wears away zone wise, exposed cortex blackish to very deep, in dry condition radially wrinkled and slightly sulcate in the concentric zones, stipe single or a few together, up to 15 cm long and 8 mm wide, dark brown, with age brownishblack and semiglossy, first velutinate, in section with an outer thick cortex up to 200 µm thick, then a cinnamon to pale fulvous context below which there is another black crust and then a hollow medulla or core, pore surface brown, pores small and round 68 per mm, tubes concolorous with pore surface, up to 3 mm deep, context cinnamon to rusty brown, dense and usually with two dark resinous bands, up to 3 mm thick, pileus cortex thin, up to 100 µm thick.
Hyphal system trimitic, generative hyphae with clamps in the hymenium, thinwalled and hyaline, on the stipe and in the tomentum, thickwalled, yellowishbrown and moderately branched, skeletal hyphae of two types, in the tubes aciculiform, unbranched, thickwalled to almost solid brownish, ending up in the dissepiments with rounded apices, up to 10 µm wide in KOH, in the stipe and pileus context arboriform, but with long unbranched segments in the lower part, thus aciculiform, but more tortuous and thickwalled and with a distinct lumen, goldenbrown, up to 10 µm wide in the lower part, sparingly branched with tapering ends in the upper part.
Basidiospores 9-11 x 8-10 µm, subglobose, very finely asperulate and pale yellow in maturity.
Substrata. On the ground.
Distribution. Uganda, Kenya, Tanzania, Cameron, The democratic republic of Congo and Angola.
Remarks. The species is characterized by an umbilicate basidiocarp with a thin pileus with numerous bands in colours from brown and dull to more blackish and being semiglossy. The pileus curls up on drying and is easy to break.

Amauroderma velutina Ryvarden,

Synopsis Fung. 40:101, 2020.
Basidiocarp stipitate, pileus circular, flat to slightly depressed centrally, up to 3 cm in diameter, 2 mm thick at the centre, coriaceous to brittle when dry, pileus evenly brown, finely adpressed velutinate, azonate, pore surface white, pores angular, thin walled, 3-4 per mm, tubes concolorous with pore surface about 1 mm deep, context 0,5 mm, dense, pale ochraceous with a black dense zone below the brown pileus tomentum, towards the stipe duplex with two black zones surrounding a whitish cottony core, stipe smooth, greyish, up to 3 cm long, 2 mm in diameter..
Hyphal system dimitic, generative hyphae with clamps, 2-4 µm wide, skeletal hyphae thickwalled, hyaline, 2-7 µm wide, solid to thick walled, negative in Melzers reagent.
Basidiospores globose, 7.5-9 µm in diameter, slightly dextrinoid.
Substrata. The type was collected on dead wood.
Distribution. Known only from the type locality in Cameroon.
Remarks. The species is above all characterized by its even brown velutinate pileus in section with a black zone below the tomentum besides the white pore surface and tubes. *A. kwiluensis* has similar thin pileus, but is of much darker colours and a glabrous pileus.

AMYLONOTUS Ryvarden,

Norw. J. Bot. 22:26, 1975.
Basidiocarps resupinate-pileate, soft when fresh, brittle and of light weight when dry, pileus yellowish to dark brown, glabrous, irregularly concentric sulcate with a very thin cuticle, pore surface yellowish-brown, pores angular to

sinuous, context cinnamon and thin, hyphal system dimitic, generative hyphae thin-walled and with clamps, skeletal hyphae thick-walled and golden brown, cystidia none, spores elliptic, asperulate and amyloid.
Type species: *A. africanus* Ryvarden.
Remarks. Externally the genus is very similar to *Inonotus* by its brown basidiocarps with a rather brittle and light consistency. However, the clamped generative hyphae rule out any relationship to any genus in the Hymenochaetaceae. *Anomoporia* may be the closest relative but *Amylonotus* is easily separated by its dimitic hyphal system with coloured skeletal hyphae and asperulate spores.

Key to species

1. Basidiocarp cinnamon brown, pores 1-3 per mm, spores 3-4 µm wide ..... **A. africanus**
1. Basidiocarp yellow to cream, pores 3-4 per mm, spores 2-3 µm wide..... **A. flavus**

Fig. 6. *Amylonotus africanus*, photo D. Mossebo.

Amylonotus africanus Ryvarden, Fig. 6

Norw. J. Bot. 22:27, 1975**.**
Basidiocarps resupinate to effused reflexed with narrow, elongated pileus up to 3 cm wide, 10 cm long, and 3 cm thick at the base, soft when fresh, coriaceous to brittle and of brittle consistency when dry, pileus first finely tomentose, by age almost smooth, irregularly sulcate in concentric ones, cinnamon to dark brown, margin sharp and undulating, pore surface cinnamon with brighter sterile margin, pores angular to sinuous, thin-walled, 1-3 per mm, tubes concolorous with pore surface, up to 3 cm thick, usually stratified in larger specimens, context lacking or up to 1 mm thick, light cinnamon.
Hyphal system dimitic, generative hyphae hyaline, thin- walled and with clamps at the septa. 1.5-3 µm in diameter, skeletal hyphae mostly flexuous, thick-walled and yellowish brown, 2.5-6 µm in diameter.
Basidiospores 3.5-5 x 3-4 µm, elliptic to globose hyaline to very light yellowish, thin-walled, finely asperulate and blue to violet in Melzer's solution.
Substrate. On hardwoods, several times collected on *Octea usambarensis* (East African camphor) at high altitudes in Kenya and Tanzania, widespread in the Miombo zone further south.
Remarks. The species is microscopically easy to recognize because of the asperulate amyloid spores and the dimitic hyphal system with clamped generative hyphae. Externally it may remind one of an *Inonotus* sp. In many specimens the pore surface was receding leaving part of the old pore surface behind surrounded by a light yellowish sterile zone.

Amylonotus flavus (Ryvarden) Ryvarden,

Prelim. Polyp. Fl. East Africa p. 241, 1980. - *Anomoporia flava* Ryvarden, Norw. J. Bot. 22:29, 1975.
Basidiocarp solitary, annual, pileate, dimidiate to broadly attached, up to 3 cm wide and 8 cm long in effused elongated specimens and 4 mm thick, soft when fresh, rather fragile when dry, pileus yellow when fresh, fading to pale yellowish-brown or ochraceous when dry, finely velutinate to almost glabrous partly with scattered tufts of raised hyphae and some few radial striae, weakly zonate to almost azonate, pore surface ochraceous to yellowish-brown, pores first entire, thin-walled and mostly angular 3-4 per mm, with age partly slit and widened and in parts up to 1 mm wide, tubes concolorous with tubes, up to 2 mm deep, context whitish to cream, finely fibrous, up to 2 mm thick.
Hyphal system dimitic, generative hyphae thin-walled to slightly thick-walled and with clamps, 2-4.5 un wide, in the context wider and up to 6 µm wide, both in trama and context a few gloeopleurous hyphae present with oily to granular content staining blue to grey in Melzer and with a few clamps, 3-5 µm wide. Skeletal hyphae sparingly present in the trama.
Spores 3-4 x 2-3 µm, broadly elliptic to subglobose, hyaline, thin-walled, smooth when viewed in a light microscope (finely warted when viewed in a scanning electron microscope) and amyloid.
Distribution. Ghana, Cameroon, Uganda, Kenya, and Tanzania.
Remarks. The yellowish colour is distinctive when the basidiocarps are fresh. Microscopically the amyloid spores are distinctive. The gloeopleurous hyphae are not always easy to find. The species is probably widespread in Africa.

AMYLOSPORUS Ryvarden,

Norw. J. Bot. 20:1, 1973.
Basidiocarp terrestrial or lignicolous, stipitate to sessile, pileus ochraceous to buff, context white to pale brown, pores small and entire, hyphal system dimitic, generative hyphae hyaline thin walled both with simple cross walls and clamps, often on the same hyphae, skeletal hyphae hyaline, thick-walled to almost solid, unbranched or moderately branched, gloeopleurous hyphae present, often difficult to demonstrate, cystidia absent, spores elliptic, smooth or finely warted, amyloid in Melzer´s reagent
Type species: *Tyromyces graminicola* Murrill.
Remarks. *Amylosporus* is a rather distinct genus with its stipitate basidiocarps and a dimitic hyphal system with two types of septation on the generative hyphae, a rather rare characteristic among the polypores.

Amylosporus campbellii (Berk.) Ryvarden, Fig. 7 & 8

Norw. J. Bot. 24:217, 1977 *Polyporus campbellii* Berk., Hook. J. Bot. 6:228, 1854. *Tyromyces graminicola* Murrill, Tropical polypores p. 21, 1915.
Basidiocarp annual, pileate, up to 15 cm wide in single specimens, centrally to laterally stipitate to almost sessile and then dimidiate with a more or less fan shaped basidiocarp, pileus circular to irregular, frequently lobed and incised and undulating, single or in clusters, soft when fresh, drying light and brittle, pileus finely velutinate and soft to touch, whitish when fresh, drying buff to ochraceous, in older parts with darker spots and here often with a very thin pellicle, stipe short to almost absent, usually tapering to a rootlike base, up to 6 cm high, indistinctly intergrading with the pileus, ochraceous to dirty brown, often spot wise, finely velutinate to smooth as the outer hyphae agglutinate with age, pore surface ochraceous to buff, pores round to angular on horizontal parts of the pileus, 24 per mm, lacerate to sinuous on sloping parts and on the upper part of the stipe, up to 1 mm long, tubes concolorous with pore surface, ochraceous when fresh, pale resinous brown when dry and then brittle, up to 10 mm deep, context white to ochraceous, homogenous, soft when fresh, slightly compressible when dry, but rather dense, up to 2 cm thick towards the stipe.
Hyphal system dimitic, generative hyphae mostly with simple septa, in the trama thinwalled and mostly 3-8 µm wide, in the context frequently up to 12 µm in a few cases up to 15 µm wide, simple septate or with single or double clamps, skeletal hyphae common, thickwalled, pale golden yellow, unbranched or with a few branches in the context and here up to 8 µm wide, in the trama more contorted and narrower, 3-5 µm wide mostly.
Gloeopleurous hyphae mostly confined to the context, almost hyaline to yellowish with an oily to granular content, 614 µm wide, thin walled or with distinctly thickened walls, long.
Basidiospores 4-5 x 2.5-4 µm, broadly elliptic to ovoid, thinwalled, under light microscope appearing smooth or with very fine warts (observe in cotton blue or Melzer's), slightly to strongly amyloid.
Substrata. On the ground in grasslands, probably a grassparasite.
Distribution. Widespread in the tropical zones. In Africa known from Kenya, Tanzania and Burundi.
Remarks. The whitish to ochraceous basidiocarps growing in grasslands, often with an irregular tapering base, should be a good field characteristic. It could be confused with *Abortiporus biennis*, but this species has smooth, non-amyloid spores and large irregular pores.

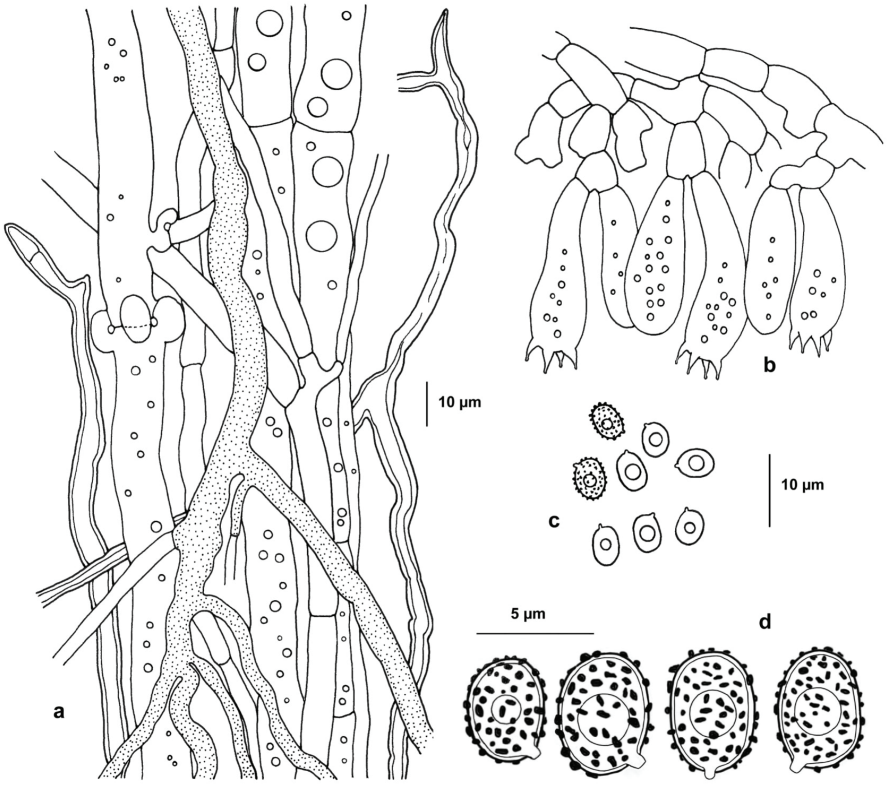

Fig. 7. *Amylosporus campbellii* a) section of tubes, b) hymenium, c) spores in different magnification, Coll. R. Genovese 205, Del. I. Melo.

Fig. 8. *Amylosporus campbellii*, photo R. Genovese.

ANTRODIA P. Karst.,

Medd. Soc. Fauna Fl. Fenn. 5:40, 1880.

Basidiocarps annual, more rarely perennial, mostly resupinate, more rarely pileate, light coloured, white, cream to tancoloured, hyphal system dimitic, generative hyphae thin walled, hyaline and with clamps at the septa, skeletal hyphae thickwalled to solid, hyaline, mostly nonamyloid, rarely with a weak and variable amyloid reaction, spores cylindrical, allantoid to oblong elliptic, hyaline, thinwalled, smooth and nonamyloid. All species with a brown rot.

Type species: *Antrodia serpens* (Fr.) P. Karst.

Remarks: The genus is here emended as in Ryvarden & Mel 2014 to include mostly resupinate dimitic species with clamped generative hyphae and hyaline skeletal hyphae and causing a brown rot. The genus is generally most widely distributed in temperate and boreal zones, especially in the boreal conifer zone. Relatively few species occur naturally in the tropics.

NB. All spores in the genus are hyaline, thin walled, smooth and negative in Melzer´s reagent, and thus, this information is not repeated for each species.

Key to species (see also *Diplomitoporus* if uncertain on type of rot).

1. Spores predominantly longer than 7 µm **2**
1. Spores shorter than 7 µm **4**

2. Spores longer than 10 µm, in Africa predominantly on hard woods ..... **A. heteromorpha**
2. S. spores shorter than 10 µm, on coniferous wood in plantations **3**

3. Pores surface brownish, pores angular to irregular 1-2 per mm ..... **A. variiformis**
3. Pore surface cream-cork-coloured, pores round to angular, 2-4 per mm ..... **A. serialis**

4. Pores large, irregular, sinuous to daedaleoid, 1-3 mm wide, on *Juniperus procera* **5**
4. Pores small, regular or sinuous, rarely above 1 mm wide **6**

5. Spores 6.5-9.0 x 2.5-3.5 µm ..... **A. juniperina**
5. Spores 5-6 x 2.5-3 µm ..... **A. afrosinuosa**

6. Spores lunate-allantoid. ..... **Sidera lenis**
6. Spores elliptic, 3-4 µm wide **7**

7. Basidiocarp dirty brown, often patch wise and with resinous substances making the pore walls dense and fragile, pores angular and entire ..... **A. oleracea**
7. Basidiocarp white to cream, coriaceous to brittle, pores sinuous and irregular ..... **A. daedaliformis**

Antrodia afrosinuosa Ryvarden,

Synopsis Fung 39:59, 2019.
Basidiocarps annual, resupinate, effused, up to 10 cm wide, 5 cm wide and 5 mm thick, tough when dry, margin golden yellow, 1-2 mm wide, white, finely floccose, pore surface white when fresh, becoming cream when dry, pore surface irregular – dentate, poroid, daedaleoid, pores 1-2 mm wide context almost inviable, white.
Hyphal system dimitic; generative hyphae with distinct clamps, 2-4 µm in diam; skeletal hyphae hyaline, thick walled, 3-5 µm wide scattered encrusted in the dry type.
Basidiospores 5-6 x 2.5-3 µm, elliptic.
Substrata. On dead log of *Juniperus procera*.
Distribution. Known only from the type locality in Ethiopia.
Remarks. This is a beautiful species with its irregular pores and even pale golden yellow to cream surface. It looks like an enlarged *A. sinuosa* from the Northern hemisphere but this species has cylindrical spores.

Antrodia conchata D. A. Reid,

Bothalia 11:222, 1974.
Basidiocarps annual, resupinate to effused reflexed with a pileus up to 0.6 cm wide, pileus ochraceus becoming darker to almost black at the base at age, tough when dry; upper surface white to cream, initially matted and adpressed-velutinate, becoming glabrous in zones, at first azonate, later often distinctly zonate, either smooth or slightly sulcate, margin sharp; pore surface white to cream, pores often variable, in distinctly resupinate basidiocarps and often also on horizontal parts of the pileus rather regular, angular, 2-3 per mm, on sloping substrates often sinuous and elongated, but also semi-lamellate in some cases, often all types of hymenophore are present in the same collection; context white and tough, rarely above 3 mm thick at the base; tube layer concolorous, up to 1.5 cm thick.
Hyphal system dimitic; generative hyphae with clamps, in the context and parts of the trama, thin to distinctly thick-walled, 2-5 µm in diam, in the subhymenium thin-walled, mostly 2-4 µm in diam; skeletal hyphae thick-walled to almost solid, hyaline, unbranched to rarely dichotomously branched, 3-6 µm in diam.
Basidiospores 7.5-12 x 3.2-4 µm, cylindrical.
Substrata. Collected on stump of *Populus* sp., an introduced species to Africa.
Distribution. Known only from the type locality in the Cape Province in South Africa.
Remarks. The species is close to *A. heteromorpha,* but is separated by narrower spores.

Antrodia daedaliformis (Henn.) Ryvarden,

Preliminary Polyp. Flora East Africa p. 250, 1980. - *Poria daedaliformis* Henn., Englers Bot. Jahrb. 28:321, 1900.
Basidiocarp annual, resupinate, type specimen about 2 cm long, 5 mm wide and 1 mm thick, pore surface cream, pores sinuous and irregular, elongate and up to 1 mm long 2-3 pores per mm in a longitudinal direction tubes up to 1 mm deep, often like crevices, context white and thin.

Hyphal system dimitic, generative hyphae clamped, 2.5-4 µm in diameter, skeletal hyphae up to 5 µm wide.
Basidiospores 6-7 x 3-4 um, cylindrical to oblong elliptic.
Distribution. Only the type from Usambara in Tanzania has been examined.
Remarks. This species is related to *A. sinuosa*, but is separated by smaller pores and larger spores.

Antrodia gossypium (Speg.) Ryvarden,

Norw. J. Bot. 20: 8, 1973. *Poria gossypium* Speg., Ann. Mus. Nac. Hist. Nat. Buenos Aires 6: 169, 1899. – *Fibroporia gossypium* (Speg.) Parmasto, Consp. Syst. Cort. p. 177, 1968.
Basidiocarps annual, resupinate, often widely effused, up to 5 mm thick, separable, soft to cottony, no distinct taste, margin white and wide, rhizomorphs absent or present; pore surface at first white to cream, with age drying straw to creamcoloured, pores angular, 3-6 per mm; context white and cottony and especially in old specimens contrasting with the darker tubes; tube layer concolorous with pore surface, rather waxy and brittle when dry, in older basidiocarps appearing as if partly soaked by some resinous substance, up to 3 mm thick.
Hyphal system dimitic; generative hyphae with clamps, thin-walled, 3-6 µm in diam, predominant in the trama; skeletal hyphae scattered in the trama, more common in the context, straight, hyaline, thick-walled, nonamyloid, thick-walled to solid, 3-5 µm in diam.
Basidiospores 4.5-6 x 2.2-2.8 µm, elliptic, often with small oily inclusions.
Chlamydospores 8-9 x 6-8 µm, rare in the subiculum, thick-walled, smooth and non-amyloid.
Substrata. On dead wood of conifers such as *Abies alba, Larix, Picea* and *Pinus*, rarely on hardwoods.
Distribution. On coniferous trees on all continents, including Africa.
Remarks. Macroscopically distinct when rhizomorphs are present, microscopically when the chlamydospores are observed.

Antrodia heteromorpha (Fr.: Fr.) Donk,

Persoonia 4: 339, 1961. *Daedalea heteromorpha* Fr.: Fr., Syst. Mycol. 1: 340, 1821. - *Daedalea albida* Fr., Observ. Mycol. 1: 107, 1815. - *Daedalea albida* Fr.: Fr., Syst. Mycol. 1: 338, 1821. - *Antrodia albida* (Fr.: Fr.) Donk, Persoonia 4: 339, 1966.
Basidiocarps annual, pileate to resupinate, often effused-reflexed or as numerous narrow imbricate pilei on a decurrent pore surface, individual pilei rarely above 3 cm wide, as shelflike structures often elongated to 8 cm or more, tough when fresh, slightly harder when dry; upper surface white to cream, initially matted and adpressed-velutinate, becoming glabrous in zones, at first azonate, later often distinctly zonate, either smooth or slightly sulcate, margin sharp; pore surface white to cream, pores often variable, in distinctly resupinate basidiocarps and often also on horizontal parts of the pileus rather regular, angular, 13 mm wide, on sloping substrates often sinuous and elongated, but also semi-lamellate in some cases, often all types of hymenophore are present in the same collection; context white and tough, rarely above 3 mm thick at the base; tube layer concolorous, up to 1.5 cm thick.
Hyphal system dimitic; generative hyphae with clamps, in the context and parts of the trama, thin to distinctly thick-walled, 2-5 µm in diam, in the subhymenium thin-walled, mostly 2-4 µm in diam; skeletal hyphae thick-walled to almost solid, hyaline, unbranched to rarely dichotomously branched, 3-6 µm in diam.
Basidiospores 10-14 (-16) x 3.5-5 µm, cylindrical, often rather variable within the same collection.
Substrata. Numerous genera of hardwoods, rarely on conifers.
Distribution. Very widespread in Africa, specimens have been seen from the Sudan, Kenya, Tanzania, Zimbabwe and Zaire, but probably found throughout the Continent, Europe, Asia and America.
Remarks. The hymenophore is often confusing – it may be purely poroid or purely lamellate in different collections and, in some cases, both types may be present with intermediate structures. The large spores will usually be sufficient to separate it from the other species of *Antrodia* on hardwoods. Recent studies based on DNA sequencing have shown that *A. albida* is a taxonomic synonym of *A. heteromorpha*, which at least in Europe, was thought to be a species restricted to coniferous wood.

Antrodia juniperina (Murrill) Niemelä & Ryvarden,

Trans. Brit. Mycol. Soc. 65: 427, 1975. *Agaricus juniperinus* Murrill, Bull. Torrey Bot. Club 32: 85, 1905.
Basidiocarps perennial, effused to reflexed with nodulose or round edged pilei projecting up to 4 cm from the substrate, tough to woody, adnate, upper surface pale buff to cork coloured, weathering to buff or even pale brown, becoming glabrous and encrusted, grey to black in old specimens, margin white and distinct; pore surface white to pale ochraceous, pores angular to sinuous on sloping substrata, 13 mm wide, often split by age and in parts daedaleoid to labyrinthine; tubes concolorous, up to 4 cm deep; context cream coloured and corky, to 2 cm thick.
Hyphal system dimitic; generative hyphae with clamps, thin-walled; 2-4 µm wide, sometimes with a more thickened wall; skeletal hyphae hyaline, thick-walled, straight to sinuous, unbranched to rarely dichotomously branched 3-5 µm wide; also some thick-walled vesicular cells (chlamydospores), spherical to elliptic, up to 10 µm in diameter.

Basidiospores 6.5-9.0 x 2.5-3.5 µm, cylindrical to narrowly elliptic.
Substrata. In Africa only found on *Juniperus procera.*
Distribution. Ethiopia, Kenya and Tanzania. Known from South East Europe, central Asia and western North America.
Remarks. Normally easy to recognize because of the host and the large pores.

Antrodia malicola (Berk. & M. A. Curtis) Donk,

Persoonia 4: 339, 1966. *Trametes malicola* Berk. & M. A. Curtis, J. Acad. Nat. Sci. Philadelphia II, 3: 209, 1856.
Basidiocarps annual to biennial, resupinate to effusedreflexed, less often sessile, individual pilei projecting up to 1.5 cm from the substrate, mostly developed along the upper edge of an effused and decurrent pore surface, but also as nodulose to imbricate pilei on almost vertical substrates, tough to corky, hard when dry, separable; upper surface of pilei pale wood brown, becoming greyish to blackish with age, at first finely tomentose, soon agglutinated and glabrous, sometimes more scrupose from hyphal tufts, margin acute to rounded; pore surface uniformly pale cinnamon to wood brown, pores circular and regular, 3-4 per mm on horizontal parts of the pilei, commonly more irregular, angular to sinuous, 2-3 per mm, in parts also larger and daedaleoid, up to 34 mm long and about 1 mm wide, often with sinuous dissepiments; context pale wood brown, tough-fibrous, 12 mm thick; tube layer concolorous or paler, up to 5 mm thick; taste mild.
Hyphal system di- to trimitic; generative hyphae with clamps, hyaline, thin-walled to slightly thick-walled in the context, difficult to observe in the latter, 24 µm in diam; skeletal hyphae predominant, semisolid to thick-walled, straight to sinuous, non-septate, usually unbranched, occasionally more branched, 2-5 µm in diam; narrow binding hyphae rare, solid, much branched with short branches 2-3 µm in diam.
Basidiospores 7-9 x 3-4 µm, cylindrical and usually arcuate close to the apiculus.
Distribution. Widespread in Africa from Kenya and south to South Africa. Rare in Europe and North America.
Remarks. The uniform, pale brown colour separates this from the other *Antrodia* species treated here. Typically, there will be a brown narrow elongated pileus along the upper part of the basidiocarp. *A. heteromorpha* is also common on hardwoods but differs macroscopically in its paler, cream-coloured to buff basidiocarps.

Antrodia olreacea (David. & Lombard) Ryvarden,

Prel. Polypore fl. East Africa p. 252, 1980. - *Poria oleracea* Davids. & Lomb. Mycologia 39:317, 1947.
Basidiocarps annual, resupinate, widely effused, up to 7 mm thick, adnate, soft when young, resinous dense and brittle to tough when dry, slightly bitter in taste, margin 13 mm wide, cream to very pale corkcoloured, apparently absent in old specimens, pore surface woodcoloured when young, when touched or after drying becoming pale dirty brown often patch wise and in places umber brown, pores 3-5 per mm, angular and thinwalled or larger as the basidiocarp shrinks during drying and partly curls up and cracks slightly leaving some pores more sinuous and angular, this is especially the case with thicker basidiocarps, the pores are mostly thinwalled and angular, tubes concolorous with pore surface or resinous brown and dense, up to 6 mm deep and in some cases faintly stratified, subiculum thin, corkcoloured and not impregnated with resinous substances as the rest of the basidiocarp.
Hyphal system dimitic, generative hyphae hyaline and with clamps, mostly 2-3.5 µm wide, skeletal hyphae thick walled to almost solid, 3-5 µm wide, dominating in the basidiocarp.
Basidiospores 5.5-7.5 x 2-3 µm, cylindrical to oblong elliptic.
Distribution. Specimens only seen from Kenya.
Remarks. The species is usually easy to recognize because of the dirty brown colour and the partly shrunken resinous brittle basidiocarp.

Antrodia serialis (Fr.) Donk,

Persoonia 4: 340, 1966. *Polyporus serialis* Fr., Syst. Mycol. 1: 370, 1821.
Basidiocarps annual to biennial, resupinate to effused reflexed, with nodulose or more densely imbricate pilei, usually 2-10 mm wide, often elongated along the substrata for a metre or more, tough and easily peeled off in one piece, taste slightly bitter in fresh condition, margin white, narrow and distinctly limited towards the substrate; upper surface of pilei ochraceous to pale cinnamon brown, finely tomentose, glabrous with age, faintly zonate, individual pilei rarely over 6 mm thick; pore surface white to corkcoloured or buff, with age more sordid brown and often discoloured in red shades by hyphomycetes, old dead basidiocarps often attacked by insects leaving granular excretions clinging to the pore surface by thin cobwebby threads, pores circular, 2-3 per mm, with thick dissepiments; context white to ochre, tough-fibrous, azonate, 1-4 mm thick; tube layer concolorous with context, up to 5 mm thick.
Hyphal system dimitic; generative hyphae thin-walled, hyaline, with clamps, 24 µm in diam; skeletal hyphae dominating, semisolid to thick-walled, hyaline, nonseptate, mostly straight, but occasionally dichotomously branched, 2-5 µm in diam.

Substrata. On dead conifers such as *Abies, Larix, Picea* and *Pinus*, rarely on hardwoods.
Distribution. In Africa known from conifer plantations. Circumglobal in coniferous forest ecosystems.
Remarks. Basidiocarps are tougher than those of most other species treated here, and the basidiocarps can usually be peeled off the substrate without difficulty. This and the narrow pale brown pileus are good field characters.

Antrodia sinuosa (Fr.) P. Karst.,

Meddel. Soc. Fauna Fl. Fenn. 6: 10, 1881. *Polyporus sinuosus* Fr., Syst. Mycol. 1: 381, 1821.
Basidiocarps annual, resupinate and often widely effused, tough and hard when dry, up to 3 mm thick, separable, taste resinous and bitter, margin white, fimbriate, narrow to almost lacking; pore surface ivory white to wood coloured or pale sordid brown on drying, pores angular to sinuous, 13(-4) per mm, dissepiments entire to dentate, in drying often cracking and split to semi deadaleoid; subiculum cottony-tough, white, about 1 mm thick; tube layer concolorous with subiculum, up to 5 mm thick.
Hyphal system dimitic; generative hyphae with clamps, thin-walled, hyaline, 2-4.5 µm in diam; skeletal hyphae hyaline, thick-walled to semisolid, sinuous to straight, occasionally branched, 2-5 µm in diam, more common in subiculum than in trama.
Basidiospores 4-6 (7) x 1-2 µm, cylindrical to suballantoid.
Substrata. In Africa seen only on dead *Pinus*. In other parts of the world on numerous coniferous hosts.
Distribution. In Africa only seen in conifer plantations. Common and circumpolar in the boreal conifer zone.
Remarks. Usually easy to recognize in the field because of the irregular pores, often with dentate dissepiments, and the pale sordid brown colour when dry.

Antrodia variiformis (Peck) Donk,

Persoonia 4:340, 1966. - *Polyporus variiformis* Peck, N.Y. State Museum Ann. Report, 42:122, 1889.
Basidiocarps pileate to resupinate, annual to perennial, often widely effused, tough and coriaceous when dry, when pileate with a narrow sloping pileus, often elongated along the decurrent pore surface, up to 1 cm wide, light brown and finely pubescent, more glabrous with age and then with some weak concentric zones, pore surface light brown, pores angular, 1-2 per mm on sloping substrate, often split and sinuous and then longer, up to 3-4 mm long, pore mouths often dentate with age, tubes whitish to pale brown, up to 6 mm deep, context or subiculum white to pale brownish, very thin, rarely over 1 mm thick.
Hyphal system dimitic, generative hyphae thin to slightly thick-walled, and with clamps, 2-4 µm wide, skeletal hyphae dominating, thick-walled, slightly tinted yellow, often almost solid, up to 6 µm wide, mostly straight, less frequent somewhat flexuous and dichotomously branched or with short lateral protuberances.
Basidiospores 8-10(11) x 2.5-4 µm, cylindrical.
Substrate. In Africa seen only in conifer plantations.
Distribution. In Africa only noted from Kenya and Zimbabwe on pines.
Remarks. The species is easy to recognize by the light warm brownish fruitbodies with the large angular pores and large cylindrical spores. Often a narrow brownish pileus is present along the upper edge of the basidiocarp.

Antrodia xantha (Fr.: Fr.) Ryvarden,

Norw. J. Bot. 20: 8, 1973. *Polyporus xanthus* Fr.: Fr., Syst. Mycol. 1: 379, 1821.
Basidiocarps annual, resupinate, often widely effused, up to 5 mm thick, adnate, soft when fresh, crumbly and chalky when dry, bitter in taste, margin narrow and white; pore surface pale citric to sulphurous yellow to cream when fresh, fading on drying and storing to almost pure white or pale cream, smooth when young, when older characteristically cracking into square pieces 5-15 mm long and wide, pores circular, 5-7 per mm; subiculum thin and white, chalky; tube layer pale yellowish cream to white, up to 3 mm thick, when fresh with a smell of lemon scented soap.
Hyphal system dimitic; generative hyphae with clamps, thin-walled, hyaline, 2-4 µm in diam; skeletal hyphae predominant, semisolid, straight to slightly sinuous, 3-6 µm in diam, weakly amyloid, but reaction variable and most easily seen in hyphal masses in fresh condition and when a drop of Melzer´s reagent is placed on the pore surface.
Basidiospores 4-5 x 1.2-1.5 µm, allantoid.
Substrata. In Africa seen only on dead *Pinus.*
Distribution. Common in the boreal conifer zone besides conifer plantations, such as in Kenya and Zimbabwe.
Remarks. The characteristic cracking and the lemon to pale sulphurous colour are good field characteristics. Old and faded specimens without cracking may be recognized by the weak amyloid reaction of the skeletal hyphae and the allantoid spores.

ANTRODIELLA Ryvarden & Johansen,

Preliminary Polypore Flora East Africa p. 256, 1980.
Basidiocarps resupinate to pileate, resupinate, effused reflexed, broadly attached to fan shaped and semistipitate, waxy soft when fresh, dense and hard and often semi translucent when dry, pileus if present, ochraceous to dark chestnut, velutinate, smooth to scrupose, pore surface light ochraceous to straw-coloured when dry, pores angular, more commonly entire and small, tubes concolorous with the pore surface, context white to pale straw-coloured becoming very dense with black lines and zones with age in many species, hyphal system dimitic, generative hyphae with clamps, skeletal hyphae mostly narrow, hyaline thick-walled to solid, usually unbranched, more rarely with a few scattered branches, cystidia usually absent, present in some few species, basidiospores small, rarely above 5 µm in longest dimension, subglobose, elliptic to allantoid, thin-walled, hyaline and non-amyloid. On dead wood.
Type species: *Polyporus semisupinus* Berk. & M. A. Curtis.
Remarks. The genus is characterized by a dimitic hyphal system, and small, hyaline and thin walled basidiospores, usually less than 5 µm long. All species have a white rot, and undoubtedly, the genus is close to *Junghuhnia* which is characterized by the presence of encrusted skeletal cystidia. Otherwise the two genera are virtually identical.
NB As all species have tetrasterigmatic basidia with basal clamps and all spores are hyaline, thin-walled and non-amyloid, thus, this information is not repeated for each species.
The species concepts have changed considerably lately by splitting of old species concepts. The following species is considered appropriate at this stage.

Key to species

1. Basidiocarps resupinate..... **A. hunua**
1. Basidiocarps pileate **2**

2. Spores allantoid to cylindrical..... **3**
2. Spore different..... **7**

3. Spores allantoid..... **4**
3. Spores cylindrical **5**

4. Spores 4-4.5 x 1-1.3 µm..... **A. duracina**
4. Spores 3-3.5 x 0.7-1 µm ..... **A. allantoidea**

5. Spores 8-10 x 3-4.5 µm ..... **A. longispora**
5. Spores shorter **6**

6. Spores 5-7 x 2-2.5 µm, navicular to cylindrical, pileus ochraceous..... **A. ochracea**
6. Spores 4-5 x 2-2.2 µm, cylindrical, pileus white ..... **A. alba**

7. Pileus velutinate to hirsute at least in some zones..... **8**
7. Pileus glabrous **11**

8. Context duplex with dark zones **9**
8. Context homogenous..... **10**

9. Spores 5-6 x 4-5 µm, subglobose..... **A. duplexa**
9. Spores 3-3.5 x 2-2.5 µm, elliptic ..... **A. hydrophila**

10. Pore surface cream to yellow..... **A. xantha**
10. Pore surface ochraceus..... **A. liebmannii**

11. Pore surface citric yellow ..... **A. afrocitrina**
11. Pore surface differently coloured **12**

12. Pore surface white when fresh, almost black to grey when dry **13**
12. Pore surface whitish to yellow 1..... **4**

13. Pores 8-10 per mm ..... **A. subnigra**
13. Pores 3-5 per mm ..... **A. nigropora**

14. Context duplex lower part white, upper citric yellow ..... **A. bicontexta**
14. Context more or less homogenous **15**

15. Pores partly irregular, 3-4 per mm or larger, spores 5-7 µm long..... **A. irregularis**
15. Pores round and regular, 4-7 per mm, spores shorter than 4 µm **16**

16. Pore surface white to pale cream, pores 4-6 per mm ..... **A. cinerea**
16. Pore surface yellowish, 6-7 pores per mm ..... **A. xantha**

Antrodiella afrocitrina Ipulet & Ryvarden,

Synopsis Fung. 20: 88, 2005.

Basidiocarps annual, resupinate to effused reflexed with an tendency to be connected to the substrate by an umbo, thus appearing almost pendant when loosened from the substrate, dense and hard when dry, up to 1 cm wide, 2 cm long and 4 mm thick, pileus pale citric yellow, up to 1 cm wide, dull and glabrous, more or less smooth, pore surface citric yellow, pores thin-walled, round to more commonly angular and in part of irregular shape on sloping parts of the pore surface, 4-6 per mm, almost invisible to the naked eye, tube layer concolorous, up to 1 mm deep, subiculum 2 mm thick, ochraceous and distinctly paler than the tubes..
Hyphal system dimitic, generative hyphae with clamps hyaline, 3-4 µm wide, skeletal hyphae unbranched, thick-walled to almost solid, 3.5-5 µm in diam.
Basidia clavate, 4-sterigmate, 8-10 - 4-5 µm with a basal clamp.
Basidiospores globose, thin-walled, smooth, 2.5-3 µm in diameter.
Distribution. Known only from the type locality in Uganda.
Remarks. The species is conspicuous because of the bright citric yellow colour, the semipendant attachment and the small globose basidiospores.

Antrodiella allantoidea Decock & Ryvarden nova species IF 558557.

Holotype: Kenya, Mt. Elgon, guest house area, N 01.04468, E 034.78595, ~ 2170 masl, on dead standing tree, 31 Mar 2016, Cony Decock, Ke-16-117 in Fungarium MUCL, isotype in O.
Basidiocarps annual, pileate, sessile, up to 1 cm wide, 3 cm long and 8 mm thick, tough when fresh, woody hard and dense when dry; pileus white to pale ochraceous, azonate, slightly wrinkled to reticulated when dry (smooth when fresh), glabrous, dull, margin sharp; pore surface white to pale ochraceous; pores round, thick walled, 7-9 per mm; tubes dense, concolorous with the pores surface, up to 1 mm deep; context white, azonate, dense up to 2 mm thick at the base.
Hyphal system dimitic; generative hyphae with clamps, delicately thin-walled, 2-3 µm wide; skeletal hyphae dominating in the trama, thick-walled to solid, 3-5 µm in diam., straight to distinctly sinuous.
Basidia not seen.
Basidiospores 3-3.5 x 0.7-0.9 µm, allantoid, smooth, IKI-.
Substrate: Dead hard wood log.
Distribution. Known only from the type locality.
Remarks. The tiny pores and especially the tiny basidiospores, make this a distinct species.
Paratype: Kenya, Mt. Elgon, guest house area, N 01.04468, E 034.78595, ~ 2170 masl, 31 Oct 2017, Cony Decock, KE-17-264, dead trunk, ~15 cm diam, in MUCL and O.

Antrodiella bicontexta Henkel & Ryvarden,

Synopsis Fung. 41:17, 2020.
Basidiocarps annual, pileate, dimidiate with contracted base, about 2 x 2 cm and 4 mm thick, soft when fresh, rigid when dry, tough when fresh, hard and brittle when dry, pileus citric yellow, glabrous, smooth when dry slightly wrinkled radially when dry, margin even and sharp, pore surface white, pores angular,4-5 per mm, tubes white and 2 mm deep, context duplex, the lower part up to 0.6 mm thick white and dense, upper parts sharply delimited and citric yellow.
Hyphal system dimitic; generative hyphae with clamps, hyaline, thin-walled, 2-5 µm wide and with distinct even thick walls when observed in Melzers solution, slightly swollen in 3 % KOH, skeletal hyphae seen as very long hyphal segment (up to 90 µm long) terminated with a clamp. It may be discussed whether these hyphae represent sklerified generative hyphae or skeletal hyphae as such, occurring as segments between sections of ordinary generative hyphae.
Basidiospores 2.5-3 x 2-2.5 µm subglobose**.** smooth, hyaline, non dextrinoid.
Substrate: Dead hard wood log.
Distribution. Known only from the type locality in Cameroon.
Remarks. The differently coloured context, reflected in the Latin epithet, is a distinct character for this species.

Antrodiella cinerea Tsigaing**,** Mossebo & Ryvarden,

Synopsis Fung. 39:76, 2019.
Basidiocarps annual, pileate, usually small, often imbricate with many narrow pilei, often fused laterally, up to 5 mm thick at the base, and 3 cm wide, tough when fresh, hard and resinous, pileus smooth and glabrous, white to cream or with narrow, darker concentric zones, pore surface white to light strawcoloured or ochraceous, pores small, isodiametric 4-6 (7) per mm when fresh, more angular and partly larger when dry, context white to cream, 1-2 mm thick.
Hyphal system dimitictrimitic, generative hyphae hyaline and with clamps, 1.5-3 µm in diameter, skeletal hyphae straight to sinuous, thickwalled and almost solid, dominating in the basidiocarps, 2-5 µm wide.
Basidiospores 2.5-3.5 (4) x 2-2.5 µm, elliptic.
Distribution. Seen from Tanzania and Kenya.
Remarks. The species is recognized by its pileate basidiocarps and the small, oblong elliptic basidiospores.

Antrodiella duplexa Decock & Ryvarden,

Synopsis Fung. 44:33, 2021.
Basidiocarps annual, flabelliform to spatulate to substipitate, up to 3 cm wide and long, and 4 mm thick, flexible when fresh, light of weight when dry; margin thin and sharp, deflexed in dry specimens; pileus evenly pale ochraceous, azonate, soft and velvety to adpressed tomentose, dull; pore surface ochre to buff; pores irregular, angular, 1-3 per mm; tubes concolorous with pore surface up to 2 mm deep; context up to 2 mm thick, distinctly duplex, lower part 1 mm thick at base and pure white, the upper part about 1 mm thick at base, soft and pale ochraceous.
Hyphal system dimitic; generative hyphae with clamps, hyaline, thin-walled, branched, 2-8 µm wide; the tomentum consists almost entirely of such hyphae; the context and trama generative hyphae and with densely agglutinated skeletal hyphae, difficult to separate, 2-4 µm wide.
Basidiospores 5-6 x 4-5 µm, subglobose.
Distribution. Known only from the type locality in Kakamega Forest National reserve, western Kenya.

Antrodiella duracina (Pat.) Lindblad & Ryvarden,

Mycotaxon 71:336, 1999. - *Leptoporus duracinus* Pat., Bull. Soc. Mycol. Fr. 18:174, 1902.
Basidiocarps pileate, annual, sessile to dimidiate, fan shaped to almost laterally stipitate or semicircular, up to 8 cm long, 6 cm wide, 5 mm thick, tough when fresh, hard and brittle when dry, no special taste, upper surface glabrous, ochraceous or very pale yellowish brown, usually zonate and often with some irregular darker narrow sulcate zones, in dry condition matted, but papery pelliculose on the surface, margin thin and sharp and usually deflexed in dried specimens, pore surface ochraceous to strawcoloured, pores 6-7 per mm, tubes dense and concolorous with pore surface in old specimens as if soaked by resinous substances, up to 2 mm deep, context white to pale cream, distinctly paler than tubes, faintly duplex, up to 3 mm thick at the base.
Hyphal system dimitic, skeletal hyphae rare in the context, much more common in the trama, thick-walled with a distinct lumen, hyaline, 4-6 µm wide, generative hyphae dominating in the context, hyaline, 2-5 µm wide, similar in the trama.
Basidiospores 4-4.5 x 1-1.3 µm, allantoid to cylindrical.
Distribution. In Africa **s**een only from Uganda and Cameroon. Widespread in tropical America.
Remarks. *A. duracin*a is recognized by its fan shaped basidiocarps, pale pileus and allantoid spores.

Antrodiella hunua (Cunningh.) Ryvarden,

A preliminary Polypore flora of East Africa p.257, 1980. – *Poria hunua* Cunningh., N.Z. Dep. Sci. Ind. Res. Bull. 72:19, 1947.

Basidiocarps resupinate, adnate, annual to perennial, widely effused, up to 5 mm thick in African specimens, probably coriaceous when fresh, hard and brittle when dry and curling up as the basidiocarp shrinks during drying, margin often rather wide, cream and finely pubescent (lens), pore surface cream to pale straw coloured or pallid yellow, often with a weak tint of orange, slightly shiny when turned in incident light, pores small and entire, 7-9 per mm, tubes concolorous with pore surface or slightly darker and as if soaked with a resinous substance, up to 5 mm deep, faintly stratified, context thin and ochraceous almost absent or only visible as a pale line below the tubes.

Hyphal system dimitic, generative hyphae thin-walled, hyaline and with clamps, 1.5-3 µm wide, skeletal hyphae dominating, thick-walled, hyaline or very weakly tinted yellow, straight to slightly sinuous, 3-6 µm wide.

Basidiospores 2.5-3 x 1 µm, allantoid.

Distribution. Described from New Zealand. In Africa recorded from the Usambara mountains in Tanzania.

Remarks. The dense basidiocarp with a yellow to pale orange-brownish colour and the tiny spores are good characteristics for distinguishing this species.

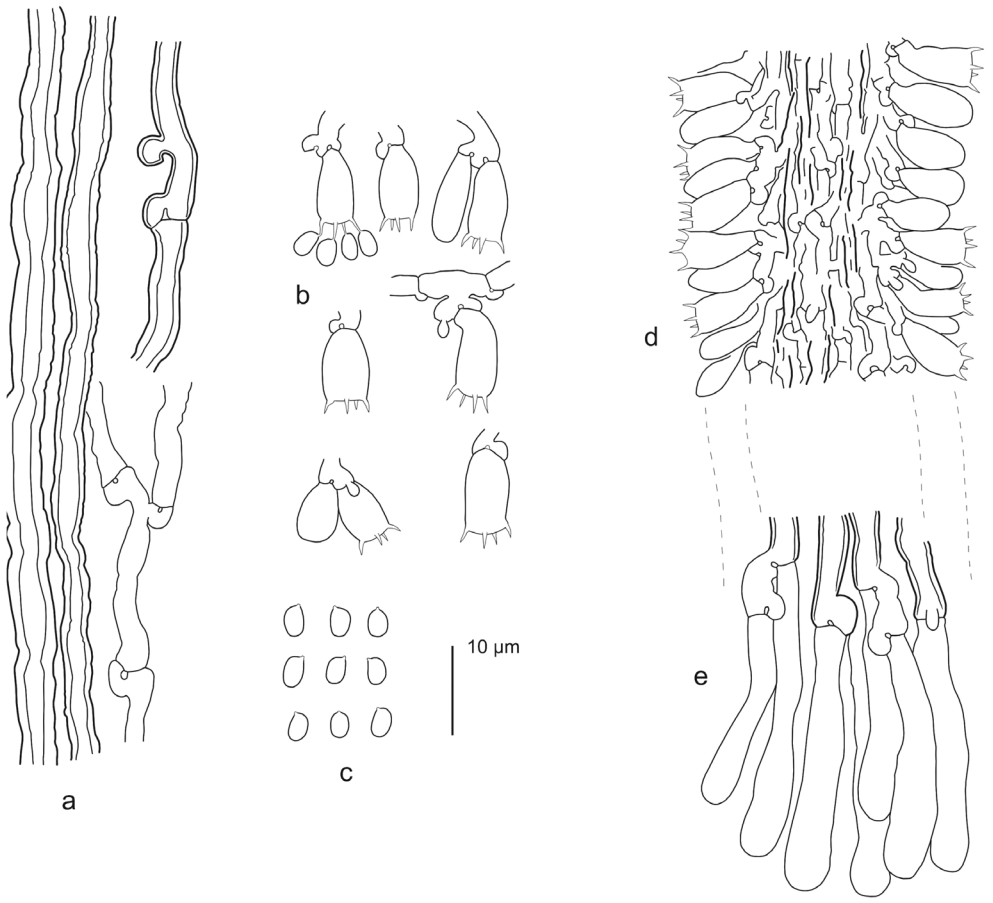

Fig. 9. *Antrodiella liebmannii*, a) section of tubes, b) basidia, c) spores, d) section tubes with hymenium e) section of dissepiments, coll. Ryvarden 19850, del. I. Melo.

Antrodiella hydrophila (Berk. & M. A. Curtis) Ryvarden,

Mycotaxon 20:343, 1984. - *Polyporus hydrophilus* Berk. & M. A. Curtis, J. Linn. Soc. 10:306, 1868.
Basidiocarps annual, flabelliform to spatulate to almost substipitate, up to 5 cm wide and long and 4 mm thick, dense and flexible when fresh, dense and heavy when dry and then contracted and undulate or curled, margin thin and sharp, upper surface buff, ochraceous to pale brown, finely tomentose in narrow zones which become glabrous with age and then darker from deep chest brown to almost black, pore surface ochre to buff, dense and cartilaginous, hard and denser when dry, pores angular to round, almost invisible to the naked eye, 7-9 per mm, tubes dense and concolorous up to 3 mm deep, context up to 2 mm thick, whitish to buff with a single dense dark zone above the pores, but with age the whole context may become filled up with dark streaks as the context contracts to a dense dark bony hard layer which by age fills up almost the entire context which then is exposed as a cuticle on the pileus, when fresh distinctly duplex with a dense lower context separated by a dark resinous band from the upper tomentum.
Hyphal system dimitic; generative hyphae with clamps, hyaline, thin-walled, branched, 2-8 µm wide, the tomentum consists almost entirely of such hyphae, in the context and trama very difficult to observe, skeletal hyphae densely agglutinated and difficult to separate in the dense context and the trama, 2-4 µm wide.
Basidiospores 3-3.5 x 2-2.5 µm, elliptic, often adaxially flattened.
Distribution. In Africa from Kenya and Uganda, widespread in tropical America**.**
Remarks. The small dense basidiocarps with a weak tomentum and partly glabrous dark brown zones and very tiny pores, are good field characteristics. In section the dark lines or zones are characteristic.

Antrodiella irregularis Decock & Ryvarden,

Index Fung. 479: 1, 2021
Basidiocarps annual, resupinate to effused reflexed, probably soft when fresh, fragile and hard when dry, pileus up 1 cm wide, 2 cm long and 2 mm thick, pileus deep cream coloured to pale cinnamon when dry, probably paler when fresh, dull, glabrous, slightly veined and irregular to smooth, pore surface as pileus, pores thin-walled, round to more commonly angular and in part of irregular shape on sloping parts of the pore surface, 3-4 per mm in regular horizontal parts, up to 1 mm wide in other parts of the sloping pore surface, tube layer concolorous with pore surface, up to 1 mm deep, subiculum 2 mm thick, whitish and dense.
Hyphal system dimitic, generative hyphae with clamps which are difficult to observe, hyaline, 3-4 µm wide, skeletal hyphae unbranched, thick-walled to almost solid, 3-5 µm in diam.
Basidia not seen.
Basidiospores 5-7 x 4-5 µm with and oil drop, broadly elliptic to subcylindrical, thinwalled, smooth.
Distribution. Known from only the type locality in Gabon.
Remarks. The species is conspicuous because of the irregular thin walled pores and the broadly subcylindrical spores.

Antrodiella liebmannii (Fr.) Ryvarden, Fig. 9.

Prelim. polyp. flora East Afr. p. 1980. - *Polyporus liebmannii* Fr., Nova Acta Reg. Soc. Sci. Upsal. III, 1:59, 1851.
Basidiocarps annual, solitary to a few arising from the same point of attachment, pileate, mostly spatulate, flabelliform to dimidiate, sometimes with a short distinct stem like base arising from a mycelial disk on the substrate, up to 3 cm wide and long, 12 mm thick, applanate when fresh, revolute when dry and the whole basidiocarp often becomes bent under when dry, softgelatinous when fresh, resinous to woody and hard when dry, pileus first finely tomentose, but soon glabrous in concentric zones, beige, brown to deep bay, when dry somewhat radial striate, margin sharp, stipe or attenuated base if present, short flattened to circular, brownish and finely to glabrous with age expanding upwards into the pileus, up to 1 cm long, 2-4 mm in diameter, pore surface pale tan to pale strawcoloured, often darker in older specimens, sometimes cracked when dry, pores very small, 8-10 per mm, tubes concolorous with pore surface, up to 1 mm deep, paler than the context which is pale brown to almost umber, very dense and resinous when dry, with intermittent narrow bands reflecting stages of growth.
Hyphal system dimitic, generative hyphae hyaline, thin walled and with clamps, 1.5-3.5 µm wide, rather difficult to observe in dried specimens, skeletal hyphae dominating in the basidiocarp, densely agglutinated and difficult to tease apart, moderately to very thickwalled and of variable diameter, 3-8 µm wide, unbranched or rarely dichotomously branched, sometimes with lateral short side branches which may be separated from the main stem by a simple wall.
Cystidia present, but may be difficult to find, smooth, rounded to conical, arising as parallel skeletal hyphae bend in to the hymenium, up to 8 µm wide, only slightly projecting above the basidia.
Basidiospores 2.5-3.5 x 1.5-2.5 µm, broadly elliptic to subglobose.
Distribution. Pantropical. The type locality is in Costa Rica.
Remarks. The small hard basidiocarp with a chestnut to dark brown pileus and very tiny pores are good field characteristics. The minute broadly elliptic to subglobose basidiospores and the glabrous pileus separate it from the similar *A. hydrophila*. Small stipitate specimens may easily be taken for a *Stereum* sp. unless a lens is used to examine the hymenophore which appears smooth to the naked eye.

Antrodiella ochracea Ryvarden,

Synopsis Fung. 38:22, 2018.
Basidiocarps annual, pileate, imbricate, individual pilei up to 2 cm wide and 1 cm thick at the base, soft and tough when fresh, hard and dense when dry, upper surface pale ochraceous, azonate, smooth, glabrous, dull, margin round; pore surface ochraceous becoming slightly greyish by drying, flat to sloping, pores round, thick walled, 5-6 per mm; tube layer dense, ochraceous, up to 2 mm deep, context pale ochraceous and homogeneous without any zonation.
Hyphal system dimitic; generative hyphae with clamps, thin walled, 3-5 µm in diam., skeletal hyphae dominating in the trama, thick walled to solid, 2-5 µm in diam., straight to distinctly sinuous, hyaline to slightly pale brown in masses.
Basidiospores 5-7 x 2.2-2.5 µm, navicular to cylindrical.
Distribution. Known only from the type locality in Mozambique.
Remarks. The even ochraceous colour, small, thick walled pores and the navicular to cylindrical spores characterize this spices.

Antrodiella nigropora Ryvarden,

Synopsis Fung. 40:102, 2020.
Basidiocarps annual, tough when fresh, hard and brittle when dry, effused reflexed, individual pilei up to 1 cm wide, flabelliform widely attached, upper surface azonate, dull, ochraceous becoming black from base, pore surface horizontal to widely effused down on the substrate, ochraceus with black colour on tuberculate to slight protruding parts, giving part of the basidiocarp a sooty appearance, pores angular to round, in parts split in front on effused parts of basidiocarp, 3-5 per mm, tubes up to 4 mm deep, ochraceus to pale resinous brown, context up to 2 mm thick, dense ochraceus, azonate.
Hyphal system dimitic; generative hyphae with clamps, hyaline, thin-walled, branched, 2-8 µm wide, skeletal hyphae thick walled to solid, 3-6 µm wide.
Basidiospores 4.5-5 x 2-3.5 µm, elliptic, smooth, hyaline, non dextrinoid.
Distribution. Known only from the type locality in Zimbabwe.
Remarks. The patchy sooth pore surface makes this a distinct species, which one should be able to recognize in the field. Microscopically the wide generative hyphae and the elliptic spores are diagnostic.

Antrodiella subnigra Mossebo & Ryvarden,

Synopsis Fung. 40: 97, 2020.
Basidiocarps pileate, annual, imbricate, individual pilei about 3 cm wide, 5 cm long and 8 mm thick, tough when fresh rigid when dry, margin thin and sharp, slightly bent when dry, pileus black, dull to sub shiny, glabrous, smooth, pore surface white, when fresh, drying deep brown to almost black, pores round to slightly angular, thin walled, invisible to the naked eye, 8-10 per mm, tubes whitish, 3 mm deep, context white to pale greyish, up to 3 mm thick.
Hyphal system dimitic; generative hyphae with clamps, delicately thin walled, 2-3 µm in diam., skeletal hyphae dominating in the trama, thick walled to solid, 2-6 µm in diam.
Basidiospores 4-5 x 3-4 µm, globose to subglobose, smooth, thin walled and IKI negative.
Distribution. Known only from the type locality in Cameroon.
Remarks. The species is characterized by the black pileus and pore surface when dry, and the contrasting tubes and context.

Antrodiella xantha (David & Rajchenb.) Ryvarden,

Synopsis Fung. 38:25, 2018, - *Flaviporus xanthus* David & Rachjenb., Mycotaxon 65:135,1992.
Basidiocarp annual, pileate, flabellate to dimidiate, up to 5 cm wide and long, 5 mm thick, flat when fresh, convex when dry, soft to tough, upper surface first light cream yellow becoming darker by age and drying, and then and spot wise, almost chest nut yellow or from the base, first finely velutinate to pubescent, soon becoming glabrous with a scrupose surface, azonate, radially wrinkled when dry, reddish with 5 % KOH, pore surface pale wood coloured to ochraceus, pores round, 6-7 per mm, , tubes concolorous with the pore surface, up to 3 mm deep, context duplex up to 2 mm thick, lower part cartilaginous to horny hard and reddish brown, upper part tough and concolorous with pileus surface.
Hyphal system dimitic, generative hyphae thinwalled and with clamps, 2- 5 µm wide and in upper context partly covered with small yellow needle like crystals, skeletal hyphae dominating in the basidiocarp, 4-5 µm wide thick walled straight to tortuous and sometimes with small lateral outgrowths.
Basidiospores 2.3-3 x 2 µm elliptic to almost subglobose.
Distribution. Known only from Gabon.
Remarks. The species may remind one of *A. citrea* (Berk.) Ryvarden (from Australia), which however, has smaller pores, larger spores (3-4 x 2-2.5 µm) and above all, a homogenous context.

Bjerkandera P. Karst.,

Meddeland. Soc. Fauna Fl. Fenn. 5: 38, 1879.
Basidiocarps pileate, annual, soft to pliable; upper surface finely tomentose to glabrous; pore surface grey to black or buff to greyish brown; tubes concolorous; a dark, dense zone is usually present between tubes and context, the latter white to buff; hyphal system monomitic; generative hyphae with clamps, thin to thickwalled; cystidia absent; spores smooth, short-cylindrical, thinwalled, negative in Melzer's reagent. On hardwoods, very rarely on conifers, causing a white rot. Cosmopolitan genus.
Type species: *Polyporus adustus* Willd.: Fr.
Remarks. The type species is easily identified by its grey to black tube layer contrasting the white context. Undoubtedly, it is closely related to *Tyromyces*, and separated mainly by the consistency and the contrasting colour between the pore layer and context.

Bjerkandera adusta (Willd: Fr.) P. Karst.,

Meddeland. Soc. Fauna Fl. Fenn. 5: 38, 1897. *Polyporus adustus* Willd.: Fr., Syst. Mycol. l: 363, 1821. - *Boletus adustus* Willd., Fl. Berol. Prodr. p. 392, 1787.
Basidiocarps annual, sessile, pileate, effusedreflexed, or occasionally resupinate under logs, often in imbricate clusters, tough, reflexed up to 3 cm; upper surface of pileus cream to buff, tomentose or strigose to glabrous with age, azonate or faintly zonate; pore surface grey to black, the pores angular, regular, 67 per mm, context pale buff, azonate with distinct thin upper layer of tomentum, up to 6 mm thick; tube layer smoky grey, distinct from context, up to l mm thick.
Hyphal system monomitic; hyphae thin- to moderately thickwalled, with abundant clamps, 35 µm in diam.
Basidiospores 4.56 x 2.53.5 µm, cylindrical, hyaline and smooth.
Distribution. Cosmopolitan and common wherever there are trees.
Remarks. The smoky grey to black colour of the pore surface and the cream coloured pileus, often greyish along the margin, are distinctive field characters.

CERIPORIA Donk,

Meded. Bot. Mus. Univ. Utrecht 9: 170, 1933.
Basidiocarps annual, resupinate; pore surface white to tan or brightly coloured purple, orange, pink or greenish; consistency soft; hyphal system monomitic; generative hyphae simpleseptate or with rare clamps; cystidia or other sterile hymenial elements lacking; basidia clavate, tetrasterigmatic, simple-septate at the base; basidiospores cylindrical or allantoid, smooth, hyaline, negative in Melzer's reagent.
Type species: *Polyporus viridans* Berk. & Broome.
Remarks. The genus is characterized by a monomitic hyphal system with simple-septate generative hyphae, hyaline spores, lack of cystidia, and a white rot in the attacked wood. It may be looked upon as a counterpart to *Ceriporiopsis* which is separated in principle only by the clamped generative hyphae.
It will not come as a surprise if DNA sequencing will demonstrate that the species currently included in the genus, have different phylogenetic affinities. Today it is used for naming species with common characters, especially a resupinate, non-cystidiate basidiocarp with simple septate hyphae.
NB. Since all species have simple septate hyphae and hyaline, thin-walled smooth spores without reaction in Melzer's reagent, this information is not repeated for each species.

Key to species

1. Basidiocarps bright orange to deep vinaceous red **2**
1. Basidiocarps differently coloured **3**

2. Basidiocarps dark red, pores minute, 7-9 per mm ..... **C. spissa**
2. Basidiocarps purplish, pores 3-4 per mm ..... **C. purpurea**

3. Spores 7-9 µm long ..... **C. reticulata**
3. Spores shorter **4**

4. Spores broadly elliptic to globose **5**
4. Spores allantoid to cylindrical **8**

5. Spores globose, 5-6 µm in diameter ..... **C. globospora**
5. Spores elliptic **6**

6. Pores 2-3/mm, becoming split and dentate, spores 3-4 x 2.5-2.8 µm ..... **C. ellipsospora**
6. Pores smaller, spores 4-6 in longest dimension 7

7. Spores 4-5 x 3.5-4.5 µm, pores often dentate and slightly irregular 3-4/mm ..... **C. xylostromatioides**
7. Spores 5-6 x 3-4 µm, pores regular, 6-7/ mm ..... **C. leptoderma**

8. Pores irregular to round, 1-3 per mm, spores 6-8 µm long ..... **C. mellea**
8. Pores smaller, 3-6 per mm, spores up to 6 µm long **9**

9. Spores 3.5-5 x 2-3 µm, pore surface cream to evenly tobacco brown ..... **C. ferruginicincta**.
9. Spores narrower 1-2 µm wide **10**

10. Spores 4-6 x 1.5-2 µm, pore surface whitish, cinnamon to sordid brown ..... **C. viridans**
10. Spores 3-4 x 1-1.2 µm, pore surface pure white ..... **C. kenyensis**

Ceriporia ellipsospora Dämmrich & Ryvarden,

Synopsis Fung. 38:26, 2018.
Basidiocarp annual, resupinate, effused, soft when fresh, friable when dry, up to 3 cm wide and long in individual patches, up to 1 mm thick, margin pale cream, distinct and finely radially, fibrous up to 2 mm wide, pore surface pale cream, pores first angular and 2-3 per mm, with maturity more split and in parts almost semi-hydnoid to strongly dentate, some pores then up to 1 mm wide, tubes concolorous with pore surface,1 mm deep, subiculum white and almost absent.
Hyphal system monomitic; generative hyphae with simple septa, 3-5 µm in diam.
Basidiospores 3-4 x 2.5.2.8 µm, elliptic.
Distribution. Known only from the type locality in the Seychelles.
Remarks. The small elliptic spores and the irregular pore surface make this a distinct species.

Ceriporia ferruginicincta (Murrill) Ryvarden,

Prelim. Polyp. Fl. E. Afr. p. 270, 1980. - *Poria ferruginicincta* Murrill, Torrey Bot. Club Bull. 65:660, 1938.
Basidiocarps annual, effused, adnate, consistency soft when fresh, drying brittle to fragile and cartilaginous, resinous taste, margin wide, white to pale brownish, pore surface cream to pale brown darkens to even cinnamon or pale tobacco-brown, pores angular, 6-8 per mm, almost invisible to the naked eye, conspicuously thin-walled, the walls become semi-translucent when dry, slight dentate in the dissepiments, tubes concolorous with pore surface, fragile, of dense and resinous consistency in dry condition, subiculum almost absent, visible only as a thin brown line in dry specimens.
Hyphal system monomitic, generative hyphae with simple septa, moderately branched, often at right angles, in the trama up to 8 µm wide, slightly thick-walled, in the subiculum and sterile margin up to 10 µm wide.
Basidiospores 3.5-5 x 2-3 µm, oblong elliptic subcylindrical.
Distribution. In Africa only known from Rwanda.
Remarks. The species is characterized by thin, semi translucent basidiocarp and very small pores. When dry, the basidiocarps are parchment-like. It may be confused with *C. viridans*, but the spores are distinctly oblong elliptic not cylindrical.

Ceriporia globospora Ryvarden,

Synopsis Fung. 42: 28, 2020.
Basidiocarps annual, resupinate**,** 3 x 2 cm, up to 2 mm thick, soft when fresh, pale cinnamon coloured, pores thin walled, angular 3-5 per mm appearing as slightly contracted by drying, slightly irregular, 1-4 per mm, subiculum white, cob webby and thin.
Hyphal system monomitic; generative hyphae hyaline, thin-walled and simple septate, 3-6 µm in diam, running conspicuously parallel with the tube walls.
Basidiospores 5-6 µm in diameter globose, hyaline and thin walled, negative in Melzers reagent.
Distribution. Known only from the type locality in Cameroon.
Remarks. The cinnamon basidiocarps with angular and irregular pores and almost lack of subiculum make this a distinct species.

Ceriporia kenyensis Decock & Ryvarden,

Synopsis Fung. 43: xx, 2021.
Basidiocarps annual, effused, up to 20 x 15 cm, adnate, consistency soft when fresh, drying brittle to fragile; margin wide and white; pore surface white; pores angular, 3-5 slightly irregular on sloping parts of the substrate; tubes concolorous with pore surface, 1-2 mm deep; subiculum thin and white.
Hyphal system monomitic; generative hyphae with simple septa, moderately branched, often at right angles, slightly thick-walled, 2-5 µm wide.
Basidia 10-15 x 3-5 µm tetrasterigmatic, few seen.
Basidiospores cylindrical, 3-4 x 1-1.2 µm.
Substrate. On dead hard wood log.
Distribution. Known only from the type locality in Kakamega Forest National Reserve, western Kenya.
Remarks. The species is characterized by a pure white basidiocarp, angular pores and cylindrical spores.

Ceriporia leptoderma (Berk. & Broome) Ryvarden,

Prelim. Polyp. Flora East Africa p. 270, 1980. - *Polyporus leptodermus* Berk. & Broome, J. Linn. Soc. Bot. 14: 54, 1873.
Basidiocarps resupinate, small and adnate, rather fragile in dry condition, margin very narrow, pale cream and byssoid, pore surface pale ochraceous, slightly cupulate as if it has had an irregular development, but this may not be the normal state, pores angular to slightly elongated, (5) 6-7 per mm, tubes concolorous with pore surface, pale cream, up to 1 mm deep, subiculum thin, pale cream.
Hyphal system monomitic, generative hyphae with simple septa, thin-walled and richly branched, 2-3.5 µm wide.
Basidiospores 5-6 x 3-4 µm, broadly elliptic.
Distribution. Eastern Africa, described from Sri Lanka.
Remarks. *C. leptoderma* is separated from other species in the genus by its broadly elliptic spores, and small pores.

Ceriporia mellea (Berk. & Broome) Ryvarden,

Bull. Jard. Bot. Nat. Belg. 48:98, l978. - *Polyporus melleus* Berk. & Broome, Trans. Linn. Soc.14:53, 1875. - *Poria auricoma* Lev. ex Cooke, Grevillea l5:26, 1886.
Basidiocarps annual, resupinate, usually of small dimension in small patches or more effused, rarely above 10 cm long and wide and 1.5 mm thick, consistency soft when fresh, more coriaceous to brittle when dry, pore surface cream-yellow to ochraceous or even greenish, dull pores irregular round to angular, 1-3 per mm, dissepiments thin, tubes up to 1 mm long but usually shorter, concolorous with the pore surface, context concolorous with the pores or somewhat lighter, in effused specimens 0.5-1 mm thick.
Hyphal system monomitic, generative hyphae with simple septa, thin to slightly thick-walled, hyaline to yellow, 3-7 µm wide.
Basidiospores 6-8 x 3-3.7 µm cylindrical to slightly allantoid.
Distribution. Ethiopia, Burundi, Natal, Tanzania, widespread in tropical Asia.
Remarks. The species is related to *C. reticulata*, but is more distinctly poroid, has larger pores, a more yellowish basidiocarp and shorter spores.

Ceriporia purpurea (Fr.) Donk,

Proc. Kon. Ned. Akad. Wetensch. C. 74, no. 1: 28, 1971. *Polyporus purpureus* Fr., Syst. Mycol. 1: 379, 1821.
Basidiocarps annual, resupinate to effusedreflexed or sessile, usually effused in small separate or confluent patches up to a few cm wide; pore surface pale to dark brownish purple on dried specimens, the pores 34 per mm; margin usually sterile, white, minutely tomentose, less than 1 mm wide; subiculum very thin, white; tube layer pale to dark brownish purple, up to 1 mm thick.
Hyphal system monomitic; hyphae hyaline, simpleseptate, thin to moderately thickwalled, with frequent branching, 16 µm in diam, some lightly encrusted.
Hyphoid sterile elements present on edges of tubes or folds, cylindrical, 36 µm in diam and projecting up to 50 µm, occasionally septate.
Basidiospores 5-7 x 2-2.5 µm, allantoid.
Distribution. Widely distributed cosmopolitan species.
Remarks. The species is recognized by its purplish basidiocarp and fairly large allantoid spores.

Ceriporia reticulata (Hoffm.: Fr.) Domański, Fig. 10

Acta. Soc. Bot. Poloniae 32:732, 1963. *Polyporus reticulatus* Hoffm.: Fr., Syst. Mycol. 1: 385, 1821.
Basidiocarps annual, resupinate, usually effused in small patches, fragile, separable; margin white, thin, arachnoid to cottony, fimbriate, with the tubes originating as isolated shallow depressions in the marginal tissue; pore surface greyish to white or grading from cream to pinkish to pale orange, pores 34 per mm, circular to irregular; subiculum thin, often merely a loose net of hyphae, byssoid, white to pinkish, tube layer soft and fragile, up to 1 mm thick.
Hyphal system monomitic; subicular hyphae thinwalled, often branched at right angles, simpleseptate, loosely interwoven, 37 µm in diam; tramal hyphae similar.
Basidiospores 7-9.5 x 2-3.5 µm, allantoid.
Distribution. Circumglobal species.
Remarks. The pore surface of *C. reticulata* have a distinctive netlike or reticulate appearance in the field. The relatively large, allantoid spores are another diagnostic character.

Ceriporia spissa (Schwein.: Fr.) Rajchenb.,

Mycotaxon 17: 276, 1983. *Polyporus spissus* Schwein.: Fr., Elench. Fung 1:111, 1828.
Basidiocarps annual, becoming widely effused; pore surface orange when fresh, darkening to reddish brown on drying, pores 79 per mm; margin usually sterile, fruiting areas often patchy over a large area of sterile mycelium, sterile area pinkish buff, minutely tomentose; subiculum pinkish buff, soft, less than 1 mm thick; tube layer cheesy in consistency, orange when fresh and dark reddish brown on drying, up to 1 mm thick, sections giving off a white oily exudate in KOH.
Hyphal system monomitic; subicular hyphae hyaline, thinwalled, with frequent branching, 23.5 µm in diam, some partially encrusted with an amorphous, yellowish gummy material; tramal hyphae similar but parallel, very compactly arranged and difficult to separate, moderately thickwalled.
Basidiospores 4-6 x 1.5-2 µm, allantoid.
Distribution. In Africa known only from Zimbabwe, but widely distributed in America and recorded from Japan.
Remarks. *Ceriporia spissa* is one of the most beautiful and distinctive polypores by its bright orange basidiocarps.

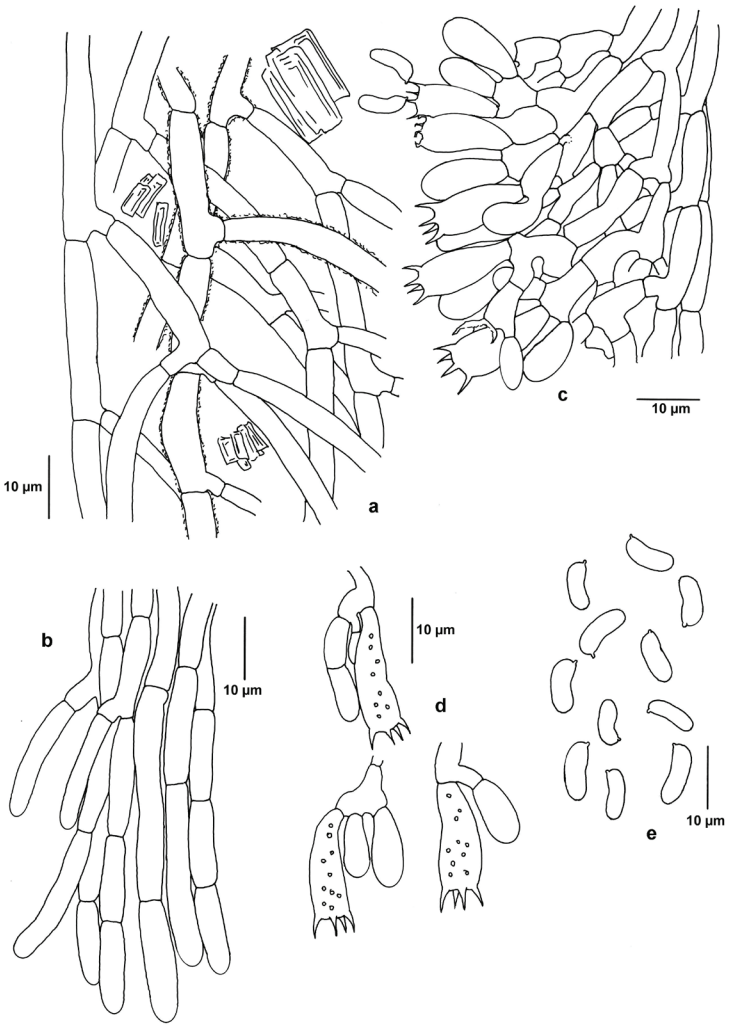

Fig. 10. *Ceriporia reticulata* (Melo 5752, LISU 170748). a) hyphae from subiculum; b) hyphae from dissepiments edge; c) section through hymenium; d) basidia; e) basidiospores. Del. I. Melo.

Ceriporia viridans (Berk. & Broome) Donk,

Meded. Bot. Mus. Univ. Utrecht 9:171, 1933. *Polyporus viridans* Berk. & Broome, Ann. Mag. Nat. Hist. 3: 379, 1861.
Basidiocarps annual, resupinate, effused in small patches, up to 3 mm thick, soft when fresh, fragile when dried; margin narrow and white; pore surface variable, mostly cream to cinnamon or sordid brown with a greenish tint, more rarely pinkish sordid white, pores circular to sinuous, 35 per mm, in some specimens larger and more irregular; tube layer up to 4 mm thick; subiculum white to cinnamon in old specimens, up to 1 mm thick.
Hyphal system monomitic; generative hyphae simple-septate, richly branched, often at right angles, 2-4 µm wide, in the trama, up to 10 µm wide and more thickwalled in the subiculum and margin.
Basidiospores 4-6 x 1.5-2 µm, cylindrical to allantoid.
Substrata. On hard woods, but also on basidiocarps of old polypores, such as *Ganoderma* and *Trametes* spp.,
Distribution. Cosmopolitan species.
Remarks. This is a highly variable taxon in as to macromorphology of the basidiocarp. Numerous species have been described based on colour variations.

Ceriporia xylostromatoides (Berk.) Ryvarden,

Prelim. Polyp. Fl. East Africa p. 276, 1980. - *Polyporus xylostromatoides* Berk., Lond. J. Bot. 2: 638, 1843.
Basidiocarp resupinate, annual, widely effused, up to 3 mm thick, rather loose to more coriaceous, taste none; margin white, finely cottony, wide to narrow; pore surface white to cream when fresh, drying pale tan to pale strawcoloured, pores round to entire and then 34(-5) per mm, with age frequently slightly dentate, incised and irregular and then 12 per mm measured from dissepiment to dissepiment, but deeper in the tubes, it is easy to

observe that smaller pores have been split, at this stage the hymenophore reminds of *Schizopora paradoxa*, subiculum white, thin and finely fibrous.
Hyphal system monomitic, generative hyphae with simple septa, branched in wide angles, in the subhymenium thin walled, 2-3 µm wide, in trama and subiculum somewhat thick walled, more distinct, and 2-5 µm wide.
Basidiospores 4-5(-6) x 3.5-4.5(-5) µm, subglobose to broadly elliptic.
Distribution. Widely distributed in the tropical and subtropical zones.
Remarks. The species may be recognized by its subglobose spores. The species concept as described here may include several "minispecies" as the species has been reported from all tropical zones.

CERIPORIOPSIS Domański,

Acta Soc. Bot. Poloniae 32: 731, 1963.
Basidiocarps annual, resupinate, mostly light-coloured; margin rhizomorphic or not; pores small to medium sized; context white to light-coloured, thin; hyphal system monomitic; generative hyphae with clamps; cystidia none; spores smooth, thinwalled, hyaline, negative in Melzer's reagent. On dead wood, causing a white rot. Cosmopolitan genus.
Type species: *Poria gilvescens* Bres.
Remarks. The genus as defined here may include elements of different phylogenetic background. However, as few species have been sequenced to reveal their true relationship, we prefer to keep them together for the time being based on the resupinate basidiocarps, a monomitic hyphal system with clams, lack of reaction in Melzer's reagent and a white rot.
NB: Since all basidiospores are smooth, thin-walled and negative in Melzers reagent, this information in not repeated for each species.

Key to African species

1. Spores subglobose to globose **2**
1. Spores cylindrical, elliptic to allantoid **5**

2. Spores more or less globose, 5–6 µm in diameter ..... **C. globospora**
2. Spores smaller **3**

3. Spores 2 × 2.5 µm, pores 1–4 per mm ..... **C. minispora**
3. Spores subglobose 2.5–4 µm long **4**

4. Pores 3–5 per mm, gloeocystidia absent ..... **C. hypolateritia**
4. Pores 10–12 per mm, gloeocystidia present ..... **Flaviporus delicatus**

5. Spores 8–10 µm long **6**
5. Spores shorter **7**

6. Spores 8–10 µm long, pores angular and entire, 2–3 per mm ..... **C. africana**
6. Spores 10–12 µm long, pores angular to mostly irregular, 1–3 per mm ..... **C. grandispora**

7. Spores allantoid **8**
7. Spores elliptic to cylindrical **10**

8. Spores 3–4 µm long, pore surface white to orange **9**
8. spores 4–4.5 µm long, pore surface pale cream ..... **C. allantoidea**

9. Pore surface deep orange, pores 6–7 per mm ..... **C. aurantiaca**
9. Pore surface white, pores 2–3 per mm ..... **C. suballantoidea**

10. Spores cylindrical **11**
10. Spores elliptic **12**

11. Pore surface ochraceous to straw-coloured ..... **C. gilvescens**
11. Pore surface black ..... **C. nigroeffusa**

12. Pores 7–8 per mm **13**
12. Pores larger **14**

13. Spores 3.5–4 × 2–2.5 µm, pore surface honey coloured ..... **C. mellea**
13. Spores 4–5 × 3–3.5 µm, pore surface white ..... **C. alba**

14. Pores 1–3 per mm or wider **15**
14. Pores smaller..... **16**

15. Pores 1–3 per mm, spores 5–6 × 3.5–4 µm..... **C. angulatopora**
15. Pores 1–3 mm wide, spores 4–5 × 2.5–3 µm ..... **C. gabonensis**

16. Pores 3–4 per mm, spores elliptic, 4–5 × 2.8–3.2 ..... **C. ethiopica**
16. Pores 5–6 per mm, spores subglobose, 4–5 × 3.5–4 ..... **C. subalba**

Ceriporiopsis africanus Ryvarden,

Synopsis Fung. 28:13, 2018.
Basidiocarp annual, resupinate, effused, adnate, soft when fresh, friable when dry, up to 3 cm wide and 9 cm long, up to 3 mm thick, margin white narrow to almost absent, pore surface white, pores angular, 2-3 per mm, a few even larger, tubes white, 2 mm deep, subiculum white, 200 µm thick, partly almost absent.
Hyphal system monomitic; generative hyphae with clamps, smooth, 3-5 µm in diam.
Basidiospores 8-10 x 2.5-3 µm, cylindrical to slightly fusiform, hyaline and thin walled.
Distribution. Known only from the type locality in Burundi.
Remarks. The angular pores and the narrow, rather long basidiospores make this a distinct species.

Ceriporiopsis alba Ryvarden,

Synopsis Fung. 41:21, 2020.
Basidiocarps annual, resupinate, soft when fresh, hard and brittle when dry, margin narrow, white, pore surface white, pores round, 7-9 per mm, almost invisible to the naked eye, tubes up to 1 mm deep, white, subiculum hardly visible and white,
Hyphal system monomitic; generative hyphae with clamps, hyaline, thin-walled, branched, 2-5 µm wide.
Basidiospores 4-5 x 3-3.5 µm, elliptic.
Distribution. Known only from the type locality.
Remarks. A pure white basidiocarp, tiny pores and elliptic spores characterize this species.

Ceriporiopsis allantoidea Ryvarden,

Synopsis Fung. 39:41, 2019.
Basidiocarps annual, resupinate, effused, up to 10 cm long, 4 cm wide and up to 2 mm thick, soft when fresh, brittle when dry, margin 1-2 mm, white pore surface cream coloured, pores round, 5-7 (8) per mm, tubes concolorous with surface, up to 2 mm deep, subiculum, cottony, white 1 mm thick.
Hyphal system monomeric; generative hyphae with clamps, 2-5 µm in diam.
Basidiospores 4-4.5 x 0.8-1 µm allantoid.
Distribution. Known only from the type locality.
Remarks. The tiny pores and the allantoid, small spores make this a distinct species.

Ceriporiopsis angulatopora Ryvarden,

Synopsis Fung. 39:41, 2019.
Basidiocarps annual, resupinate, effused, 5 x 4 cm, 1 mm thick, soft when fresh, brittle when dry, margin 1-2 mm wide, pore surface pale ochraceous, pores angular 1-3 per mm, tubes 0.5 mm. subiculum, white, distinct and visible in the bottom of the tubes, 400 µm, white and lose.
Hyphal system monomitic; generative hyphae with clamps, 2-6 µm in diam.
Basidiospores 5-6 x 3.5-4 µm, elliptic.
Distribution. Known from the type locality and Tanzania.
Remarks. The angular large pores and elliptic spores characterize this species.

Ceriporiopsis aurantica Henkel & Ryvarden,

Synopsis Fung. 41:17, 2020.
Basidiocarps annual, resupinate about 2 x 2 cm and 4 mm thick, soft when fresh, hard and brittle when dry, margin narrow, 1-2 mm wide, pale orange, pore surface deep orange, pores angular, thin walled, 6-7 per mm, tubes yellowish orange, resinous hard and dense, up to 5 mm deep, subiculum whitish to pale orange, almost invisible to the naked eye.
Hyphal system monomitic, generative hyphae with clamps, hyaline, thin-walled, 2-5 µm wide.
Basidiospores 1 x 3.5-4, allantoid.
Substrate: Dead hard wood log.
Distribution. Known only from the type locality in Cameroon.
Remarks. The beautiful orange colour, the dense structure and the small allantoid spores make this a distinct species.

Ceriporiopsis costaricensis M. Mata & Ryvarden,

Synopsis Fung. 27:66, 2010.
Basidiocarps annual, resupinate, adnate, up to 1 mm thick, margin narrow and white, pore surface pale ochraceous, pores slightly angular with entire dissepiments, 3-4 per mm, tubes concolorous, up to 0.8 mm deep, context almost invisible, agglutinated and white.
Hyphal system monomitic; hyphae 2-4 µm wide, with clamps; in the trama thin-walled and hyaline, in the subiculum 3-6 µm wide, thin- to distinctly thick-walled.
Basidiospores 4-5 x 2.5-2.8 µm, elliptic, thin-walled, hyaline and with an oil drop,
Distribution. Known from Costa Rica and a locality in Ethiopia.
Remarks. The species is characterized by the ochraceous basidiocarp with angular pores and elliptic basidiospores. It is rather surprising to find this Central American species in Ethiopia, but both the micro- and macroscopical characters are identical.

Flaviporus delicatus David & Rajchenberg,

Mycotaxon 45:132, 1992.
Basidiocarps annual, small flabellate, up to 4 cm wide and long, water soaked when fresh, hard when dry, semi stipitate with dorsal small attachment, pileus azonate, pubescent to irregularly tomentose becoming glabrous towards the margin, pale yellowish, margin and exposed cuticle dark reddish, pore surface white when fresh, tubes up to 1.5 mm deep, pores 13-15 mm per mm, invisible to the naked eye, becoming dark reddish to chestnut coloured and resinous when dry, context as tubes, up to 1 mm thick.
Hyphal system monomitic, generative hyphae with both clamps and simple septa, 3-5 µm wide, thin- to thick-. walled, densely agglutinated and difficult to discern.
Gloeopleurous hyphae present in trama and context, up to 20 µm wide, and with dark resinous substance.
Basidiospores 3-4 x 2.5-3 µm subglobose.
Distribution: Known only from Gabon.
Remarks. The change from whitish colours when fresh, to dark resinosus reddish to brown colours are striking. The tiny pores, the dense consistency and small spores are also characteristic features**.**

Ceriporiopsis ethiopica Niemelä & Ryvarden,

Index Fung. 499:1, 2021
Basidiocarps annual, resupinate, adnate, up to 1 mm thick, margin wide, white to pale ochraceous; pore surface pale ochraceous, pores round 4–5 per mm; tubes concolorous, up to 0.4 µm deep, context white and up to 1 mm deep, a thin black-brown hairline seen in section between the tubes and context.
Hyphal system monomitic; generative hyphae with clamps, in tubes 2–3.7 µm wide, in subiculum 3.5–6 µm wide.
Basidia 14–15 × 5–6 µm, tetrasterigmatic, with clamps at the base.
Basidiospores 4–5 × 2.7–3.2 µm, elliptic, thin-walled, hyaline and negative in Melzer's reagent.
Substrate. Roots of an unknown hardwood stump, turned over in pastureland.
Distribution. Known only from the type locality in Ethiopia.
Remarks. The species is similar to *Ceriporiopsis subalba* from Cameroon, which however has smaller pores, 5–6 per mm, and a pure white basidiocarp. Further, its basidiospores are almost subglobose, *i.e.* 4.5–5 × 3.5–4 µm.

Ceriporiopsis gabonensis Decock & Ryvarden,

Synopsis Fung. 42:7, 2020.
Basidiocarps annual, resupinate about 7 x 4 cm and 3 mm thick, soft when fresh, hard and brittle when dry, margin narrow and white, pore surface cream coloured when dry, pores angular, in part irregular and incised,1-3 mm wide,

tubes as pore surface up to 2 mm deep, subiculum white, almost invisible to the naked eye.
Hyphal system monomitic, generative hyphae with large clamps, hyaline, thin-walled, 3-6 µm wide.
Basidiospores 4-5 x 2.5-3 µm, elliptic.
Substrate: Dead hard wood log.
Distribution. Known only from the type locality in Gabon.
Remarks. The large angular pores make this a distinct species.

Ceriporiopsis gilvescens (Bres.) Domański,

Acta Soc. Bot. Poloniae 32: 731, 1963. *Poria gilvescens* Bres., Ann. Mycol. 6: 40, 1908.
Basidiocarps annual, resupinate, adnate, becoming widely effused, waxy and soft when fresh, hard and brittle when dry, up to 4 mm thick; margin white to pale pinkish yellow, floccose, disappearing in old specimens; pore surface at first whitish with shades of pink, then darker when touched or wounded, when dry pale straw-coloured to orange brown, pores angular to circular, 45 per mm; subiculum thin and dense, pale straw-coloured; tube layer concolorous with subiculum, often dense and resinous in consistency in old specimens.
Hyphal system monomitic; generative hyphae with clamps, thin to slightly thickwalled, 24 µm in diam., in the dissepiments often characteristically covered with small, rodlike crystals.
Basidiospores 3.54.5(-5) x 1.52 µm, subcylindrical.
Substrata. Different hard wood trees. In Ethiopia collected on *Podocarpus*.
Distribution. In Africa seen from Ethiopia. Widespread in southern Europe and Eastern United States.
Remarks. The slight colour change and the pale orangebrown colour are good field characteristics. Microscopically the subcylindrical spores and the encrustation of the dissepimental hyphae are good characteristics.

Ceriporiopsis globospora Ryvarden,

Synopsis Fung. 38:14, 2018.
Basidiocarp annual, resupinate, effused, separable, soft when fresh, friable when dry, up to 3 cm wide and long in individual patches, up to 1 mm thick, margin white distinct and finely radially, fibrous up to 2 mm wide, pore surface white, pores angular, 5-4 per mm in parts slightly sinuous and irregular then 35 per mm; tubes white, 1 mm deep, subiculum white and almost absent.
Hyphal system monomitic; generative hyphae with clamps, smooth, 3-5 µm in diam.
Basidiospores 5-6 µm in diameter, globose.
Distribution. Known only from the type locality in Mozambique.
Remarks. The finely fibrillose white margin and the globose spores are distinct features for this species.

Ceriporiopsis grandispora Ryvarden,

Synopsis Fung. 38:15, 2018.
Basidiocarp annual, resupinate, effused, adnate, soft when fresh, friable when dry, up to 1 cm wide and 3 cm long, up to 3 mm thick, margin white narrow to almost absent pore surface pale cream, pores angular and in parts irregular with serrate pore mouths, 1-3 mm wide, tubes cream coloured, 3 mm deep, subiculum white, up to 400 µm thick, partly almost absent.
Hyphal system monomitic; generative hyphae with clamps, smooth, 3-6 µm in diam.
Basidiospores 10-12 x 4-5 µm, cylindrical to slightly fusiform.
Distribution. Known only from the type locality in Ethiopia.
Remarks. The large irregular pores and large spores make this a distinct species.

Ceriporiopsis hypolateritia (Berk.) Ryvarden,

Synopsis Fung. 33:9, 2015. - *Poria hypolateritia* Berk. Ex Cooke, Grevillea 15:24, 1886. – *Poria albobrunnea* Petch, Ann. Roy Bot. Gard. Peradeniya 6:137, 1916.
Basidiocarps annual, resupinate, effused, separable, soft when fresh, friable when dry, up to 2 mm thick; pore surface cream, drying darker, often with a sordid tone with greenish tints and glancing when turned in incident light, becoming darker when touched in fresh condition, margin wide and white, pores variable, mostly 5-6 per mm in fresh condition, becoming more irregular when drying and growing on slop substrates, as the tubes are slightly subtracting when drying, , in part then up to 1-3 per mm, tubes up to 2 mm deep concolorous with the pore surface, , context up to 1 mm deep, whitish to cream, often with a darker zone above the tubes, hyphal system monomitic; generative hyphae with clamps, 2-6 µm in diam., wider in context than in trama.
Basidiospores 3-4 x 23 µm, broadly elliptic to subglobose.
Distribution. Widespread in Eastern Africa, described from Sri Lanka.
Remarks. The pale, often irregularly soiled basidiocarps in dry condition, are typical for the species besides the small

spores. It may remind one of the temperate-boreal *C. mucida* which however has softer and friable basidiocarps in white to pale colours, and often with rhizomorphs.

Ceriporiopsis mellea Ryvarden,

Synopsis Fung. 38:13, 2018.
Basidiocarps annual, resupinate, adnate, becoming widely effused, waxy and soft when fresh, hard and brittle when dry, up to 1 mm thick; margin white narrow to missing, pore surface honey coloured, darker when touched or wounded, pores angular to circular, 7-8 per mm in regular areas, deeply split in sloping parts and then 4-5 per mm, tubes concolorous with pore surface, up to 1 mm deep, subiculum almost absent, white up to 100 µm thick.
Hyphal system monomitic; generative hyphae with clamps, thinwalled, 24 µm in diam., clamps large, often of same width as the hyphae as such, all hyphae smooth.
Basidiospores 3.54 x 2-2.5 µm, elliptic.
Distribution. In Africa only seen from Ethiopia.
Remarks. The species seems to be related to *C. gilvescens* with the fragile consistency when dry and old, but *C. ethiopicus* has smaller pores and smaller and wider spores.

Ceriporiopsis minispora Henkel & Ryvarden,

Synopsis Fung. 41:18, 2020.
Basidiocarps annual, resupinate about 5 x 2 cm and 3 mm thick, soft when fresh, hard and brittle when dry, margin wide to narrow, 1-6 mm wide, white, pore surface white, pores angular, thin walled, 1-4 per mm, tubes white, up to 3 mm deep, subiculum white, 0.5 mm thick.
Hyphal system monomitic, generative hyphae with clamps, hyaline, thin-walled, 2-4 µm wide.
Basidiospores 2 x 2.5 µm, subglobose.
Distribution: Known only from the type locality in Cameroon.
Remarks. The angular pores, the pure white basidiocarp and the small spores are distinct characters for this spices.

Ceriporiopsis nigroeffusa Oba, Mossebo & Ryvarden,

Synopsis Fung. 40: 100, 2020.
Basidiocarps annual, resupinate, effused on an almost vertical surface of a burnt log, 10 x 5 cm, up to 1 cm thick in knob-like areas, soft when fresh, brittle when dry, margin 1-5 mm wide, whitish, contrasting the greyish to grey pore surface, pores round 3-4 mm, tubes 4 mm deep, more or less concolorous with pore surface, subiculum white, thin, in parts almost invisible, up to 5 mm thick, fibrous.
Hyphal system monomitic; generative hyphae with clamps, 2-4 µm in diam.
Basidiospores 4-4.5 x 2-2.2 µm, cylindrical.
Distribution. Known only from the type locality in Cameroon.
Remarks. The greyish to grey pore surface, contrasting the white soft margin is a striking macroscopic character.

Ceriporiopsis subalba Ryvarden,

Synopsis Fung. 41:22, 2020.
Basidiocarps annual, resupinate, soft when fresh, brittle when dry, margin wide in part on sloping areas white, pore surface whitish with faint pale brown areas, pores round, 5-6 per mm, tubes up to 1 mm deep, white, subiculum hardly visible and white,
Hyphal system monomitic; generative hyphae with clamps, hyaline, thin-walled, branched, 2-5 µm wide.
Basidiospores 4.5-5 x 3.5-4 µm, oblong elliptic to almost subcylindrical, smooth, hyaline, non dextrinoid.
Substrate: Dead hard wood log.
Distribution. Known only from the type locality in Cameroon.
Remarks. A pure white basidiocarp and oblong elliptic spores characterize this species.

CERRENA S.F. Gray,

Nat. Arr. Brit. Plants 1: 649, 1821.
Basidiocarps annual, sessile, effusedreflexed, or resupinate; upper surface hispid to hirsute, zonate; pores large and daedaleoid or becoming irpicoid; context duplex; hyphal system trimitic; generative hyphae with clamps; cystidia none; basidia clavate, tetrasterigmatic; basidiospores cylindricalellipsoid, negative in Melzer's reagent. Causes a white rot of dead hardwoods. Widespread, small cosmopolitan genus with two species in Africa.
Type species: *Daedalea unicolor* Bull.: Fr.
Taxonomic synonym: *Sclerodepsis* Cooke, Grevillea 19:49, 1890.

Remarks: The genus is probably related to *Trametes* where similar basidiocarps are found in species such as *T. hirsuta* and *T. versicolor* which however have regular poroid hymenophores. The hyphal system, the type of spores, and the white rot are identical in the two genera. However, *Cerrena* is bipolar and has distinctly sclerified generative hyphae. This type of hyphae is unknown in *Trametes* which further is tetrapolar. These two differences are sufficient to keep the two genera apart. Further, there is a practical aspect as *Cerrena* was published 17 years earlier than *Trametes*. Thus, the former has priority and a merging of the two genera will necessitate a large number of transfers.

Key to species

1. Pileus first tomentose, then glabrous from the base, often zone wise, pore surface cream to pale straw coloured, pores in part regular, partly sinuous and elongated but not split in lamellae, wide spread tropical species....**C. meyenii**
1. Pileus persistently adpressed tomentose to hispid, pores labyrinthine, often deeply split to small lamellae, boreal temperate species, in Africa only known from the high mountains in East Africa .....**C. unicolor**

Cerrena meyenii (Kl.) Hansen,

Nat. Hist. Rennel Isl. 3:129, 1960. - *Polyporus meyenii* Kl., Nova Acta Leop. - Carol. 19 Suppl. 1:239, 1845. - *Trametes obstinatus* Cooke, Grevillea 12:17, 1883. - *Daedalea papyracea* Mass., Kew Bull. 1907:124, 1907. – *Daedalea ochracea* Kalch., Flora 59:362, 1876. - *Daedalea dregeana* Mont., Ann. Sci. Nat. Bot. Series 3, 7:171, 1847. - *Daedalea ealensis* Beeli, Bull. Soc. Bot. Belg. 62:65, 1929. - *Daedalea hobbsii* Van der Byl, S. Afr. J. Sci. 18:287, 1922.
Basidiocarps annual, more rarely reviving and more long- lived, solitary or imbricate, sessile to dimidiate, applanate, up to 18 cm long, 10 cm wide and 1.5 cm thick at the base, coriaceous when fresh, woody-hard and not flexible when dry, pileus first adpressed tomentose and soft, becoming glabrous from the base, or zone wise, when velutinate to tomentose white to greyish, in concentric sulcate bands often with green tints due to algae in the tomentum, when glabrous, pale to deep reddish-brown or tan, often in distinct bands, in section with a distinct dark and dense line below the tomentum, and this zone becomes the cuticle in glabrous specimens, margin wavy to distinctly lobed, pore surface cream to pale straw coloured, pores first entire and in parts persistently so, later split, elongated and sinuous, in old specimens labyrinthine, regular pores 1-3 per mm mostly somewhat elongated radially, more irregular pores up 1 mm wide and 2 - 4 mm long, tubes up to 4 mm deep, context up to 10 mm deep, pale straw coloured, darker than tubes and pore surface.
Hyphal system trimitic, generative hyphae thin-walled and with clamps, 1-3 um wide, skeletal hyphae dominating, hyaline to pale yellow, up to 8 um wide, binding hyphae twisted, dense and almost solid, most common in the context, more scattered in the tomentum.
Basidiospores 4.5-6.5(7) x 2-3 µm, cylindrical to allantoid.
Distribution. Widespread in eastern and southern Africa.
Remarks. The species is easy to recognize when old with a glabrous, reddish-brown cuticle. However, young specimens with more or less regular pores and only a weakly developed black zone above the context may be difficult to separate from *Trametes elegans* and *Trametes polyzona*. The former is glabrous and with a homogenous context. The latter has a more yellowish-brown basidiocarp and regular pores.

Cerrena unicolor (Bull.: Fr.) Murrill,

J. Mycol. 9: 91, 1903. *Daedalea unicolor* Bull.: Fr., Syst. Mycol. 1: 336, 1821.
Basidiocarps annual, sessile, effusedreflexed or rarely resupinate; often as imbricate clusters with numerous fused basidiocarps, dimidiate, up to 10 cm wide; upper surface pale brownish to grey, hirsute to almost glabrous, often green due to algae, sulcate; pore surface ivory to pale buff on young specimens, becoming darker with age, the pores daedaleoid, variable, 34 per mm, in parts larger, dissepiments at first thick and tomentose, becoming thin and splitting; context duplex, up to 3 mm thick, corky, lower layer pale brownish, separated from soft, spongy, darker upper layer by a thin dark zone; tube layer continuous and concolorous with lower context, up to 1 cm thick.
Hyphal system trimitic; contextual generative hyphae thinwalled, with clamps, 24 µm in diam; skeletal contextual hyphae thickwalled, nonseptate, 2.55 µm in diam; binding hyphae thickwalled, nonseptate, muchbranched, 24 µm in diam; tramal hyphae similar.
Basidiospores 57 x 2.54 µm, cylindrical elliptic.
Distribution. In Africa only seen from Tanzania, Mt. Meru, 3400 m. Circumpolar in the temperate zone,
Remarks. Basidiocarps of *C. unicolor* are easy to recognize because of the hirsute pileus, the black line in the context and the labyrinthine, usually greyish hymenophore.

CHAETOPORELLUS Singer,

Mycologia 36:67, 1944.
Basidiocarps annual, resupinate; pore surface white to tan; hyphal system monomitic; generative hyphae with clamps; cystidia cylindrical, thick to thinwalled, encrusted or smooth; basidia clavate, tetrasterigmatic; basidiospores cylindrical, hyaline, negative in Melzer's reagent. Monotypic genus with a white rot.
Type species: *Polyporus latitans* Bourdot & Galzin.
Remarks. The genus is related to *Hyphodontia* s. lato in the Corticiaceae by its hyphal system and allantoid spores.

Chaetoporellus latitans (Bourd. & Galzin) Singer,

Mycologia 36:67, 1944. *Poria latitans* Bourdot & Galzin, Bull. Soc. Mycol. France 41:226, 1925.
Basidiocarps annual, resupinate, usually fertile to the margin; pore surface tan, the pores angular, 1-3 per mm, with thin, entire dissepiments that split deeply and become lacerate; subiculum less than 1 mm thick, tan to pale buff; tubes cream buff within, trama concolorous and continuous with context, tube layer up to 2 mm thick.
Hyphal system monomitic; generative hyphae thin-walled, with clamps, 24 µm in diam.
Cystidia 25-35 x 3-4.5 µm, cylindrical, with refractive contents, thinwalled, smooth, mostly imbedded, projecting to 10 µm.
Basidiospores 3.5-5 x 0.5-0.8 µm, narrowly allantoid.
Substrata. In Africa on hardwoods, in Europe also found on *Pinus*.
Distribution. Cosmopolitan species. In Africa from Tanzania and Malawi.
Remarks. *Chaetoporellus latitans* may be confused with a *Ceriporiopsis* species, which all have larger spores and lack cystidia.

COLTRICIA S.F. Gray,

Nat. Arr. Brit. Plants 1: 644, 1821.
Basidiocarps annual, stipitate, soft and tough when fresh, hard and brittle when dry; pileus surface yellowish to deep rusty brown, in some species greyish with age, tomentose to silky with appressed hairs; pore surface cinnamon to rusty brown, pores angular, medium to large; stipe usually central, concolorous with the pileus; context cinnamon to deep rusty brown; all parts of basidiocarp black with KOH; hyphal system monomitic; generative hyphae with simple septa, hyaline to pale rusty brown, narrow to wide, thin- to thick-walled; setae absent in all temperate species, present in some tropical representatives; spores cylindrical to elliptic, at maturity golden yellow to rusty brown, thin- to slightly thickwalled, slightly dextrinoid in Melzer's reagent. On the ground, and the type species is mycorrhizal or well decayed wood.
Type species: *Polyporus perennis* L.: Fr.
Remarks. The genus as circumscribed here seems to be a rather natural one. The type species is known to be ectomycorrhizal and that may well be the case with the other species in the genus.

Key to species

1. Spores 11 -14 x 7-9 ..... **µm C. grandispora**
1. Spores smaller..... **2**

2. Spores 9-10 µm long, West African species..... **C. duportii**
2. Spores smaller..... **3**

3. Spores 6.8–9.0 × 4.5–6.0 µm **4**
3 Spores smaller..... **5**

4. Pileus velutinate, up to 12 cm wide, widespread species .....**C. cinnamomea**
4. Pileus coarsely hirsute, up to 8 mm wide, known only from Sao Thome ..... **C. oboensis**

5. Pores 6-7 per mm, under *Widdringtonia* in Malawi ..... **C. africana**
5. Pores 2-4 per mm, on burnt areas, West African species .....**C. pyrophila ispora**

Coltricia africana Masuka & Ryvarden,

Mycol. Helvetica 5:144, 1993.
Basidiocarp annual, stipitate, up to 8 cm high, pileus funnel shaped, circular with a wavy margin, strongly curled inwards when dry, µm 10 cm in diameter, upper surface warm rusty brown, soft and adpressed velutinate, becoming almost glabrous in zones with age, narrowly concentrically zonate, stipe 2-10 mm in diameter, slightly swollen at the

base, colour and surface concolorous with that of the pileus, in section with a darker denser core; hymenophore rusty brown, pores 6-7 per mm, almost invisible to the naked eye, tubes up to 4 mm deep; context dense and homogenous, 1-4 mm thick, soft an flexible when fresh, stiffer when dry.
Hyphal system monomitic, generative hyphae with simple septa, richly branched on the pileus, in the trama and context running parallel in a dense structure, 4-7.5 µm in diameter with thickened walls, hyaline in the subhymenium, otherwise pale yellow to rusty brown; setae absent.
Basidiospores 4-4.5(-5) x 4.5-6(-7) µm, elliptic, smooth, slightly dextrinoid.
Substrate. On the ground under *Widdringtonia nodiflora*.
Distribution. Known only from the type locality at Mulanje Mt. in Malawi.
Remarks. This species is seemingly close to *C. cinnamomea* which is distinctly separated by smaller pores and spores (2-4 per mm and 6-10 x 4.5-7 µm respectively). The pileus surface is however identical in the two species.

Coltricia cinnamomea (Jacq.) Murrill, Fig. 11 & 12.

Bull. Torrey Bot. Club 31: 343, 1904. - *Boletus cinnamomeus* Jacq., Collect. Bot. 1: 116, 1787. - *Polyporus cinnamomeus* (Jacq.) Pers., Mycol. Eur. (Erlanga). 2: 41, 1825.
Basidiocarps annual, more or less stipitate, pileus circular, flat to infundibuliform, rarely above 34 cm in diam, in the tropics up to 12 cm in diam, up to 5 mm thick in centre, margin lobed, incised to entire, often fused with adjacent basidiocarps, sharp and mostly deflexed when dry; pileus surface finely velutinate, shiny to glossy, with numerous distinct to indistinct concentric zones, brown to deep reddish brown; stipe cylindrical to flattened, mostly expanded towards the base, finely velutinate, ochraceous rusty to deep reddish brown, up to 3-4 cm long, 2-6 mm in diam; pore surface reddish brown, pores thin-walled and angular, 2-4 per mm; context thin, up to 1 mm thick, fibrous and rusty to reddish brown; tube layer up to 2 mm thick, more or less concolorous with the pore surface.
Hyphal system monomitic; generative hyphae with simple septa, at first thinwalled and hyaline (best seen in the subhymenium), later more thickwalled and golden to light rusty brown, septation frequent in hymenium and subhymenium, more scattered in the context where the hyphae are longer and straighter, not branched to the same degree as in the hymenium, branching at right or wide angles, in the hymenium 2-5 µm in diam, in the context of pileus and stipe up to 10 µm in diam and sometimes very thickwalled.
Basidiospores 6.5-8 x 5-6 µm, oblong to broadly elliptic, smooth, thin to distinctly thickwalled, golden yellow, weakly dextrinoid.
Substrata. On the ground in hardwood or mixed forests, often in burnt places.
Distribution. Cosmopolitan species and widespread in the warmer zones.
Remarks. It is distinguished by its fairly large spores and the reddish brown and even pileus.

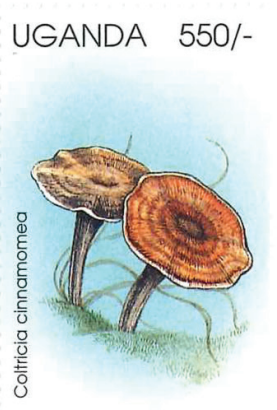

Fig 11. *Coltricia cinnamomea*, Photo D. Mossebo.
Fig. 12. *Coltricia cinnamomea stamp*

Coltricia duportii (Pat.) Ryvarden,

Occas. Papers Farlow herb. 18:15, 1983. – *Xanthochrous duportii* Pat., Bull. Soc. Mycol. Fr. 28:34, 1912.
Basidiocarps annual, pileate, laterally to almost centrally stipitate, applanate, up to 2.5 cm wide and long, 1 cm thick, light of consistency, pileus dull, azonate adpressed velutinate, rusty to deep cinnamon brown, pore surface rusty brown, pores angular, 2-3 per mm, tubes concolorous, up to 5 mm deep, context up to 5 mm thick, rusty brown.
Hyphal system monomitic; generative hyphae hyaline to rusty brown variably thick-walled, 3-7 µm wide.
Basidia not seen.
Basidiospores 9-10 x 6-7 µm, oblong elliptic, rusty brown, thick walled and smooth.
Substrate. On dead hard wood.
Distribution: In Africa known only from Camayenne, Conakry, Guinea, widespread in tropical South America.
Remarks. The species is undoubtedly related to *C. oboensis*, separated only by larger spores and a more robust basidiocarp.

Coltricia oboensis Decock

Cryptog. Mycol. 34: 176, 2013.
Basidiocarps seasonal, stipitate, pleuropodal; stipe lateral, faintly bulbous at the very base, 8–20 mm long ≤ 1 mm diam., circular in section, coarsely hirsute, brown); pilei dimidiate, plane to slightly convex, 5–8 mm wide, up to 3–3.5 mm thick; pileus surface shiny, cork-coloured to brown, coarsely hirsute or fibrillose, margin abruptly bent down, fimbriate; pore surface greyish to greyish brown, pores irregular, rounded to elongate, daedaloid in some parts, entire, 2–3 per mm; tubes 3–3.5 mm deep, light brown to brown, fibrous; context very thin, up to 100 µm thick, homogeneous, brown, fibrous.
Hyphal system monomitic; generative hyphae simple-septate, little branched, thin- to variably thick-walled, first hyaline first, soon yellowish to golden brownish, in the context mostly parallel to the surface, slightly interwoven,4.0–6.5 µm diam.
Basidia 15–22 × 6–9 µm, shortly pedunculate to clavate.
Basidiospores 6.8–9.0 × 4.5–6.0 µm, broadly elliptic to sub-oblong, pale yellowish brown and thick-walled.
Substrate. Among mosses on dead stump or at the base of living tree, unidentified angiosperm, in cloud forest.
Distribution: Only known from high elevation in São Tomé.
Remarks. The minute, stipitate, pleuropodal basidiocarp, hirsute stipe, dimidiate, fibrillose and shiny pileus, irregular pores, 2–3 / mm, and the broadly ellipsoid basidiospores, mostly 6.8–9.0 × 5.0–6.0 µm are diagnostic for this species.

Fig. 12B. *Coltricia oboensis*, the holotype. Photo: C. Decock.

Coltricia grandispora Ryvarden & Hauskn.,

Öst. Z. Pilzk. 15: 143, 2006.
Basidiocarps: annual, centrally or slightly eccentrically stipitate, single, rarely 2-3 attached together, pileus: 8-45(-60) mm in diam., up to 20 mm thick, mostly regularly circular, infundibuliform, even young with slightly depressed centre, later distinctly depressed, margin obtuse, involute, sometimes slightly incised; young specimens light to dark brown finally nearly black with brownish hue, mostly distinctly sulcate to zonate. Surface in centre nearly smooth, shining, velvety to tomentose near the margin, pores: slightly decurrent, irregular, up to 2 mm wide, slightly angular, radially elongated near the stipe, furcate in old specimens, rust brown, tubes: up to 5 mm long, concolorous with pores, context: hard, brittle, brown, without distinct smell.
Stipe: 13-40 mm long, 1-3.5 mm in diam., cylindrical to slightly enlarged towards the base, longitudinally fibrillose to tomentose, later nearly smooth, greyish brown to dark brown.
Hyphal system: monomitic; tramal hyphae thick-walled, brown, up to 5 µm wide, in the context up to 10 µm wide
Basidia: 17-20 x 8-10 µm, bistergimatic.
Basidiospores: 11.5-14 x 7-9 µm, elliptic, smooth, thick-walled, ochre yellow.
Substrate. On the ground.
Distribution. Seen only in the Seychelles: Mahé and Praslin islands.
Remarks. The large spores make this to a distinct species.

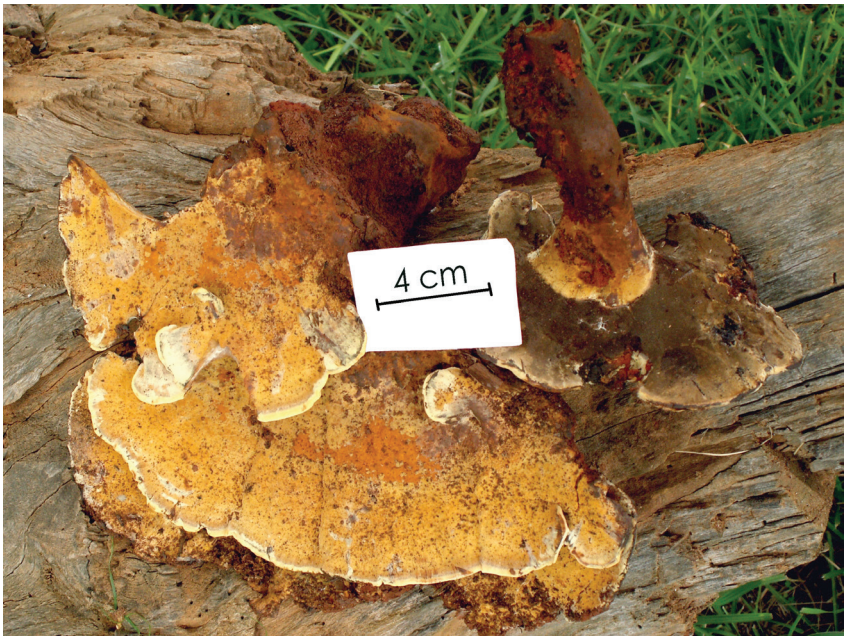

Fig. 13. *Coltricia pyrophila*, photo D. Mossebo.

Coltricia pyrophila (Wakf.) Ryvarden, Fig. 13

Norw. J. Bot. 19:231, 1972. *Polyporus pyrophilus* Wakef., Kew Bull. 1916:71, 1916.
Basidiocarps annual, centrally stipitate, flat to infundibuliform, up to 8.5 cm in diameter, and 3 cm thick at the base, probably coriaceous when fresh, brittle when dry, pileus azonate, yellowishbrown to dark cinnamon, velvety adpressed tomentose to almost glabrous with age, smooth to slightly folded radially, also with scattered protuberances and small pits, margin entire to wavy, thin and deflexed, at least in dry specimens, stipe short and expanded both towards the base and the pileus, 5-30 mm in diameter, 2-6.5 cm long, fulvous to cinnamon, finely adpressed velvety, probably almost smooth with age as the upper hyphae agglutinate, smooth to slight uneven, solid and nonstratified, pore surface cinnamon to brown with a narrow lighter sterile margin, pores angular and thinwalled, often decurrent on the stipe, 2-4 per mm, tubes concolorous, up to 3 mm deep, context homogeneous, cinnamon to goldenbrown, quite dense, up to 20 mm thick towards the stipe, 2 mm or so at the margin.
Hyphal system monomitic, generative hyphae hyaline, goldenbrown or rustybrown and with simple septa, moderately branched, brittle and breaks easily in microscopic preparations, 3.5-5 µm wide in the hymenium, up to 10 µm wide in context and stipe.
Basidiospores 4-5.5(6) x 3-3.5 µm, oblong elliptic.
Substrate. On burnt wood.

Distribution. Specimens have only been seen from Sierra Leone and Nigeria.
Remarks. This is a distinct robust species with a thick and mostly short stipe. The azonate cinnamon, dull surface with homogeneous stipe and context and the substrate should be good field characteristics.

COLTRICIELLA Murrill,

Bull. Torrey Bot. Cl. 31:348, 1904.
Basidiocarps pendant with a thin stipe or elongated tapering base, usually small, 4-20 mm wide, soft and fragile, pileus rusty-brown, adpressed velutinate, pore surface brown, pores 2-3 per mm, context rusty-brown, hyphal system monomitic, generative hyphae with simple septa, setae none, spores elliptical to slightly pipshaped, pale yellowish and finely verruculose. On hard woods.
Type species: *Coltriciella dependens* (Berk. & M. A. Curtis.) Murrill.
Remarks. The genus is related *Coltricia*, but separated by its small, pendant basidiocarps and the finely verruculose spores.

Coltriciella dependens (Berk. & M. A. Curtis) Murrill,

Op. cit. - *Polyporus dependens* Berk. & M. A. Curtis, Ann. Mag. Nat. Hist. Ser. 2, Vol. 12:431, 1853. - *Polyporus deceptivus* Lloyd, Lloyd Mycol. Writ. 7:1316, 1924.
Basidiocarps pendant from a distinct stipe or more contracted vertex, stipe up to 1 cm long and some mm wide, pileus usually circular, 3-20 mm wide, 2-8 mm thick, soft and brittle or fragile when dry, light in weight, pileus rusty-brown to dark brown, first finely velutinate, with age glabrous with some faint radial striae, margin vertical, pore surface rusty-brown, applanate, pores angular, 2-3 per mm, tubes up to 6 mm deep, context rusty-brown, soft and 2-5 mm deep.
Hyphal system monomitic, generative hyphae with simple septa, 2-8 um wide, in context and trama thick-walled and yellowish to rusty brown, moderately branched, often at right angles.
Basidiospores 7-10 x 4-6 µm, elliptic to slightly pipshaped, yellowish, finely asperulate.
Substrate. Hard wood, often on burnt wood.
Distribution. Pantropical, rare, in Africa seen from Cameroon and in pine plantations in Zimbabwe.
Remarks. The small rusty-brown pendant basidiocarps and the finely asperulate spores make this a distinct species. Because of its small, size, it is easily overlooked.

CORIOLOPSIS Murrill,

Bull. Torrey Bot. Club 32: 358, 1905.
Type species: *Polyporus occidentalis* Klotzsch. a taxonomic synonym of *Polyporus polyzonus* Pers.
Remarks. Welit et al. (2012) have shown with DNA studies that *P. polyzonus* falls inside *Trametes* as defined in this book, thus, we treat *Coriolopsis* as a taxonomic synonym of *Trametes*.

CYCOLMYCES Fr.,

Linnaea 5:512, 1830.
Basidiocarps annual, pileate, solitary or imbricate, semicircular to flabelliform or sometimes dimidiate with a contracted base, finely pubescent in warm brown colours, pores variable or concentrically lamellate, context distinctly duplex, lower part dense, separated from the pileus tomentum by a thin black zone, hyphal system monomitic, generative hyphae hyaline to brownish and with simple septa, setae present, dark brown, acute and thickwalled, basidiospores hyaline to very pale yellowish, cylindrical to elliptic, negative in Melzer´s reagent, basidiocarps black in KOH. On hard wood with a white rot. Pantropical genus with four species.
Type species: *Cyclomyces fuscus* Fr.
Remarks. The genus may be related to *Inonotus*, but is easily separated by its thin and flexible basidiocarps with a distinct duplex context where this is separated from the pileus tomentum by a thin black line, at least close to the base.

Key to species

1. Hymenophore concentrically lamellate, at least in parts ..... **C. fuscus**
1. Hymenophore poroid **2**

2. Pores 79 per mm ..... **C. tabacinus**
2. Pores 1-3 per mm ..... **C. setiporus**

Cyclomyces fuscus Fr.,

Linnaea 5:512, 1830.
Basidiocarps annual to perennial, solitary or imbricate, in clusters, flabelliform with an almost stipitate attachment to more broadly attached to sessile, consistency coriaceous when dry, pileus up to 5 cm wide and long and 13 mm thick, ferruginous, fuscous to sepia, concentrically zoned in different shades of brown, tomentose to velvety in touch and slightly furrowed, margin acute, entire or lobed, pore surface bay, ferruginous or dark brown, plane, margin sterile, hymenophore concentrically lamellate, 4-5 per mm radially, when older 2-3 per mm, edges acute, toothed, finely velutinate, up to 1 mm deep, near the periphery they may anastomose to form angular, shallow pores, context up to 2 mm thick, duplex, lower part dense, chestnut to dark fuscous, separated with a black zone from the looser tomentum.
Hyphal system monomitic, generative hyphae yellowish to pale ferruginous, with simple septa, thickwalled, 4-8 µm in diameter.
Hymenial setae 25-40 x 5-10 µm, dark brown, thickwalled and acute, projecting, often bent at the base.
Basidiospores 3.5-4 x 1.5-2 µm, narrowly elliptic.
Distribution. Pantropical, but rare.
Remarks. *C fuscus* differs from the other species in the genus in having concentric lamellae, which near the margin may anastomose to form angular, shallow pores.

Cyclomyces setiporus (Berk.) Pat.,

Ess. tax. p. 98, 1900. - P*olyporus setiporus* Berk., Lond. J. Bot. 6:505, 1847.
Basidiocarps annual to perennial, solitary or imbricate, attached by a lateral or central base, but usually no distinct stipe, fan-shaped, reflexed or revolute often incised or lobed, consistency coriaceous, pileus chestnut, cinnamon to reddish-brown, darker when old, narrowly concentrically zoned in slightly different colours, tomentose to striate, silky and shining, soon glabrous, up to 8 cm in diameter and 3 mm thick at the base, pore surface umber to dark fulvous often with a greyish tint, pores round to somewhat angular, 1-3 per mm, dissepiments thin, entire or toothed, tubes up to 1 mm long, context 0.5-1 mm thick, cinnamon to fulvous, limited towards the tomentum by one or two dark lines or zones of densely agglutinated hyphae.
Hyphal system monomitic, generative hyphae in the tubes yellowish to brown, thin-walled to almost solid, with simple septa, 3-5 µm in diameter, pileus tomentum consists of brown thick-walled to solid hyphae, 3.5-6 µm wide.
Hymenial setae 40-60 x 6-7 µm, acute, dark brown and thick-walled, often bent near the base.
Basidiospores 2.5-3 x 1.5-2 µm, elliptic.
Distribution. In Africa seen only in Kenya, widespread in Asia and Australia.
Remarks. *C. setiporus* differs from the other species in the genus by its large pores.

Cyclomyces tabacinus (Mont.) Pat., Fig. 14

Essai tax. p. .98, 1900. *Polyporus tabacinus* Mont. Ann. Sci. Nat. Ser. 3, vol 3:349, 1835.
Basidiocarps annual to perennial, up to 8 cm wide and long, 13 mm thick, solitary to densely imbricate or in rows, sessile or more usually fan shaped to flabelliform with lateral tapering base, more seldom orbiculate with central stipe like base, consistency tough to brittle when dry, pileus dark brown to bay or reddishbrown, narrowly concentrically zoned in different shades, almost black when old, upper surface velvety, tomentose to hirsute, with age glabrous in concentric zones, finely radiately striate, silky and shining, pore surface fulvous to dark brown sometimes with a greyish tint, pores round and entire, when old often lacerate, (7)8-9 per mm, tubes 0.5-1 mm deep, context duplex, 0.5-1 mm thick, ferruginous to cinnamon, towards the tomentum separated by one or two (seldom three) dark lines or zones of dark agglutinated hyphae.
Hyphal system monomitic, generative hyphae in the tubes yellowish to brown, thin to thickwalled, simpleseptate, 3.5-5 µm in diameter.
Hymenial setae 25-45 µm x 5-6.5(8) µm, dark brown, thick walled and pointed.
Basidiospores 2.5-3.5 x 1.5-2 µm, elliptic.
Distribution. Pantropical and rather common.
Remarks. The small, almost invisible pores characterize this species. It is the most common species in the genus.

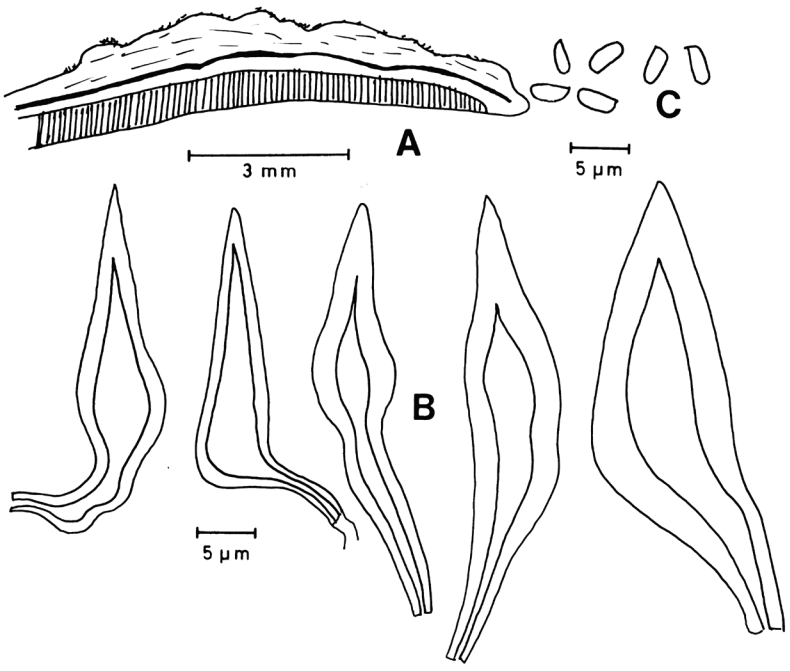

Fig. 14. *Cyclomyces tabacinus*, A) section through basidiocarp, B) hymenial setae, C) basidiospores, from the lectotype, del. L. Ryvarden.

DAEDALEA Pers.: Fr.,

Syst. Mycol. 1:331, 1821. - *Daedalea* Pers. Syn. Meth. Fung. p.499, 1801.
Basidiocarps perennial, pileate, broadly sessile; pileus surface smooth to velutinate, often concentrically sulcate; hymenophore irregular, partly poroid, partly split into sinuous pores, labyrinthine to daedaleoid, or strictly lamellate, ochraceous; context light to deep brown; hyphal system trimitic; generative hyphae thin walled, hyaline, with clamps; binding hyphae tortuous with short stout branches, hyaline to light yellowish brown; skeletal hyphae thick walled to solid, light ochraceous brown, bending from the trama into the hymenium and developing a catahymenium; basidiospores oblong-elliptic to cylindrical, thin walled, hyaline, negative in Melzer's reagent; chlamydospores present in some tropical species; on hardwoods with a brown rot; small cosmopolitan genus.
Type species: *Daedalea quercina* L.: Fr.
Remarks. Previously this was a collective genus for all species with a daedaleoid to labyrinthine hymenophore. As more microscopical, chemical and other characters become available; most species have been transferred to other genera.

Excluded: *Daedalea ligneotexta* Van der Byl, S. Afr. J. Sci. 18: 308, 1924.
The identity of this species is unknown. The type has not been available for studies.

Key to species

1. Basidiocarps often massive, pileus black, cystidia present ..... **D. sprucei**
1. Basidiocarps often small, pileus in brown shades, cystidia absent **2**

2. Known only from *Quercus* sp. in South Africa ..... **D. quercina**
2. Known from different hard woods **3**

3. Pileus in shades of brown, hymenophore poroid to lamellate..... **D. africana**
3. Pileus white to pinkish, hymenophore poroid to dentate and split ..... **D. stereoides**

Daedalea africana Johansen & Ryvarden,

Prelimin. Polypore fl. East Africa p. 204, 1980.
Basidiocarps perennial, solitary or imbricate, resupinate, effused-reflexed or pileate, broadly attached, up to 10 cm broad, 8 cm wide, 0.5-4 cm thick near the base, flexible to woody hard when dry, pileus dimidiate to semicircular, dull, flat or slightly convex, upper surface first slightly tomentose and light brown sometimes with a reddish tint, later more glabrous and darker fulvous or bay, very old specimens dark blackish-brown, weakly concentrically zoned especially near the margin, completely covered with small irregular warts and ridges, margin thin to rather thick, acute to round, entire or slightly lobed, pore surface dull, light grey, whitish in living specimens, later light-brown to fulvous, in young specimens and near the margin poroid, daedaleoid to labyrinthine, later lamellate, (10) 11-13 lamellae per cm measured tangentially near the margin, dissepiments usually thin, entire and incised, slightly sinuous, tubes up to 3.7 cm long, cream to light greyish, more brown near the con text, single layered or very indistinctly stratified, context 1-3 mm thick, pale brown.
Hyphal system trimitic, generative hyphae clamped, hyaline, thin to slightly thick-walled, 3-3.5 µm in diameter, skeletal hyphae dominating in the whole basidiocarp, yellow and thick-walled 2-4(5) µm wide, binding hyphae difficult to find, slightly thick-walled and yellowish, 2-2.5 µm wide, with few short branches.
Cystidia absent.
Basidiospores 4.5-6 x 2.5-5 µm, broadly elliptic.
Distribution. Known only from Kenya.
Remarks. Macroscopically rather similar to *D. sprucei*, but *D. africana* has 10-13 lamellae or pore walls per cm measured tangentially, while there are 6-7 per cm in *D. sprucei*. Microscopically the species is easily separated as it lacks the typical cystidia of *D. sprucei*.

Daedalea quercina L.: Fr.,

Syst. Mycol. 1:333, 1821. - *Agaricus quercinus* L., Spec. Plant. p. 1176, 1753.
Basidiocarps perennial, single or with a few pilei fused laterally, broadly sessile to dimidiate, semicircular, up to 20 cm wide, 15 cm broad and 8 cm thick, strongly attached to the substrate, corky to woody and hard; pileus flat to slightly convex, smooth to finely velutinate, pore surface flat to oblique, ochraceous, occasionally with some pale violet patches or spots, hymenophore irregular, along the margin with elongated poroid, otherwise sinuous, daedaleoid to labyrinthine or almost lamellate, mostly 14 mm wide measured tangentially, context up to 1 cm thick, ochraceous to tobacco brown, tubes up to 4 cm long, light ochraceous-.
Hyphal system trimitic; generative hyphae thin walled, hyaline, with clamps, 1.5-4 µm in diam; binding hyphae tortuous with short branches, thick walled to solid, light golden yellowish brown; skeletal hyphae dominating, thick walled to solid, light brown, 3-6 µm in diam.
Cystidia none, but skeletal hyphae bend into the hymenium as a dense catahymenium with cystidia like, rounded and thick walled apices, often with a fine granular exudate; some skeletal hyphae slightly swollen and pointed at the apex, strikingly similar to true hymenial cystidia unless followed into the trama where they originate.
Basidiospores 5.5-6 x 2.5-3.5 µm, cylindrical.
Substrata. Follows *Quercus* species everywhere.
Distribution. In Africa known only from South Africa.
Remarks. *D. quercina* is usually easy to recognize because of the even pale cork colour, the very hard basidiocarps, and the irregular daedaleoid hymenophore.

Daedalea sprucei Berk.,

Hook. J. Bot. 8:236, 1856. - *Hexagonia erubescens* Berk., Ibid. p. 237, 1856. – *Hexagonia aequalis* Pat., Jour. Bot. 3:258, 1889. - *Trametes incerta* Curr., Trans. Linn. Soc. Ser. 2 Vol 1:123, 1876. - *Lenzites distancifolia* Romell, Kung. Sv. Vetensk. Akad. Hand. 26:12, 1901. - *Irpex rickii* Lloyd, Lloyd Mycol. Writ. 7, no. 75:1358, 1921.
Basidiocarps perennial, solitary or imbricate, pileate, effused-reflexed or entirely resupinate, broadly attached, variable in size, 3-40 cm wide, 2-20 cm measured radially and 0.7-8 cm thick, often triangular in section, consistency woody hard when dry, pileus semicircular to dimidiate, flat to slightly concave, upper surface first finely tomentose and ochraceous to pinkish fawn, soon
glabrous and darkening to almost black in old specimens concentrically zoned. sulcate, often uneven and warted, irregularly cracking up both in radial and tangential direction making the surface highly coarse, pore surface hazel to sepia or cigar-brown with a pinkish or greyish tinge when dry, initially daedaleoid and labyrinthine, radially elongated, becoming lamellate to irpicoid 5-8(9) per cm measured tangentially near the margin, tubes or lamellae up to 8 cm long, homogenous or indistinctly stratified, context medium brown, up to 1 cm thick, but most usually 1-2 mm, in effused specimens often difficult to observe, fibrous, homogeneous or slightly zoned reflecting the growth stages.
Hyphal system trimitic, generative hyphae clamped, hyaline and thin-walled to slightly thick-walled, 2-3 µm in

diameter, skeletal hyphae abundant, thick-walled to almost solid, yellow to pale brown, 4-5 µm in diameter, binding hyphae rather scanty, hyaline to pale yellow, appearing solid, 2-3 µm wide.
Cystidia 13-27 x 5-7 µm, numerous, ventricose, projecting or embedded at various levels, those near the hymenium thin-walled and hyaline, older ones with apical encrustation and yellow to pale brown.
Basidiospores 4-5.5 x 2-2.5(3) µm cylindrical to elliptic.
Distribution. Pantropical, in Africa seen from Kenya, Mozambique, Uganda and Tanzania.
Remarks. *D. sprucei* is recognized by the cystidia and the dark colours.

Daedalea stereoides Fr., Fig. 15.

Nova Acta Reg. Soc. Sci. Upps. Ser. III, 1:99, 1851. - *Irpex durescens* Cooke, Grevillea 9:98, 1881. – *Daedalea gilvidula* Bres., Hedwigia 51:320, 1912.
Basidiocarps annual to perennial, pileate, broadly to narrowly attached, often fused into lateral rows or imbricate, up to 8 cm broad, 5 cm wide and 1 cm thick near the base, thinning out towards the margin, consistency coriaceous to hard when dry, pileus dimidiate to flabelliform or semicircular, attached with a disc or completely sessile, surface first white to ochraceous buff with a pink tint, finely adpressed tomentose to velutinate and concentrically zoned, with age becoming glabrous, pore surface cork, wood coloured to buff, variable, first poroid with few split pores, later semi daedaleoid to labyrinthine with deeply incised lamellae to flattened teeth, more rarely hydnoid with almost cylindrical spines, 1-3 pores or spines (teeth) per mm, spines or lamellae up to 5 mm deep or long, context concolorous with the pileus or paler, up to 3 mm thick.
Hyphal system trimitic, generative hyphae hyaline, clamped and thin- to thick-walled, strongly branched near the hymenium, 2-3 µm wide, skeletal hyphae thick-walled to solid, hyaline,3-8 µm in diameter, binding hyphae moderately branched, hyaline, up to 6 µm wide.
Cystidia proper absent, but the skeletal hyphae bend into the hymenium as cystidial organs, smooth to finely encrusted, most conspicuous in collapsed hymenia.
Basidiospores 4.5-5.5(6) x 2- 2.5 µm, broadly elliptic.
Distribution. Apparently pantropical, but not common. The type came from Costa Rica.
Remarks. The buff-pinkish colour is typical for this species and it often reminds one of *Fomitopsis feei* in colour with its banded pinkish pileus.

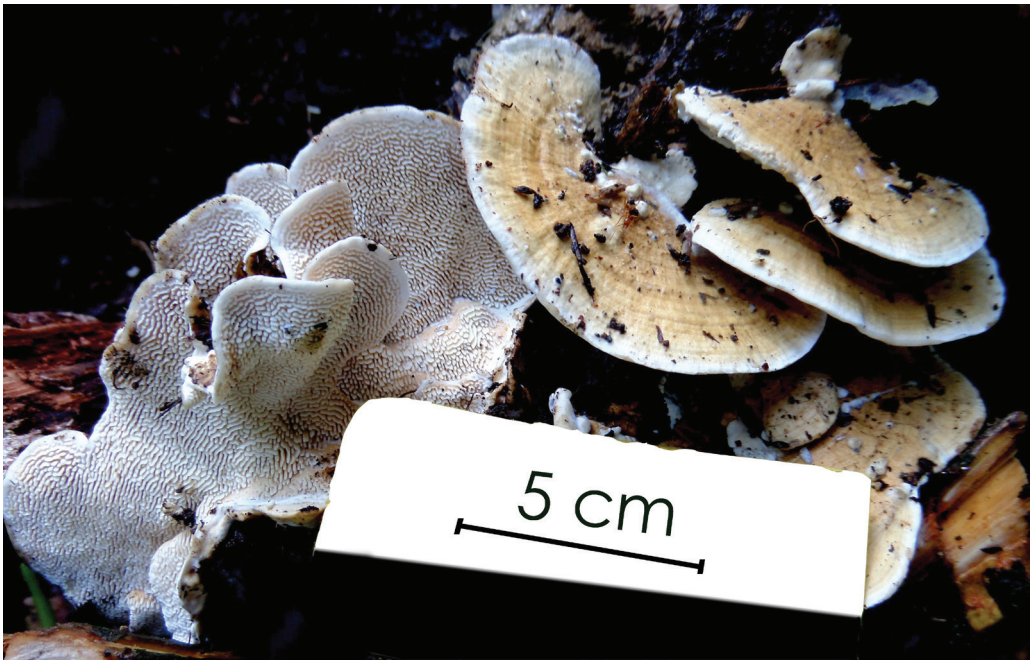

Fig. 15. *Daedalea stereoides*, foto D. Mossebo.

DAEDALEOPSIS J. Schroet.,

Krypt. Fl. Schlesien 3:492, 1888.
Basidiocarps annual, sessile to effused reflexed; upper surface pale brown to deep red, zonate, glabrous; hymenophore lamellate to tubular; context pale brown, tough to fibrous; hyphal system trimitic; generative hyphae with clamps; skeletal and binding hyphae pale brown; dendrohyphidia present; basidia clavate, tetrasterigmatic, with a basal clamp; basidiospores cylindrical, slightly curved, hyaline, smooth, negative in Melzer's reagent. Causes a white rot of dead hardwoods, rarely on conifers.
Type species: *Boletus confragosus* Bolton.
Remarks. The genus is undoubtedly related to *Datronia* but the faintly tinted skeletal hyphae, the dendroid hyphae (dendrohyphidia) along the dissepiments, and the long cylindrical spores separate this genus.

Daedaleopsis africanus Ryvarden,

Synopsis Fungorum 39:60, 2019.
Basidiocarps annual, sessile, up to 3 cm long, 2 cm wide and 1 cm thick at base, tough when fresh, dense and hard when dry, pileus white to pallid brown in along radial partly irregular ridges, sulcate, glabrous, pore surface wood coloured to pale ochraceous, pores angular 1-2 per mm, tubes concolorous with pore surface, up to 1 mm deep, context homogenous, dense, white up to 8 mm thick at the base.
Hyphal system dimitic, generative hyphae with clamps, delicately thin walled, 2-4 µm wide, skeletal hyphae thick walled to almost solid, 3-6 µm wide.
Dendrohyphidia present, hyaline, up to 25 µm long**.**
Basidiospores 14-16 x 4-5 µm, cylindrical.
Distribution. Known only from the type locality in Zimbabwe.
Remarks. This is a remarkable species by its long cylindrical spores and presence of dendrohyphidia.

DATRONIA Donk,

Persoonia 4:337, 1966.
Basidiocarps annual, resupinate to effused reflexed; upper surface brown to black, tomentose to glabrous; pore surface whitish to pale brown, pores large to small, circular to daedaleoid; context pale brown, tough to fibrous; hyphal system trimitic; generative hyphae with clamp connections; skeletal hyphae hyaline to pale brown; hyphae on dissepiments edges dendritically branched in some species; sterile cystidioles present or absent; basidia clavate, tetrasterigmatic; basidiospores cylindrical, hyaline, smooth, negative in Melzer's reagent; on dead hardwoods, causing a white rot.
Type species: *Polyporus mollis* Sommerf.: Fr.
Remarks. The genus is distinguished by a distinct cuticle or dark zone below a more or less persistent tomentum. The dendroid hyphae seen along the dissepiments in some species of *Datronia* are unknown in other dark coloured species described here.
NB Since all spores in the genus are thin walled, smooth hyaline and non-reactive in Melzer's reagent, this information is not repeated for each species.

Key to species

1. Basidiocarps corky to hard; pileus glabrous to finely velutinate, dark brown to black **2**
1. Basidiocarps tough to fibrous and flexible, pileus velutinate, tomentose to hispid, dark brown **3**

2**.** Spores cylindrical 8-12 x 3-4.5 µm ..... **D. scutellata**
2. Spores elliptic, 7-9 x 5-6 µm ..... **D. africana**

3. Basidiocarps thin and flexible, usually with a wide resupinate part, skeletal hyphae dextrinoid ....**D. brunneoleuca**
3. Basidiocarp usually distinctly pileate, skeletal hyphae non dextrinoid **4**

4. Pores round, angular to labyrinthiform, 12 per mm ..... **D. mollis**
4. Pores round, 4-5 per mm .....**D. caperata**

Datronia africana Ryvarden,

Synopsis Fung. 39:61, 2019.
Basidiocarps annual, sessile, up to 6 cm long, 3 cm wide and 1.5 cm thick at base, tough when fresh, dense and hard when dry, pileus pale brown becoming black from the base, slightly sulcate, glabrous, pore surface pale brown when dry, pores round, 4-5 per mm, tubes concolorous with pore surface, up to 5 mm deep, context homogenous, dense,

snuff brown, up to 1 cm thick at base.
Hyphal system dimitic, generative hyphae with clamps, delicately thin walled, 2-4 µm wide, skeletal hyphae thick walled, 2-5 µm wide, slightly dextrinoid.
Basidiospores 7-9 x 5-6 µm, elliptic.
Distribution. Known only from the type locality.
Remarks. This is an intriguing species with its fairly large elliptic spores and slightly dextrinoid skeletal hyphae. Undoubted it is related to *D. scutellata* which has similar small black basidiocarps, but where the spores are cylindrical.

Datronia brunneoleuca (Berk.) Ryvarden,

Mycotaxon 31:51, 1988. - *Polyporus brunneoleucus* Berk., Lond. J. Bot. 5:4, 1846. - *Polyporus beharensis* Berk., Hook. J. Bot. 6:163, 1854. - *Daedalea illudens* Cooke & Massee, Grevillea 21:37, 1892. - C*oriolopsis nigrocinerea* Murrill, N. Am. Fl. 9:77, 1908. - *Polyporus corrivalis* Berk., J. Linn. Soc. 13:162, 1872.
Basidiocarp annual or reviving once, pileate reflexed and widely effused to almost resupinate, pileus up to 2 cm wide and 24 cm long, frequently lobed and fused laterally to imbricate or elongated rows, 12 mm thick and flexible and separable from the substrate, resupinate part of pore surface often very widely effused on horizontal logs, tomentose, mostly adpressed and concentrically sulcate or zoned, but also radially striate with small tufts or elongated finely scrupose warts, with age the tomentum becomes paler and disappears zone wise and pileus then becomes blackish, pore surface ochraceous to pale brown, pores round to angular, mostly 2-3 per mm and rather shallow, up to 11.5 mm deep, on sloping substrates some pores become sinuate, split and angular, context up to 1 mm deep, dark brown to bay, distinctly darker than the tubes.
Hyphal system trimitic, generative hyphae with clamps, 1-3 µm wide, skeletal hyphae yellowish to pale brown, thick walled and dominating in the basidiocarp, 3-7 µm wide, seemingly dextrinoid, binding hyphae rather rare and mostly goldenyellow, almost solid, 2-4.5 µm wide.
Basidiospores 8.5-12 x 2.5-4 µm cylindrical.
Distribution. Widespread in East Africa.
Remarks. The species is easy to recognize because of the thin, narrow and flexible pileus, usually with a conspicuously decurrent pore layer and the rather large and shallow pores. Microscopically the dextrinoid skeletal hyphae are unique in the genus, most easily seen in sections of the pale trama.

Datronia caperata (Berk.) Ryvarden, Fig. 16

Mycotaxon 23:172, 1985. *Polyporus caperatus* Berk., Ann. Mag. Nat: Hist. Ser. 1, vol. 3:391, 1839. - *Polyporus phocinus* Berk. & Broome, J. Linn. Soc. 14:52, 1873. - *Trametes dibapha* Berk. in Warming, Vidensk. Meddel. 3l-32,1880. - *Polyporus purpureo-badius* Pat., Bull. Soc. Mycol. Fr. 8:53, 1892 (teste Bres. 1916:226). - *Polystictus ekundiensis* Henn., Engl. Bot. Jahrb. 22:9l, 1897. - *Polystictus fischeri* Henn., Ibid. 23:546, 1897. - *Polystictus griseo-brunneus* Henn. ex Sacc. & Syd., Syll. Fung. 14:187, 1888. - *Coriolopsis subglabrescens* Murrill, N. Am. Fl. 9:77, 1908.

Fig. 16. *Datronia caperata*, photo D. Mossebo.

Basidiocarp annual, sessile, applanate, dimidiate with contracted base, elongated reflexed with decurrent pores, conchate to flabelliform in distinctly pileate forms, 19 cm wide, up to 15 cm long in laterally connate or fused specimens, 14 (7) mm thick, mostly flexible, in thicker and older specimens more coriaceous and hard, pileus with numerous, narrow concentric zones, first adpressed soft tomentose, more rarely with a hirsute to coarsely hispid tomentum or only in a few zones, with age the tomentum wears away exposing a black cuticle mostly from the base and zone wise and finally the pileus becomes glabrous, black and hard, in tomentose specimens from whitish brown (cafe au lait), ochraceous to cinnamon to deep umberbrown, in the glabrous zones more vinaceous brown to almost blackish more rarely greyish brown, margin thin, undulate, entire to lobed or dentate, pores surface ochraceous, cinnamon to deep chocolatebrown, pores variable, medium to small, round to angular, 3-5 per mm, on sloping substrate some pores sinuate and elongated and in parts split, tubes beige to cinnamon brown, up to 2 mm deep, context first duplex with upper soft tomentum, about 1 mm thick, lower context denser, fibrous and silky when cut, cocoabrown.
Hyphal system trimitic, generative hyphae thinwalled, hyaline and with clamps, 1-2 µm wide, skeletal hyphae dominating in basidiocarp, and the tomentum is almost exclusively composed of such hyphae, goldenbrown, thickwalled 2.55 µm wide, binding hyphae thickwalled moderately branched and twisted, 1-4 µm wide, mostly solid.
Basidiospores 6.5-10 x 2-3 µm, cylindrical.
Distribution. Common and widespread in tropical Africa.
Remarks. The species has a variable pileus cover and colour, but the numerous narrow finely velutinate to adpressed tomentose zones are usually a good field characteristic. The pores are frequently quite small, more rarely angular and larger. Some weathered specimens may become almost whitish both on the pileus and pore surface. A section will then immediately reveal the dark brown context.

Datronia mollis (Sommerf.: Fr.) Donk,

Persoonia 4:338, 1966. *Daedalea mollis* Sommerf.: Fr., Elench. Fung., p. 71, 1828. - *Daedalea mollis* Sommerf., Suppl. Fl. Lapp. p. 271, 1826.
Basidiocarps annual, usually effused reflexed, occasionally resupinate or sessile, reflexed up to 2 cm; upper surface of pileus dark brown to black, strigose to glabrous, concentrically zonate and sulcate; pore surface buff to umber brown, the pores angular to daedaleoid, 1-2 per mm, some over 1 mm wide, dissepiments becoming thin and splitting; lower context pale buff, firm-fibrous, azonate, up to 1 mm thick, separated from dark brown upper layer of tomentum by a thin, black layer; tube layer concolorous with lower context, up to 3 mm thick.
Hyphal system trimitic; generative hyphae hyaline, thin walled, with clamps, 2.5-4 µm in diam; skeletal hyphae thick walled, pale to dark brown in KOH, 2.5-4 µm in diam; binding hyphae thick walled, 2-3 µm in diam.
Dendrohyphidia branched and contorted, present on dissepiments edges, 1.5-3 µm in diam.
Basidiospores 10-12 x 3-4 µm, cylindrical.
Distribution. Cosmopolitan species, recorded on all continents.
Remarks. The large, slightly irregular pores and the black zone separating the upper tomentum from the context are distinctive field characters for *D. mollis*.

Datronia scutellata (Schw.) Gilbn. & Ryvarden,

Mycotaxon 22 :364, 1985. *Polyporus scutellatus* Schw., Trans. Am. Phil. Soc. II, 4:157, 1832. - *Trametes nigrescens* Bres., Ann. Mycol. 3:163, 1905.
Basidiocarps annual, pileate to effused reflexed, dimidiate to almost pendent or broadly attached, tough when fresh, hard when dry, up to 1.5 cm wide, 3 cm long and 3-10 mm thick; upper surface of pileus at first whitish, but soon dark brown to black, margin often remaining paler than basal parts, at first velutinate, but soon glabrous and often slightly sulcate in zones; pore surface white to buff or pale brown with age, pores round to slightly angular, 4-5 per mm, dissepiments often finely farinose; context 13 mm thick, dense, wood coloured to pale brown, with a distinct black crust on top; tube layer up to 7 mm thick, cork to wood coloured.
Hyphal system trimitic; generative hyphae with clamps, thin walled, hyaline in context and trama, 2.5-4 µm in diam, pigmented hyphae with clamps present on pileus surface; skeletal hyphae solid, pale yellowish, 2-4.5 µm in diam; binding hyphae of same width as skeletal hyphae.
Basidiospores 8-12 x 34.5 µm cylindrical.
Distribution. In Africa seen only from Zimbabwe.
Remarks. The species is relatively easy to recognize by small basidiocarps, a black glabrous pileus and pale pore surface.

DIACHANTODES Singer,

Lloydia 8:141, 1945.
Basidiocarps stipitate, circular, partly infundibuliform, surface tomentose to strigose, whitish to dirty brown, pore surface woodcoloured, darkening with age, tubes ochraceous when fresh, palebrown and agglutinated when dry, context duplex, upper part soft and cottony, lower part dense and ochraceous, the two parts mostly separated by a darker resinous zone. Hyphal system dimitic, generative hyphae with clamps, skeletal hyphae thickwalled to solid, weakly dextrinoid, cystidia clavate, slightly thickwalled, spores broadly elliptic, ornamented and dextrinoid. On the ground. Pantropical.
Type species: *Diachanthodes novoguineensis* (Henn.) Fidalgo.
Remarks. The genus is unique with its strongly ornamented and dextrinoid spores.

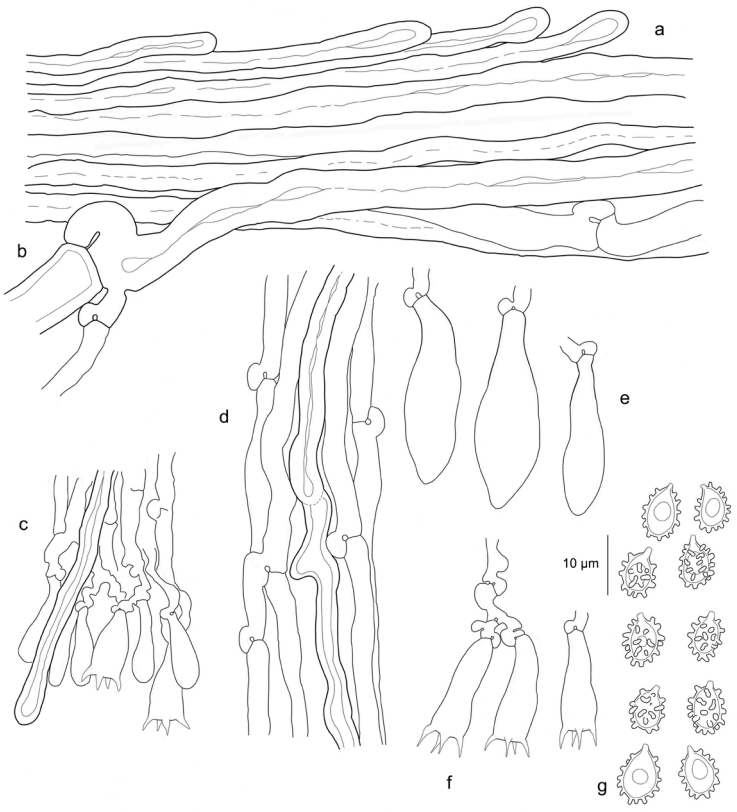

Fig. 17. *Diachanthodes novoguineensis* a) hyphae from the pileus, b) generative hyphae, c) part of hymenium, d) hyphae from trama, e) basidioles, f) basidia, g) basidiospores, I. Melo.

Diachanthodes novoguineensis (Henn.) Fidalgo, Fig. 17

Rickia 1:149, 1962. *Polyporus novoguineensis* Henn., in Schum. & Hollr. Beiheft Nachr. Kaiser Wilhelms Land Bism. Archip. p. 6, 1889. Imperfect stage: *Bornetina corium* Magnin & Viala.
Basidiocarps centrally stipitate, circular, pileus flat or with a slight central depression and a thin deflexed margin, up to 12 cm in diameter and 1 cm thick, sappy and fleshy when fresh, partly shrunken when dry and then dense and brittle, pileus tomentose to strongly strigose with numerous tufts of hyphae, ochraceous when fresh, unevenly dirty brown when dry, stipe more or less circular, stout and up 3 cm in diameter when fresh, up to 6 cm high, ochraceous, glabrous, scrupose to weakly strigose with hyphal tufts, pore surface ochraceous when fresh, dirtybrown when dry, pores thinwalled, round to angular, shrunken when dry, 3-4 per mm, in parts wider and pore surface also in parts split during the shrinking, tubes ochraceous and soft when fresh, when dry resinous dirtybrown and agglutinated, fragile, up to 8 mm deep, context distinctly duplex, lower part white when fresh, pale ochraceous dry and distinctly

contrasting the dirtybrown tubes, dense and hard when dry, upper part loose and tomentose, in thicker parts of the pileus separated from the lower dense context by a dark resinous zone, the upper part somewhat more brown than the context proper.
Hyphal system dimitic, generative hyphae with clamps, up to 8 µm wide, skeletal hyphae, 38 µm wide, thickwalled, straight and weakly dextrinoid.
Cystidia 15-20 x 5-8.5 µm variable in occurrence, clavate to ventricose with a somewhat rounded to obtuse apex, smooth and slightly thickwalled,
Basidiospores 5-7.5 x 5-6 µm, broadly ellipsoid, slightly thickwalled, ornamented with angular small plates, distinctly dextrinoid.
Conidiospores 5-7 x 3.5-5 µm, produced from hyphal ends in the upper con text, but in some specimens apparently absent, coarsely ornamented, ellipsoid to subglobose and brownish.
Substrate. On the ground from buried roots infected by the imperfect stage *Bornetina corium* which may infect many trees, but is especially a serious pathogen on *Coffea* spp.
Distribution. A rare species, but pantropical and reported from many countries in Africa, Asia and Australia.
Remarks. The stipitate tomentose to strigose basidiocarps, the duplex context, the ornamented and dextrinoid spores and skeletal hyphae make this a very distinct species.

DICHOMITUS D. A. Reid,

Rev. Biol. 5:149, 1965.
Basidiocarps annual to perennial, resupinate to pileate and broadly sessile; upper surface white to blackish; pore surface white, cream to pale greyish, in some specimens with a darkened margin, pores small to large; context white to cream; hyphal system dimitic; generative hyphae with clamps or simple septa; skeletal hyphae arboriform (dendritically branched) with tapering ends, dextrinoid in some species; cystidia none; basidia tetrasterigmatic; spores cylindrical to oblong ellipsoid, hyaline, thin walled, negative in Melzer's reagent. On dead wood of gymnosperms and angiosperms, causing a white rot. Widespread genus.
Type species: *Trametes squalens* P. Karst.
Remarks. The microscopical characters of *Dichomitus* are identical with those of *Polyporus* s. str., and the two genera are closely related. The main characters separating them are the stipitate to dimidiate (or fan shaped) basidiocarps of *Polyporus* and the resupinate to broadly sessile ones of *Dichomitus*.
NB Since all spores in the genus are thin walled, smooth hyaline and non-reactive in Melzer's reagent, this information is not repeated for each species.

Key to species

1. Spores up to 15 µm long **2**
1. Spores longer than 15 µm **7**

2. Tube walls with numerous hyphal pegs ..... **D. setulosus**
2. Tube walls smooth **3**

3. Pores 4-5 per mm 4
3. Pores larger **5**

4. Basidiospores 6-7.5 µm long ..... **D. africanus**
4. Basidiospores 10-14 µm long..... **D. leucoplaceus**

5. Spores 12-15 µm long **6**
5. Spores 6-8 µm long ..... **D. deviatus**

6. Skeletal hyphae dextrinoid, pores 2-4 per mm ..... **D. cavernulosus**
6. Skeletal hyphae non dextrinoid, pores 1-3 per mm ..... **D. densiporus**

7. Spores 15-17 µm long **8**
7. Spores longer than 17 µm..... **9**

8. Spores 4-5 µm wide ..... **D. camerooniensis**
8. Spores 5-7 µm wide ..... **D. citricremeus**

9. Spores 20-24 µm long, pores 1-2 per mm ..... **D. kirkii**
9. Spores 18-20 µm long, pores 2-4 per mm ..... **D. delicatus**

Dichomitus africanus Ryvarden,

Synopsis Fung. 39:61, 2019.
Basidiocarps annual effused reflexed with narrow pileus, individual basidiocarps 3-2 cm, up to 5 mm thick at base, soft and pliable when fresh, tough when dry, pileus up to 5 mm wide, glabrous, smooth to slightly sulcate, pale ochraceous, margin sharp and distinct towards the substrate, pore surface ochraceous, pores regular 4-5 per mm, tubes concolorous 2 mm deep, context 2 m thick, pale ochraceous.
Hyphal system dimitic; generative hyphae with clamps, thin walled, 2-4 µm wide, arboriform skeletal hyphae present, thick walled to solid with long side branches, slightly dextrinoid.
Basidiospores 6-7.5 x 2-2.5 µm, cylindrical.
Distribution. Known only from the type locality in Zambia.
Remarks. This basidiocarps are distinct by their sharp and slightly lifted pileate margin. The dextrinoid reaction of the arboriform hyphae is easiest seen in masses.

Dichomitus camerooniensis Ryvarden,

Synopsis Fung. 38:27, 2018.
Basidiocarps annual, resupinate, adnate, up to 10 cm long, 2 cm wide and 0.3 mm thick, coriaceous when fresh, woody hard when old, margin adpressed cottony, white, 1-2 mm wide; pore surface cream becoming paler with drying and aging, pores entire, angular, about 4 per mm, 300 µm deep, subiculum hardly visible, white.
Hyphal system dimitic; generative hyphae with clamps, hyaline and 2-3 µm wide; basidiocarps dominated by sparingly, but dichotomously branched skeletal hyphae with long unbranched basal stems, 3-5 µm wide, negative in Melzer's reagent.
Basidiospores 15-17 x 4-5 µm, cylindrical to almost allantoid.
Distribution. Only the type from Cameroon has been examined.
Remarks. This species is rather similar to *D. citricremeus*, but has larger pores, a pure cream pore surface and narrower spores.

Dichomitus cavernulosus (Berk.) Masuka & Ryvarden,

Mycol. Res. 103:1127, 1999. *Polyporus cavernulosus* Berk., Hooker's J. Bot. 8:.235, 1856.
Basidiocarps resupinate, annual, adnate and coriaceous to hard, up to 2 mm thick; margin narrow, white to cream; pore surface concolorous or becoming pale woody brown in age, pores angular and shallow, 2-4 per mm, up to 1 mm deep, dissepiments finely fimbriate in actively growing specimens, context white to ochraceous, less than 1 mm thick.
Hyphal system trimitic; generative hyphae with clamps, thinwalled and 2-4 µm wide; skeletal hyphae common, thickwalled to solid, unbranched and flexuous, 2-4 µm wide, strongly dextrinoid; binding hyphae strongly branched, solid, dextrinoid, mostly confined to the context.
Dendrohyphidia delicately thin-walled and variably branched, most common along the dissepiments, up to 25 µm long. difficult to observe in old and dry specimens.
Basidiospores (10)12-16 x 5-7 µm, cylindrical.
Distribution. Known from Central Africa and west to Nigeria.
Remarks. The large spores and the dextrinoid reaction of the vegetative hyphae are distinctive characters.

Dichomitus citricremeus Masuka & Ryvarden,

Mycol. Res. 103:1128, 1999.
Basidiocarps annual, resupinate, adnate, up to 10 cm long, 2 cm wide and 0.6 mm thick, coriaceous when fresh, woody hard when old, often forming elongated basidiocarps; margin indistinct, white; pore surface pale lemon yellow when fresh, cream coloured to pale ochraceous when dry, pores entire, angular, with a honeycomb structure, 3-4 per mm, pore walls thin, pores up to 300 µm deep; context 200-300 µm thick, white to pale ochraceous.
Hyphal system dimitic; generative hyphae with clamps, hyaline and 2-3 µm wide; skeletal hyphae arboriform with long unbranched basal stems, 3-4.5 µm wide, negative in Melzer's reagent.
Basidiospores 15-17 x 5-7 µm, cylindrical.
Distribution. Central Africa.
Remarks. Macroscopically the species resembles *D. leucoplacus*, but the honeycomb pore surface is distinctive. The species also has longer and narrower basidiospores than *D. leucoplacus*. *D. delicatulus* has shallow angular pores, but is separated by the even pale brown colour of the basidiocarp and larger basidiospores.

Dichomitus densiporus Ryvarden,

Synopsis Fung. 39:61, 2019.
Basidiocarps annual, resupinate, 10 x 2 cm, about 2 mm thick, soft and pliable when fresh, drying resinous hard,

margin almost absent, pore surface mustard pale brown, pores angular to irregular and elongated as if shrunken during drying, 1-3 per mm, tube layer concolorous, 1 mm deep, context almost absent, ochraceous, strongly contrasting the dense pore layer.
Hyphal system dimitic; generative hyphae with clamps, thin walled, 2-4 µm wide, arboriform skeletal hyphae present, thick walled to solid, negative in Melzers solution.
Basidiospores 12-15 x 5-6 µm, cylindrical.
Distribution. Known only from the type locality in Zimbabwe.
Remarks. This species has the same hyphal system and large cylindrical spores as seen in most *Dichomitus* species, but easily separated by its evenly coloured, resinous basidiocarp with large, shrunken, slightly irregular pores.

Dichomitus delicatulus (Henn.) Masuka & Ryvarden,

Mycol. Res 103:1129, 1999. - *Poria delicatula* Henn., Engl. Bot. Jahrb. 34: 44, 1904.
Basidiocarps annual, resupinate, adnate, often elongated along narrow branches, but also effused; margin white to pale umber brown, finely floccose when viewed with a hand lens; pore surface pale umber brown, apparently becoming darker with age, pores angular and shallow, 2-4 per mm, up to 200 µm deep, finely pruinose along the pore-edges in actively growing specimens, pores usually distinct and entire; hymenium restricted to the base of the pores; subiculum thin, white, ochraceous to distinctly pale umber brown in old specimens.
Hyphal system dimitic, generative hyphae hyaline, thin-walled and 2-3 µm wide and with clamps, arboriform skeletal hyphae present, up to 4 µm wide, hyaline to yellowish, branched in the apical part, negative in Melzer's reagent.
Basidiospores 18-20 x 5-6 µm, first elliptic, then cylindrical at maturity.
Distribution. East and Southern Africa.
Remarks. The large basidiospores and the pale brown shallow pores are diagnostic for this species. The shape of the basidiospores is variable, becoming cylindrical to almost allantoid at maturity.

Dichomitus deviatus Ipulet & Ryvarden,

Synopsis Fung. 20:89, 2003.
Basidiocarps annual, resupinate, hard up to 5 cm wide, 6 cm long and 1 mm thick, pore surface white, pores round to angular, shallow, 1-2 per mm, tube layer concolorous, up to 1 mm deep, subiculum hardly present, white.
Hyphal system dimitic, generative hyphae with simple septa, 3-10 µm wide, skeletal hyphae dichotomously branched, thick-walled to almost solid, 3-10 µm in diam without dextrinoid reaction.
Basidiospores 6-8 x 3-4 µm, cylindrical.
Substrata. On rotten log of *Pinus* in a plantation.
Distribution. Known from only the type locality in Uganda.
Remarks. The species is remarkable by the combination of dichotomously branched skeletal hyphae, a typical characteristic in the genus, and simple septate generative hyphae.

Dichomitus kirkii Masuka & Ryvarden,

Mycol. Research 103:1129, 1999.
Basidiocarps annual, resupinate, adnate when young, in older basidiocarps with a tendency to loosen along the margin, small to medium in size, up to 10 cm long and 2 cm wide, 0.5-2 mm thick, coriaceous when fresh, woody hard when old, often elongated on sloping substrates; margin almost absent; pore surface pale leather coloured when fresh or ochraceous and darkening to pale brown, pores entire on horizontal parts of the basidiocarp, 1-2 per mm, on sloping parts deeply split and irregular, up to 2 mm long; tubes concolorous with pore surface, up to 2 mm deep; context ochraceous, about 1 mm thick.
Hyphal system dimitic; generative hyphae with clamps, hyaline and 2-3 µm wide; basidiocarps dominated by mostly sparingly branched arboriform skeletal hyphae, solid to thick-walled, 2-5 µm wide in the main stem, negative in Melzer's reagent.
Basidiospores 20-24 x 6.5-9 µm, broadly cylindrical.
Substrate. On dead branches of *Uapaca kirkiana*, up to 6 m above the ground.
Distribution. Malawi, Zimbabwe and Zaire. It seems to be restricted to the Miombo zone in South Central Africa.
Remarks. The large pores and spores make this a distinct species.

Dichomitus leucoplacus (Berk.) Ryvarden,

Norw. J. Bot. 24:222, 1977. - *Polyporus leucoplacus* Berk., Fl. N. Zealand 2:180, 1855.
Basidiocarps annual, resupinate, adnate when young, in elder basidiocarps with a tendency to loosen along the margin, small to medium in size, up to 10 cm long and 2 cm wide, 0-5-2 mm thick, coriaceous when fresh, woody hard when old, margin distinct, white, darker in elder basidiocarps, pore surface white to cream, becoming buff to

ochraceous, pores entire, round or more commonly somewhat elongated basidiocarps seems to have a tendency to develop on standing oblique substrates, (3)4-5 per mm, tubes whitish to cream, 1 mm deep, context thin and white.
Hyphal system dimitic, generative hyphae with clamps, hyaline and 2-3 µm wide, arboriform skeletal hyphae solid to thick-walled, up to 5 µm wide, IKI-.
Basidiospores 10-14 x 4-5.5 µm, broadly elliptic.
Distribution. In Africa from Malawi and Gabon, otherwise from New Zealand and Australia.
Remarks. The species is easy to recognize microscopically because of the characteristic arboriform hyphae and the non dextrinoid hyphae.

Dichomitus setulosus (Henn.) Masuka & Ryvarden, **Fig. 17b**

Mycol. Res. 103:1127, 1999. - *Poria setulosa* Henn., Engl. Bot. Jahrb. 28:321, 1901.
Basidiocarps resupinate, annual, adnate, coriaceous, often widely effused, up to 3 mm thick, pore surface white, cream and becoming corky brown in age and drying, pores angular to round, 1-2 per mm, tubes walls densely covered with hyphal pegs, context white to cream up to 0,3 mm thick.
Hyphal system dimitic, generative hyphae with clamps, thin-walled and 1,5-3,5 µm in diam; skeletal hyphae straight, unbranched or sparingly branched, thick-walled to solid, dextrinoid, 1,5-6 µm wide.
Hyphal pegs abundant, hyaline, 40-160 x 15-40 um, often angular, covering the dissepiments.
Basidiospores 10-14 x 4-6 µm, cylindrical.
Distribution. Widespread in the tropical zone.
Remarks. The species can be identified in the field with a lens because of the conspicuous large hyphal pegs.

Fig. 17b. *Dichomitus setulosus*

DIPLOMITOPORUS Domański,

Acta Soc. Bot. Poloniae 39: 191, 1970.
Basidiocarps annual, resupinate to effused reflexed, white to light-coloured; pores circular to angular, medium to small; hyphal system dimitic; generative hyphae with clamps; skeletal hyphae hyaline, thick walled, nonamyloid to weakly amyloid; cystidia absent or present; spores allantoid to ellipsoid, thin walled, smooth, negative in Melzer's reagent. On dead wood of conifers and hardwoods. Causes a white rot.
Type species: *Trametes flavescens* Bres.
Remarks. The genus is macroscopically similar to *Antrodia* which however is restricted to brown rot species.
NB Since all spores in the genus are thin walled, smooth hyaline and non-reactive in Melzer's reagent, this information is not repeated for each species.

Key to African species

1. Dendrohyphidia present in hymenium and dissepiments **2**
1. Dendrohyphidia absent **3**

2. Basidiospores 5-8 x 3-3.5 µm, oblong elliptic to cylindrical ..... **D. hondurensis**
2. Basidiospores 5-6 x 2.5-3 µm, broadly elliptic ..... **D. africanus**
3. Pore surface evenly cacao-coloured ..... **D. cacao**
3. Pore surface differently coloured **4**

4. Spores subglobose to elliptic **5**
4. Spores cylindrical to allantoid **10**

5. Spores 9-10 µm long ..... **D. grandisporus**
5. Spores shorter **6**

6. Spores globose **7**
6. Spores elliptic, pore surface white to ochre **8**

7. Tubes dark brown, spores 3.5-4 µm in diameter ..... **D. nigrus**
7. Tubes white, spores 5-6 µm in diameter ..... **D. insularis**

8. Spores 3-3.5 µm long ..... **D. minutoporus**
8. Spores 5-7 µm long **9**

9. Pores partly irregular, 2-3 per mm, ... **D. irregularis**
9. Pores regular, 7-9 per mm ..... **D. gabonensis**

10. Growing on dead wood **11**
10. Growing on dead *Phellinus* sp. ..... **D. phellinicola**

11. Spores shorter that 4 µm **12**
11. Spores longer than 4 µm **13**

12. Pores 1-2 per mm or larger ..... **D. ugandensis**
12. Pores 5-6 per mm ..... **D. densiporus**

13. Spores 3-4 µm wide ..... **D. centroafricanus**
13. Spores 2-2.5 µm wide ..... **D. ethiopicus**

Diplomitoporus africanus Ryvarden,

Synopsis Fung. 38:16, 2018.
Basidiocarps resupinate, up to 2 mm thick, adnate, brittle when dry, margin lacking, white to cream, in mature specimens cracking into polygons, pore surface white, pores round to angular, in parts irregular and slightly incised, 4-5 per mm, tube layer concolorous with pores, up to 2 mm thick, subiculum very thin and white.
Hyphal system dimitic, generative hyphae hyaline with clamps, 2-4 µm wide, binding hyphae present, solid to thick-walled, irregularly branched, often I right angles, hyaline, negative in Melzer's reagent, 2-3 µm in diam. often mixed with coarse crystalline matter.
Dendrohyphidia present, both along the dissepiments where they are abundant and prominent, and among the basidia where they are smaller and with fewer apical protuberances.
Basidiospores 5-6 x 2.5--3 µm, broadly elliptic.
Distribution. East Africa.
Remarks. The species is microscopically rather similar to *D. hondurensis* (Murrill) Ryvarden, but his species has oblong to cylindrical spores and larger pores (5-8 x 3-3.5 µm and 2-4 per mm respectively).

Diplomitoporus cacao Ryvarden,

Synopsis Fung. 38:16, 2018.
Basidiocarps resupinate, up to 10 x 5 cm and 2 mm thick, adnate, brittle when dry, margin partly lacking, partly up to 3 mm and white, pore cacao-coloured with some darker spots as having been touched or pressed in fresh condition, pores round 3-4 per mm, tube layer concolorous with pores, up to 1 mm thick, subiculum hardly visible and white.
Hyphal system dimitic, generative hyphae hyaline, with clamps, 2-4 µm wide, skeletal hyphae, solid to thick-walled, hyaline, 2-5 µm in diam.
Basidiospores 6-6.5 x 2-2.4, cylindrical.
Distribution. Only the type from Kenya has been seen.
Remarks. The even dark cacao colour and the regular round pores make it possible to even recognize it in the field.

Diplomitoporus centroafricanus Ryvarden,

Synopsis Fung. 38:17, 2018.
Basidiocarps resupinate, up to 12 cm long and 3 cm wide, 2 mm thick, adnate, brittle when dry, margin white, finely cottony, pore surface wood-coloured, pores round to angular, in parts regular and 4-5 per mm on sloping parts of substrate split and irregular, to 1-3 per mm, tube layer concolorous with pores, up to 2 mm thick, subiculum very thin and white.
Hyphal system dimitic, generative hyphae hyaline, with clamps, 2-4 µm wide, skeletal hyphae solid to thick-walled, hyaline, 2-5 µm in diam.
Basidiospores 5-7 x 3-4 µm, cylindrical.
Distribution. Known only from the type locality in Tanzania.
Remarks. This species is similar to the Neotropical species *D. incisus* Ryvarden (see Ryvarden 2015: 327) which however has a pure white pore surface and slender spores, i.e. 2.5-2.8 µm wide.

Diplomitoporus cylindrosporus Ryvarden,

Synopsis Fung. 39:62, 2019.
Basidiocarps annual, resupinate, effused, 5 x 1 cm, 1 mm thick, soft when fresh, brittle when dry, pore surface white to pale ochraceous, pores round 4-5 per mm, tubes concolorous 1-1.5 mm deep, subiculum, white, about 200 µm thick.
Hyphal system dimitic; generative hyphae with clamps, 2-5 µm in diam., difficult to observe, skeletal hyphae dominating in the basidiocarp, 2-5 µm wide, hyaline.
Basidiospores 5-6 x 2.5-3 µm, cylindrical and slightly bent.
Distribution. Known from the type locality in Zimbabwe.
Remarks. The cylindrical, slightly bent spores make this a distinct species.

Diplomitoporus densiporus Decock & Ryvarden,

Synopsis Fung. 42:8, 2020.
Basidiocarps resupinate, up to 3 mm thick on sloping parts of the basidiocarps, adnate, brittle when dry, margin narrow to wide, up to 4 mm, white and soft, pore surface evenly wood coloured, pores angular, 5-6 per mm, some even larger, tube layer dense, concolorous with pore surface, up to 3 mm thick, subiculum very thin and white.
Hyphal system dimitic, generative hyphae hyaline, with clamps, 2-3 µm wide, skeletal hyphae solid to thick-walled, hyaline, 3-6 µm in diam, those of the dissepiments almost cystidia like with even thickness of 4-7 µm and with a round apex.
Basidiospores 3-3-5 x 1- 1.5 µm, cylindrical to slightly bent.
Distribution. Known only from the type locality in Gabon.
Remarks. The species is undoubtedly related to *D. ugandensis*, which however has an irregular pore surface, spores being 1.5-2 µm wide and where cystidia like skeletal hyphae have not been observed. The latter are rather distinct and conspicuous in the outer parts of the pore walls.

Diplomitoporus ethiopicus Ryvarden,

Synopsis Fung. 38:17, 2018.
Basidiocarps resupinate, up to 19 x 5 cm and 5 mm thick, adnate, hard when dry, margin almost absent, in part 1 mm wide and white, pore surface whitish to pale ochraceous, pores angular, in parts irregular and slightly incised, 1-3 per mm, tube layer concolorous with pores, up to 5 mm deep, subiculum hardly visible and white.
Hyphal system dimitic, generative hyphae hyaline, with clamps, 2-5 µm wide, skeletal hyphae, solid to thick-walled, hyaline, 3-5 µm in diam.
Basidiospores 4-6 x 2-2.5 µm, cylindrical.
Distribution. Known from Ethiopia and Cameroon.
Remarks. The species is probably related to *D. irregularis* which however has broadly elliptic spores.

Diplomitoporus gabonensis Decock & Ryvarden,

Synopsis Fung. 42:9, 2020.
Basidiocarps resupinate, up to 2 mm thick, adnate, brittle when dry, margin narrow, white to cream, pore surface ochraceous, pores round to slightly to angular, invisible to the naked eye, 7-9 per mm, tube layer concolorous with pore surface, up to 2 mm thick, subiculum very thin and white.
Hyphal system dimitic, generative hyphae hyaline with clamps which is difficult to observe, 2-4 µm wide, skeletal hyphae totally dominating, along the dissepiments, straight and tubular with rounded tips, 4-6 µm wide.
Basidiospores 6-7 x 4-5 oblong elliptic, smooth, IKI negative.

Distribution. Only the type from Gabon has been seen.
Remarks. The species is similar to *D. minutoporus* Ryvarden, which however has smaller spores, i. e 3-3.5 x 2.5 µm.

Diplomitoporus grandisporus Ryvarden,

Synopsis Fung. 38:18, 2018.
Basidiocarps resupinate, up to 5 x 3 cm and 1 mm thick, adnate, brittle when dry, margin lacking, pore surface straw coloured, pores round to angular, 1-2 per mm, tube layer concolorous with pores, up to 1 mm deep, subiculum hardly visible, 100-200 mm thick.
Hyphal system dimitic, generative hyphae hyaline, with clamps, 2-4 µm wide, skeletal hyphae, solid to thick-walled, hyaline, negative in Melzer's reagent, 3-5 µm in diam.
Basidiospores 9-10 x 4-5 µm, broadly elliptic to ovate.
Distribution. Only seen from the type locality in Zimbabwe.
Remarks. The straw coloured pore surface with large pores and spores, characterize this species.

Diplomitoporus hondurensis (Murrill) Ryvarden,

Mycotaxon 74:121, 2000. - *Poria hondurensis* Murrill, Mycologia 12:303, 1920.
Basidiocarps resupinate, up to 2 mm thick, adnate, brittle when dry, margin narrow, white to cream, pore surface white, pores angular, in parts irregular and slightly incised, 2-4 per mm, in parts with hyphal pegs, some as hydnoid protuberances, others as an initial development of partition walls, tube layer concolorous with pores, up to 2 mm thick, subiculum very thin and white.
Hyphal system dimitic, generative hyphae hyaline, with clamps, 2-3 µm wide, skeletal hyphae predominant, solid to thick-walled, hyaline, negative in Melzer's reagent, 2-3 µm in diam. often mixed with coarse crystalline matter.
Dendrohyphidia present, both along the dissepiments where they are abundant and prominent, and among the basidia where they are smaller and with less apical protuberances.
Basidiospores 5-8 x 3-3.5 µm, oblong elliptic to cylindrical.
Distribution. Zimbabwe and Malawi, widespread in Central America.
Remarks. The species is microscopically separated by the dendrohyphidia and larger basidiospores from *D. africana* which macroscopically is rather similar except that its pores are irregularly incised.

Diplomitoporus insularis Ryvarden,

Synopsis Fung. 26: 12, 2009.
Basidiocarps resupinate, up to 1 mm thick, adnate, brittle when dry, margin narrow and white, pore surface white to pale ochraceous, pores round, 5-6 per mm, in flatter parts of the basidiocarp, slightly more elongated and irregular on sloping parts, tubes whitish, up to 1 mm deep, subiculum very thin and white.
Hyphal system dimitic, generative hyphae hyaline, with clamps, 2-3 µm wide, skeletal hyphae predominant, solid to thick-walled.
Basidiospores globose, 4-5 µm in diameter.
Distribution. Known only from the Seychelles.
Remarks. The globose spores are characteristic for this species.

Diplomitoporus irregularis Ryvarden,

Synopsis Fung. 38:18, 2018.
Basidiocarps resupinate, up to 19 x 5 cm and 8 mm thick, adnate, brittle when dry, margin lacking, white to cream, pore surface pale ochraceous, pores angular, in parts irregular and slightly incised, 2-5 per mm, tube layer concolorous with pores, up to 6 mm thick, subiculum hardly visible and white.
Hyphal system dimitic, generative hyphae hyaline, with clamps, 2-4 µm wide, skeletal hyphae, solid to thick-walled, hyaline, negative in Melzer's reagent, 2-5 µm in diam.
Basidiospores 5-6 x 4-4.5 µm, broadly elliptic to ovate.
Substrate. *Cupressus lusitanicus* and dead hard wood.
Distribution. Central Africa.
Remarks. The irregular pores and the broadly ovate spores characterize this species.

Diplomitoporus minutoporus Ryvarden,

Synopsis Fung. 40:102, 2020.
Basidiocarps resupinate, up to 2 mm thick, adnate, brittle when dry, margin with, 1-2 mm wide, pore surface cream coloured to pale cocoa coloured, pores invisible to the naked eye, round to angular, 7-9 per mm, tube layer concolorous with pore surface, up to 2 mm thick, subiculum thin and white.

Hyphal system dimitic, generative hyphae with clamps, 2-4 µm wide, skeletal hyphae, solid to thick-walled, hyaline, negative in Melzer's reagent, 2-3 µm in diam.
Basidiospores 3-3.5 x 2.5 µm, broadly elliptic.
Distribution. Zambia and Gabon.
Remarks. The species is remarkable by its tiny spores and pores, in the field mistaken to be a corticoid species.

Diplomitoporus nigrus Ryvarden,

Synopsis Fung. 40:102, 2020.
Basidiocarps resupinate, up to 2 cm thick up to 10 cm wide, adnate, woody hard, margin withe, 1-2 mm wide, pore surface buff to pale brown with white mycelial areas between some poroid areas since the type was growing on a very oblique substrate, pores invisible to the naked eye, round to angular, 7-9 per mm, tube layer dark brown, stratifies with at least three distinct strata, totally up to 1.5 cm long measured along the pores, subiculum very thin and white.
Hyphal system dimitic, generative hyphae with clamps, 2-4 µm wide, skeletal hyphae, solid to thick-walled, hyaline, slightly dextrinoid, 2-6 µm in diam.
Basidiospores 3.5-4 µm in diameter, globose,
Distribution. Known only from the type locality in Mozambique.
Remarks. The species is remarkable by its tiny spores and pores, the hard consistency and the deep brown tubes.

Diplomitoporus phellinicola Ryvarden,

Synopsis Fung. 41:22, 2020.
Basidiocarps resupinate, up to 400 µm thick, adnate, brittle when dry, margin white hardly visible, pores minute, hardly visible to the naked eye, 7-9 per mm wide, pore surface white to pale ochraceous, tube layer concolorous with pores, up to 400 µm thick, subiculum very thin, white.
Hyphal system dimitic, generative hyphae with clamps, 2-4 µm wide, skeletal hyphae, solid to thick-walled, hyaline, negative in Melzer's reagent, 2-5 µm in diam.
Basidiospores 3-3.5 x 1, allantoid, smooth, negative in Melzers solution.
Substrate. Dead basidiocarp of a *Phellinus* sp.
Distribution. Known only from the type locality in Cameroon.
Remarks. The species is remarkable by its tiny allantoid spores and the substrate.

Diplomitoporus stramineus Ryvarden,

Synopsis Fung. 39:62, 2019.
Basidiocarps. annual, resupinate, up to 2 x 3 cm, 1 mm thick, margin narrow white and floccose, pore surface straw coloured, pores angular about 2 per mm and slightly irregular in dry condition with finely floccose white dissepiments (view with a lens!), tube layer concolorous, 1 mm deep, subiculum white, thin and hardly visible.
Hyphal system dimitic; generative hyphae hyaline, thin-walled with clamps, 25 µm in diam, but difficult to find, skeletal hyphae, solid to distinctly thick-walled, 3-5 µm in diam.
Basidiospores 9-10 x 4-5 µm, cylindrical.
Substrata. Dead hardwood.
Distribution. Known only from the type locality in Zimbabwe.
Remarks. The straw coloured pore surface with large angular pores and large cylindrical spores make this a distinct species.

Diplomitoporus ugandensis Ryvarden,

Synopsis Fung. 38:19, 2018.
Basidiocarps resupinate, up to 2 mm thick, adnate, brittle when dry, margin lacking, white to cream, in mature specimens, pores begin as hydnoid protuberances growing together to angular and partly irregular pores, 1-2 per mm, some pores even larger, tube layer concolorous with pore surface, up to 2 mm thick, subiculum very thin and white.
Hyphal system dimitic, generative hyphae hyaline, with clamps, 2-6 µm wide, skeletal hyphae solid to thick-walled, hyaline, 3-6 µm in diam.
Basidiospores 3-3-5 x 1.5-2 µm, cylindrical to slightly bent.
Distribution. Uganda and Cameroon.
Remarks. The species recognized by its irregular pore surface with semi hydnoid pores in young parts and the short, cylindrical spores.

EARLIELLA Murrill,

Bull. Torr. Bot. Cl. 32:478, 1905.
Basidiocarps resupinate, effused reflexed to pileate, annual to perennial, tough, upper surface, when present, glabrous, first white to cream, then with a reddish cuticle spreading from the base, pore surface white to cork-coloured, pores round to sinuous, context white to wood-coloured, hyphal system trimitic, generative hyphae with clamps, skeletal hyphae and binding hyphae hyaline, cystidia none, basidiospores cylindrical to oblong ellipsoid, hyaline and IKI negative. White rot in hardwoods. Monotypic tropical genus.
Type species: *Earliella cubensis* Murrill (a taxonomic synonym of *Polyporus scabrosus* Pers.).
Remarks. The genus is undoubtedly related to *Trametes,* sharing the same type of hyphal system and spores. The basidiocarp, however, is deviating as it frequently is resupinate to effused-reflexed and with a reddish cuticle on the pileus spreading from the base.

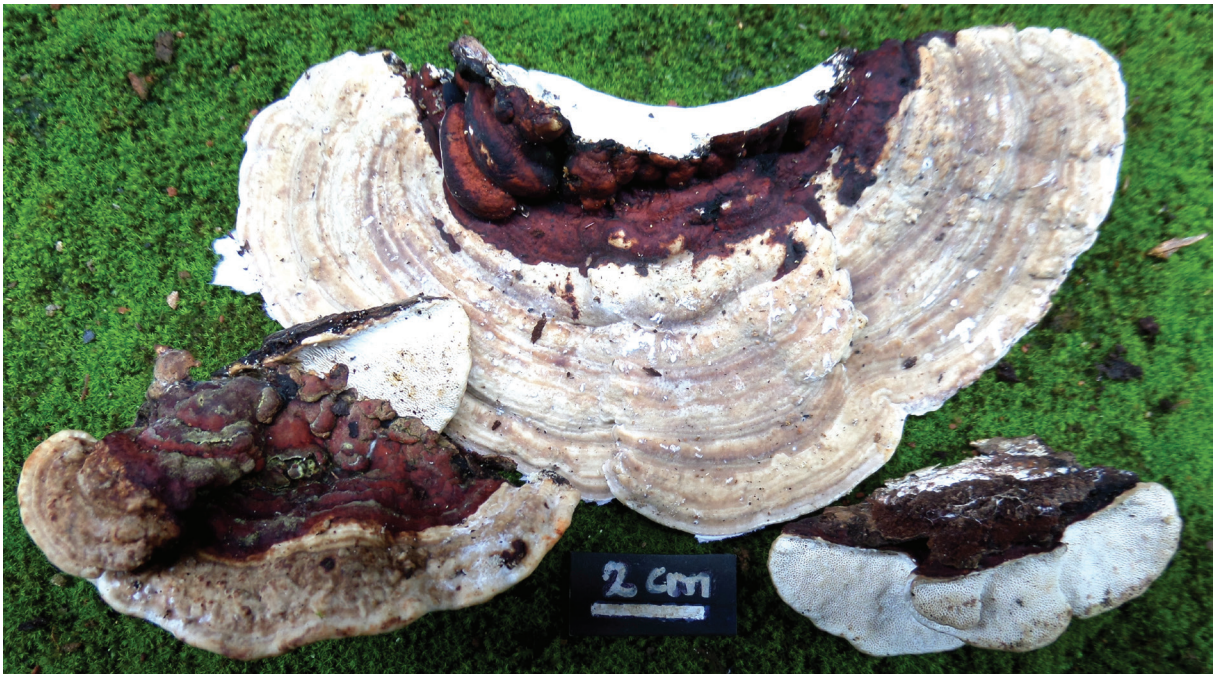

Fig. 18. *Earliella scabrosa* showing typical reddish cuticle spreading from base, photo D. Mossebo.

Earliella scabrosa (Pers.) Gilbn. & Ryvarden, Fig. 18

Mycotaxon 22:364, 1985. - *Polyporus scabrosus* Pers. in Gaudich., Voy. aut. Monde, p. 172, 1827. - *Polyporus corrugatus* Pers. op cit. - *Earliella cubensis* Murrill, Bull. Torr. Bot. Cl. 32:478, 1905.

Basidiocarps resupinate, effused reflexed to more rarely distinctly pileate, often widely effused as shelf like along fallen logs, tough and coriaceous, upper surface glabrous, zoned, first white to cream, soon covered by a reddish cuticle starting from the base, in old specimens covering almost the whole surface, in young reflexed specimens often visible only as a very narrow zone next to the substrate, when dry the cuticle is often slightly wrinkled, individual pilei up to 1 cm thick at the base and rarely more than 4 cm wide, pore surface white to cork coloured, pores angular to semi-daedaleoid, especially on sloping parts of the basidiocarp, 2-3 per mm, but individual elongated pores up to 6 mm long, tubes concolorous, up to 5 mm deep, context white, tough, up to 3 mm thick, in section with a distinct dark line covered with the reddish to bay cuticle.
Hyphal system trimitic, generative hyphae with clamps, thin-walled, 1.5-4 µm wide, often difficult to find in dry specimens, skeletal hyphae dominate, thick-walled to solid, hyaline, 3-6 µm wide, binding hyphae as skeletal hyphae but branched with tapering side branches.
Basidiospores 7-10.5 x 3-4 µm, cylindrical to oblong elliptic.
Distribution. Widespread in subtropical and tropical areas, and common, especially in exposed positions.
Remarks. Usually this species is easy to recognize because of the effused tough basidiocarp with a reddish cuticle on the pileus spreading from the base, and somewhat irregular elongated and sinuous pores. It is often seen on poles, structural timber and felled logs and is one of the most common polypores in the tropics.

ECHINOCHAETE D. A. Reid,

Kew Bull. 17:283, 1963.

Basidiocarps annual, flabelliform to spatulate with a short stipe-like base, pileus velutinate especially near the attachment, more smooth when old, whitish-pink when fresh, reddish to brown when dry, pores angular to hexagonal, small to large, hyphal system dimitic, generative hyphae hyaline, thin-walled and clamped, binding hyphae thick-walled golden to rusty-brown, arboriform hyphae strongly dextrinoid, spinulose setoid elements present on the pileus surface, in the hymenium or on the edges of the dissepiments, spores cylindrical to ellipsoid, hyaline, smooth and thin-walled. Tropical genus, on hard woods with a white rot.
Type species: *Polyporus megaloporus* Mont.
Remarks: The genus is recognized by the unique setoid elements on the pileus surface, in the hymenium or in the pore mouths, and the strongly dextrinoid hyphae in the context.

Key to species

1. Pores small, 4-6 per mm **2**
1. Pores large, 1-2 per mm **3**

2. Pores round and thick-walled, 5-6 per mm, often almost invisible to the naked eye, setoid elements on pilear surface bulbous and spiny to irregularly branched with thick, short protuberances ..... **E. cinnamomea-squamulosa**
2. Pores angular and thin-walled, 4-5 per mm, easily seen with the naked eye, setoid elements on the pileus long and slender with short to long protuberances ..... **E. russiceps**

3. Light-brown cystidia few or lacking on the pilear surface, long and sparsely branched skeletal hyphae present, basidiocarps flat and dimidiate up to 10 cm wide ..... **E. brachyporus**
3. Dark brown cystidia present on the pileus together with skeletal hyphae, basidiocarps often small and with tapering base ..... **E. ruficeps**

NB: Since the spores in all species are hyaline, smooth and non-amyloid, this information is not repeated for each species.

Fig 19. *Echinochaete brachyporus*, photo D. Mossebo.

Echinochaete brachyporus (Mont.) Ryvarden, Fig. 19

Bull. Jard. Bot. Nat. Belg. 48:101, 1978. - *Polyporus brachyporus* Mont., Ann. Sci. Nat. ser. 4, 1:131, 1854.

Basidiocarps annual, usually solitary, dimidiate up to 10 cm from the base to margin, 11 cm wide and 0.7 cm thick, brittle when dry, pileus dimidiate to flabelliform narrowing behind to a distinct stipe, whitish pink when fresh, rust-coloured to dark cinnamon with smaller or larger darker spots when dry, azonate, first sparsely tomentose soon more glabrous, stipe usually short and stout, solid, up to 1 cm long and broad, pore surface whitish-pink when fresh, wood to dark rust-coloured when dry, pores angular 1-2 per mm, but measuring 1-2 mm in radial direction, especially near the stipe, strongly to weakly incised, tubes concolorous or paler than the pore surface, up to 5 mm long, context pale wood-coloured to umber, up to 3 mm thick.
Hyphal system in the tubes dimitic, generative hyphae hyaline, thin-walled and clamped, 2.5-3.5 µm wide, binding hyphae moderately to heavily branched, thick-walled, yellow to pale brown, up to 8 µm wide, dextrinoid.
Setoid elements 35-85 x 4-10 µm, thick-walled, yellow to brown, main stem with short, lateral hooked branches, common in the hymenium, few or lacking in the pileus tomentum.
Basidiospores 9.5-13 x 3.5-5.5 um, cylindrical.
Distribution. Pantropical and widespread in tropical East Africa.
Remarks. The colour change from whitish pale pink to discoloured reddish brown is striking when fresh basidiocarps are found.

Fig. 20 *Echinochaete cinnamomea-squamulosa*, photo D. Mossebo.

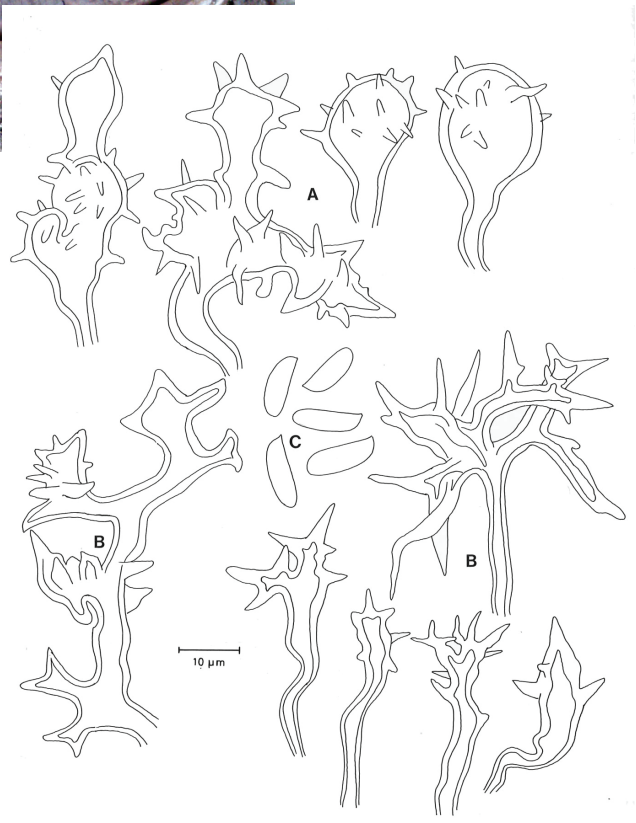

Fig. 21 *Echinochaete cinnamomea-squamulosa*, a) setoid elements from the pileus, b) same from tubes, c) basidiospores, from the lectotype. Del. L. Ryvarden.

Echinochaete cinnamomea–squamulosa (Henn.) D. A. Reid, Fig 20 & 21

Kew Bull. 17:283, 1963. - *Polyporus cinnamomea- squamulosus* Henn., Bot. Jahrb. 30:43, 1901.
Basidiocarps annual, usually solitary, 2.5-6 cm wide, 2.5-7 cm measured radially and up to 5 mm thick, thinning out towards the margin, brittle to hard when dry, pileus flabelliform to spatulate with a short stipe-like base, upper surface dark reddish-brown, often radially striate, even and rusty to chestnut coloured, finely adpressed tomentum, stipe short and a tapering, up to 0.5 cm long, pore layer dark umber to chestnut, pores round to weakly angular, 5-6 per mm, often invisible to the naked eye, tubes up to 2 mm long, concolorous or paler than the pore surface, context cinnamon to ochraceous, paler than the pore layer, up to 3 mm thick.
Hyphal system dimitic, generative hyphae in the tubes hyaline, thin-walled and clamped, binding hyphae thick-walled and pale brown to golden, dextrinoid, up to 6 µm wide.
Setoid elements 15-35 x 8-15 um present on the pileus, ovate to clavate and spinous, thick-walled, golden-brown to dark-brown, in the dissepiments more hyphae- like, but mostly distinctly widened at the apex and with numerous spines or short, partly with forked protuberances, golden-brown to dark-brown, up to 60 µm long.
Basidiospores, 9-12 x 3-4 µm, cylindrical.
Distribution. Tropical parts of Africa such as Nigeria, Cameroon, Uganda, Tanzania, Kenya and Malawi.
Remarks. The clavate to ovoid setoid elements with short and irregular spines, make the species characteristic within the genus.

Echinochaete ruficeps (Berk. & Broome) Ryvarden, Fig 22

Norw. J. Bot.19:231, 1972. - *Favolus ruficeps* Berk. & Broome, J. Linn. Soc. Bot. 14:57, 1873.
Basidiocarps annual, pileate, often several basidiocarps from the same point of attachment, 1-5 cm wide, 1-4 cm measured radially and 2-5(7) mm thick, brittle to hard when dried, pileus dimidiate to flabelliform or spatulate with a tapering base or with a distinct stipe, upper surface flat to convex, pale to dark reddish-brown, first minutely tomentose, when old smooth to rough with tomentum only near the stipe, stipe reduced, 1 cm long, 0.2-0.5 cm wide, with decurrent pore-layer on the lower side, tomentose on the upper side, pore surface pinkish ochraceous to dark-brown, pores angular to hexagonal, 1-2 per mm, but often elongated radially towards the stipe, tubes up to 4 mm long, context brittle to fibrous, 0.5-3 mm thick, straw to ochraceous, paler than the pore layer.
Hyphal system dimitic, generative hyphae hyaline, thin-walled and clamped, 2.5-4 µm wide, binding hyphae golden, thick-walled to solid, 2.5-6 µm in diameter, sometimes looking as skeletal hyphae, dextrinoid, hyaline to

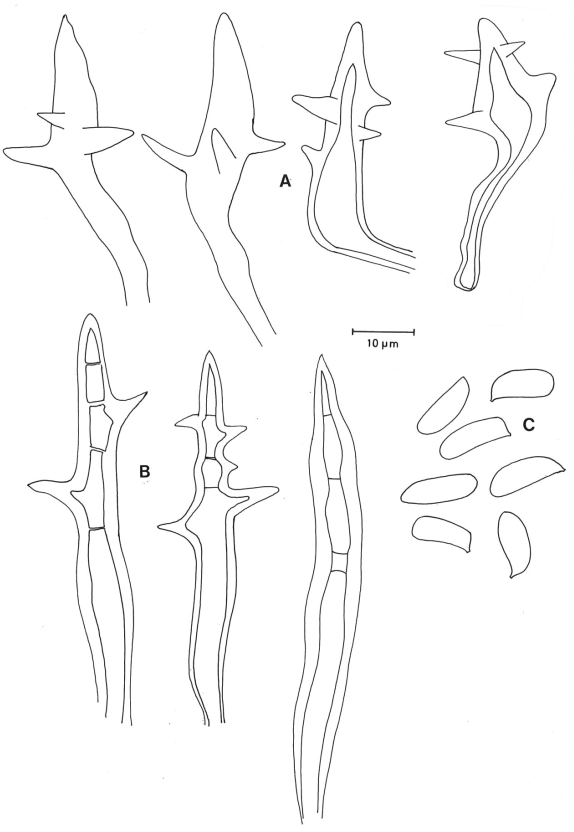

Fig. 22, *Echionochaete ruficeps* a) setoid elements from the tubes, b) same from pileus, c) basidiospores, from the lectotype. Del. L. Ryvarden.

pale-yellow, weakly thick-walled, 2-11 µm wide.
Setoid elements 15-35 µm long present in the hymenium, thick-walled and dark brown with up to 9 µm long sharp spines, on the edge of the dissepiments, on the pileus hyphoid, abundant and up to 90 µm long, with occasional sharp lateral spines near the apex.
Basidiospores 8.5-12(13.5) x 3.2-4 µm, subcylindrical to elliptic.
Distribution. Kenya, Tanzania, Malawi, Uganda and Zimbabwe.
Remarks. Macroscopically the species is close to *E. brachyporus*, but separated by darker pilear surface due to the abundant dark setoid elements on the pileus.

Echinochaete russiceps (Berk. & Broome) D. A. Reid, Fig. 23

Kew Bull. 17:285, 1963. - *Polyporus russiceps* Berk. & Broome, Jour. Linn. Soc. Bot.14:48, 1873.
Basidiocarps annual, usually solitary, 2-6 cm wide and long, 1-4 mm thick, narrowing behind to a broad flattened stipe like base, 4-10 mm wide, coriaceous to brittle, pileus spatulate to flabelliform, upper surface whitish-pink when fresh, mostly reddish-brown to golden- brown with an ochraceous tint when dry, minutely tomentose and often with dark radiating lines and some dark upstanding scales (more prominent when fresh), pore surface whitish when fresh, ochraceous buff to dark-brown when dry, pores angular about 3-5 per mm, easily seen with the naked eye, tubes up to 1.5 mm deep, concolorous with the pore surface, context up to 4 mm thick near the stipe, thin towards the margin, whitish when fresh, ochraceous buff when dry, usually paler than the tubes.
Hyphal system in the tubes dimitic, generative hyphae hyaline, clamped and thin-walled, 2-3 µm in diameter, arboriform binding hyphae dominating, yellow and thick- walled, 1-8 µm wide, contextual hyphae strongly dextrinoid when seen in clusters, dominated by binding hyphae up to 10 µm in diameter.
Setoid elements thick-walled and golden brown, lanceolate, with a number of projecting spines near the apex, present in groups in the hymenium, up to 35 x 10 µm, abundant on the pileus, up to 100 µm long, golden to dark brown.
Basidiospores 8-10 x 3.5-4.75 µm, subcylindrical to elliptic.
Distribution. Malawi and Kenya, widespread in the Indo-Pacific area.
Remarks. The species is easily recognized by the small pores and the long and slender setoid elements with short to long protuberances near the top.

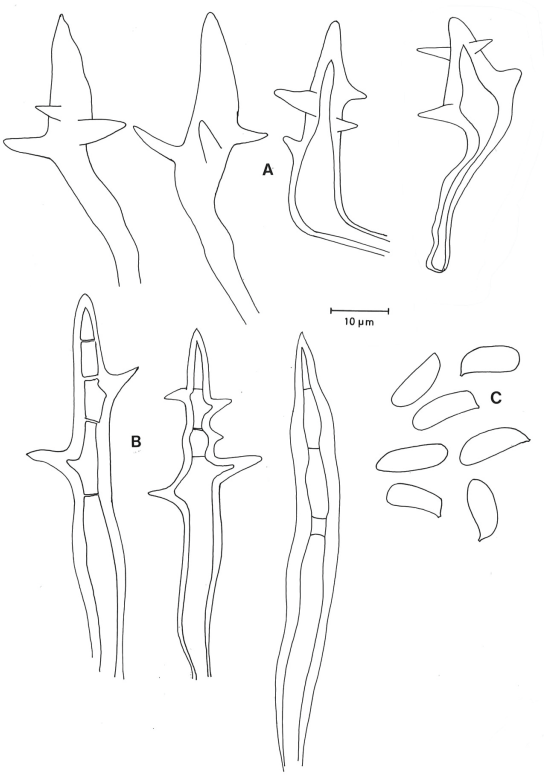

Fig. 23, *Echinochaete russiceps* a) setoid elements from the pileus, b) same from tubes c) basidiospores, from the lectotype. Del. L. Ryvarden.

FAVOLASCHIA (Pat.) Pat.,

Bull. Soc. Mycol. France. 8:116, 1892. - *Laschia* sect. *Favolaschia* Pat., J. Bot. 1:231, 1887.
Basidiocarps small, brightly coloured, sessile, dorsally laterally stipitate, pileus glabrous reticulate with rounded depressions reflecting the pores, stipe eccentric, lateral or absent, concolorous with pileus, pore surface concolorous with pileus, pores large, hyphae simple septate or with clamps, spores large, subglobose to broadly elliptic, smooth, hyaline and amyloid, gloeocystidia and acanthophyses mostly present. Wood inhabiting, pantropical genus with a white rot.**Type species**: *Favolaschia gaillardii* (Pat.) Pat.
Remarks. The genus belongs in the Mycenaceae with its distinct acanthophyses and may be looked upon as a poroid *Mycena.* Most species are easy to recognize in the field because of striking colours and large pores.

Key to African species

1. Basidiocarps yellow to reddish. on hard wood **2**
1. Basidiocarps yellow, on bamboo ..... **F. tonkinensis**

2. Hyphae with clamps..... **F. twaithsii**
2. Hyphae simple septate..... **F. calocera**

Fig. 24. *Favolaschia calocera*, photo, L. Ryvarden.

Favolaschia calocera R. Heim, Fig. 23

Rev. Mycol. 31: 154, 1966.

Basidiocarps mostly in clusters or groups, pileus more or less round, up to 3.5 cm in diameter, orange to reddish yellow, somewhat darker when dry, smooth to slightly undulate in a reticulate pattern reflecting the pores below, faintly pruinose, pore surface concolorous with pileus, pores angular to elliptic, 0.3-2.5 mm in diam., larger towards the stipe, stipe lateral, up to 2 cm long and 5 mm wide, cylindrical, widening towards the base.
Hyphal system monomitic, generative hyphae with simple septa.
Basidia 28-35 x 6-10 µm, clavate, tapered slightly towards the base, mostly 2-spored.
Basidiospores 9-12.5 x 6.5-8.5 µm, broadly elliptic, faintly amyloid.
Gloeocystidia present on edges of pores, in the hymenium and in the pileus cuticle, smooth, cylindrical to clavate, walls slightly thickened, contents dense and yellow-orange.
Acanthophyses 35-52 x 8.5-14 µm, present on pore edges and in pileus cuticle, hyaline, cylindrical to subclavate, apically round with numerous pointed projections.
Substrate. On a wide range of both hard woods and coniferous hosts.
Distribution. Widespread in Africa and recently spread to Europe, New Zealand, St. Helena and Australia.
Remarks. The laterally stipitate small basidiocarps, mostly in clusters, with a striking orange to reddish colour and large pores, will be sufficient for a field determination. *F. twaithsii* (Berk. & Broome) Kuntze (described from Sri Lanka) is macroscopically almost identical with *F. calocera* (described from Madagascar) and microscopically separated only by hyphae with clamps and slightly smaller spores. It may be that the latter is only a haploid 2-spored form of the former.

Favolaschia tonkinensis (Pat.) Singer,

Lloyd 8:197, 1945. - *Laschia tonkinensis* Pat., Journ Bot. 5:313, 1891. – *Favolaschia friesana* P. Henn., Engler. Bot. Jahrb. 22:94, 1895.

Basidiocarps small. laterally stipitate, pileus more or less round, up to 3.5 cm in diameter, white to shades of grey, translucent, gelatinous, pore surface concolorous with pileus, 3-5 pores/mm, 1,5 mm deep, context thin, gelatinous, stipe lateral, up to 2 mm long and 1.5 mm wide, cylindrical, widening towards the base.
Hyphal system monomitic, generative hyphae with small clamps.
Basidia 30-35 x 6-10 µm, clavate, tetrasterigmatic, sterigmata 8.5-14 µm long.
Basidiospores 8-11 x 7.5-10.5 µm, subglobose to broadly elliptic, hyaline, faintly amyloid.
Gloeocystidia and acanthophyses absent.
Substrate. Restricted to old stems and leaves of *Bambusa* sp. often in large numbers.
Distribution. Widespread in East African and probably common wherever bamboo occur naturally.
Remarks. The host, the pale colours and total absence of cystidial organs are diagnostic.

Favolaschia thwaitesii (Berk. & Broome) Kuntze,

Revis. gen. pl. (Leipzig) 3: 476, 1898. - *Laschia thwaitesii* Berk. & Broome, J. Linn. Soc., Bot. 14: 58, 1873.
As F. *calocera*, but hyphae with clamps.

FLABELLLOPHORA Cunningh.,

DSIR New Zealand Bull. 164:88, 1965.

Basidiocarps annual, centrally to laterally stipitate; pilei circular, single or confluent; upper surface tomentose to glabrous, grey to pale buff, concentrically zonate; pore surface pinkish buff to pale ochraceous, the pores small, 8–10 per mm; context white to ochraceous, azonate; hyphal system mono- or dimitic; generative hyphae with simple septa or clamps; skeletal hyphae present in trama, present or absent in context, negative in Melzer's reagent, walls swelling or unchanged in KOH; cystidia absent, basidiospores small, subglobose to teardrop shaped, hyaline, thinwalled, IKI. Causing white rot in dead hardwoods. Pantropical genus.
Type species: *Polyporus superpositus* (Berk.) Cunningh.
Remarks. The hyphae of the context are remarkably wide with rather thin walls and only a few scattered large clamps mixed with a few skeletal hyphae. This structure separates the genus from *Antrodiella*, where the skeletal hyphae dominate in the context.
Flabellophora is, superficially, morphologically related to *Microporellus*, but is separated by non-dextrinoid skeletal hyphae and lack of cystidia. In the most recent classification, *Flabellophora* belongs to the *Steccherinaceae* and is related to the genera *Mycorrhaphium* and *Nigroporus*.

Key to African species

1. Stipe cinnamon to dark brown ..... **F. collybiiforma**
1. Stipe cream, ochraceous to straw coloured ..... **F. obovata**

Flabellophora collybiiforma (Beeli) Ryvarden & Decock comb. nov., IFxx

Basionym: – *Polyporus collybiiformis* Beeli, Bull. Soc. Bot. Belg. 62:59, 1929. -*Microporellus collybiiformis* (Beeli) Ryvarden, Bull. Jard. Bot. Nat. Belg. 44:68, 1974..
Basidiocarps annual, stipitate; pileus circular, up to 3 cm in diameter, up to 1 mm thick, glabrous, ochraceous, coriaceous when fresh, hard and rigid when dry; stipe central, cylindrical, up to 3 cm long and 3 mm in diameter, cinnamon to dark brown; pore surface ochraceous; pores round, 7–9 per mm; tubes up to 1 mm deep with a dark resinous zone between pores and context.
Hyphal system monomitic; generative hyphae with clamps, 2–7 µm diam.
Basidiospores 4–6 µm in diameter, globose, thin-walled.
Distribution. Democratic Republic of Congo and Cameroon.
Remarks. The small size, the dark cinnamon stipe, and the tiny pores make this a distinct species. The species was once considered in *Microporellus*, but the monomitic hyphal system indicate *Flabellophora* as the proper genus.

Flabellophora obovata (Jungh.) Corner,

Beih. Nova Hedwigia 86: 36, 1987. - *Polyporus obovatus* Jungh., Verh. Batav. Genootsch. 17:65, 1838.
Basidiocarps annual, solitary or in small groups or clusters, sessile to centrally stipitate, reniform, spatulate or

flabelliform to trumpetshaped, sometimes pendent, 1–7 cm wide and broad, up to 4 mm thick close to the stipe, rather brittle and hard when dry; pileus surface finely tomentose to velvety striate, first white, then cream, ochraceous to straw coloured often with some slightly darker greyish to umber zones, often also somewhat radially striate, with age becoming glabrous, ochraceous, fulvous to bay; stipe 0–7 cm long, 1–5 mm wide, at the base expanded into a mycelial disc, consistency hard; pore surface white, cream to pale strawcoloured, pores angular, thinwalled, 6–8 per mm; tubes up to 3 mm deep, context white, up to 2 mm thick.
Hyphal system dimitic; generative hyphae with clamps, context with only generative hyphae, thin to distinctly thickwalled, the latter easily mistaken for skeletal hyphae, however, a search along the hyphae will reveal large clamps, these thickwalled hyphae with a distinct lumen, 2.5–4.5 µm in diameter; tramal generative hyphae more thinwalled and more densely agglutinated, mixed with very thickwalled to solid skeletal hyphae, 3–6 µm wide.
Basidiospores elliptic, 3.5–5 × 2–4.0 µm.
Distribution. Widespread in the tropical zone.
Remarks. The flabelliform basidiocarp, normally narrowly zonate in ochraceous to grey colours, and the minute pores, are good fieldcharacters. Sessile specimens may be confused with *Antrodiella* species, but the wide hyphae in the context will then be diagnostic.

Fig. 24. *Flabellophora obovata*, photo D. Mossebo.

FLAVODON Ryvarden,

Norw. J. Bot. 20:3, 1973.

Basidiocarps annual, resupinate to pileate, reddish to brown with KOH, pileus adpressed tomentose, yellowish to ochraceous-grey, hymenophore first poroid, then hydnoid to irpicoid, context bright sulphurous yellow, red with KOH; hyphal system dimitic, generative hyphae with simple septa, skeletal hyphae thick-walled and partly bent into the hymenium as smooth or encrusted cystidia, spores broadly elliptic, smooth, hyaline and non-amyloid. On hard wood. Monotypic genus.

Type species: *Flavodon flavus* (Jungh.) Ryvarden,

Remarks. The genus is related to *Irpex* s. str., typified by *I. lacteus* Fr. which generally has the same type of hyphae and cystidia. *Flavodon* is separated by its yellowish colour and the reddish reaction with KOH.

Flavodon flavus (Kl.) Ryvarden, Fig 25 & 26

Norw. J. Bot. 20:3, 1973. - *Irpex flavus* Kl. Linnaea 8:488, 1833. - *Irpex flavus* Jungh., Verhand. Batav. Genootsch. 17:46, 1839, nomen invalid., non Klotzsch.
Basidiocarps annual, deep yellowish, reddish to brown with KOH, resupinate or pileus up to 3 cm wide, up to 5 mm thick at the base, consistency tough and flexible, pileus adpressed tomentose, unzoned or in narrow concentric zones, with age some zones may become slightly scrupose to finely hispid or may wear away and expose a light brown, glabrous pileus, tomentum first cream, but soon grey or ochraceous, the latter colour persists along the edge

Fig. 25. *Flavodon flavus*, Photo L. Ryvarden.

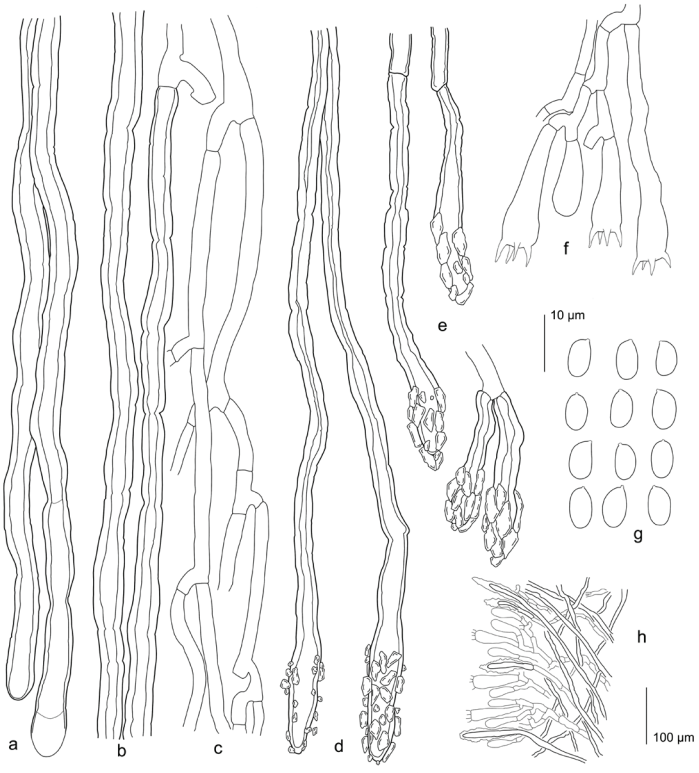

Fig. 26. *Flavodon flavus*, a) smooth cystidia, b) skeletal hyphae, c) generative hyphae, d) & e) encrusted cystidia, f) basidia, g) basidiospores, h) section of hymenium, Del. I. Melo. Coll. Ryvarden 50445.

which is paper-thin, hymenophore first poroid, but soon becoming hydnoid to irpicoid with subulate, cylindrical or flattened to more irregular teeth or hymenophore sinuous with strongly dentate lamellae, up to 5 mm long, first bright sulphurous yellowish, then yellowish brown and with age fading to ochraceous, context up to 2 mm thick, fibrous, bright sulphurous yellow, indistinctly duplex, lower part denser with horizontal fibres and an upper part of looser consistency.

Hyphal system dimitic, generative hyphae hyaline and with simple septa, 2-5 µm in diameter, moderately branched, skeletal hyphae hyaline, thick-walled, up to 7 µm wide, dominating in the context and in the central part of the teeth.

Cystidia dominating in the hymenium, mostly as true thick-walled hymenial cystidia arising from basidial side branches, up to 20 µm long and 4-6 µm wide, apically encrusted, but also as skeletal hyphae bent into the hymenium with an apical encrustation, arising deep in the trama and there are transitions between these two types or forms, the latter up to 300 µm long and 7 µm in diameter, often slightly swollen at the tip.

Basidiospores 5.5-6.5 x 3- 4.5 um, broadly elliptic.

Distribution. A pantropical species.

Remarks. The species is usually easy to recognize in the field because of the yellowish colour and the poroid to hydnoid hymenophore. The yellowish colour is especially bright in the context and in hyphal strands in the wood beneath the basidiocarps.

FOMITIPORIA Murrill,

North American Flora 9: 7, 1907.
Basidiocarps resupinate to pileate, perennial, rarely annual; pileus hirsute to glabrous, or rimose with age; pores variable, but mostly small; context thin, dense, brown; hyphal system dimitic; generative hyphae usually hyaline, thinwalled and narrow, pale golden brown; tramal setae or hymenial setae absent or present; spores, hyaline, usually thickwalled, dextrinoid, cyanophilous. All species on dead wood or living trunk or branches, with a white rot.
Cosmopolitan genus.
Type species *Fomitiporia langloisii* Murrill
Remarks. The genus is related to *Phellinus*, with many shared characters, but distinguished by the globose, hyaline, thick-walled, dextrinoid basidiospores.

Key to species

1. Basidiocarps pileate **2**
1. Basidiocarps resupinate..... **6**

2. Basidiospores 6–8.5 × 5.5–7.5 µm ..... **F. robusta s.l.**
2. Basidiospores smaller **3**

3. Pores 8–10 / mm ..... **F. ivindoensis**
3. Pores larger **4**

4. Basidiocarps massive; pileus blackish, becoming rimose with age; known only from *Gilbertiodendron* in Gabon ..... **F. nobilissima**
4. Basidiocarps medium sized; pileus cholate brown to black..... **5**

5. Basidiospores 4.2–5.3 × 3.5–4.5 µm ..... **F. gabonensis**
5. Basidiospores 5–6 × 4.5–5.5 µm ..... **F. newtonia**

6. Hymenial setae present **7**
6. Hymenial setae absent **9**

7. Pores 4−6 / mm; setae rare; basidiospores 7−8 × 6.6−7.5 µm; sometimes pseudopileate..... **F. tsitsikamensis**
7. Pores smaller..... **8**

8. Pores 6–8 / mm; basidiospores 6.5–7.5 × 5.5–7 µm; setae 7–10 µm wide; afromontane forests..... **F. aethiopica**
8. Pores 10–11 / mm; basidiopores 5–7 × 4–6 µm; setae 5–7 µm wide; low land forest..... **F. tenuis**

9. Occurring on *Vitis vinifera* in South Africa ..... **F. capensis**
9. Occurring on different hosts, in other parts of Africa ..... **F. punctata s. lato**

Fomitiporia aethiopica Decock, Bitew & Castillo

Mycologia 97: 124, 2005.
Basidiocarps resupinate, perennial, adnate, woody often cushion shaped; pore surface yellowish brown becoming greyish brown to umber brown in old and mature specimen, smooth and dull; pores circular, small, 6–8 per mm, context golden brown to dark brown, thin, up to 2 mm thick; tube layers concolorous, stratified, single layers up to 6 mm thick.
Hymenium: hymenial setae ventricose, thick-walled, acute 15–28 × 7–10 µm; basidiospores broadly ovoid to subglobose, strongly dextrinoid, 6.5–7.5 × 5.5–7 µm.
Distribution. East Africa, known from Ethiopia and Kenya in high elevation forest.
Remarks. *Fomitiporia pseudopunctata* is identical macroscopically, and a microscopical examination is necessary to separate the two species.

Fomitiporia capensis M. Fisch., M. Cloete, L. Mostert, F. Halleen,

Mycol. Progress 13:305, 2014.
Basidiocarps resupinate, adnate, woody hard, perennial; up to 5 mm thick; pore surface yellowish brown-rusty brown; pores more or less circular, 4–6 per mm, tubes up to 5 mm thick; dark reddish brown; context grayish to yellowish, up to 2 mm thick.
Hymenium: setae essentially absent; a single one seen; basidiospores subglobose, dextrinoid, 6.5–7.5 × 5.5–7.

Distribution. Known only from South Africa on *Vitis vinifera*.
Remarks: Morphologically, *F. capensis* is similar to *F. punctata* and *F. aethiopica* but is separated by its distribution and likely natural habitat. The species was described originally from *Vitis*, which is an introduced crop in South Africa. Its natural host range and habitat is unknown, and the species should look upon in environment neighbouring vineyards.

Fomitiporia gabonensis Amalfi & Decock,

Mycologia 102:1310, 2010.
Basidiocarps sessile, pileate, perennial, solitary, imbricate, pileus
2.5–10 cm wide and 5–8 cm thick; pileus surface more or less plane with oblique pore surface, hard and dense, surface roughly concentrically sulcate, light brown at the margin to chocolate brown or black at the base; pore surface cinnamon to dark brown; pores small, round, regular, 6–7 per mm; context 3–5 mm thick, dark brown; tubes up to 70 mm thick, often in individual layers.
Hymenium: setae absent; basidiospores subglobose to globose, non- to moderately dextrinoid, 4.2–5.3 × 3.5–4.5 µm.
Distribution. Known only from Gabon, where it is a common species in the Guineo-Congolian rainforest.
Remarks. The small pores and basidiospores make this species rather distinct.

Fomitiporia ivindoensis Decock, Amalfi et Yombiyeni,

Mycologia 102:1312, 2010.
Basidiocarps sessile, cushion-shaped to strictly pileate, perennial; up to 20 cm long, 15 cm wide and 3 cm thick, at the centre; pileus narrowly concentrically sulcate, dark brown to almost black, dull and glabrous; pore surface golden brown to greyish cinnamon when dry; pores 8–10 per mm small, round, regular; tubes up 2 cm deep, dark reddish brown; context, 3–4 mm thick, dark reddish brown.
Hymenium: setae absent, basidiospores subglobose to globose, variably but distinctly dextrinoid, 4.4–5.5 × 4–5.
Distribution. Known only from a single spot of Guineo-Congolian rainforest in Gabon.

Fomitiporia newtoniae Niemelä & Mrema,

Karstenia 42:52, 2002,
Basidiocarps sessile, pileate, perennial, solitary, imbricate; pileus 2.5–20 cm wide and long, 5–8 cm thick; pileus surface more or less plane, concentrically sulcate, light brown at the margin to snuff brown, chocolate brown or black at the base; pore surface cinnamon to dark brown; pores small, round, regular, 6–8 per mm; context 3–5 mm thick, dark brown; tubes up to 20 mm thick, often in individual layers.
Hymenium: setae absent; basidiospores subglobose, dextrinoid, 5–6 × 4.5–5.5 µm.
Substrate. On *Newtonia buchananii*.
Distribution. Known only from Tanzania.
Remarks. The species is characterized by its medium sized basidiospores.

Fomitiporia nobilissima Decock & Yombiyeni,

Mycologia 102:1309, 2010.
Basidiocarps sessile, pileate, solitary, perennial; pileus applanate, semi-circular to broadly attached, 25 cm long, 30–40 cm wide, up to 11 cm thick at the base, dense; pileus surface irregularly tuberculate and concentrically sulcate, rimose with age and on drying, light to dark brown to almost black and glabrous; pore surface, grayish brown; pores small, round, regular, 6–8 per mm; context up to 35 mm brown; tubes 3.5–7 cm thick, commonly with individual layers.
Hymenium: setae absent; basidiospores globose to subglobose, non-dextrinoid to moderately dextrinoid, 4.3–6.0 × 3.7–5 µm.
Substrate. Known only from *Gilbertiodendron dewevrei* (Fabaceae) in a single spot.
Distribution. Known only from Gabon, Guineo-Congolian rainforest.
Remarks. The large, massive basidiocarps, and the host characterize this species.

Fomitiporia punctata (Fr.) Murrill, s. lato

Lloydia 10:254, 1947. *Polyporus punctatus* Fr., Hym. Eur. p. 572, 1874. *Phellinus punctatus* (Fr.), Atlas Champ. l' Europe, III, Polyporaceae (Praha) 1: 530, 1942.
Basidiocarps perennial, resupinate, effused, mostly elongated and cushion formed to pulvinate, up to 3 cm thick in old specimens, woody hard; pore surface greyishbrown to ochraceous and somewhat shiny when actively growing; pores round and small, 5–6 per mm; tubes distinctly stratified, 1–3 mm in each layer, up to 3 cm thick; subiculum

cinnamon, thin and almost absent in old and thick specimens.
Hymenium: setae absent; cystidioles present in the hymenium, thinwalled, hyaline, tapering and acute or ventricose with a tubular tip slightly projecting beyond the hymenium; basidiospores subglobose, strongly dextrinoid, 6–7.5 × 5–7 µm.
Distribution. *Fomitiporia punctata* s.l. is widespread in East Africa. Molecular data could show that, in Tropical Africa, it represents one or several taxa, including e.g., *F. capensis* in Southern Africa, or *F. aethiopica* in the Eastern mountain range.
Remarks. The main characteristics are the resupinate often cushionshaped basidiocarp and lack of setae. The concept adopted here is a wide one, since few collections are known from Africa.

Fomitiporia robusta (P. Karst.) Fiasson & Niemelä, s. lato

Karstenia 24 :25, 1984. - *Fomes robustus* P. Karst., Krit. Overs. Finl. Basidsv. p. 467, 1889.
Basidiocarp perennial, pileate, adnate, first cushion like with a steep pileus, then more hoofshaped and triquetrous in section and with age more applanate and semicircular, more rarely dimidiate with a contracted base, pileus first even or with fine warts and low ridges, with age undulating and becoming zoned in broad sulcate bands, 0.5–2 cm wide, first finely tomentose, cinnamon to light rusty brown, becoming glabrous and then brownishblack, often deeply cracked when dry, pore surface fulvous to deep brown, pores small, 5–6 per mm, tubes distinctly stratified, up to 12 cm in some large specimens, yellowish to light rusty brown, context yellowish to cinnamon, shiny when broken and mostly distinctly stratified, up to 6 cm thick at the base.
Hymenium: hymenial setae easily overlooked, sometimes lacking, when present thickwalled and yellowish brown, 12–20 × 4–6 µm; cystidioles common in the hymenium and of very variable shape, partly hyphal, partly ventricose with an elongated tube, partly bottleshaped with a small top, hyaline to slightly thickwalled in the lower part; basidiospores globose to dropshaped, thickwalled, yellowish, strongly dextrinoid, 6–8.5 × 5.5–7.5 µm.
Distribution. Almost cosmopolitan, but in East Africa only seen from Ethiopia and Tanzania.
Remarks. *Fomitiporia robusta* is a variable species. Characteristic is the cushionshaped to ungulate basidiocarp, shiny yellowbrown context, usual absence of setae, and hyaline to pale yellow, strongly dextrinoid, globose basidiospores. In tropical Africa, specimens with pileate basidiocarps may be referred to as *F. robusta* s.l., and molecular data may reveal additional species.

Fomitiporia tenuis Decock, Bitew & Castillo,

Mycologia 97:122, 2005.
Basidiocarp perennial, resupinate, 15 × 3 cm and 2 mm thick; pore surface brown to ferruginous; pores tiny, round, 10–11 per mm; tubes 1 mm deep, subiculum thin, up to 0.5 mm thick.
Hymenium: hymenial setae ventricose, often strongly swollen at the base, apex straight or weakly curved, ferruginous and thickwalled, 18–22 × 5–7 µm; basidiospores globose to subglobose, hyaline, thin- to thickwalled, dextrinoid, 5–7 × 4–6 µm.
Distribution. Widespread in forest in tropical Africa, known Cameroon, Dem. Rep. Congo, Ethiopia, Gabon, Kenya, Uganda.
Remarks. The species is characterized by its tiny pores and small, ventricose setae.

Fomitiporia tsitsikamensis Tchotet, M.P.A. Coetzee, Rajchenb. & Jol. Roux,

Mycologia 112: 728, 2020.
Basidiocarps perennial, solitary or few together, resupinate to pseudopileate; when resupinate, up to 15 cm long × 9−13 cm wide, yellowish brown with a narrow felted brown margin; pseudopilei drop- to hoof-shaped, 11−17 cm long × 7−16 cm wide × 1−4 cm thick, slightly sulcate, with wide bands, smooth, very dark brown to blackish, presenting a black line 1−1.5 mm below the surface; sterile, felty, yellowish brown to brown, up to 3 cm long margin is formed downward toward the pores; pore surface light brown to brown; pores round to radially elongated, 4−6 per mm; dissepiments thick; context brown, 3−10 mm thick; a distinct black line/cuticle develops against the substrate; tubes light brown to brown, stratified, up to 7 mm long, with a contextual tissue developing in between the strata.
Hyphal system dimitic: generative hyphae simple-septate, 1.5−3 µm diam, thin-walled, hyaline to slightly yellowish; skeletal hyphae thick-walled, with a distinct lumen, 3−4 µm diam, reddish brown; pseudopileus, when present, formed by the agglutination of skeletal and generative hyphae in a resinous-like matter.
Hymenium: hymenial setae rare, easily overlooked, sometimes lacking, mostly acuminate, at times ventricose, thick-walled, brown, 20−30 × 4−9 µm, also present on the pilear surface; basidiospores subglobose to globose, thick-walled, hyaline, dextrinoid, cyanophilous, 7−8 × 6.6−7.5 µm.
Distribution: South Africa, causing white rot on standing and/or fallen trees of *Olea capensis* subsp. *macrocarpa* and *Apodytes dimidiata* subsp. *dimidiata*.

FOMITOPSIS P. Karst.,

Medd. Soc. Flora Fauna Fenn. 6:9. 1881.
Basidiocarps perennial or rarely annual, sessile to effused-reflexed, tough to woody, pore surface and context white to tan or pinkish, pores mostly small, regular. Hyphal system dimitic or trimitic, generative hyphae with clamps. **Cystidia** present or absent. Basidia clavate, 4-sterigmate, with a basal clamp. Basidiospores subglobose to cylindrical, hyaline, smooth, negative in Melzer's reagent. Causes a brown rot, in many cases cubical, in living or dead conifers and hardwoods.
Type species *Fomitopsis pinicola* (Swartz: Fr.) Karst.
Remarks. *Fomitopsis* includes species with a perennial or rarely annual basidiocarp and a dull to laccate, glabrous pileus. The rot is brown, and this and the perennial basidiocarp are the main characters separating it from *Trametes* which have the same type of spores and hyphal system but causes a white rot.

Key to species

1. Context and pore surface distinctly pink to rose **2**
1. Context white, ochraceous, beige to golden-brown..... **3**

2. Pores round to angular, 3-4 per mm, spores cylindrical to navicular ..... **F. africana**
2. Pores round, 5-7 per mm, spores cylindrical to allantoid ..... **F. carnea**

3. Growing on *Widringtonia* in Malawi ..... **F. widringtoniae**
3. Growing on different hard woods..... **4**

4. Pileus with a distinct cuticle, reddish to black, spores 8-10 µm long ..... **F. zuuluensis**
4. Pileus dull without a cuticle, spores shorter than 8 µm **5**

5. Spores globose 4-5 µm in diameter ..... **F. deviata**
5. Spores different **6**

6. Pileus dull, more or less completely black to greyish, often finely fibrillose, usually with numerous radial cracks, usually distinctly sulcate ..... **F. dochmia**
6. Pileus glabrous, beige, grey to bluish to black usually without radial cracks, smooth to slightly sulcate .... **F. rhodophaeus**.

NB. Since the spores in all species are smooth, thin walled and non-amyloid, this information is not repeated for each species. The hyphal system is dimitic or trimitic in all species and is of no value as to determination, to save space, this information is omitted.

Fomitopsis africana Mossebo & Ryvarden, Fig. 27

Sydowia 48:148, 1997.
Basidiocarp pileate, dimidiate, flabelliform to semicircular, applanate or slightly convex and sometimes slightly imbricate, up to 10 cm long, 6 cm wide and 10 mm thick, coriaceous, upper surface dull, first finely adpressed velutinate, then becoming glabrous from the base, slightly zonate and radially streaked, dark brown becoming paler towards the margin, pore surface dirty brown with pink shades, almost pure pink in active specimens, pores round to slightly angular 3-4 per mm, tubes pale pink, up to 3 mm thick, context fibrous cottony, pale pink, up to 5 mm thick at the base.
Basidiospores 6-7 x 2-2.5 µm, cylindrical to navicular.
Substrata. Post of *Eucalyptus* sp.
Distribution. Known only from the type locality in Cameroon.
Remarks. This species is well defined by its beige to slight pinkish context, dark brown dull upper surface and the cylindrical to navicular basidiospores.

Fig. 27. *Fomitopsis africana*, holotype, photo D. Mossebo.

Fomitopsis carnea (Blume & Nees) Imazeki,

Bull. Tokyo Sci. Mus. 6:92, 1993. - *Polyporus carneus* Blume & Nees, Nov. Act. Acad. Caes. Leop. XIII:15, 1826.
Basidiocarps solitary or imbricate, broadly sessile or effused reflexed, up to 7 cm wide and 3 cm thick at base, woody hard when dry, pileus conchate to applanate, first tomentose and velvety pink to light buff, but soon pale brown to blackish, glabrous, dull, azonate or concentrically sulcate in broad bands and somewhat cracked, pore surface, pink to rosy, pores round, 5-7 per mm, tubes up to 3 mm thick, context pinkish to rose, blackening in KOH, corky to hard, up to 5 mm thick.
Basidiospores 5-7 x 1.5-2.5 µm cylindrical to slightly allantoid.
Distribution. Tanzania, Kenya and Malawi, wide spread in Asia.
Remarks. The species is related to *F. roseus* growing on conifers in the Northern Boreal Zone, but separated by its hosts and somewhat wider spores.

Fomitopsis deviata Decock & Ryvarden,

Synopsis Fung. 44: 15, 2021.
Basidiocarps perennial, pileate, semicircular up to 10 cm wide, 15 cm long and 3 cm thick, tough when fresh, very hard when dry, pileus glabrous, azonate, slightly undulating, white becoming covered with by a black thin cuticle spreading from the base, in the type covering over half of the pileus, margin sharp, pore surface whitish to ochraceous, pores round, regular 4-5 (6) per mm with thick walls, tubes evenly pale ochraceous, dense, up to 1 cm thick, context pure white, azonate, dense, up to 1 cm thick at the base.
Basidiospores 4-5 µm in diameter, globose.
Distribution. Known from only the type locality in Sao Tome.
Remarks. The position of this species is uncertain, but seemingly *Fomitopsis* with its perennial basidiocarps is the best alternative instead of *Trametes* with its trimitic hyphal system and more ephemeral basidiocarps.

Fomitopsis dochmia (Berk. & Broome) Ryvarden,

Norw. J. Bot. 19:231, 1972. - *Polyporus dochmius* Berk. & Broome, Bot. J. Linn. Soc.14:50, 1875.
Basidiocarps annual or perennial, sessile, solitary or in imbricate clusters, dimidiate, or more rarely effused reflexed, up to 15 x 10 x 3 cm, woody hard, pileus surface pale rose brown on young specimens and at the margin on older ones, becoming pale greyish pink and finally or darkening to blackish brown with a distinct crust, glabrous, smooth to shallowly sulcate, in old specimens radially cracked, pore surface rose coloured to cream or wood-coloured brown with age, the pores circular to angular, regular, 5-7 per mm, tubes concolorous and tubes up to 7 mm thick, tough fibrous to corky, azonate, up to 3 cm thick.
Basidiospores 6-7.5 x 2.5-3 µm, short cylindrical to oblong.

Distribution. Wide spread in Africa, also known from tropical America and Asia.
Remarks. This species can easily be recognized by its massive basidiocarps with a grey to black crust, usually distinctly cracked radially.

Fomitopsis rhodophaeus (Lev.) Imazeki,

Bull. Tokyo Sci. Mus. 6:92, 1943. - *Polyporus rhodophaeus* Lev., Ann. Sci. Nat. Ser. 3 vol. 2:190, 1844.
Basidiocarps annual to perennial, solitary or in small groups, pileate, applanate, broadly attached to somewhat tapering, up to 10 cm broad and 8 cm wide, 0.5-2 cm thick near the base, consistency woody hard when dry, pileus flat to slightly convex, upper surface cinereous, dirty brown, glaucous grey becoming black when old, regularly to irregularly concentrically zoned and sulcate, with age glabrous, slightly shiny and with a distinct crust, pore surface ochraceous, buff-wood coloured, often with a greyish tint, darker towards the margin, pores round, 7-8 per mm, up to 5 mm, each layer up to 2.5 mm, concolorous with the pore surface or with a more rosy tint, margin sterile, up to 5 mm wide, context ochraceous to light fulvous, fibrous, slightly zoned reflecting different growth stages, up to 4 mm thick, darkening in KOH.
Basidiospores, 3.5-4.5 x 2.3 um, oblong elliptic.
Distribution. In Africa so far known only from Rwanda. Wide spread in Asia.
Remarks. The species is characterized by its flat and rather thin basidiocarps with a glabrous and semi-glossy surface which do not crack with age. The species is undoubtedly close to *F. dochmia*, but this is a much thicker species, its surface becomes greyish-black and dull with age and cracks up radially in a characteristic fashion. Further, *F. rhodophaeus* has smaller spores.'

Fomitopsis widdringtoniae Masuka & Ryvarden,

Mycol. Helvetica 5:145, 1993.
Basidiocarp annual, pileate, sessile, up to 3 cm wide, 5 cm long and 1.5 cm thick, coriaceous when fresh, shrinking when dried and then dense and woody, pileus whitish with some greyish to dirty brown spots and streaks, smooth and azonate, pore surface white, pores 5-6 per mm, round and entire, becoming greyish and soiled when dried, tubes white when fresh, up to 4 mm deep, context white, pale dirty whitish with some slight concentric zones when dry, up to 1 cm thick at the base.
Basidiospores globose, 4.5-5 µm in diameter.
Substrate. On stumps of Widdringtonia nodiflora.
Distribution. Known only from Mulanje Mts. in Malawi.
Remarks. This species is related to Fomitopsis spraguei, which however, has larger elliptic spores (5.5-7 x 4-5 µm) and has only been collected on hardwoods in the Northern hemisphere.

Fomitopsis zuluensis (Wakef.) Ryvarden,

Norw. J. Bot. 19:231, 1972. - *Fomes zuluensis* Wakef., Bothalia 4:948, 1948.
Basidiocarps annual to perennial, solitary or several together on the underside of branches, pileate, broadly attached, more seldom cushion-shaped with scarcely any pileus, up to 4.5 cm broad, 5 cm wide and 5.5 cm thick behind, triangular in section, consistency woody hard when dry. pileus apparently first very finely adpressed tomentose, soon weathered and exposing a red-brown to black cuticle, concentrically zoned and sulcate in narrow to broad bands, pore surface ochraceous to pale cinnamon, pores round, about 5 per mm, tubes up to 35 mm long, distinctly to indistinctly stratified, each layer up to 6 mm long, context woody hard, ochraceous to pale cinnamon, 1-3 mm thick, with a narrow horny cuticle on pileus.
Basidiospores 8-10 x 3.5-5 µm, oblong-elliptic to oval.
Distribution. Only known from South Africa.
Remarks. The species is characterized by its ungulate shape, sulcate dark brown to partly black surface with a cuticle, pale context and large spores.

GANODERMA P. Karst.,

Rev. Mycol. 3:17, 1881.
Basidiocarps perennial to annual, pileate, sessile, dimidiate to flabelliform or stipitate, either centrally or laterally, pileus smooth, dull with distinct crust or glossy with distinct cortex, brown to deep purplish, pores entire, small to medium, tubes often stratified, ochraceous to brown, context white to brown, stipe when present, glossy with distinct cortex, yellowish, reddish to deep purplish, hyphal system trimitic, generative hyphae light goldenbrown or hyaline and with clamps, spores truncate, large to very large (7-25 µm long), very distinct with double wall, an outer hyaline very thin membranelike exosporium covering an ornamented, thickwalled and brownish endosporium, no cystidia, woodinhabiting, mostly on angiosperms, rarely on gymnosperms. Cosmopolitan, large and predominantly tropical genus.
Type species: *Ganoderma lucidum* (Fr.) Karst.
Remarks. The genus is separated from *Amauroderma* chiefly by its distinctly truncate spores. Most species of *Ganoderma* grow on dead wood, while those of *Amauroderma* grow mostly on the ground. Species with a laccate shiny surface are present in both genera and this is also the case with both centrally and laterally stipitate species. The borderline between the two genera is not very distinct and some species are very similar with regard to macroscopical characteristics.
There are relatively few characters available for separating species in the genus since the pore size and the shape of the basidiocarp are almost the same in the majority of species. The colour of context is a reliable character in some species, but mostly it varies from pale to dark brown. Left is the size of the spores and their ornamentation. The former has often a considerable variation even within the same basidiocarp and several spores have to be measured to obtain a reliable range of variation. In the following we have used a rather wide species concept, and further DNA sequencing of type specimens may ultimately prove that there are more species present in Africa than accepted here.
Taxonomic synonyms
Elvingia P. Karst. (Type: *Polyporus applanatum*).
Thomophagus Murrill (Type: *Polyporus colossus*).
Excluded species
Ganoderma fasiculatum Pat. (Congo). The type is sterile and old.

References: Global diversity of the *Ganoderma lucidum* complex (*Ganodermataceae*, Polyporales) inferred from morphology and multilocus phylogeny, Zhou, LW et al., Phytochemistry 114:7-15, 2014.

Key to species

1. Basidiocarps perennial, broadly sessile; pileus surface dull, dark brown and with a thick, hard crust or a dull layer of adpressed hyphae ..... **Key A**
1. Basidiocarps annual to perennial, sessile to dimidiate or stipitate; pileus surface shiny or dull, first reddish orange or cream, soon yellow, red, bay or becoming black ..... **Key B**

NB All basidiospores are truncate and all species grow on hard woods, this is repeated for each species.

Key A

Pileus cuticle dull and composed of agglutinated dark hyphae

1. Context whitish, spores 7-8 µm long ..... **G. amazonense**
1. Context dark brown to ochraceous, homogenous or with dark spots or streaks, spores longer than 8 µm **2**

2. Pileus covered with an adpressed layer of fibres, context duplex with a dark lower part and a lighter upper part ..... **G. rachodes**
2. Pileus dull and glabrous..... **3**

3. Context dark brown or with a very few white spots, spores 813 µm long ..... **G. australe**
3. Context white to cinnamon coloured **4**

4. Spores 9-10 µm long ..... **G. thomensis**
4. Spores longer **5**

5. Spores 17-20 µm long ..... **G. sculpturatum**
5. Spores 10-12 µm long ..... **G. gabonensis**

Key B
Cuticle laccate, shining yellowish, reddish to almost black, cuticle composed of clavate hyphal ends.

1. Spores longer than 15 µm..... **2**
1. Spores shorter than 15 µm..... **5**

2. Pileus yellow with a thin cuticle, semiglossy to dull, context white to cream, cheesy to crumbly, ... **G. colossum**
2. Pileus yellow, reddish, purplish to black, shiny and glossy, context white to dark brown, corky to woody hard **..... 3**

3. Spores 24-28 µm long ..... **G. ochrolaccatum**
3. Spores shorter..... **4**

4. Spores 16-22 x 12-14 µm ..... **G. simulans**
4. Spores 15-17 x 9-12 µm ..... **G. alluaudii**

5. Basidiocarp centrally stipitate, pileus black and rarely above 8 mm thick, context white to pale ochraceous, skeletal hyphae strongly dextrinoid **6**
5. Basidiocarp sessile, laterally to rarely centrally stipitate, pileus reddish to dark purplish or bay, context white, ochraceous to dark brown, skeletal hyphae non dextrinoid **7**

6. Basidiospores 7-8 µm long, cuticle of apically widened cells ..... **G. hildebrandii**
6. Basidiospores 9-11 µm long, cuticle of clavate cells..... **G. leucocreas**

7. Chlamydospores present in context **8**
7. Chlamydospores absent from context **9**

8. Chlamydospores elliptic, 9-14 x 6-7 µm, context dark brown ..... **G. rufoalbum**
8. Chlamydospores globose 8-10 µm in diam, context cinnamon brown..... **G. cinnamomea**

9. Apical cells in the cuticle with protuberances or of irregular shape **10**
9. Apical cells in cuticle smooth, clavate to club shaped..... **12**

10. Spores 13-14 x 5-6 µm, cuticle cells distinctly branched..... **G. subinsulare**
10. Spores shorter, cuticle cell mostly with elongated protuberances **11**

11. Spores 7-8 x 5-6 µm ..... **G. multiplicatum**
11. Spores 10-11 x 6-7 µm ..... **G. orbiforme**

12. Spores broadly elliptic, 12-15 x 8-10 µm..... **G. oerstedtii**
12. Spores smaller **13**

13. Cuticle with resinous exudate becoming finely wrinkled when dry..... **G. resinaceum**
13. Cuticle more or less smooth **14**

14. Context dark brown, common species ..... **G. chalceum**
14. Context white to pale brown, rare species **15**

15. Spores oblong elliptic 8-12 x 6-8 µm ..... **G. lucidum**
15. Spores turbinate 16

16. Spores 8-10 x 4-5 µm ..... **G. turbinatum**
16. Spores 10-12 x 5-6 µm ..... **G. gabonensis**

NB. Unless stated differently, all species are known to grown in hardwoods, and this information is not repeated for each species.

Ganoderma alluaudii Pat. & Hariot**,**

Bull. Soc. mycol. Fr. 22:117, 1906.
Basidiocarp laterally to centrally stipitate, pileus circular, up to 8 cm in diameter and 1.5 cm thick at base, flat with a

steep to almost vertical edge, glossy, deep bay to purplish black with a thin cuticle, easily dented with a nail, glabrous, smooth to finely wrinkled, slightly sulcate and concentrically zoned towards he margin, pore surface even, yellowish whitish when fresh, becoming cream to buff when dry or old, pores round, thin walled, 3-4 (5) per mm, tubes pale brown, up to 10 mm deep, context up to 4 mm thick, pale wood coloured to pale cinnamon brown, especially towards the tubes.
Stipe 8-20 cm long, 0.4-2 cm in diameter, glossy, deep bay to black, context cottony and homogenous, wood coloured, slightly fibrous towards the centre.
Cuticle a palisade of club shaped elongated hyphal ends, occasionally bifurcate or with a single lateral outgrowth, pale brown, thick-walled, up to 80 µm long from the clamps where they originate, distal part strongly amyloid.
Hyphal system dimitic, generative hyphae with clamps 2-4 µm wide, skeletal hyphae arboriform, but with long unbranched segments, ultimately dichotomously branched towards the distal end, 3-6 µm wide, thick walled, pale golden brown.
Basidiospores 15-17 x 9-12 µm, oval, brown.
Substrate. On the ground
Distribution. Known from Uganda and Kenya.
Remarks. The black stipitate basidiocarps and the large spores characterize this rare species. It is rather similar to *G. simulans*, which however has centrally stipitate basidiocarps and larger spores.

Ganoderma amazonense Weir,

Bull. US Dep. Agric. 1380:93, 1926.
Basidiocarps perennial, pileate, laterally stipitate to sessile and broadly attached, corky to woody, 10 x 10 x 3 cm; upper surface dull, flat to radially folded, or slightly centrally depressed when stipitate, usually sulcate, glabrous, with a distinct crust in section, pale to dark brown to deep reddish brown, stipe up to 5 cm long, concolorous with the pilear cover, pore surface creamy white at first, later ochraceous, pores angular to circular, about 4-6 per mm; tube layers concolorous with pore surface, up to 20 mm thick, usually without distinct stratification, context paler ochraceous to yellowish cream, slightly darker towards the dark brown and dense cuticle, up to 6 mm thick at the base or close to the stipe.
Hyphal system trimitic; generative hyphae hyaline, thin-walled, with clamps, 2-5 µm in diam, difficult to observe in dried specimens; skeletal hyphae abundant, thick-walled, pale yellowish brown, unbranched or with a few distal branches, 3-6 µm in diam, faintly dextrinoid, binding hyphae of the *Bovista*-type, hyaline to pale yellow, thick-walled, nonseptate, 3-5 µm in diam at the base, side branches long and whip-like.
Cuticle 100-200 µm thick with agglutinated hyphae in a dense structure.
Basidiospores 7-9 x 5-6 (7) µm elliptic, hyaline to pale yellow.
Distribution. In Africa recorded from Zaire, Sierra Leone and Cameroon, wide spread in the Neotropical zone.
Remarks. *G. amazonense* may be recognized by the light coloured context, the indeterminate crust and the small spores.

Ganoderma australe (Fr.) Pat., Fig. 28 & 29

Bull. Soc. Mycol. Fr. 5:67, 1889. *Polyporus australe* Fr., Elench. Fung. p. 108, 1828. *Polyporus tornatum* Pers., in Frey., Voy. aut. Monde Bot. p. 173, 1826. – *Ganoderma fulvellum* Bres., Bull. Soc. mycol. Fr. 5:69, 1889.
Basidiocarp perennial, applanate, ungulate, often irregular when growing from cracks etc., normally dimidiate and semicircular in outline, variable in size, when with pores, normally from 440 cm long, 420 cm wide and up to 10 cm thick in single basidiocarps, woody hard when dry, pileus dull, cocoabrown to deep umber to almost blackish in old specimens, dying or weathered specimens more greyish, surface often covered with a cinnamon to pale cocoa powder of deposited spores, otherwise surface glabrous, smooth, mostly distinctly sulcate in variable zones, somewhat cracking with age and drying, black crust present, 0.23 mm thick, increasing in thickness towards the base, pore surface white to cream in actively growing specimens, then dark when touched, in older and resting species, pale to umberbrown, pores round, entire, quite thickwalled, 35 per mm, tubes dark brown, in older parts often stuffed with white mycelium, weakly stratified, up 6 cm thick, context evenly dark bay brown, rarely with some white spots, in most specimens with one or several horizontal black resinous bands above the tubes, but these apparently absent in some specimens.
Hyphal system trimitic, generative hyphae with clamps, thinwalled and hyaline, 1.53 µm wide, skeletal hyphae totally dominating in the basidiocarp, variable brown to yellow, thickwalled to solid, up to 6 µm wide, branching variable, in lower part unbranched and then arboriform in the top, often irregular, binding hyphae delicate, mostly very thin, 12 µm wide and thickly branched, easiest to find in the white mycelium filling the old tubes.
Basidiospores 613 x 4.58 µm, truncate, goldenbrown.
Distribution. Pantropical and common in Africa. Because it has longlived and large basidiocarps it is conspicuous and frequently collected.

Remarks The species is usually recognized in the field due to its distinct dark brown to black and thick cuticle on the pileus and dark brown tubes and context.

Fig 28 *Ganoderma applanatum* stamp
Fig. 29 *Ganoderma australe*, photo D. Mossebo.

Ganoderma chalceum (Cooke) Steyaert, s. lato, Fig. 30

Bull. Jard. Nat. Belg. 37:481, 1967. - *Polyporus chalceus* Cooke, Trans. Proc. Bot. Soc. Edinb. 13:135, 1878. - *Ganoderma albocinctum* Pat. & Morot, Journ. Bot. 8:365, 1894. - *Ganoderma cupreum* Bres., Ann. Mycol., 9: 268, 1911. - *Ganoderma cacainum* Bres., Ann. Mycol. 18:37, 1920. - *Ganoderma mindoroi* Lloyd, Mycol. Notes 7:1261, 1924. - *Ganoderma hollidayii* Steyaert, Bull. Jard. Bot. Belg. 32:99, 1962. - *Ganoderma capense* (Lloyd) Teng,, Fungi of China, p. 760, 1973. - *Polyporus capensis* Lloyd. Mycol. Writings 5. Letter 63, p. 10, 1916. - *Ganoderma ghesquierei* Steyaert, Bull. Jard. Bot. Belg. 32:92, 1962. - *Ganoderma vanmeelii* Steyaert, Ibid. 31:77, 1961. - *Ganoderma chonoides* Steyaert, Ibid. 32:91, 1962. - *Ganoderma lusambilaense* Steyaert, Ibid p. 93, 1962. - *Ganoderma septatum* Steyaert, Ibid. p. 93, 1962. - *Ganoderma melanophaeum* Steyaert, Ibid p. 94, 1962. - . *Ganoderma gilletii* Steyaert, Ibid. p. 91, 1962. - *Ganoderma baudonii* Steyaert, Ibid p. 96, 1962. - *Ganoderma hinnuleum* Steyaert, Ibid p. 98, 1962. - *Ganoderma endochrum* Steyaert, Ibid, p. 101, 1962. - *Ganoderma aureolum* Steyaert, Ibid. p. 101, 1962. - *Ganoderma fuscum* Steyaert, Ibid p. 102, 1962. - *Ganoderma fassii* Steyaert, Ibid 31:72, 1961. - *Ganoderma xylonoides* Steyaert, Ibid. 31:76, 1961. - *Ganoderma soyeri* Steyaert, Ibid. 31:78, 1961. - *Ganoderma maitlandii* Steyaert, Ibid. 31:77, 1961. - *Ganoderma vanmeelii* Steyaert, Ibid 31:77, 1961.- *Ganoderma saneri* Steyaert, Ibid p. 79, 1961. - *Ganoderma corrugatum* Steyaert, Ibid 31:81, 1961. - *Ganoderma hoploides* Steyaert, Ibid, 31:82, 1961. - *Ganoderma namutambalaense* Steyaert, Ibid 32:90, 1962.

Basidiocarps perennial, pileate, more or less dimidiate to broadly attached or laterally stipitate, corky to woody, up to 15 cm in diam and 3 cm thick at the base, upper surface flat, sulcate, glabrous with a distinct cuticle in section, at first reddish to bay and then black from the base, pore surface pale brown, pores angular to circular, about 3-4 per mm with thick dissepiments, tube layer concolorous with pore surface, up to 2 cm deep, context up to 3 cm thick at the base, pale to dark brown with a darker zone just above the tubes, either more or less homogenous or with a black resinous band starting at the base and extending towards the periphery.

Stipe present or absent, up to 6 cm long and about 2 cm in diameter, glossy and laccate as the pileus, often with a pore layer towards the base on the lower side, context whitish to ochraceous, dense, but fibrous and more cottony towards the centre.

Hyphal system dimitic; generative hyphae hyaline, thin-walled, with clamps, 2-5 µm in diam, skeletal hyphae abundant, thick-walled, yellowish brown, 2-6 µm in diam, occasionally dichotomously branched in the distal part coming close to arboriform hyphae.

Cuticle of clavate apical cells of generative hyphae, club shaped, thick-walled, pale yellowish brown, variably amyloid, up to 70 µm long.

Basidiospores 8-12 x 5-7 µm, oblong elliptic, yellowish brown.

Distribution. Widespread in the paleotropical zone.
Remarks. This is probably the most common species in Africa among those with a laccate pileus. In many collections specimens are filed as *G. resinaceum* Boudier, originally described from France, which however has a resinous cuticle, smooth in fresh species, usually wrinkled in dry and old ones. It was this characteristic that inspired Boudier in his choice of epithet.
P. chalceum is macroscopically almost identical in most respects with *G. lucidum*, originally described from England, but is separated by having an almost white context (pale cork coloured in old specimens) and smaller pores, viz. 4-5 per mm.
Steyaert described numerous species inside the wide concept adopted here. However, he never added critical comments to his descriptions, nor provided keys on how to discriminate them. Thus, we have based our synonymy on the given spore sizes, since his descriptions of the glossy basidiocarps are given in rather vague terms. His types are deposited in the fungarium in Bruxelles (BR), and are available to those who want to do DNA sequencing.

Ganoderma cinnamomea Ryvarden,

Synopsis Fung. 40:103, 2020.
Basidiocarps pileate, sessile and broadly attached, corky to woody, 5 x 3 x 1 cm; upper surface slightly sulcate, glabrous and laccate, deep reddish brown with a bluish exudate, pore surface white, pores 4-5 per mm, tubes white up to 7 mm thick, context cinnamon brown, pulverulent, without structures, consisting mostly of a dense mass of chlamydospores.
Hyphal system dimitic; generative hyphae hyaline, thin-walled, with clamps, 2-4 µm in diam, skeletal hyphae arboriform, pale brown, up to 5 µm in dimeter, sparingly branched.
Cuticle about 60 µm thick, thin, a palisade of clavate hyphal ends, thick walled, 25-30 x5-10 µm, dextrinoid.
Basidiospores 8-10 x 4-5 µm, oblong elliptic, probably very finely ornamented, invisible in microscopic preparations.
Chlamydospores globose, 8-10 µm in diameter, massively present in context, smooth, yellow, thick walled and hyaline.

Fig. 30 *Ganoderma chalceum*, photo D. Mossebo.

Substrata. Dead log of *Avicenna officinalis*.
Distribution. Known only from the type locality in Cameroon.
Remarks. The chlamydospores reminds one of *Ganoderma rufoalbum* where same type of chlamydospores occurs. However, this species has wider basidiospores.

Ganoderma colossus (Fr.) Baker,

V. Cent. Fungi Malay. no 425, 1918. *Polyporus colossus* Fr., Nova Acta Soc. Sci. Upsal. III 1:56, 1851. *Ganoderma obockenese* Pat., Bull. Soc. Mycol. Fr. 3:119, 1887 *Polyporus hollandii* Mass., Bull. misc. Inf. Kew 1901, p. 163.
Basidiocarp perennial, sessile, often of irregular shape, semicircular to elongated, somewhat ungulate, up to 25 cm wide and long, up to 10 cm thick, soft when fresh, light of weight and context cheesy in consistency when dry, pileus glabrous, semiglossy to dull, yellow to pale brown, cuticle present, cracks up under drying and is often destroyed, easilydented and scraped with a nail, margin of lighter colour than the basal part, pore surface white to cream when fresh, ochraceous to pale brown when dry, pores 34 per mm, quite thickwalled, tubes concolorous with pore surface, pale brown, up to 3 cm deep, context soft and punky when fresh, cheesy to chalky and easily crumbled with a nail, white, cream of pale ochraceous.
Hyphal system ditrimitic, generative hyphae hyaline, thinwalled and with clamps, 3-5 µm wide, clamps often large and conspicuous, skeletal hyphae pale yellow to hyaline, solid, 2-4(5) µm wide, richly present in the context and randomly oriented in context not gelatinized in 2.5% KOH.
Basidiospores 14-19 x 8-12 µm echinulate, truncate to ovoid, yellow.
Substrata. On hard woods, often from buried roots.
Distribution. Pantropical, but rare in Africa. Specimens have been examined from Zaire, Cameroon, Nigeria, Senegal and Ghana.
Remarks. The species is easy to recognize because of the pale and chalky context with a thin yellow crust.

Ganoderma gabonensis Decock & Ryvarden,

Synopsis Fung. 42:6, 2020**.**
Basidiocarps perennial, pileate, sessile and broadly attached, woody hard, 3 cm wide, 5 cm long and up to 1.5. cm thick in compound basidiocarps, upper surface dull, sulcate in wide zones, evenly cinnamon by deposited spores, under which there is a black distinct line becoming black and sub shiny along the margin, margin steep and rounded, pore surface deep brown, pores thick walled, about 6 per mm, almost invisible to the naked eye because of the wide pore walls, tube layer concolorous with pore surface, up to 10 mm deep, context deep cinnamon, partly fibrous, up to 6 mm thick at base and with an upper black compressed zone.
Hyphal system trimitic; generative hyphae hyaline, thin-walled, with clamps, 2-5 µm in diam, difficult to observe in dried specimens; arboriform hyphae abundant, thick-walled, pale yellowish brown, sparingly branched or with a few distal branches, 3-6 µm in diam, side branches long and whip-like.
Cuticle: up to 200 µm thick with agglutinated hyphae in a dense structure without any distinct organization.
Basidiospores 10-12 x 5-6 µm with a distinct truncate apex, hyaline to pale yellow, finely ornamented, almost invisible in microscopic preparations (1000 x).
Substrata. On a dead hard wood tree
Distribution. Known from Gabon and Cameroon.
Remarks. The species characterized by its compressed cuticle and finely ornamented, oblong spores.

Ganoderma hildebrandii Henn.,

in Pat., Bull. Soc. Mycol. Fr. 5:69, 1889. - *Polyporus nigrolucidus* Lloyd, Lloyd Mycol. Writ. 6:925, 1920. - *Ganoderma nigrolucidum* (Lloyd) D. Reid, Bothalia 11:221-230, 1974.
Basidiocarp centrally stipitate, pileus up to 2-9 cm wide, up to 5 mm thick at the centre,
pileus reddish to umber brown, becoming almost black and shiny, in young specimens smooth, dull, strongly concentric sulcate, and in section with a thin dark cuticle, margin sharp, white to cream, pore surface white to pale cream, pores minute 7-8 per mm becoming larger and 5-6 per mm in older specimens, tubes white to isabelline, up to 3 mm deep, context cottony, white or isabelline and up to 3 mm thick.
Stipe up to 9 cm long, 3-12 mm in diam, black and shiny, inner parts soft and white without a hollow core.
Hyphal system dimitic, generative hyphae with clamps, 2-5 µm wide, context and stipe core dominated by skeletal hyphae, sinuous, thick-walled, 3-6 µm wide and strongly dextrinoid in Melzer's reagent, pileus cuticle consisting of apically widened hyphal ends from generative hyphae, individual apical cells yellow,18-35 x 6-15 µm arranged in a dense palisade, cuticle on stipe of the same type as on the pileus.
Basidiospores 7-8.5 x 4.5-5.5(6) µm, elliptic to drop shaped and slightly truncate, pale yellow,
Substrata. Growing on the ground.
Distribution. Rare species, known from the Comoro Islands, Cameroon, Liberia and South Africa.
Remarks. This is a striking species in many respects. Microscopically the strongly dextrinoid skeletal hyphae combined with rather small strongly ornamented coloured spores are diagnostic characters.

Ganoderma leuocreas Pat. & Hariot,

Bull. Soc. Mycol. Fr. 28:281, 1912.
Basidiocarp centrally stipitate, pileus round, centrally slightly depressed, 7 cm in diameter, 4 mm thick in the centre, upper surface black and shiny and with a thin black cuticle, concentrically zonate, stipe10 cm long, round, black and shiny, pore surface cream to pale ochre, pores 6-7 per mm, tubes 2 mm deep, pale cream, context 2 mm thick, pale cream.
Hyphal system dimitic, generative hyphae 2-4 µm in diam, with clamps, skeletal hyphae hyaline, 3-6(8) µm wide, strongly dextrinoid, pileus cuticle consisting of a palisade of vertical hyphal ends, clavate, thickwalled, brown, individual apical cells, 45-60 x 12-15 µm.
Basidiospores 9-11 x 6-7 µm, yellow, oblong ellipsoid, strongly ornamented.
Substrata. On the ground, presumably from dead roots.
Distribution. Known only from the type locality in Zaire.
Remarks. *G. nigrolucidum* and *G. leucocreas* have similar macromorphology. The size and shape of the apical hyphal cells in the pilear cuticle are different in the two species, and so are the basidiospores, as those of *G. leucocreas* are considerable larger than those of *G. hildebrandii*.

Ganoderma lucidum (Fr.) P. Karst., Fig. 31 & 32

Rev. Mycol. 3:17, 1881. *Polyporus lucidum* Fr., Syst. Mycol. 1:353, 1821.
Basidiocarp annual, stipitate, either centrally, but mostly laterally, or reniform to flabelliform with contracted stipe, up to 15 cm in diameter and 3 cm thick near the base, coriaceous to woody hard, pileus glossy and shiny, smooth, azonate or concentrically sulcate, first yellowish, but soon reddish becoming purplish to almost blackish red, crust

Fig. 31. *Ganoderma lucidum*.

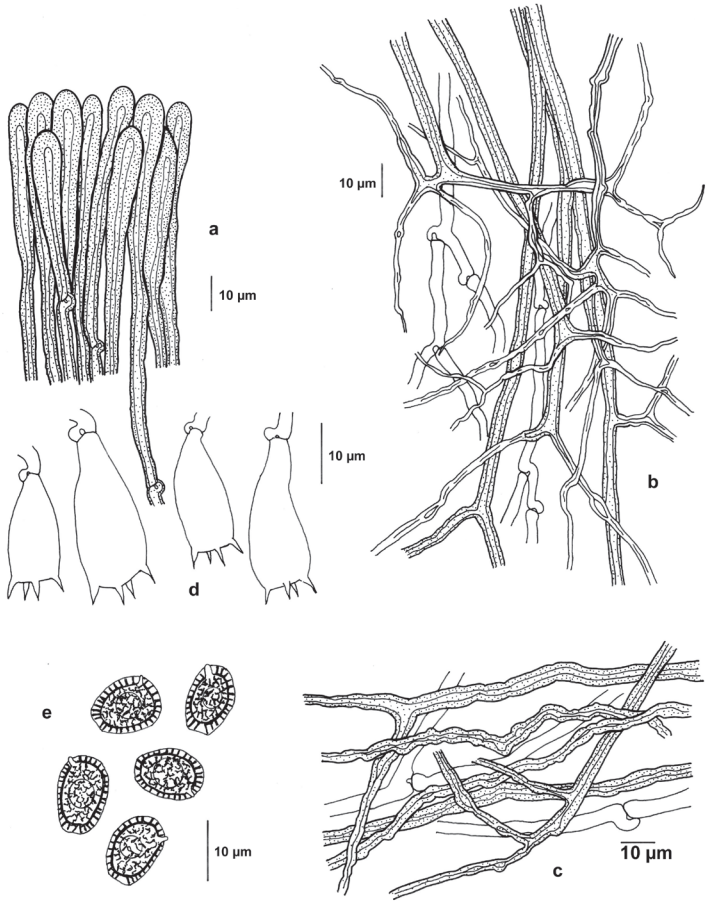

Fig. 32. *Ganoderma lucidum* a) section through cuticle, b) hyphae from context, c) hyphae from trama, d) basidia, e) basidiospores, del. I. Melo.

thin and easily indented or crushed by a nail, margin obtuse, mostly lighter than the pileus, crust composed of a palisade of vertical, clavate to slightly branched brownish thick walled generative hyphae (clamps difficult to observe) , up to 100 deep, pore surface white to cream, in age ochraceous, pores circular 46 per mm, tubes usually not stratified, ochraceous, up to 1 cm thick near the base, context fibrous, first pure white with age becoming light ochraceous,

Stipe up to 15 cm long, cylindrical to slightly flattened, up to 2.5 cm in diameter, often contracted to a very short almost sessile foot, cuticle of same colour as pileus, context pure white.

Hyphal system trimitic, generative hyphae hyaline and with clamps, 2-4.5 µm in diameter, skeletal hyphae hyaline to pale yellowish, unbranched or with a few branches in the distal end, up to 5 µm wide, binding hyphae hyaline to very pale yellowish, arboriform or of the *Bovista*type, up to 5 µm in diameter.

Basidiospores 8-12 x 6-8 µm truncate, oblong, distinctly tapering.

Substrata. Mostly on hard woods, in the temperate zone also on coniferous trees.

Distribution. Cosmopolitan species, but as the application of the name is very variable and in many fungaria used for almost all *Ganoderma* specimens with a glossy and shiny cuticle. We have seen specimens from Ghana, Kenya and Tanzania that match the description sensu stricto, thus indicating that the species may be widespread in Africa.

Remarks. The white context becoming slightly darker towards the cuticle and the rounded apical cells in the pileus cuticle, are distinct characteristics.

Ganoderma multiplicatum (Mont.) Pat.,

Bull. Soc. Mycol. Fr. 5:74, 1889. - *Polyporus multiplicatum* Mont., Ann. Sci. Nat. Bot. Ser. 4, 1:128, 1854. – *Polyporus nigrolaccatus* Cooke**,** Grevillea 9:97, 1881. - *Ganoderma wynaadense* Steyaert, Bull. Jard. Bot. Etat. Brux. 32:98, 1962. – *Ganoderma luteum* Steyaert, Bull. Jard. Bot. Etat Brux. 31:62, 1961. - *Ganoderma lusambilaense* Steyaert, Bull. Jard. Bot. Etat Brux. 32:92, 1962.

Basidiocarps perennial, pileate, dimidiate to sessile and broadly attached, corky to woody, 14 x 10 x 3 cm; upper surface flat, usually strongly sulcate, glabrous and shiny laccate, pale to light brown to deep reddish to chestnut brown becoming darker by age, margin in actively growing specimens usually light coloured, pore surface creamy white at first, later ochraceous to pale brown, pores round, in the type 6-8 per mm; tubes concolorous with pore surface, up to 15 mm thick, usually without stratification, context pale brown, up to 6 mm thick at the base or close to the stipe.

Hyphal system trimitic; generative hyphae hyaline, thin-walled, with clamps, 2-5 µm in diam, difficult to observe in

dried specimens; skeletal hyphae abundant, thick-walled, yellowish brown, unbranched or with a few distal branches, 3-6 µm in diam, binding hyphae of the *Bovista*-type, hyaline to pale yellow, thick-walled, nonseptate, 3-5 µm in diam at the base, side branches long and whip-like.
Cuticle a palisade or swollen hyphal ends, some smooth, but mostly with small protuberances, brown, thick-walled to solid and strongly amyloid, 50-70 x 6-12 µm.
Basidiospores 7-8 x 5-6 µm, subglobose to broadly elliptic.
Distribution. Probably pantropical, in Africa known from Central Africa and Mauritius.
Remarks. *G. multiplicatum* may be recognized by the amyloid, slightly tuberculate hyphal ends in the cuticle and the small basidiospores.

Ganoderma ochrolaccatum (Mont.) Pat.,

Bull. Soc. Mycol. Fr. 5:68, 1889. – *Polyporus ochrolaccatus* Mont., Ann. Sci. Nat. ser. 2. 17:231, 1842. - *Ganoderma buissonii* Pat., Bull. Soc. mycol. Fr. 40:164, 1924. - *Polyporus reticulatosporus* Van der Byl, South African J. Sci. 24: 225, 1927.
Basidiocarps stipitate, pileus umbrella-shaped 2-5 cm in diameter, 1-1.5 cm thick, upper surface glabrous and shiny with a distinct crust in section, pale brown to cream when fresh drying yellowish to ochraceous, pore surface creamy white at first, later ochraceous to pale greyish with brown tints, pores irregular to circular, about 3 -4 per mm, tubes concolorous with pore surface, up to 1 cm deep, context up to 6 mm thick.
Stipe central, 6-7 cm long, 0.5-1.5 cm in diameter, glossy, reddish brown.
Hyphal system probably dimitic; generative hyphae hyaline, thin-walled, with clamps, up to 2,5 µm wide, skeletal hyphae arboriform, thick-walled, yellowish brown, up to 10 µm wide.
Basidiospores 24-28 x 15-16 µm, ellipsoid, pale straw coloured, with regular to irregular protuberances.
Distribution. Known from Zimbabwe and South Africa.
Remarks. This is a distinct species by the large spores, a light coloured pileus and a central stipe.

Fig. 33, *Ganoderma oerstedtii*, photo D. Mossebo.

Ganoderma oerstedtii (Fr.) Murrill, Fig. 33

Bull. Torrey Bot. Cl. 29:606, 1902. - *Polyporus oerstedtii* Fr., Nova Acta Soc. Sci. Upsal. Ser. 3,1:63, 1851. - *Ganoderma tuberculosum* Murrill, N. Am. Fl. 9:123, 1908. – *Ganoderma tumidum* Bres., Annls mycol. 9:267, 1911. - *Ganoderma megalosporum* Steyaert, Bull. Jard. bot. État Brux. 32:93, 1962.
Basidiocarps perennial, pileate, stipitate, dimidiate to broadly attached, corky to woody,15 x 20 x 10 cm; upper surface flat, sulcate, glabrous, with a distinct crust in section, at first reddish orange and glossy, with age more reddish brown to bay or chestnut brown, occasionally with a wrinkled resinous layer close to the base, pore surface creamy white at first, later ochraceous to pale brown, pores angular to circular, about 3-4 per mm; tubes concolorous with pore surface, up to 3 cm thick, usually without distinct stratification, context ochraceous to white, up to 3 cm thick at the base.

Hyphal system trimitic; generative hyphae hyaline, thin-walled, with clamps, 2-3 µm in diam, difficult to observe in dried specimens; skeletal hyphae abundant, thick-walled, yellowish brown and arboriform, 3-6 µm in diam, binding hyphae of the *Bovista*-type, hyaline to pale yellow, thick-walled, nonseptate, 3-5 µm in diam at the base, side branches long and whip-like.
Cuticle a palisade of vertical pale brown cells, thick-walled to solid, clavate or slightly apically widened, rounded or occasionally with a projecting tip, very rarely with a lateral lobe, apically faintly amyloid, up to 130 µm deep.
Basidiospores 12-14 (15) x 8-10 µm, elliptic, truncate, brown.
Distribution. Probably pantropical, in Africa known from Kenya, Cameroon, Zaire, St. Thome.
Remarks. This species is related to *G. resinaceum*, and is mainly separated by larger basidiospores and a lack of a resinous layer on the pileus.

Ganoderma orbiforme (Fr.) Ryvarden, Fig. 34

Mycologia 92:187, 2000. - *Polyporus orbiforme* Fr., Epicrisis Mycol. p. 463, 1838. - *Polyporus tropicus* Jungh., Praem. Fl. Crypt. Javae (Batavia) p. 63, 1838. - *Ganoderma tropicum* (Jungh.) Bres., Ann. Mycol. 8:586, 1910. - *Ganoderma boninense* Pat., Bull. Mycol. Soc. Fr. 5:72, 1889.
Basidiocarps biannual or perennial?, pileate, dimidiate to sessile and broadly attached, corky to woody, 15 x 10 x 3 cm; upper surface flat, sulcate, glabrous and shiny laccate, pale to light brown to deep reddish to chestnut brown becoming darker by age, margin in actively growing specimens usually light coloured, pore surface creamy white at first, later ochraceous to pale brown, pores round, in the type 5 per mm; tubes dark brown up to 10 mm thick, usually without stratification, context dark brown, up to 10 mm thick at the base.
Hyphal system dimitic; generative hyphae hyaline, thin-walled, with clamps, 2-4 µm in diam, difficult to observe in dried specimens; skeletal hyphae pale yellowish brown to pale rusty brown, abundant, thick-walled, yellowish brown, arboriform with a long unbranched basal part and with a moderately, mostly dichotomously branching in the upper part, making the trama 3-6 µm in diam, binding hyphae not seen properly.
Cuticle a palisade with strongly irregular hyphal ends such as club shaped with irregular protuberances or more sinuous with short blunt outgrowths, many with an apical swelling, brown, thick-walled to solid and variably amyloid, in fresh specimens strongly amyloid, mostly so in the apical end, 50-100 x 6-12 um.
Basidiospores 9-12 x 6-9 µm, broadly elliptic, pale brown.
Distribution. Pantropical, in Africa known from Cameroon, Seychelles and Uganda.
Remarks. *G. orbiforme* may be recognized by the amyloid, irregular, tuberculate to blunted hyphal ends of the cuticle and moderately large, rather broadly elliptic basidiospores.

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Fig. 34. *Ganoderma orbiforme*, photo D. Mossebo

Ganoderma rachodes Pat.,

Bull. Soc. Mycol. Fr. 30: 343, 1914.
Basidiocarp sessile, pileus circular, up to 12 cm wide and 4 cm thick at base, glabrous, dull, azonate, , slightly rimose, ochraceous, no distinct cuticle, but covered with a thin layer of parallel adpressed fibres, pore surface even, dark brown, pores round to angular, thin walled, about 6 per mm, tubes dark brown, up to 20 mm deep, context

duplex, lower part dark brown and dense with several black melanoid bands, upper part loose and cottony, cinnamon brown and distinctly paler than lower part.
Hyphal system dimitic, generative hyphae with clamps 2-5 µm wide, skeletal hyphae arboriform, but with long unbranched segments especially in the context, 4-10 µm wide, in the tubes more commonly dichotomously branched towards the distal end, 4-7 µm wide, thick walled, pale golden brown, in the pilear cover agglutinated with a distinct horizontal structure and without vertical elements.
Basidiospores 9-11 x 6-7 µm, oval, pale yellow.
Distribution. Known only from French Congo.
Remarks. The agglutinated layer of skeletal hyphae on the pileus and the duplex context, make this to a distinct species. The description is based on the type specimen only and do not probably cover the whole range of variation seen in this rare species.

Ganoderma resinaceum Boudier, Fig. 35

Bull. Soc. Mycol. Fr. 5:72, 1889.
Basidiocarps perennial, pileate, usually laterally stipitate with a short, round expanding stipe or dimidiate to broadly attached, corky to woody, often large, 15 x 40 x 10 cm; upper surface flat, sulcate, glabrous, with a distinct crust in section, at first reddish and glossy, with age more reddish brown to bay and dull due to a excreted resinous layer which becomes yellowish when crushed and melts in a match flame, with age and drying distinctly wrinkled; pore surface creamy white at first, later ochraceous to pale greyish with brown tints, pores angular to circular, about 3-4 per mm; tube layers concolorous with pore surface, up to 3 cm thick, usually without distinct stratification, context wood-coloured to ultimately pale brown with a darker zone just above the tubes, up to 6 cm thick at the base;
Hyphal system trimitic; generative hyphae hyaline, thin-walled, with clamps, 2-5 µm in diam, difficult to observe in dried specimens; skeletal hyphae abundant, thick-walled, yellowish brown, unbranched or with a few distal branches, 3-6 µm in diam, sometimes with lateral blunted outgrowths, these usually separated from the main stem by a simple septum; binding hyphae of the Bovista-type, hyaline to pale yellow, thick-walled, nonseptate, 3-5 µm in diam at the base, side branches long and whip-like; crust on pileus surface consists of a vertical palisade of amyloid, club-like hyphal ends apparently arising from generative hyphae, but clamps are small and solid and difficult to observe, length of these hyphal ends not determined, some at least 50 µm.
Basidiospores 9-12 x 5-7 µm, elliptic, brown, very finely ornamented, appearing almost smooth in a light microscope (1000 x magnification).
Distribution. Cosmopolitan species and widespread in Africa, specimens seen from Cameroon, Zaire, Rwanda, Kenya, Uganda and South Africa.
Remarks. Basidiocarps of *G. resinaceum* may be confused with those of *G. chalceum* which has no resinous layer on the crust, thus making it much more glossy and shiny even in older specimens.

Fig. 35. *Ganoderma resinaceum*, photo D. Mossebo.

Ganoderma rufoalbum (Bres. & Pat.) Pat.,

Bull. Soc. mycol. Fr. 30:342, 1914. - *Ptychogaster rufoalbus* Bres. & Pat., Bull. Soc. mycol. Fr. 5:79,1889. - *Ganoderma rivulosum* Pat. & Hariot, Bull. Soc. mycol. Fr. 22: 119, 1906. - *Ganoderma rothwellii* Steyaert, Bull. Jard. Bot. Belg. 50:158, 1980.
Basidiocarps pileate, dimidiate to sessile and broadly attached, corky to woody, 10x 20 x 3 cm; upper surface flat, sulcate, glabrous and laccate, brown to deep reddish to chestnut brown pore surface first creamy white (?) brown when dry and old, pores 3-4 per mm, tubes dark brown up to 3 mm thick, context dark brown, dense consisting of a dense mass of chlamydospores, up to 3 mm thick at the base.
Hyphal system dimitic; generative hyphae hyaline, thin-walled, with clamps, 2-4 µm in diam, skeletal hyphae arboriform, pale brown.
Cuticle about 50 µm thick, thin, a palisade of clavate hyphal ends, 25-30 x 5-7 µm.
Basidiospores 8-10 x 6-7 µm, broadly ellipsoid, very finely ornamented, almost invisible in microscopic preparations.
Chlamydospores 9.5-14 x 7-9 µm, present in context, smooth, yellow, oval to oblong ellipsoid, some with a distinct stipe showing connecting point, thick walled and some with a large globule or drop.
Distribution. Zimbabwe, Cameroon and Zaire, and probably wide spread in tropical Africa.
Remarks. The chlamydospores make this a distinct species and different from the otherwise similar *G. chalceum*.

Ganoderma sculpturatum (Lloyd) Ryvarden,

Mycotaxon 35:235, 1989. - *Fomes sculpturatus* Lloyd, Lloyd Mycol. Writ. 4:39, 1912. – *Ganoderma lignosum* Pat., Bull. Soc. mycol. Fr. 40:165, 1924.
Basidiocarp perennial, pileate, applanate, sessile to substipitate with a distinct attenuated base, semicircular to fan shaped, up to 15 cm wide and long, 14 cm thick at the base, woody hard, margin obtuse and bent downwards, pileus dull and with a cinnamon to umber, often covered with a pulverulent layer of spores below which there is a varnishlike cuticle, dark brown to almost blackish, variably radially wrinkled, glabrous, smooth to warted or rugulose, pore surface white when fresh and then stained when touched, clay coloured to pale brown when old and dry, pores narrow, 34 per mm and with very thick walls and thus, almost invisible to the naked eye, tubes rather thinwalled and the individual tubes are much wider than the partly closed pored opening, tubewalls dark brown, tubes up to 2 cm deep and only faintly stratified, context up to 2 cm thick, woodcoloured and strongly contrasting the dark brown tubes, in the lower part with numerous small brown spots and short streaks, the upper part pure woodcoloured, context covered with a dark brown, hard crust, up to 0,5 mm.
Hyphal system trimitic, generative hyphae hyaline and with clamps, 2-4 µm wide, in the cuticle thickwalled, pale brown and of variable celllength and width, forming a palisade of swollen hyphal ends, skeletal hyphae dominating in the basidiocarp, in the tubes tinted yellowish, agglutinated in a resinous matrix, 4-6 µm wide, solid to very thickwalled in the context looser and hyaline except for in the coloured spots, solid to very thickwalled, 3-7 µm wide, mixed with narrow and intricately branched binding hyphae 1-3.5 µm wide. In the dark cuticle partly of coloured skeletal hyphal ends and agglutinated swollen and irregular generative hyphae with thickened walls and rather short cells except for the apical cell which may become up to 50 µm long and 10 µm wide in the top.
Basidiospores 17-20 x 10-12 µm, oblong ellipsoid and slightly truncate, finely verruculose, pale yellow.
Distribution. East and Southern Africa, Madagascar and seems to be an endemic element in the Miombo forest.
Remarks The dull pulverulent surface becoming thick and blackish by age and the pale context with darks spots, are distinctive macroscopical characteristics. The oblong spores are also unusual in the genus.

Ganoderma simulans Wakefield,

Kew Bull. 1922, p. 161, 1922.
Basidiocarp sessile when growing on lying trunks, laterally stipitate when growing from buried roots, knob like to semicircular, to 10 cm long and wide, and up to 1.5 cm thick at base, pileus black with a thin cuticle, glabrous, semiglossy, black, radially wavy and finely sulcate and in parts wrinkled when fresh margin obtuse, wavy, and deflexed, pore surface even, whitish to pale grey to isabelline becoming pale brown by age, pores round, thin walled, 4-5 per mm, tubes pale brown, up to 10 mm deep, context white to pale wood coloured, 2-8 mm thick, stipe when present, up to 2 cm in diameter, often with decurrent pore surface and a black cuticle on the upper part.
Cuticle a palisade of club shaped densely packed, pale brown hyphal ends, thick-walled, up to 60 µm long from the clamps where they originate,
Hyphal system dimitic, generative hyphae with clamps 2-4 µm wide, skeletal hyphae sparingly branched in upper part, lower part long and unbranched appearing as skeletal hyphae proper, solid, 3-6 µm wide.
Basidiospores 16-22 - 12-14 µm, oval, brown.
Substrate. Stumps or roots of hard wood trees.
Distribution. Known only from Uganda.

Remarks. The black, sessile to laterally stipitate basidiocarps and the large spores characterize this rare species. It is rather similar to *G. alluaudii*, which however has centrally stipitate basidiocarps and a brown context.

Ganoderma subinsulare Ryvarden,

Synopsis Fung. 41:6, 2020.
Basidiocarps perennial, pileate, dimidiate to almost laterally stipitate, woody hard, semicircular, 8 cm in diam and 1.5 cm thick at the base, upper surface flat, sulcate, glabrous with a distinct cuticle in section, glossy, at first reddish to bay and then black from the base, margin almost vertical and distinctly delimited towards the pore surface, pore surface greyish brown, pores angular to circular, about 5-6 per mm with thick dissepiments, almost invisible to the naked eye, tube layer dark brown, up to 1 cm deep, context up to 1 cm thick at the base, ark brown homogenous.
Hyphal system dimitic; generative hyphae hyaline, thin-walled, with clamps, 2-5 µm in diam, skeletal hyphae abundant, thick-walled, yellowish brown, 2-6 µm in diam, occasionally dichotomously branched in the distal part coming close to arboriform hyphae.
Cuticle of lobate to branched apical cells of generative hyphae, thick-walled, pale yellowish brown, variably amyloid, up to 90 µm long from the clamp where they arise.
Basidiospores 13-14 x 5-6, distinctly turbinate, pale yellowish brown and finely ornamented.
Substrate. On dead palm.
Distribution. Known only from the type locality in the Seychelles.
Remarks. The fairly long turbinate spores are characteristic for this species.

Ganoderma thomensis Decock & Ryvarden,

Synopsis Fung. 44: 15, 2021.
Basidiocarps annual, semicircular to dimidiate, about 14 cm long, 7 cm wide and up to 1.5 cm wide, dense and hard when dry, pileus applanate, dark brown, glabrous with a white , up to 1 cm wide, white and rounded margin, cuticle about 0.5 mm thick, dense and dark brown, pore surface pale brownish becoming dark when touched in fresh condition, pores hardly visible with the naked eye, round, 4-5 per mm with thick walls, tubes pale brown, up to 7 mm deep, context triplex lower parts homogenous pale brown about 2 mm thick, central part with dense, black and partly broken bands 4-6 mm, while upper part is ochraceous and homogenous up to 2 mm thick.
Hyphal system monomitic, generative hyphae with simple septa, hyaline, wavy and sinuous, variable from thin walled and partly collapsed to distinctly thick walled, up to 7 µm wide, negative in Melzers reagent.
Basidiospores 5-7 x 9-10 µm, oblong to drop shaped, very finely ornamented, dextrinoid in Melzers reagent.
Distribution. Known from only the type locality in Sao Thome.
Remarks. This is remarkable species with its dextrinoid, fairly small spores and its variable context with three distinct, differently coloured strata.

Ganoderma turbinatum Ipulet & Ryvarden,

Synopsis Fung. 20:89, 2005.
Basidiocarp laterally stipitate, pileus about 1,5 cm in diameter, glabrous, azonate, smooth, deep bay except for the whitish to yellow margin, pore surface white, pores round, even, 4-5/mm, tubes white up to 1 mm deep, context white to pale cork-coloured.
Stipe up to 7 cm high and 3-6 mm in diameter, slightly irregular in outline, glabrous, laccate and bay, in section with faint dark longitudinal lines, context pale cork-coloured.
Hyphal system dimitic, generative hyphae hyaline, thin-walled, 3-4 µm wide, skeletal hyphae arboriform, but very sparingly branched with very long basal segments, up to 200 µm before a single branch occur, thus superficially they may appear as if unbranched, up to 6 mm wide in the basal part, tapering to 1-2 µm in long whip-like branches, in all parts without a dextrinoid reaction.
Cuticle composed of clavate, unbranched apical cells arising from a clamp, up to 25µm long and 10 µm wide, greyish amyloid, stronger so in the apical part.
Basidiospores 8-10 x 4-5 µm, turbinate with a dense fine ornamentation, pale yellow.
Substratum. On the ground from dead roots.
Distribution: Uganda and Cameroon.
Remarks. The species belongs in the *G. lucidum* complex with its rather small basidiospores and a whitish context. However, the distinctly turbinate spores make it easy to recognize in microscopical preparations.

GLOEOPHYLLUM P. Karst.,

Bidr. Känned. Finl. Natur Folk 37:79, 1882.
Basidiocarp annual to perennial, resupinate, pileate to stipitate, , tough to woody, upper surface deep brown to greyish with age, glabrous to hispid, often zone wise, hymenophore poroid, daedaleoid to lamellate, rusty to deep umber brown, trama and context dark rusty to umber brown, hyphal system di- to trimitic, generative hyphae with clamps, skeletal hyphae yellowish brown and dominant in the basidiocarps, binding hyphae rare and scattered in context, cystidia present or absent, smooth or with apical crown of crystal, spores smooth, cylindrical, thin-walled and non-amyloid, generally longer than 7 µm. On dead wood, in the Northern hemisphere mostly on coniferous wood, but in the tropics on numerous hardwood genera. Causes a brown rot.
Type species: *Gloeophyllum sepiarium* (Fr.) P. Karst.
Remarks. The genus is usually easy to recognize in the field due to the brown colours and irregular hymenophore. It is one of the few tropical genera with a brown rot.

Key to species

1. Hymenophore poroid to semi lamellate, 2-4 pores per mm .....**G. trabeum**
1. Hymenophore lamellate to daedaleoid, 1-2 lamellae per mm .....**G. striatum**

Gloeophyllum striatum (Swartz: Fr.) Murrill, Fig. 35B

Torrey. Bot. Cl. Bull. 32:370, 1905. - *Daedalea striata* Swartz: Fr., Syst. Mycol. 1:334, 1821.
Basidiocarps annual, single or several basidiocarps fused and rosette-shaped to imbricate, dimidiate to fan shaped with a contracted stipe like base, up to 8 cm wide and broad, mostly smaller, up to 5 mm thick at the base, tough and coriaceous and easily bent without cracking, whole basidiocarp black with KOH, upper surface flat, at first finely adpressed velutinate, usually with distinct narrow concentric zones, tobacco to umber brown, often slightly sulcate, later the tomentum becomes agglutinated and the surface then smooth and pale brown to greyish as the colour fades away, margin papery thin and usually bent downwards, often split in lobes or weakly undulating, hymenophore dark brown to greyish brown with age, thinly lamellate in parts forking and anastomosing, often dentate and irregular along the edges and even deeply split in parts to an almost hydnoid hymenophore with elongated, flattened teeth, 10-15 per cm along the margin, lamellae 1-5 mm deep, context thin, 0.5-1.5 mm, dark rusty brown, lower part dense and mostly with horizontal hyphae, the upper part looser and hyphae mostly bent upwards, but no distinct line between the two parts.
Hyphal system di to trimitic, generative hyphae with clamps, hyaline and thin-walled to slightly thick-walled, the latter in the trama, 2.5-4 µm in diam, skeletal hyphae golden yellow, thick-walled and straight, up to 6 µm in diam, binding hyphae very rare, only seen in the context.
Cystidia 30-60 x 5-7 µm, numerous to scattered, fusoid, slightly thick walled, arising in the subhymenium from generative hyphae, projecting above the hymenium, smooth or with a few crystals (observe in Meltzer or cotton blue).

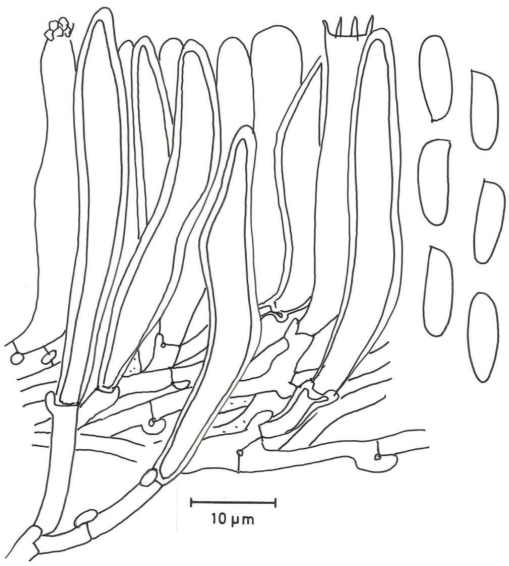


Fig. 35-B. *Gloeophyllum striatum*, A) hymenium with cystidia, B) basidiospores, from the lectotype. Del. L. Ryvarden

Basidiospores 6-10 x 2.5-3.5 µm, oblong elliptic to cylindrical.
Substrata. On hard woods, mostly on exposed wood, such as poles, wooden bridges etc.
Distribution. Pantropical.
Remarks. *G. striatum* is easy to recognize because of the dark brown, partly velutinate pileus and the lamellate hymenophore. It often grows on exposed surfaces. since it is seemingly resistant to drought and tolerates high temperatures.

Gloeophyllum trabeum (Pers.: Fr.) Murrill,

N. Am. Fl. 9:129, 1908. - *Daedalea trabea* Pers.: Fr. Syst. Mycol. 1:335, 1821.
Basidiocarps annual or perennial, pileate, sessile, imbricate with several basidiocarps from a common base or as elongated basidiocarps along cracks in the wood, frequently fused laterally, up to 3 cm broad, 8 cm long, rarely above 8 mm thick at the base, coriaceous and tough, upper surface warm sepia to umber brown, greyish in age, lighter along the margin in growing specimens, weakly zonate to almost azonate, at first finely velutinate to adpressed tomentose, later more or less glabrous and smooth, or with very small scrupose protuberances, more rarely hispid and with coarse and large tufts of hyphae at the base, these seems to occurring most frequently in rosette-like basidiocarps, hymenophore irregular, semi-lamellate or labyrinthine to partly poroid with quite thin walls, 2-4 per mm (in lamellate specimens up to 4 lamellae per mm along the margin), ochre to umber brown, tubes or lamellae up to 4 mm deep, mostly concolorous with hymenophore or lighter when stuffed with hyphae, mostly distinctly lighter than the context, context sepia to umber brown, denser towards the tubes, but without distinct delimitation towards the looser and cottony upper part of the context, up to 4 mm deep.
Hyphal system dimitic (trimitic?), generative hyphae hyaline, with clamps, 2.5-5 µm wide, skeletal hyphae dominating, golden brown, thick-walled, up to 6 µm wide, in the older parts of the context also a few branched, thick-walled golden yellow hyphae.
Cystidia 20-30 x 4-5.5 µm, thin-walled and mostly embedded in the hymenium, fusoid to slightly clavate, obtuse or conical with an acute end, a few with resinous excretions as small globules, hyaline or slightly golden yellow, especially at the base where they may be more thick-walled.
Basidiospores 6.5-9.5 x 3-4.5 µm, cylindrical.
Substrate. Most common on hard wood of many kinds, but also noted on a long range of coniferous trees.
Distribution. Cosmopolitan species, except the boreal zone.
Remarks. Basidiocarps of *G. trabeum* are easy to recognize because of their dense lamellae or small pores, by far the smallest in the genus.

GLOEOPORUS Mont.,

Ann. Sci. Nat. Bot. Ser. 2, 17: l26, 1842.
Basidiocarps annual, resupinate to pileate, upper surface, when present, white to greyish and tomentose, pore surface pinkish white, orange to deep bay or reddish, pores small, shallow and round to angular with a continuous layer of basidia over the dissepiments, tube layer gelatinous in fresh condition, resinous and dense to cartilaginous when dry, darker and denser than the white and cottony subiculum or context, hyphal system monomitic, generative hyphae with clamps or simple septa, cystidia present or absent, spores allantoid to cylindrical, thinwalled, smooth and IKI. On both hard wood and coniferous wood, causing a white rot. Cosmopolitan genus.
Type species: *Gloeoporus thelephoroides* (Hook.) Cunningh.
Remarks. The genus belongs in the Corticiaceae (s. lato) or Meruliaceae because of the continuous layer of basidia over the poreedges, a common feature in *Phlebia, Byssomerulius* and similar fungi with a merulioid or folded hymenophore.

Key to species

1. Generative hyphae with simple septa ..... **G. thelephoroides**
1. Generative hyphae with clamps **2**

2. Basidiocarps pileate, pore surface purplish ..... **G. dichrous**
2. Basidiocarps resupinate, pore surface beige ..... **G. africanus**

Gloeoporus africanus Ryvarden,

Synopsis Fung. 39:63, 2019.
Basidiocarps annual, resupinate, growing as small patches, each up to 2 x 3 cm, tough when fresh, hard and brittle when dry, pore surface deep beige, pores round to angular, 46 per mm, often not more than a reticulate pattern, up

to 400 µm deep, hymenium developed over the dissepiments like in *Phlebia*, concolorous with the pore surface, tube layer gelatinous and rubbery when fresh, resinous to horny when dry and old, context pure white hardly visible to the naked eye.
Hyphal system monomitic; generative hyphae in the subiculum distinct and thickwalled with large clamps, up to 6 µm wide, moderately branched, in the tubes strongly agglutinated, thinwalled and mostly collapsed in dry specimens, up to 3.5 µm in diameter.
Basidiospores 3-4 x 0.7-1.5 µm, allantoid to cylindrical.
Distribution. Known only from the type locality in Ethiopia.
Remarks. The dense resinous tube layer contrasting a white, loose context and the tiny allantoid spores, make this a distinct species.

Gloeoporus dichrous (Fr.) Bres.,

Ann. Mycol. 14:230, 1916. *Polyporus dichrous* Fr., Syst. Mycol. 1:364, 1821.
Basidiocarps annual, resupinate to pileate, often as effusedreflexed, mostly imbricate with several small shelflike, narrow and elongated pilei, soft when fresh, resinous hard when dry, pilei rarely above 4 cm wide, 10 cm long and 5 mm thick at the base, upper surface white to cream, first finely tomentose, later more scrupose to smooth or hispid with tufts of hyphae according to weathering and active periods of growth, concentrically zoned in different shades, margin sharp and undulating, pore surface first light reddish, soon dark purplish, more brown when old, when actively growing often pruinose and white along the dissepiments, margin white, wide and byssoid, strongly with contrasting the dark pore surface, pores round to angular, 46 per mm, often not more than a reticulate pattern, up to 1 mm deep, hymenium developed over the dissepiments like in *Phlebia*, concolorous with the pore surface, tube layer gelatinous and rubbery when fresh, resinous to horny when dry and old, above the tubes there is a thin and distinct zone of the same colour and consistency as the tubes, context pure white, up to 4 mm thick, cottony to loose, distinctly thicker than the tubes.
Hyphal system monomitic; generative hyphae in the context distinct and thickwalled with large clamps, up to 6 µm wide, moderately branched, in the tubes and the resinous zone above the tubes strongly agglutinated, thinwalled and mostly collapsed in dry specimens, up to 3.5 µm in diameter.
Basidiospores 3.5-5.5 x 0.7-1.5 µm, allantoid to cylindrical.
Distribution. Cosmopolitan species, but reports from the tropics should be treated with caution as it is easily confused macroscopically with dark specimens of *G. thelephoroides*, which differs in having simple septate hyphae.
Remarks. Usually this species is easy to recognize because of the deep reddish pore surface and the white and cottony context and pileus. It is separated from *G. thelephoroides* by clamps on the generative hyphae. In fresh condition the gelatinous to rubbery pore layer is characteristic and may be peeled off the basidiocarp with a finger nail.

Gloeoporus thelephoroides (Hooker) G.H. Cunningham, Fig. 36

Polyp. New Zealand p. 111, 1965. *Boletus thelephoroides* Hooker in Kunth., Syn. Pl. 1:10, 1822.
Basidiocarps annual, pileate, solitary to imbricate, up to 6 on wide, pileus 24 mm thick near the base, thinning towards the margin, consistency tough and soft when fresh, coriaceous or flexuous when dry, pilei broadly sessile to slightly spatulate, flat to partly wavy and bent downwards along the margin, pileus evenly to radially tomentose, white, woodcoloured to light yellow, later more pale yellowishbrown, in older specimens the tomentum often becomes radiately striate, pore surface light ochraceous to pinkish in young specimens, resinous pinkish brown in very old ones, pores round in fresh specimens, angular and thinwalled in dry ones, 5-7(8) per mm, tubes often decurrent on the substrate, up to l mm deep and thinning out towards the margin which is often sterile, in dried specimens the pores are partly filled with a resinous substance, context white to woodcoloured, 0.2-1.0 mm thick, separated from the tube layer by a darker gelatinized zone.
Hyphal system monomitic, generative hyphae with simple septa, in the tomentum and the context of variable width and wall thickness, 2-6 µm wide, tramal hyphae thinwalled and 2-4 µm wide, frequently branched and often slightly yellowish.
Basidiospores 3.5-5 x 0.7-1 µm, cylindrical to allantoid.
Distribution. Pantropical species and widespread in Africa.
Remarks. This species is usually easy to recognize because of the gelatinous hymenophore with a pinkish colour that darkens by age. Young specimens are almost whitish and only with a slight reticulate pale net of shallow pores. Dark specimens may be separated from *G. dichrous* by the simple septate hyphae.

Fig. 36. *Gloeoporus thelephoroides*, photo D. Mossebo.

GRAMMOTHELE Berk. & M. A. Curtis,

J. Linn. Soc. Bot. 10:327, 1868.
Basidiocarps annual, resupinate, adnate, effused, up to 2 mm thick, but usually thinner, hymenial surface irregularly irpicoid to poroid and then partly labyrinthine to sinuous, pore surface variable white, pinkish white grey to pale greyish blue, in some species the skeletal hyphae agglutinated as bundles, hymenium restricted to the horizontal basal parts of the pores and slightly down the vertical walls, context light and thin. Hyphal system dimitic, generative hyphae with clamps, skeletal hyphae thickwalled to solid, dextrinoid at least in the outer parts, in some species more or less hyaline throughout the life span of the basidiocarps, in other species first hyaline and then darker with age and in some species coloured from the very beginning. Dendrohyphidia absent or present, spores ellipsoid to cylindrical, thin walled, smooth and nonamyloid. On hard woods. Tropical genus.
Type species: *Grammothele lineata* Berk. & M. A. Curtis.
Remarks. The genus is similar and seemingly related to *Porogramme* which is separated by being monomitic.
Excluded species: *Grammothele pseudomappa* Talbot, the type from South Africa is sterile.

Key to species

1. Skeletal hyphae in pointed dark bundles, spores 1.5-2.5 µm wide ..... **G. lineata**
1. Skeletal hyphae evenly distributed, spores wider **2**

2. Spores 11-15 x 6-7.5 µm .....**G. delicatula**
2. Spores smaller **3**

3. Pore surface white to cork-coloured, pores 3-4 per mm ..... **G. africana**
3. Pore surface bluish grey, pores 1-3 per mm .....**G. obscura**

Grammothele africana Ipulet & Ryvarden,

Synopsis Fung. 20:91, 2005.
Basidiocarps annual, resupinate, hard, up to 3 cm wide, 6 cm long and 1 mm thick, pore surface white to cork-coloured, pores irregular, elongated to angular, variable from 2 mm long to 3-4 per mm, shallow, tubes up to 400 µm deep, white in the fertile bottom, pore walls partly fertile close to the bottom, otherwise sterile, dense and slightly resinous brown, especially close to the dissepiments, subiculum hardly present, white.
Hyphal system dimitic, generative hyphae with clamps, 2-5 µm wide, skeletal hyphae dichotomously unbranched, thick-walled to almost solid, 2-3µm in diam without dextrinoid reaction.
Basidiospores 5-6 x 3-4 µm, elliptic to drop-shaped.
Distribution. Known from only the type locality in Uganda.
Remarks. The species comes close to *G. ochraceous* Bresadola from Asia, but is separated by smaller spores and more irregular pores (regularly 2-3 per mm in *G. ochraceous*).

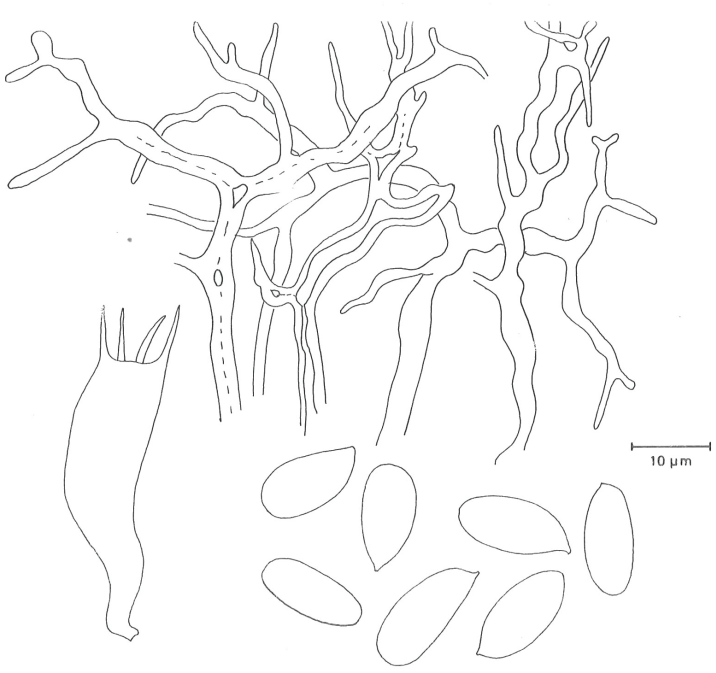


Fig. 37. *Grammothele delicatula*, a) arboriform skeletal hyphae, b) basidium, c) basidiospores, from the lectotype, del L. Ryvarden.

Grammothele delicatula (Henn.) Ryvarden, Fig. 37

Prelim. polypore Fl. East Africa p. 37, 1980. - *Poria delicatula* Henn., Engl. Bot. Jahrb. 34:44, 1904.
Basidiocarps annual, resupinate, adnate, often elongated along narrow branches, but also more effused, pore surface pale cream to umber brown, darker with age, pores angular and shallow, 2-4 per mm, up to 200 µm deep, pores usually distinct and entire, hymenium restricted to the bases of the pores, subiculum white, ochraceous to distinctly pale umber brown in old specimens.
Hyphal system ditrimitic, generative hyphae hyaline, thinwalled and 2-3 µm wide and with clamps, skeletal hyphae up to 4 µm wide, hyaline to yellowish, branched hyphae also present and may be interpreted as arboriform skeletal hyphae.
Dendrohyphidia variably present, slightly twisted and aculeate in the top, may easily be mistaken as binding hyphae.
Basidiospores 11-15 x 6-7.5 µm, elliptic.
Distribution. In Africa known from Sierra Leone, Liberia, Kenya and Tanzania. Also known from South America.
Remarks. The large spores are diagnostic for this species.

Grammothele lineata Berk. & M. A. Curtis,

Jour. Linn. Soc. 10:327, 1868.
Basidiocarps adnate, effused, up to 1 mm thick, but frequently only 200-400 µm thick, margin white to pale pinkish, pore surface first white to greyish, later pinkish, pale cocoa or sordid grey, the colour change occurs as the skeletal hyphae become tinted or coloured especially those in hyphal pegs and then the pore surface becomes dotted with dark spots with age, especially along the dissepiments, more scattered on the vertical, sterile tube walls where these bundles often project as hyphal pegs, tubes shallow, angular (1)2-4 per mm, often irregular and the walls first occur as irregular plates or teeth which later merge to a more or less poroid pattern where, however, there usually are numerous pores which are incomplete as there are narrow passages from one pore to another, hymenium whitish and restricted to the base of the pores, subiculum very thin, whitish to pinkish, with age becoming dark and resinous.
Hyphal system trimitic, generative hyphae thinwalled and with clamps, 1.5-2.5 µm wide, skeletal hyphae thickwalled to solid, 1.0-2.5 µm wide, first hyaline, with age becoming tinted in shades of brown, darkening in KOH and with a distinct dextrinoid reaction.
Dendrohyphidia richly present, hyaline and irregularly apically branched, difficult to observe in old specimens, in the hymenium up to 3-5 µm long, in the dissepiments and on the vertical walls apparently arising at the end of branched generative hyphae.

Basidiospores 4.5-6 x 1.5-2.5 µm, elliptic.
Distribution. East Africa and Uganda, pantropical.
Remarks. The partly hydnoid surface with dots of numerous dark bundles of skeletal hyphae is distinct in this species.

Grammothele obscura Ryvarden,

Synopsis Fung. 39: 64, 2019.
Basidiocarps adnate, effused, up to 1 mm thick, margin narrow, white, hymenophore irregularly oblong split in lamellae and semi poroid shapes, 0.5-1 mm between ridges, more distinctly poroid along the margins and then 1-3 pores per mm, pore edges whitish, finely floccose, surface dark bluish greyish, up to 1 mm deep, sections dark bluish and dense when dry, subiculum thin, white.
Hyphal system dimitic, generative hyphae thinwalled and with clamps, 2-4 µm wide, skeletal hyphae thickwalled to solid, 2-5 µm wide, olivaceous in KOH, dextrinoid in Melzers reagent.
Dendrohyphidia richly present, hyaline and irregularly branched at the top, in the hymenium up to 35 µm long, in the dissepiments and on the vertical walls, apparently arising at the end of branched generative hyphae.
Basidiospores 5-6 x 2.5 3 µm, elliptic.
Distribution. Known only from the type locality in Zambia.
Remarks. The bluish colour and irregular hymenophore should be sufficient to recognize the species the field. Microscopically it is similar to *G. lineata*, which however has skeletal hyphae in distinct bundles besides smaller spores.

GRAMMOTHELOPSIS Jülich,

Bibl. Mycol. 85: 400, 1982.
Basidiocarps resupinate, adnate, shallowly poroid with hymenium restricted the inner bottom of the pores, hymenial system dimitic, generative hyphae with clamps, skeletal hyphae non-dextrinoid to dextrinoid, basidia tetrasterigmatic, cystidia absent, basidiospores large, thick-walled, smooth, hyaline dextrinoid or non dextrinoid, on hard woods, tropical genus.
Type species: *Grammothele macrospora* Ryvarden.
Remarks. The genus is characterized by the shallow pores, reminding as such about *Grammothele*, but easily separated from the latter by the far larger and thick walled spores.

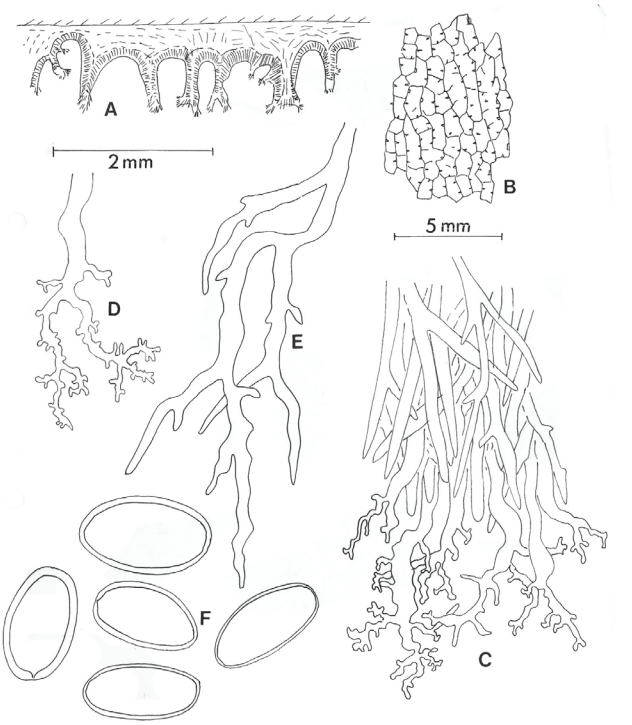


Fig. 38. *Grammothelopsis macrospora*, from the holotype, a) section of basidiocarp, b) pore surface with hyphal pegs, c) dendrohyphidia from pore mouths, d) dendrohyphidium, e) arboriform skeletal hyphae, f) basidiospores, from the holotype, del. L. Ryvarden.

Grammothelopsis macrospora (Ryvarden) Jülich, Fig. 38.

Bibl. Mycol 85:400, 1982. – *Grammothele macrospora* Ryvarden, Prelimin. Fl. Polyp. East Africa p. 43, 1980.
Basidiocarps resupinate, effused, in type about 6 x 8 cm, adnate, up to 400 µm thick, ore surface pale brown, margin white to pale ochraceous, narrow to wide, pores angular to elongated, on average 12 per mm, some pores up to 3 mm long, finely dentate, pore mouths and tube walls dotted with white hyphal pegs, partly as conical studs, partly as elongated short ridges, tubes pale brown, context thin, pale brown.
Hyphal system ditrimitic, generative hyphae hyaline and with clamps, 13 µm wide, trama and subhymenium dominated by skeletal hyphae, thickwalled to solid, pale yellowish, straight to slightly sinuous, mostly unbranched, but in the pore mouths distinctly arboriform, apical parts strongly to weakly dextrinoid, lower straight parts nondextrinoid.
Dendrohyphidia richly present, both in the hymenium and along the sterile poremouths, up to 30 µm long.
Basidiospores 15-20 x 7.5-11 µm, broadly elliptic, thickwalled, smooth and strongly dextrinoid.
Distribution. Known only from the type locality in Kenya.
Remarks. The large, thick walled dextrinoid spores and the dendrohyphidia make this a distinct species.

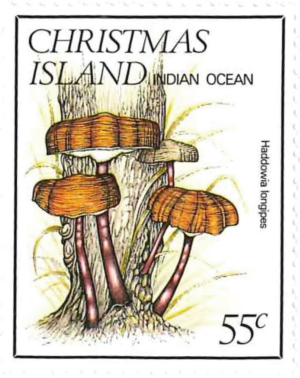
HADDOWIA Steyaert,

Persoonia 7:108, 1972.
Basidiocarps stipitate, pileus shiny laccate, reddish to blackish-brown, stipe laccate and shiny, pore surface wood coloured, context white to pale straw coloured, pores 2-3 per mm, hyphal system trimitic with clamped generative hyphae, binding hyphae and skeletal hyphae, basidiospores with longitudinal double crests connected by small transverse membranes. On the ground. Tropical genus with two species out of which one occurs in Africa.
Type species : *Polyporus longipes* Lev.
Remarks. The genus is well-characterized by its laccate basidiocarps and distinctive and unique spores. It belongs in Ganodermataceae.

Haddowia longipes (Lev.) Steyaert, Fig 39, 40 & 41

op.cit. p. 109. – *Polyporus longipes* Lev., Ann. Sci. Nat. Bot. ser III, 5:124, 1846.
Basidiocarps annual, single, stipitate, pileate, centrally to more commonly laterally stipitate, pileus up to 10 cm wide and 3 cm thick, mostly flat with almost vertical edge or margin, rather soft when dry, fresh, light of weight when dry, pileus shiny, laccate, yellowish-brown in young parts, chestnut to blackish-brown in older parts, with a very thin, easily-dented crust, concentrically zonate in sulcate bands, more prominent on the vertical edge of the pileus than on the top, slightly wrinkled in radial direction when dry, pore surface whitish to ochraceous, pores angular, thin-walled, 2-3 per mm, tubes wood-coloured, up to 3 cm deep, context up to 5 mm thick, but mostly thinner, white to cork-coloured, cottony and tough, upper crust 20-40 µm thick.

Stipe 8-18 cm long, 4-6 mm in diameter, shiny and laccate, chestnut to deep blackish-brown, with a thin crust, central core homogeneous, white to pale straw-coloured.
Hyphal system trimitic, generative hyphae hyaline and with clamps, 2-5 µm wide, in a layer below the crust wider and densely intertwined, skeletal hyphae in trama densely intertwined and randomly oriented, dominantly unbranched, slightly tortuous, thick-walled to solid, hyaline, 2-5 µm wide, cuticle of club-shaped ends of generative hyphae, 20-60 µm long from the clamp, 6-10 µm wide in the upper part, thick-walled, in the upper part brownish and filled with a brown resinous content.
Basidiospores 12-17(19) x 10-14(15) µm, elliptic, longitudinally striate with double crests, partly connected with short transverse walls, yellowish to brownish.
Substrate. On the ground from buried roots.
Distribution. In Africa known from Cameroon, Uganda, Kenya, Zimbabwe, and Angola. Otherwise from India, Philippines, Costa Rica and French Guiana.
Remarks. Microscopically the species is easy to recognize because of the unique, crested spores.



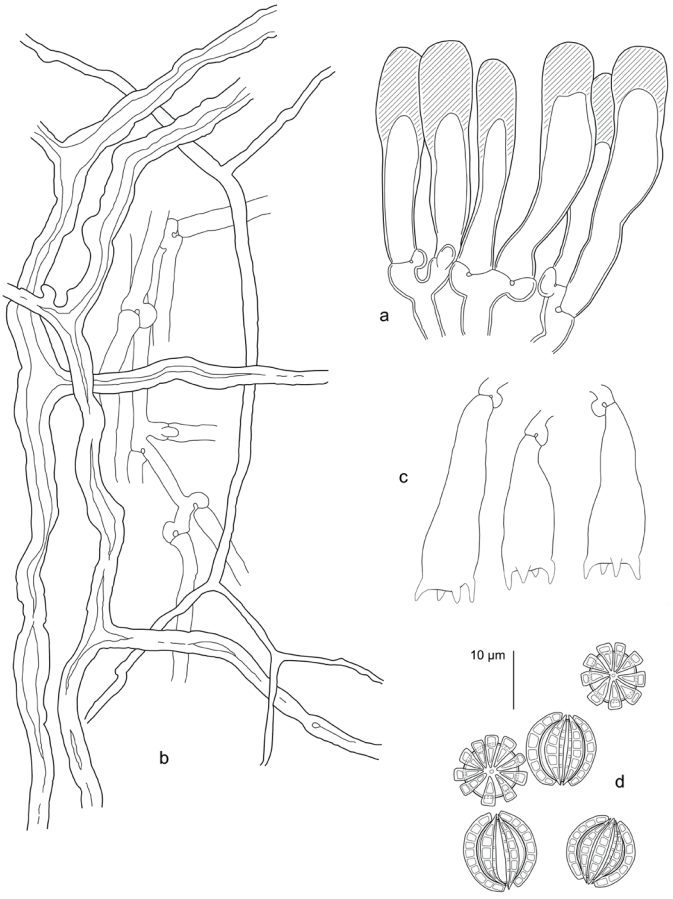


Fig. 39. *Longipes Haddowia*
Fig. 40. *Haddowia longipes*, photo D. Mossebo.
Fig. 41. *Haddowia longipes*, a) hyphal ends from cuticle, b) vegetative hyphae from context, c) basidia, d) basidiospores, del. I. Melo.

HAPALOPILUS P. Karst.,

Rev. Mycol. 3:18, 1881.
Basidiocarps annual, resupinate to pileate and then broadly sessile to dimidiate, soft when fresh, brittle when dry, whole basidiocarp reddish brown to orange, cherry red in contact with KOH, pores round to angular, small to medium, hyphal system monomitic with clamped generative hyphae, cystidia none, spores ellipsoid to cylindrical, smooth, hyaline and thin-walled, non-amyloid, on hard wood.
Type species: *Hapalopilus nidulans* (Fr.) Karst.
Remarks. The basidiocarps is characterized by a reddish to violet colour reaction with KOH and seems to be a natural group. The boreal and temperate species growing on coniferous hosts have been transferred to *Erastia* Niemelä & Kinnunen.

Key to species:

1. Basidiocarps pileate ..... **H. nidulans**
1. Basidiocarps resupinate **2**

2. Spores cylindrical 3.5-4.5 x 1.5-1.8 µm, pores 4-5 per mm ..... **H. albocitrinus**
2. Spores oblong elliptic 4-5 x 2-2.4 µm, pores 1-3 per mm ..... **H. africanus**

Hapalopilus africanus Ryvarden,

Bull. Jardin Bot. Belg. 48:103, 1978.
Basidiocarps annual, resupinate effused, adnate, up to 5 mm thick, soft when fresh, fragile and firm when dry,

margin narrow or lacking, pale yellowish, pore surface chrome yellow with ochraceus tints, distinctly cherry red when touched with a drop of KOH, pores angular 1-3 per mm, some even larger, tubes light chrome yellow, up to 3 mm deep, subiculum concolorous and very thin.
Hyphal system monomitic, generative hyphae with clamps, 3-5 µm wide, rather thin-walled in the subhymenium, slightly thick-walled in the trama.
Gloeopleurous hyphae present, unbranched, in parts thick-walled with dense protoplasm and scattered adventive simple septa, up to 220 mm long, covered with light yellowish crystals, dissolving rapidly in 3 % KOH
Basidiospores 4-5 x 2-2.4 µm, cylindrical to oblong elliptic.
Distribution. Known only from the type locality in Rwanda.
Remarks. The species is characterized by the gloeopleurous hyphae and the fairly large angular pores.

Hapalopilus albocitrinus (Petch) Ryvarden,

Prelim. Polyp. Flora East Africa p. 359, 1980. - *Poria albocitrina* Petch, Ann. Roy. Bot. Gard. Peradenya 7:286, 1922.
Basidiocarps annual, resupinate effused, adnate, up to 5 mm thick, soft when fresh, fragile and firm when dry, margin narrow, pale yellowish, pore surface at first yellow, becoming pale reddish orange with age or drying, distinctly cherry red when touched with a drop of KOH, pores round to angular 4-5 per mm, dissepiments finely granular, tubes yellow to cinnamon reddish, up to 4 mm deep, context narrow and duplex, next to the tubes tough, pale cinnamon reddish to a yellow, next to the substrate with a pale brown to almost reddish black, dense, thin, cartilaginous semitranslucent zone up to 0.5 mm thick.

Hyphal system monomitic, generative hyphae with clamps, diameter variable, mostly 2-5 µm, rather thin-walled in the subhymenium, slightly thick-walled in the trama and wider than those of the subhymenium.
Basidiospores 3-4.5 x 1.5 µm, cylindrical.
Distribution. Pantropical, in Africa seen from Kenya and Tanzania.
Remarks. The species is usually easy to recognize when fresh because of the yellowish reddish colour and its reaction to KOH. When dry the basidiocarps darken and become dense and rigid and the whole structure is filled up with brown granular to crystalline matter. The dark cartilaginous zones next to the substrate or between the tube layers are distinctive in sectioned specimens.

Hapalopilus nidulans (Fr.) P. Karst.,

Rev. Mycol. 3:18, 1881. - *Polyporus nidulans* Fr., Syst. Mycol. 1:362, 1821.
Basidiocarps annual, pileate, broadly sessile to effused reflexed, mostly convex, often almost triangular in section, up to 10 cm wide and long, up to 4 cm thick at the base, soft and watery when fresh, light and brittle when dry, all parts of the basidiocarp light violet to purplish with KOH, pileus cinnamon to ochraceous, first finely tomentose to scrupose, soon smooth, azonate or with a few broad, weakly sulcate zones, pore surface ochraceous to cinnamon brown, pores thin-walled and angular, 2-4 per mm, tubes up to 10 mm deep, ochraceous or white due to cottony sterile hyphae, context light cinnamon, mostly distinctly lighter in colour towards the pileus, soft and fibrous, up to 4 cm thick at the base.
Hyphal system monomitic, generative hyphae with clamps, in the context large, up to 10 µm wide and with conspicuous clamps, distinctly thick walled and richly branched, mostly smooth, but also covered partly with amorphous substances mixed with polygonal, light pinkish to brownish crystals.
Basidiospores 3.5-5 x 2-2.5 (3) µm, elliptic to cylindrical.
Distribution. In Africa found only on the East African mountains**.** Circumglobal in the temperate zone.
Remarks. The species is usually easy to recognize by its cinnamon coloured sappy basidiocarp with a vivid violet reaction with KOH.

HAPLOPORUS Singer,

Mycologia 35: 66, 1944.
Basidiocarps perennial, pileate to resupinate, whitish and with a strong scent of anise; hyphal system trimitic; generative hyphae with clamps; cystidia none; spores globose to ellipsoid, hyaline, asperulate and dextrinoid in Melzer's reagent; on hard woods.
Type species: *Polyporus odorus* Sommerf.: Fr.
Remarks. A well characterized genus, with perennial basidiocarps, trimitic hyphal system and ornamented spores.

Key to species

1. Spores 5-6 x 3-4 µm ..... **H. nanosporus**
1. Spores larger **2**

2. Spores 11-14 µm long ..... **H. eichelbaumii**
2. Spores 14-19 µm ..... **H. grandisporus**

Haploporus eichelbaumii (P. Henn.) Decock,

Mycol. Progress 20: 158, 2021. - *Poria eichelbaumii* P. Henn., Engl. Bot. Jahrb. 39: 109, 1905 [
Basidiocarps resupinate, adnate, effused and thin, occasionally slightly cushion-shaped, confluent, 150 × 15 mm, up to 1 mm at the thickest, soft corky when fresh, corky to brittle when dry; pores surface, pale greyish orange to mostly greyish orange pores variable, round to angular, diamond-shape on oblique substrate, then elongated, becoming lacerate, sinuous, especially in marginal areas, 2.5–3.5 per mm, tubes up to 1 mm deep, mostly whitish to very pale greyish orange, context reduced to absent, up to 0.1-mm thick, whitish.
Hyphal system dimitic, generative hyphae hyaline, clamped, 1.5–2.0 µm wide; skeleto-binding hyphae, of the arboriform type, dextrinoid, 1.3–2.5 µm diam. dendrohyphidia lining the very margin of dissepiments, variably abundant, hyaline, thin-walled, variably apically branched.
Basidiospores 11.0– 14.0 × 5.0–6.5 µm, elliptic, roughened with longitudinal warts or ridges,
Substrate. Dead fallen branches of various angiosperms, including *Chassalia subochreata* and dead bamboo canes, *Sinarundinaria alpine*.
Distribution. Eastern Africa from Malawi to Kenya.
Remarks. This species was previously reported from Africa as *Pachykytospora papyracea* which however is based on a specimen from Pennsylvania in United States.

Haploporus grandisporus Decock,

Mycol Progress 20:159, 2021.
Basidiocarps resupinate, adnate, effused to slightly cushion-shaped, in confluent patches, merging at their margin, individual patches circular 65 × 8 mm, up to 1.8 mm thick, pore surface, whitish, pale cream to pale corky, greyish orange margin 0.5–2 mm wide, whitish to pale cream pores round to mostly angular, or elongated, diamond-shape on oblique substrate, becoming lacerate, sinuous especially in marginal areas, 1.5–2.5 per mm, tubes 1–1.8 mm deep, whitish to very pale greyish orange, corky, context reduced to absent, < 0.1 mm thick, whitish.
Hyphal system dimitic, generative hyphae hyaline, clamped, sparingly branched, 1.5–2.0 µm wide; skeleto-binding of the arboriform type, dextrinoid, 1.3–1.8 µm diam.; dendrohyphidia lining the dissepiments, variably abundant, hyaline, thin-walled, variably apically branched.
Basidiospores 14–17.5 × 6.0–7.5 µm, elliptic, thick walled with longitudinal rows of warts or discontinuous to continuous ridges.
Substrate dead, hanging or fallen branches of *Erica arborea*, *Agauria salicifolia*, and *Hagenia abyssinica***.**
Distribution: Mont Elgon in Kenya.
Remarks. The species is characterized by its large spores and pores.

Haploporus nanosporus (David & Rajchenb.) Piatek,

Ann. Bot. Fenn.42:24, 2005. - *Pachykytospora nanospora* A. David & Rajchenb., Mycotaxon 45: 137, 1992.
Basidiocarps resupinate, adherent, up to 3 mm thick; margin distinct felty, pore surface cream to beige when dry, pores circular to angular, 7-8 per mm; dissepiments thin, entire; tube layer concolorous, up to 1 mm thick; context thin, cinnamon coloured
Hyphal system trimitic; generative hyphae inconspicuous, hyaline, thin-walled, with clamps, 2-2.5 µm in diam; skeletal hyphae thick-walled, with occasional branching, 1.5-3.5 µm in diam, strongly dextrinoid, binding hyphae few up to 2 µm wide, profusely branched, hyaline.
Basidiospores 5-6 x 3-4 µm, elliptic, slightly thick walled, asperulate.
Distribution. Gabon, Cameroon and Kenya.
Remarks. The species is easy to recognize by its tiny pores and small elliptic spores.

HEXAGONIA Fr.,

Fl. Scan. p. 339, 1835 (nomen conserv.).

Basidiocarps annual to perennial, pileate, sessile, dimidiate, flabelliform to semicircular, consistency coriaceous, corky to woody, pileus smooth, tomentose or densely hirsute with long dark hairs, pores entire, angular and mostly large, context usually thin and dark brown, blackening in KOH, hyphal system trimitic, generative hyphae thin-walled, hyaline and clamped, binding and skeletal hyphae thick-walled to almost solid, yellow to golden-brown, endings of both types often project into the hymenium which then partly becomes a catahymenium, true cystidia absent, spores hyaline, cylindrical, mostly longer than 12 µm, smooth, thin-walled and non-amyloid, on hard wood. Pantropical genus.

Type species: *Hexagonia crinigera* Fr.

Remarks. The genus is characterized by a trimitic hyphal system with coloured skeletal hyphae and large cylindrical spores, and most species have large hexagonal pores. There are difficulties in drawing a sharp borderline with some *Trametes* subgenus *Coriolopsis* species, but normally the latter basidiocarps are of a lighter colour and have shorter spores.

Key to species

1. Pileus with stiff black curly hairs **2**
1. Pileus finely velutinate, scrupose to glabrous **4**

2. Pores 0.3-0.5 mm wide or smaller, pileus blackish, African species **3**
2. Pores 2-5 mm wide, pileus cinnamon to umber brown, Asian species ..... **H. apiaria**

3. Pores 3-4 per mm ..... **H. hydnoides**
3. Pores wider, 2-5 per cm ..... **H. hirta**

4. Growing on dead grass ..... **H. culmicola**
4. Growing on dead wood **5**

5. Pileus glabrous, pale brown, often with a reddish cuticle spreading from the base, pore size variable ..... **H. glaber**
5. Pileus velvety to scrupose, no red cuticle from base **6**

6. Mycelial pad present, spreading from base of pileus **7**
6. Mycelia pad absent on pileus, or very small if present in old specimens **8**

7. Pores 2-3 per mm ..... **H. dermatiphora**
7. Pores 0.5-1 mm wide ..... **H. velutina.**

8. Numerous dark brown hyphal pegs present on pore walls **9**
8. Hyphal pegs absent, or hyaline if present **10**

9. Spores 10-12 µm long ..... **H. phellinoides**
9. Spores 12-14 µm long ..... **H. pobeguinii**

10. Pileus whitish, cream or pale brown ..... **H. niam-niamensis**
10. Pileus deep reddish brown to black **11**

11. Pileus reddish brown, robust large basidiocarps, pores 2-5 mm wide ..... **H. speciosa**
11. Pileus deep brown to more or less back, rarely more than 5 cm wide, pores 1-2 mm wide, restricted to the Miombo zone in Southern Africa **12**

12. Pileus glabrous, distinctly radially striate, hyphal pegs absent ..... **H. umbrinella**
12. Pileus velutinate, becoming more or less glabrous by age, even or slightly radially striate, hyaline hyphal pegs present ..... **H. zambesiana**

Hexagonia culmicola Niemelä & Kotiranta,

Norrlinia 29:200, 2015.
Basidiocarps annual, pileate, semicircular to dimidiate, 1- 2 x 1 cm and 1 mm thick, thin and pliable when fresh, hard when dry, upper surface glabrous, usually strongly concentrically zoned in shades of brown to almost black, margin paper-thin, acute, pore surface purplish grey to brown, pores irregularly sinuous to angular, 1-2 per mm, tubes as pore surface, context 0.2-0.5 mm thick, beige with a thin dark zone.
Hyphal system dimitic, generative hyphae clamped, hyaline, 2-3 µm wide, skeletal hyphae yellow to pale brown, thick-walled, 2-3 µm wide, slightly dextrinoid.
Basidiospores 10-14 x 4.3- 5.5 µm, navicular to spindle shaped, often with a large oil drop.
Distribution. Known from Zambia and Tanzania, but probably wide spread in African grass land, but easily overlooked by to the small size and the unusual habitat.
Remarks. Easily recognized by its habitat. The spindle shaped spores are unique in the genus.

Hexagonia dermatiphora Lloyd,

Mycological Notes No.37, p. 501-502, 1911.
Basidiocarps annual to perennial, solitary, pileate broadly attached to the substrate, up to 12 cm broad and 8 cm wide, 2-4(5) mm thick near the base, brittle to flexible when dry, pileus first shiny in warm brown colours and narrowly zonate in slight sulcate zones, with age a mycelial adpressed tomentum in spreading from the base, pale brown to deep ochraceous in colour, slightly warted to scrupose and somewhat radial striate, finally only the margin will show the original shiny surface, margin entire, sharp and somewhat bent downwards, pore surface snuff-brown, hazel to milky-coffee with a greyish tint, pores round to slightly angular 2-3 per mm, dissepiments thin and entire, tubes up to 1.5 mm long without hyphal pegs, context dark fulvous to hazel, darkening in KOH, up to 3 mm thick, homogenous in the part not covered by the mycelial outgrowth on the pileus and then fibrous and somewhat shiny, in older part of the basidiocarp the context appears duplex because of the upper more cottony and lighter mycelial cover.
Hyphal system trimitic, generative hyphae clamped, thin-walled and hyaline, 1.5-3 µm wide, easily collapsed, skeletal hyphae yellow to pale brown, thick-walled with a distinct lumen 3-6 µm wide, binding hyphae scarce, hyaline to light yellow, moderately branched, 2-4 µm in diameter, tapering towards the ends.
Basidiospores 9-12 x 3-3.5 µm, cylindrical.
Distribution. Only known from the Dem. Rep. Congo
Remarks. The species is near *H. velutina* and might be seen as a form of that species, but it differs in having much smaller pores.

Hexagonia glaber (P. Beauv.) Ryvarden, Fig. 41

Mycotaxon 72:216, 1999. - *Favolus glaber* P. Beauv., Flora d`Oware Benin 2:76, 1819. - *Boletus tenuis* Hooker in Kunth, Syn. Pl. 1:10, 1822. - *Hexagonia tenuis* (Hooker) Fr., Epicr. Syst. mycol. p. 498, 1838.
Basidiocarps annual to perennial, solitary or in clusters, pileate, broadly, narrowly attached to almost stipitate, 2- 10 cm broad and wide and 1-3 mm thick, often almost only papery thin, consistency flexible and coriaceous when dry, pileus dimidiate, flabelliform to semicircular, flat when fresh, often bent when dry, upper surface glabrous, usually strongly concentrically zoned in shades of brown from ochraceous to pale snuff-brown or pale umber to darker bay to even sepia, some specimens with a red to dark purplish or even black cuticle spreading from the base, usually concentrically and of varying size from almost completely covering the pileus to only a dark zone or lacking in the same collection, pore surface snuff-brown, hazel to milky-coffee, often with a greyish to ashy-bluish tint, pores angular to hexagonal, very variable, mostly 0.5-2/mm but larger and smaller may occur (5-25 per cm), tubes up to 2 mm long, with or without hyphal pegs, context 0.1-1 mm thick, dark brown, rusty-brown to hazel, blackening in KOH.
Hyphal system trimitic, generative hyphae clamped, hyaline and thin-walled, 1.5-3 µm wide, often collapsed, skeletal hyphae yellow to pale brown, thick-walled with a distinct lumen, 3-7 µm in diameter, binding hyphae hyaline, thick-walled with indistinct lumen, often swollen in KOH, 3- 6 µm wide.
Basidiospores 14-20 x 4.7- 6.3 µm (from spore-print), cylindrical.
Distribution. Pantropical, described from Ghana.
Remarks. It is a variable species as to pore size and the reddish cuticle, the presence of which is variable, even within a single collection.

Fig. 41. *Hexagonia glaber*, photo D. Mossebo.

Hexagonia hirta (Fr.) Fr.,

Epicr. Syst. Mycol. p. 497, 1838. - *Polyporus hirtus* Fr., Syst. Mycol. 1:345, 1821. - *Polyporus klotzschii* Berk., Hooker, Lond. J. Bot. 2:515, 1843.
Basidiocarps annual, solitary to imbricate attached to the substrate by a small pilear portion or more broadly attached, 3-10 cm broad, 2.5-6(9) cm wide and 0.2-1.2 (3) cm thick near the base, coriaceous to corky, pileus dimidiate to flabelliform, slightly convex to rarely applanate, upper surface dark brown to almost black, first densely covered with up to 7 mm long dark hairs, with age partly or completely falling off leaving a somewhat concentrically zonate surface with agglutinated radially oriented fibrils looking almost shiny, margin thin to thick, acute, entire or slightly incised and lobed, often slightly bent downwards, concolorous with the rest of the pileus, tube layer fuscous to dark brown, pores angular, often radially elongated, (2)3-5 (7) per cm, dissepiments thin to rather thick, entire or rarely lacerate, tubes more greyish than the pore surface, 0.1-0.5 (1) cm long, context rusty brown to lighter brown, 1-5 mm thick, usually thin.
Hyphal system trimitic, generative hyphae hyaline and thin-walled, 1.5-2.5 (3.5) µm wide, skeletal hyphae abundant, yellow to brown, thick-walled but always with a distinct
lumen, 3-6 (7) µm in diameter, binding hyphae hyaline to yellowish-brown with slightly thickened walls, 1.5-2.5 (3) µm wide.
Basidiospores (9)11-16.5 x 4-5.5(6) µm, cylindrical.
Distribution. The species seems to be restricted to Africa.
Remarks. It is seemingly related to *H. hydnoides*, but has larger pores, and loose the pileus hairs faster than in the latter species.

Hexagonia hydnoides (Fr.: Sw.) M. Fidalgo, Fig. 42

Mem. New York Bot. Gard. 17:35-108, 1968. - *Boletus hydnoides* Swartz, Nov. Gen. Sp. Plant Prodromus p. 149, 1788. - *Polyporus hydnoides* Swartz: Fr., Syst. Mycol. 1:362, 1821.

Basidiocarp annual, rarely perennial, pileate, solitary to imbricate, dimidiate to flabelliform, convex or flat, 3-19 cm broad, 2.5-10 (4) cm wide and 0.2-1 (2) cm thick, but usually thin, consistency flexible and coriaceous when fresh, rigid on drying, upper surface dark brown to almost black, first densely covered with dark branched hairs, up to 6 mm long, erect or prostrate, soon falling off completely or in concentric zones, rarely glabrous, but often shiny, pore surface fulvous to dark brown with a distinct greyish tint, pores round to somewhat irregular, 3-4 (5) per mm, dissepiments thick and entire, tubes pruinose, brown to grey, occasionally with a few indistinct layers 0.1-0.5 (1) cm long, hyphal pegs common, 30-70 µm long consisting of skeletal hyphae, context cinnamon-brown to dark brown, darkening in KOH, 1-10 (14) mm thick, but usually thin.
Hyphal system trimitic, generative hyphae hyaline, thin-walled and clamped, -2.5 µm wide, easily collapsed and not easy to find, skeletal hyphae yellow to pale brown, thick-walled, sometimes with few secondary simple septa, 3-6 µm wide, binding hyphae hyaline to yellowish with slightly thickened walls, slightly to heavily branched 1.5-2.5 µm in diameter.
Basidiospores 11-14.5 x 3.5-5 µm, cylindrical.

Distribution. Pantropical, often in semidry areas, savannahs and similar places.
Remarks. The species is common and easy to recognize because of the persistent dense mass of black erect hairs on the pileus, often in distinct zones.

Fig. 42. *Hexagonia hydnoides*, photo L. Ryvarden.

Hexagonia niam-niamensis Henn.,

Engler's Bot. Jahrb. 14:348, 1892.
Basidiocarp annual to perennial, solitary, pileate, broadly attached, up to 8 cm broad and 6 cm wide, 0.4-1.2 cm thick at base, hard when dry, but light of weight, pileus semicircular, dimidiate to conchate, upper surface white to cream, later pale brownish-buff to corky-coloured, glabrous, smooth or usually concentrically sulcate in narrow zones, margin sharp, thin, entire or wavy, more rarely slightly lobed, pore surface greyish-brown, cinnamon to fulvous, pores large, hexagonal to angular, 2-3 mm wide, context 2-5 mm thick at base, homogeneous, cinnamon to fulvous.
Hyphal system trimitic, generative hyphae with clamps, thin-walled, 1.5-3 µm in diameter, skeletal hyphae abundant, thick-walled to almost solid, hyaline, yellow to pale fulvous, 3-6 µm wide, binding hyphae, hyaline to yellow with thickened walls, 2-3.5 µm wide, irregular in outline, most easily demonstrated in the context.
Basidiospores not seen.
Distribution. Rare species in Africa, specimens have been seen from Sierra Leone, Nigeria, Zambia and Tanzania. Described from Sudan.
Remarks. The species is characteristic by the white to pale buff, glabrous, smooth or concentrically sulcate pileus and the large pores.

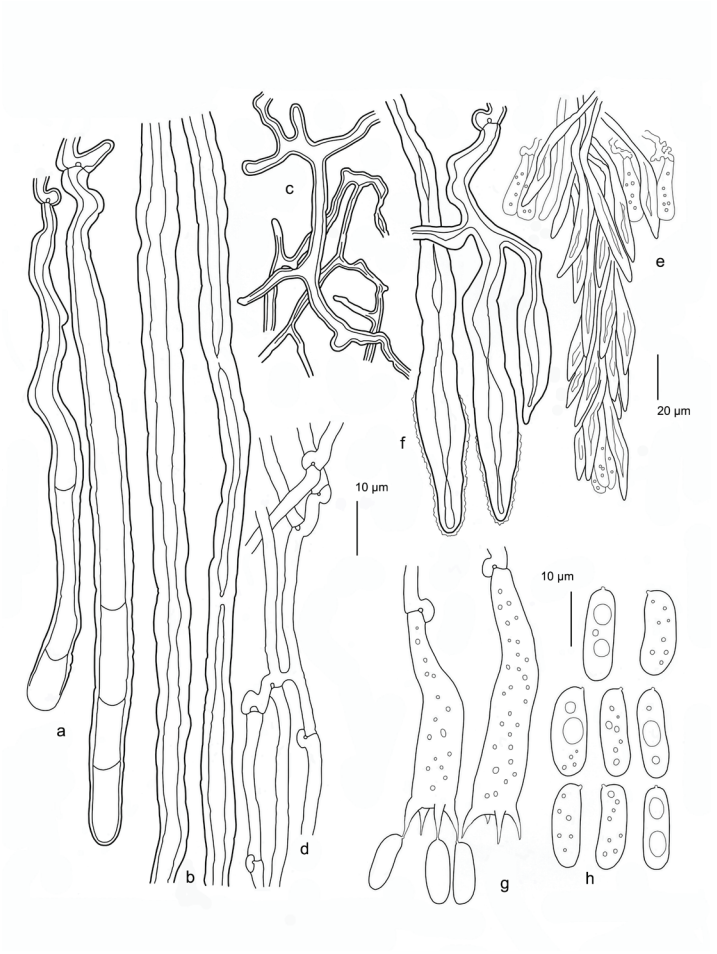


Fig. 43. *Hexagonia phellinoides*, a) hyphal ends from dissepiments, b) hyphae from context, c) binding hyphae, d) generative hyphae, e) hyphal peg, f) hyphal ends from hyphal pegs, g) basidia, h) basidiospores, From the holotype, del I. Melo.

Hexagonia phellinoides Ryvarden, Fig. 43

Synopsis Fung. 39:64, 2019.
Basidiocarps annual, pileate, sessile to dimidiate, 5 cm wide, 6 cm long 1.5 cm thick at base, pliable when fresh, rigid when dry, pileus dark brown at the basal part, becoming paler towards the margin, zonate, finely adpressed velutinate, margin sharp, pore surface dark brown, pores hexagonal, 1-1.5 mm wide, tubes concolorous with pore surface, up to 1 cm deep, context deep tobacco brown, homogenous.
Hyphal system trimitic; generative hyphae with clamps, 2-5 µm wide, difficult to observe, binding hyphae, few, twisted, brown, skeletal hyphae dominating, pale brown, thick walled, in the trama 2-5 µm, in the context up to 10 µm wide.
Hyphal pegs prominent, numerous, easily seen with a lens, pointed dark brown, consisting of pointed thick walled hyphal ends, up to 120 µm above the hymenium, 20-40 µm wide.
Basidiospores 10-12 x 4-6 µm, cylindrical.
Distribution. Known only from the type locality om Zimbabwe.
Remarks. This is a very remarkable species by its dark brown hyphal pegs covering the hymenium in all tubes.

Fig. 44. *Hexagonia pobequinii*, photo D. Mossebo.

Hexagonia pobeguinii Hariot, Fig. 44

Bull. Soc. Mycol. Fr. 8:28, 1892. - *Hexagonia stuhlmanni* P. Henn., Bot. Jahrb. 17:29, 1892. - *Hexagonia welwitschii* A.L. Smith, Jour. Bot. 36:177, 1898.

Basidiocarps annual, solitary, pileate broadly or narrowly attached to the substrate, 1-18 cm broad, 1-15 cm wide and 0.1-2(6) cm thick, coriaceous and flexible to corky and hard, pileus dimidiate, reniform to semicircular, applanate or with a small umbo near the attachment, surface first finely tomentose to almost silky, whitish to pale greyish brown, soon more glabrous in narrow concentric zones and deeper grey, brown to bay or even purplish, later totally
glabrous and then dark brown to purplish-chestnut, often radially wrinkled, pore surface greyish, fulvous to dark brown, pores angular to hexagonal, showing much variation in diameter, mostly 0.5-3 mm wide, tubes velutinate grey-brown to dark rusty brown 0.1-1(2) cm long with numerous brown hyphal pegs, context fulvous to dark rusty brown, 1-4 mm thick, separated from the pubescent pilear surface by a shiny black line.

Hyphal system trimitic, generative hyphae easily collapsed and with camps, 1-2.5 µm wide, skeletal hyphae abundant, yellow to pale fulvous, thick-walled to almost solid, 3-5(7) µm in diameter, binding hyphae hyaline to pale yellow, slightly thick-walled to solid 1.5-3.5 µm wide, strongly branched.

Cystidia absent, but seta-like dark brown hyphal pegs prominent on the pore walls, projecting up to 25 µm above the hymenium.

Basidiospores 12.5-15.5 x 4.5-5.5 µm cylindrical.

Distribution. The species seems to be restricted to Africa, where it occurs from Sierra Leone to Kenya and southwards to Mozambique and Angola, preferably in open and seasonally dry forests.

Remarks. *H. pobeguinii* is characterized by the adpressed greyish- brown tomentum in concentric zones with a brown to purplish cuticle which becomes exposed in old specimens, the large pores and the seta-like hyphal pegs in the hymenium.

Hexagonia speciosa Fr., Fig. 45

Kung. Vet. Akad. Handl. p. 137, 1848. - *Hexagonia sericata* Wakf., Bull. Misc. Inf. Kew 1918:161, 1918. - *Hexagonia subvelutina* Wakf., Bull. Misc. Inf. Kew. 1917:310, 1917.

Basidiocarps annual to perennial, solitary, pileate broadly attached to the substrate, 4-10 cm broad and wide and up to 2 cm thick near the base, woody hard when dry, pileus conchate to dimidiate, applanate, first glabrous and narrowly zoned in light to reddish-brown colours and then somewhat shiny and slightly sulcate, in some specimens persistently so, in other ochraceous mycelial outgrowth starts from the base and spreads towards the margin, dull and unzoned, smooth, pulvinate, to warted or scrupose, thick and entire, pore surface rusty-brown, hazel to greyish-brown, pores irregularly hexagonal 2-5 mm wide, tubes up to 1 cm long, with or without white hyphal pegs (lens), context 2-5 mm thick, snuff-brown to dark fulvous, often with concentric zones.

Hyphal system trimitic, generative hyphae with clamps, hyaline and thin-walled, skeletal hyphae thick-walled but with distinct lumen, yellow to brown (4)5-11 um thick, dominating in the whole basidiocarp, binding hyphae few.

Basidiospores 13.5-16 x 4.5-6 µm, cylindrical.
Distribution. Gabon, South Africa, Zimbabwe and Kenya.
Remarks. The species is characteristic by its large basidiocarps and large pores, the reddish warm colours when fresh, and the pulvinate areas of the pale tomentum spreading irregularly from the base.

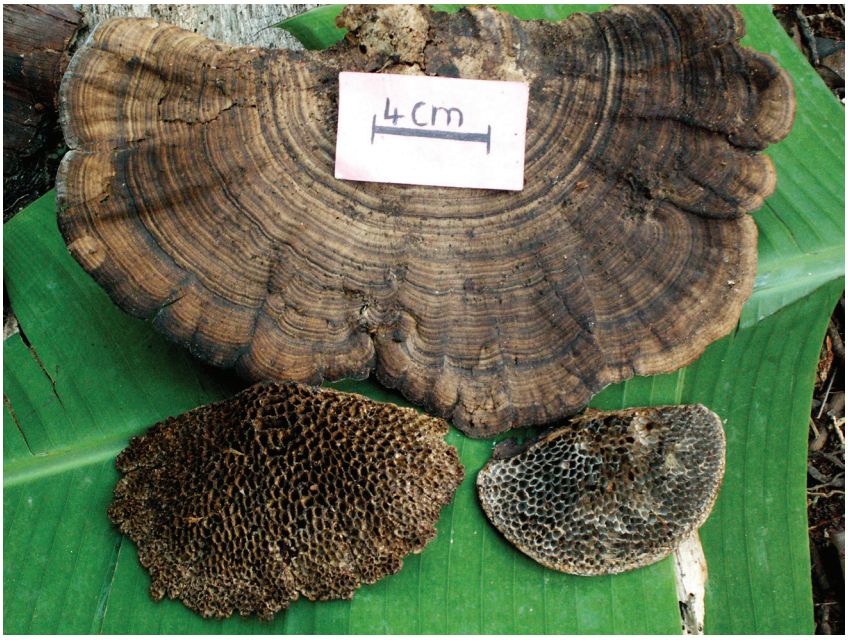


Fig. 45. *Hexagonia speciosa*, photo D. Mossebo.

Hexagonia umbrinella Fr.,

Kung. Vet. Akad. Handl. p. 137-138, 1848.
Basidiocarps annual, solitary, broadly attached, sessile to more tapering towards the base, 2-5 cm broad, 1-3.5 cm wide and 5-12 mm thick at the base, woody hard when dry, pileus semicircular, dimidiate to flabelliform, applanate to slightly convex, upper surface glabrous, narrowly concentrically zoned and sulcate and densely striate in radial direction, pale ochraceous, but some zones and striae become darker brown, chestnut to bay, and in old specimens the whole pileus becomes deep brown to bay, the pileus often somewhat wavy to folded radially, pore surface greyish brown to fulvous, pores angular to hexagonal, 1-2 mm wide, tubes up to 11 µm long, greyish brown, often with a glaucous tint contrasting with the brown colour of the context and trama, without hyphal pegs (lens), context 1-3 mm thick, fulvous to dark brown, blackening in KOH, no cortex.
Hyphal system trimitic in the tubes, generative hyphae with clamps thin-walled and hyaline 1.5-3 µm wide, skeletal hyphae yellow to pale brown, thick walled, 2.5-7 µm wide, abundant in the whole basidiocarp, often partly swollen in KOH, binding hyphae hyaline to pale yellowish, 1.5-5 µm wide, slightly thick walled.
Basidiospores not seen.
Distribution. Southern Africa, seemingly restricted to the Miombo zone.
Remarks. The glabrous pileus with radial veins and absence of hyphal pegs characterize this species.

Hexagonia velutina Pat. & Hariot,

Bull. Soc. mycol. Fr. 9:209, 1893**.** - *Favolus vanderystii* Beeli, Bull. Jard. Bot. Brux. 8:274, 1930. - *Hexagonia smallii* Lloyd, Mycol. Not. 53:748, 1917.
Basidiocarps annual to perennial, pileate-sessile or attached by a small tapering base often expanded into a mycelial pad on the substrate, usually large 5-15 cm wide and 5-20 cm broad, mostly very thin along the margin, 3-4(5) mm thick near the base, coriaceous and flexible when dry, pileus semicircular, dimidiate to flabelliform, applanate, surface first glabrous, often sulcate in narrow concentric zones, slightly shiny, pale snuff-brown to hazel or tobacco-brown, with age covered from the base with a mycelial dull outgrowth often spreading irregularly as warts and patches and with small scrupose outgrowths, ochraceous to dark cinnamon or hazel, usually unzoned and with a slight radial pattern at least along the front, pore surface greyish brown to dark fulvous, dull, pores angular to hexagonal, 8-12 per cm, tubes up to 2 mm long, context mostly 1-3 mm thick, fulvous-brown to deep umber or tobacco-brown,
Hyphal system trimitic, generative hyphae thin-walled, hyaline and clamped, 1,5-3 µm in diameter, easily demonstrated in the tubes, skeletal hyphae yellow to pale brown, thick-walled with a distinct lumen, 3-7 µm wide, abundant in the whole basidiocarp, binding hyphae often difficult to observe, moderately branched, hyaline to

slightly yellow, thick-walled 2-5 µm wide, tapering towards the ends.
Basidiospores 12-15 x 3.8-5 µm, cylindrical.
Distribution. Widespread in tropical Africa.
Remarks. The species is most easily recognized by the mycelial dull outgrowth starting from the base and in parts covering a partly shiny and zonate pileus surface. Further, the rather large pores separate it from *H. dermatiphora* to which it is undoubtedly closely related. *H. speciosa* is a thicker and more robust species and has larger pores, 2-5 mm wide. *Trametes strumosa* is somewhat similar, but the pore surface and the context is olivaceous-brown with smaller pores i. e. (3-5 per mm).

Hexagonia zambesiana Torrend, Fig. 46.

Broteria Bot. 12:59-60, 1914. - ? *Hexagonia peltata* Fr., Kongl. Vet. Akad. Hand. 1848:136, 1848. Type from South Africa not found.
Basidiocarps annual, solitary, pileate broadly attached, the pore layer running down the substrate, up to 6 cm broad and 3.5 cm wide, 2-5 mm thick near the base, corky-coriaceous when dry, pileus dimidiate to flabelliform, upper surface first finely velutinate, soon more glabrous, dull, strongly concentrically sulcate and zoned from dark grey, fulvous to light ochraceous-grey, slightly radially striate, pore surface light grey to fulvous, pores angular to hexagonal, somewhat irregular, 1-2 mm wide, tubes up to 5 mm deep with scattered hyphal pegs, context dark brown to fulvous, up to 1 mm thick, separated from the upper surface when velutinate, by a distinct black line.
Hyphal system trimitic, generative hyphae clamped, hyaline and thin-walled, 2-3 µm wide, skeletal hyphae abundant in the whole fruitbody, yellow to pale brown,
thick-walled with a distinct lumen, 3- 6,5 µm in diameter, with several secondary simple septa, binding hyphae yellow, thick-walled, irregular in outline, heavily to slightly branched, 2-4 µm in diameter.
Basidiospores 12-15 x 3.5-5 µm cylindrical.
Distribution. Southern Africa, Mozambique, Zimbabwe and Angola.
Remarks. This species is closely related to *H. pobeguinii*, but is much smaller both in size and pores.

Fig. 46. *Hexagonia zambesiana*, photo D. Mossebo.

HUMPHREYA Steyaert,

Persoonia 7:98, 1972.
Basidiocarps pileus dull to glossy, yellow to dark- brown, shiny to dull, pores small to medium, context ochraceous. Hyphal system di-trimitic, generative hyphae with clamps, hyaline, skeletal hyphae arboriform with long unbranched lower segments, moderately to richly-branched, in the top, hyaline to pale-yellowish, cuticle a palisade of clavarioid elements arising from generative hyphae, with age becoming thickened and brown at the apex. Cystidia none. Spores large, 15-35 µm long, truncate and ornamented with a reticulate pattern of ridges, covered with a thin hyaline episporium, usually collapsed in dry specimens. On the ground. Tropical genus.
Type species: *Humphreya lloydii* (Pat. & Hariot) Steyaert.
Remarks. The genus is mainly separated from *Ganoderma* by its peculiar spores with a distinct reticulate alveloid or honeycomb pattern.

Key to species

1. Spores 25-30 µm long ..... **H. eminii**
1. Spores shorter than 25 µm ..... **H. lloydii**

Humphreya eminii (Henn.) Ryvarden,

A Prelim. Polyp. Flora E. Africa p. 95, 1980. - *Ganoderma eminii* Henn., Engl. Bot. Jahrb. 27:24, 1893.
Basidiocarps laterally to centrally stipitate, pileus up to 6 cm wide, flat or convex with steep to almost vertical margin, circular to semicircular in outline, up to 2 cm thick in center, tough when fresh, firm and brittle when dry, pileus first pale-yellow, then cinnamon to fulvous- brown from the center, dull to shiny, smooth or radially wrinkled when dry, glabrous, covered with a varnish-like, thin crust, easily dented with a nail, margin sharp and thin, mostly of a lighter colour than older parts of the pileus, pore surface whitish to ochraceous, pores round and entire, 3-4 per mm, tubes light ochraceous, up to 15 mm deep, context pale-yellowish to ochraceous, cottony and homogeneous.
Stipe up to 15 cm long and 3-10 mm in diameter, shiny and laccate with a thin crust, yellow to chestnut or bay, central core white to cream
Hyphal system di-trimitic, generative hyphae with clamps, 2-4 µm wide, skeletal hyphae of the arboriform, solid, hyaline to very pale-yellow, 2-5 µm wide, pileus crust a palisade of clavarioid elements, 20-35 µm long, arising from hyaline generative hyphae, thin-walled in the basal part, with age becoming thickened and brownish at the apex.
Basidiospores 25-33 x 14-20 µm truncate, pale-yellowish, strongly ornamented with low ridges in a reticulate pattern.
Substrate. On the ground from buried roots.
Distribution. African species seen from the Congo basin, Zambia, Zimbabwe, Tanzania and Kenya.
Remarks. Macroscopically it is similar to some *Ganoderma* species and *Haddowia longipes*, but its spores are grossly different both in ornamentation and size.

Humphreya lloydii (Pat. & Hariot) Steyaert,

Persoonia 7:99, 1972. - *Amauroderma lloydii* Pat. & Hariot, Bull. Soc. Mycol. Fr. 28:281, 1912.
Basidiocarps centrally to laterally stipitate, pileus up to 12 cm in diameter, applanate, often with a central depression, smooth or with weak radial veins or ridges, dull, velvety and dark brown and with a distinct dark crust in section, margin obtuse and thick, pore surface white to pale ochraceous, pores round and entire, 5-7 per mm, tubes pale-tan or ochraceous, darker than the context, up to 6 mm deep, context white to pale ochraceous, often with a few dark lines arising below the stipe tomentum and continuing into the pileus.
Stipe up to 20 cm long, 4-15 mm in diameter, dull, dark brown and finely velvety with a dark crust in section, core white to pale tan.
Hyphal system more or less as in *H. eminii*.
Basidiospores 14-18 x 9-13 µm, truncate and tapering, pale yellowish, strongly ornamented with crests or ridges in a honeycomb pattern.
Substrate. On the ground from buried roots (parasitic?).
Distribution. African species, specimens only seen from Cameroon and the Dem. Rep. Congo.
Remarks. The spores are very distinct with the crested to reticulate surface.

INONOTUS P. Karst.,

Meddel. Soc. pro Fauna Fl. Fenn. 5:39, 1879.
Basidiocarp annual, resupinate to pileate, mostly broadly attached, solitary or imbricate, flexible to woody hard when dry. Pileus yellowish to dark brown or fuscous, smooth, tomentose to hispid, usually without a cuticle, hymenophore poroid, rusty to brownish sometimes with yellow or rosy tint, pores usually isodiametric and small, more rarely large or slightly irregular, context rusty, cinnamon to dark brown, shiny to dull, with or without mycelial core, hyphal system monomitic, generative hyphae simple septate, first hyaline, but soon light yellowish to light brown or bay and with slightly thickened walls, setae absent or present, setal hyphae absent or present, spores mostly elliptic to globose, rarely cylindrical, hyaline to yellowishbrown, smooth and IKI negative, both on hard wood and coniferous wood.
Cosmopolitan genus, 9 species known from tropical Africa.
Type species: *Inonotus hispidus* (Fr.) P. Karst.
Remarks. Although the basidiocarps are annual, new pilei are often produced at the same locus over a number of years. The genus belongs to the Hymenochaetaceae and is closely related to *Cyclomyces, Phylloporia* and *Aurificari*a, in principle separated from these genera by macromorphological characteristics. DNA sequencing has shown that both *Inonotos* and *Phellinus* are artificial genera where several evolutionary lines are present. However, since this book is a practical field manual and not a scientific study as such, the original generic concepts are kept.

Key to African species

1. Basidiocarp resupinate **2**
1. Basidiocarp pileate..... **4**

2. Setal hyphae present **3**
2. Setal hyphae absent ..... **I. globosporus**

3. Pores 4-5 per mm, hymenial setae absent or rare ..... **I. pegleri**
3. Pores 5-7 per mm, hymenial setae abundant ..... **I. ruwenzorianus**

4. Setal hyphae present **5**
4. Setal hyphae absent **6**

5. Context duplex, setal hyphae on the pileus, spores 69 x 57 µm ..... **I. ochroporus**
5. Context not duplex, setal hyphae absent on the pileus, spores 4.57 x 3.55 µm ..... **I. patouillardii**

6. Spores 3-3.5 x 1.8-2 µm ..... **I. microsporus**
6. Spores larger **7**

7. Spores sub cylindrical to elliptic 4-5 x 2.5-3 µm ..... **I. zimbabwensis**
7. Spores larger 7.5-8 µm long **8**

8. Pores 2-3 per mm, on *Phillipia* (Ericaceae) ..... **I. afromontanus**
8. Pores 1-3 mm wide, on palm (*Phoenix reclinata*) ..... **I. palmicola**

Inonotus afromontanus Ryvarden,

Kew Bull. 54: 802, 1999.
Basidiocarp annual, effused reflexed, individual pilei up to 1.5 cm wide, 3 cm long, often fused with adjacent pilei to more compound shelf-like structures, up to cm thick measured vertically, flesh when fresh, slightly contracting and brittle when dry, upper surface first hirsute to scrupose and reddish brown, later becoming glabrous and black in zones, pore surface reddish brown, pores thin-walled and angular 2-3 per mm, tubes concolorous up to 1 cm deep, context up to 8 mm thick, dark rusty brown and homogeneous.
Hyphal system monomitic, generative hyphae with simple septa, pale yellow to rusty brown, thick-walled, 2-4 µm in diameter.
Setal hyphae and **hymenial setae** absent.
Basidiospores 7.5-8 x 4.5-5 µm, elliptic, rusty brown, thick-walled.
Substrata. Known only from *Philippia* spp. (Ericaceae).
Distribution. Known only from the type locality in Nyanga Nat. Park in Zimbabwe. However, as the host genus is widespread in the East African mountains, the species will probably also be found in other localities.
Remarks. The species belongs to the *I. hispidus* group because of the fairly large spores and lack of setal elements. However, the spores are smaller than those of *I. hispidu*s,

Inonotus globosporus Ryvarden,

Synopsis Fung. 38:21, 2019.
Basidiocarps annual, resupinate, up to 4 cm wide and 4 mm thick, soft when fresh, hard and fragile when dry, margin 1 mm wide, yellowish brown distinct wide to narrow, yellowish pore surface; pilei when present, up to 1 cm wide, soft and fleshy when fresh, hard and brittle when dry, pore surface cinnamon to rusty brown, pores angular, 5-7 per mm, tube layer up to 3 mm deep, context almost absent, cinnamon brown, up to 250 µm thick.
Hyphal system monomitic; generative hyphae simple septate, hyaline to rusty brown, thin- to thick-walled, 3-5 µm wide.
Hymenial setae and setal hyphae absent.
Basidiospores 4.5-6 µm, globose, hyaline, slightly thick-walled.
Distribution. Known only from the type locality in Mozambique.
Remarks. This is a characteristic species with its lack of all setal organs and distinct globose spores.

Inonotus microsporus Ryvarden,

Kew Bull. 54: 803, 1999.
Basidiocarps annual pileate and sessile in large imbricate dense clusters covering 1,5 meter of standing trunks, individual pilei up to 2 cm wide and 3 cm long, 3-8 mm thick at the base, fleshy when fresh, dense when dry, frequently fused with adjacent pilei to wavy and compound basidiocarps, upper surface yellowish brown, finely velutinate, faintly zonate, margin sharp and straight, lower surface with distinct sterile yellow margin, pore surface yellowish brown, pores round to angular, 4-6 per mm, tubes concolorous, up to 3 mm deep, context dense, homogeneous, yellowish brown.
Hyphal system monomitic, generative hyphae, pale yellow to yellowish brown, parallel in the trama, 2.5-5 µm wide, in the context wider and mostly 4-7 µm wide with many septa.
Setal hyphae and **setae** absent.
Basidiospores 3-3.5 x 1.8-2 µm, ovoid, hyaline to pale yellowish.
Substrata. Known only from dead mopane (*Colophospermum mopane*).
Distribution. Known only from the type locality at Victoria Falls, Zimbabwe.
Remarks. The microscopic characters outlined above remind one about those of *Phylloporia* characterized by the same type of hyphae, lack of setae and small spores. However, all species in this genus are found on living plants or just killed by the fungus and occur usually individually. They all have a distinct duplex context with a thick upper loose tomentum separated from a lower and much denser and thinner part by a black line. The type locality was visited exactly a year later and the log was then collapsed on the ground without a trace of basidiocarps. This seems to indicate that the rot is intense and the perfect stage with basidiocarps is rather short-lived.

Inonotus ochroporus (Van der Byl) Pegler,

Trans. Brit. Mycol. Soc. 47:183, 1964. *Polyporus ochroporus* Van der Byl, S. Afr. J. Sci. 18:269, 1922.
Basidiocarp annual, pileate, broadly attached, solitary, rarely imbricate, up to 16 cm broad and 17 cm wide, 0.32.5 cm thick, consistency soft and spongy when fresh, brittle to slightly flexible when dry, upper surface first soft and pubescent, becoming glabrous and hard with age mostly with an agglutinated cuticle, sometimes concentrically zoned and partly radially striate, light brown, fulvous to dark brown, pore surface ochreyellow to darker brown sometimes with a rosy tint, pores angular to irregular, 2-5 per mm, tubes 18 mm long ochreyellow, singlelayered, context 0.52 cm thick, duplex in young specimens, upper part soft and ochraceous to goldenbrown, mostly separated from the lower part by a thin, often indistinct black zone, becoming more prominent with age and closer to the base of the basidiocarp, lower part shiny, radially fibrous and hard, dark cinnamon brown.
Hyphal system monomitic, generative hyphae hyaline to rustybrown, simple septate, moderately branched, 2-6 µm wide.
Setal hyphae prominent in the dissepiments, rather rare, often difficult to find in the upper part of the context, mostly confined to the basal part of the pileus, dark brown, acute, thickwalled, 10-17 µm wide, up to 300 µm long, mostly embedded, but also obliquely projecting into the hymenium, in some collections they are of a variable form, occasionally forked in the upper part. Some may remind of ordinary hymenial setae.
Hymenial setae 12-28 x 6-9 µm, rather rare and often apparently absent from many tubes, acute, slightly ventricose, thickwalled and dark brown.
Basidiospores 6-9 x 5-7 µm, abundant, subglobose to globose and yellow.
Distribution. Asia and eastern and southern part of Africa, and specimens have been seen from Kenya, Uganda, Zimbabwe and Tanzania.
Remarks. The species is undoubtedly related to *I. patouillardii*, but is separated by the larger spores and the distinct duplex consistency, which, however, can be difficult to observe in old and weathered specimens.

Inonotus palmicola Ryvarden,

Kew Bull. 54: 804, 1999.
Basidiocarp pileate, annual, dimidiate to broadly sessile, more or less triquetrous in section, up to 3 cm wide and long and 1.5 cm thick, light weight and brittle, upper surface velutinate, dark brown at base, more rusty brown towards the margin, tuberculate and slightly zonate, developing a thin, but distinct cuticle from the base, pore surface brown, pores angular, rather thin-walled, usually 1-2 mm wide, tubers concolorous, up to 3 mm deep, context homogenous, cinnamon to yellowish brown towards the upper surface, up to 1 mm thick at the base.
Hyphal system monomitic, generative hyphae up to 8 µm wide.
Hymenial setae and setal hyphae absent.
Basidiospores 7.5-8.5 x 5-6 µm, elliptic, rusty brown.
Substrata. Known only from the base of a living *Phoenix reclinata* (Palmaceae).
Distribution. Known only from the type locality in Zimbabwe, but will probably be found in several places along the Zambezi where the host is wide spread.
Remarks. Microscopically this species comes close to the North African *I. plorans* which however has larger spores.

Inonotus patouillardii (Rick) Imazeki,
Bull. Tokyo Sci. Museum 6:105, 1943. - *Polystictus patouillardii* Rick, Broteria 6:89, 1907.
Basidiocarp annual, solitary, semicircular, broadly attached, 514 cm broad, 520 cm wide and 1.55 cm thick near the base, pileus convex to flat, first adpressed tomentose, then glabrous, slightly concentrically zoned especially near the margin, but also radially striate to plicate in veins, umber to sepia to more blackish when glabrous and old, and then a black agglutinated cuticle is present in parts of the pileus, pore surface umber to sepia often with a yellowish tint, pores round, slightly irregular to angular, 35 per mm, tubes up to 2.5 cm long also brown with a yellowish tint, context fibrous and shining, homogeneous, sienna to dark cinnamon, up to 1 cm thick.
Hyphal system monomitic, generative hyphae hyaline to bay with simple septa, thin to slightly thickwalled, 48 µm in diameter.
Setal hyphae present, dark brown, thickwalled, acute, 1017 µm in diameter and up to 300 µm long, running parallel to the hymenium, sometimes they can be difficult to observe except in the pore mouths.
Hymenial setae 1540 x 610 µm, rather common in African specimens, dark brown and thickwalled, often swollen and slightly bent towards the base, up to in diameter.
Basidiospores 4.57 x 3.55 um, elliptic, chromeyellow to pale rustybrown and thickwalled.
Distribution. South America and Africa.
Remarks. *Inonotus patouillardi* is separated from *I. ochroporus* in lacking setal hyphae on the pilear surface, smaller spores and apparently, judged by African specimens, by larger hymenial setae.

Inonotus pegleri Ryvarden, Fig. 47

Norw. J. Bot. 22:2534, 1975.
Basidiocarp annual, solitary, resupinate, adnate, about 4 cm in diameter and 1 cm thick, consistency woody hard when dry, margin thin to almost lacking, fulvous to ochraceous or cinnamon when dry, pore surface yellowish brown with age more greyish, pores round 4-5 per mm, tubes dark cinnamon, slightly stratified, up to 15 mm long, context almost lacking, dark cinnamon.
Hyphal system monomitic, generative hyphae hyaline to yellowishbrown moderately branched often at right angles, 3-7 µm wide.
Setal hyphae present in the trama, thickwalled, dark brown, tapering towards the ends, usually unbranched but sometimes dichotomously forked, 53-2 µm wide and 120-520 µm long, walls up to 10 µm wide.
Hymenial setae 25 x 12 µm, seemingly very rare and only a single one seen in the type.
Basidiospores 6-7 µm in diameter, globose, hyaline to pale yellowish.
Distribution. Tanzania and Gabon.
Remarks. The large and wide setal hyphae makes this a distinct species. The hard consistency and the hyphae with rare septa indicate that the species may be on the fringe of the genus being quite near to *Phellinus,* which has distinct dimitic hyphal system.

Fig. 47. *Inonotus pegleri,* photo C. Decock.

Inonotus ruwenzorianus Balezi et Decock,

Cryptog. Mycol. 30:227, 2009.
Basidiocarps resupinate, cushion-shaped, separable, 40 cm long, 10 cm wide, up to 20 mm thick at the centre, corky when fresh, drying hard and fragile when dried; pore surface greyish brown, pores small, round to irregular, 5–7 per mm; tubes up to 20 mm deep, light to rusty brown. subiculum about 100 µm tick, pale yellowish brown.

Hyphal system monomitic; generative hyphae hyaline, yellowish, to pale yellowish brown, thin-walled to thick-walled, 2-3 µm wide.
Setal hyphae 135–240 x 5.0- 10 µm, present both in the trama and the subiculum, thick walled, brown, narrowly lanceolate.
Hymenial setae 13–25 x 4.5–10.0 µm, numerous, conical to ventricose.
Basidiospores 6.5–8.5 x 4.3–5.5 µm, elliptic to ovoid, hyaline to pale yellowish.
Distribution. Known only from the type locality in Rwanda.
Remarks. The species is related to *I. pegleri* which however lacks hymenial setae and has globose spores.

Inonotus zimbabwensis Ryvarden,

Synopsis Fung. 39:66, 2019.
Basidiocarps annual, pileate, sessile, up to 6 cm wide and long, 3 cm thick, soft when fresh, fragile and hard when dry, pileus cinnamon coloured to dark brown, first velutinate, then later darker when the tomentum wears away and exposes a very thin black cuticle, pore surface dark brown, pores 2-3 (4) per mm, becoming slightly irregular when dry, tubes as pore surface, up to 7 mm deep, context slightly radial fibrous, rusty brown and homogenous.
Hyphal system monomitic, generative hyphae with simple septa, thin to distinctly thick-walled, hyaline to yellowish.
Hymenial setae absent.
Basidiospores 4-5 x 2.5-3 um, subcylindrical to oblong elliptic, hyaline.
Distribution. Known only from Zimbabwe.
Remarks. The lack of all setal organs and the subcylindrical spores are defining characteristics.

JUNGHUHNIA Corda emend. Ryvarden,

Annal. Stud. Mycol. p. 195, 1842. - Persoonia 7:18, 1972.
Basidiocarps annual, resupinate, rarely effused reflexed, pore surface creamcoloured to pinkish buff or cinnamon, pores mostly small, with thin, lacerate dissepiments, hyphal system dimitic, generative hyphae with clamps, thickwalled skeletocystidia rare to abundant, heavily encrusted, imbedded or projecting, basidia clavate, tetrasterigmatic, basidiospores ovoid to cylindrical, curved in some species, causing white rot of dead hardwoods and conifers.
Type species: *Junghuhnia crustacea* (Jungh.) Ryvarden.
Remarks. The genus is here defined to include species with a dimitic hyphal system, small hyaline spores without reaction in Melzer´s reagent and with thick-walled cystidia, usually heavily encrusted, arising from the skeletal hyphae.
No doubt that the genus in due course will be shown to be polyphyletic, and the concept used here is largely pragmatic. Similar species without cystidia are placed in *Antrodiella* based on the same type of argument.
NB Since all basidiospores are hyaline, thin walled, smooth and negative in Melzer´s reagent. In Africa all species are found on hard woods, thus, this information is not repeated for each species.

Key to species

1. Pore surface sulphurous yellow, chrome yellow, reddish to cocoa brown, ... **2**
1. Pore surface ochraceous to pale pink buff **4**

2. Pore surface cocoa brown ..... **J. subcollabens**
2. Pore surface sulphurous yellow to chrome yellow, sometimes changing to darker colours when touched or dried... **3**

3. Pore surface chrome yellow, somewhat paler when dry, basidiocarps reflexed to resupinate ..... **J. brownei**
3. Pore surface yellowish red, darker when touched or dry, basidiocarps resupinate ..... **J. carneola**

4. Pores small and entire **5**
4. Pores irregular and dentate **12**

5. Spores 2-3 x 1 µm, pores almost invisible, 10-12 per mm, cystidia swollen..... **J. multicystidiata**
5. Spores and pores larger, cystidia more or less of even width **6**

6. Spores allantoid, pore surface white to ochraceus **7**
6. Spores broadly elliptic pore surface, pale pinkish, ochraceous to buff..... **8**

7. Basidiocarps pileate, pileus brownish ..... **J. minuta**
7. Basidiocarps resupinate..... **J. africana**

8. Spores 44.5 µm long, pore surface pinkish ..... **J. nitida**
8. Spores smaller, pore surface ochraceous to pale cream **9**

9. Spores 1.7-2 µm wide ..... **J. cremea**
9. Spores wider than 2 µm **10**

10. Cystidia smooth, swollen or club shaped ..... **J. confusa**
10. Cystidia encrusted, club shaped **11**

11. Spores 3.5-4 x 2.2-2.5 µm ..... **J. ochracea**
11. Spores 3-3.5 x 2.5-3 µm ..... **J. mininitida**

12. Spores subglobose 3-3.5 µm in longest dimension ..... **J. schizoporoides**
12. Spores elliptic 4-5 µm in longest dimension ..... **J. crustacea**

Junghuhnia africana Ryvarden,

Synopsis Fung. 20:91, 2005.
Basidiocarp annual, resupinate, effused, adnate up to 5 x 3 and 1 mm thick, soft when fresh, tough when dry, margin narrow and white, pore surface white to pale cream, pores round thin walled and 35 per mm, tubes concolorous with the pore surface, up to 1 mm deep, subiculum white up to 300 µm thick.
Hyphal system dimitic, generative hyphae thinwalled and with clamps, 2- 5 µm wide, skeletal hyphae dominating in the basidiocarp, in parts distinctly thick walled to almost solid, 3-7 µm wide
Cystidia numerous in the hymenium and the dissepiments, club shaped and widened in the upper part and coarsely encrusted, hyaline, encrusted part up to 15 µm wide and 50 µm long.
Basidiospores 3 x 1.5 µm, allantoid.
Substrate. The type was collected on a narrow stick, still attached to a dead hard wood tree.
Distribution. Known only from the type locality in Zimbabwe.
Remarks. The species may be recognized by the small allantoid spores and small pores. Whether the thin stick is a characteristic substratum reflecting its ability to invade rather harsh environments, remains to be seen.

Junghuhnia brownei (Humb.) Niemelä,

Folia Cryptog. Eston. 33: 95, 1998. - *Polyporus brownei,* Humb., Fl. Friberg. Spec. p. 101, 1793.
Basidiocarp resupinate to effused reflexed, up to 12 cm wide when resupinate, pileus when present, shelf-like to dimidiate or fan shaped, 1 to 5 cm long, 0.8-4 cm wide and up to 1.5 mm thick, hard and brittle; upper surface dark brown in red shades, bay to purplish black, concentrically zoned, glabrous with a thin cuticle in section; pore surface chrome to sulphurous yellow when fresh, paler when dry; pores tiny, 8-10 per mm, hardly visible to the naked eye; tubes concolorous, up to 1 mm deep; context dense, buff to brown, red in KOH, up to 2 mm thick.
Hyphal system dimitic; generative hyphae with clamps, usually difficult to find and most easily seen close to the tube mouths, 2-3 µm wide; skeletal hyphae dominating in trama and context, agglutinated and often very difficult to tease apart, hyaline, thick-walled, 2-4 µm wide.
Cystidia present as skeletocystidia bending into the hymenium, some with heavily encrusted apices, encrusted part 30-70 µm long, 4-7 µm wide.
Basidiospores 2.6-2.8 x 1.8-2 µm, broadly elliptic.
Substrata. On various hardwoods, in Europe often found on structural timber in mines and similar places.
Distribution. A rare species, in Africa known only from Zambia. Cosmopolitan species.
Remarks. The vivid yellow pore surface when fresh, the glabrous brown pileus, when present, besides large encrusted cystidia, and tiny spores, characterise this species.

Junghuhnia carneola (Bres.) Rachjenb.,

Rev. Invest. Agro. INPA 19, no1:45, 1984. - *Poria carneola* Bres., Hedwigia, 35:282, 1896.
Basidiocarp annual, resupinate, effused, adnate up to 3 mm thick, soft when fresh, resinous hard when dry, pore surface cream to chrome yellow when fresh and then reddish or reddishbrown when touched, when dry straw coloured, ochraceous, to pinkishbrown, pores angular, thin walled and 3-5 per mm, more split on sloping substrates, tubes more or less concolorous with the pore surface, up to 3 mm deep, context thin and ochraceous, often with a denser zone next to the substratum.
Hyphal system dimitic, generative hyphae thinwalled and with clamps, 2.5-4 µm wide, skeletal hyphae dominating in the basidiocarp, thickwalled to solid, often tinted yellowish, in the outer ends finely encrusted, most easily seen in the dissepiments.

Basidiospores 3-5 x 1.5-2.5 µm, broadly elliptic.
Distribution. Common in tropical areas.
Remarks. Rather easy to recognize because of the yellow basidiocarp becoming reddish when bruised in fresh condition and the encrusted yellowish skeletal hyphae.

Junghuhnia confusa Henkel & Ryvarden,

Synopsis Fung. 41:18, 2020.
Basidiocarps annual, resupinate, adnate about 6 x 2 cm and 2 mm thick, soft when fresh, hard and brittle when dry, margin narrow to absent, pore surface whitish to ochraceous with a slight violet tinge, pores angular, 7-9 per mm almost invisible to the naked eye, tubes concolorous with the tubes, up to 2 mm deep, subiculum almost absent, whitish.
Hyphal system dimitic; generative hyphae with clamps, hyaline, thin-walled, 2-4 µm wide, skeletal hyphae hyaline to slightly brownish, 2-5 µm wide.
Cystidia smooth, partly embedded as swollen organs, partly bending into the hymenium and pointed swollen hyphal ends, those embedded slightly thick walled, 4-12 µm wide, up to 80 µm long,
Basidiospores 3-3.3 x 2-2.2 subglobose**.**
Distribution. Known only from the type locality in Cameroon.
Remarks. The partly swollen hyphal cystidia, the dense structure and the small spores characterize this species.

Junghuhnia cremea Ryvarden,

Synopsis Fung. 39:65, 2019.
Basidiocarps resupinate, effused, up to 2 x 4 cm and 1 mm thick, margin white and narrow, pore surface evenly pale cream, pores round to angular, 4-6 per mm, a few slightly larger apparently as a result of the drying and growth on the side of the log, subiculum thin, white and cottony soft.
Hyphal system dimitic, generative hyphae thinwalled and with clamps, 2-4 µm wide, skeletal hyphae thickwalled to solid, 2-5 µm wide, hyaline.
Cystidia up to 100 µm long and 10 µm wide, thick walled, arising from the trama and partly bending into the hymenium and in the dissepiments, encrusted in the upperpart to a length to about 30 µm.
Basidiospores 3-3.5 x 1.7-2.2 µm, elliptic.
Distribution. Known only from the type locality in Tanzania.
Remarks. The long encrusted skeletal cystidia and small spores make this a distinct species.

Junghuhnia crustacea (Jungh.) Ryvarden,

Persoonia 7:18, 1972. - *Laschia crustacea* Jungh., Verh. Batav. Genootsch. Kunst. Weten. 17: 75, 1838. - *Grammothele delicata* Bres., Hedwigia 56:299, 1915.
Basidiocarps annual, resupinate, mostly small, but effused specimens have been seen from Africa, up to 2 mm thick, soft when fresh, rather brittle when dry, pore surface white to cream, later more ochraceous, margin thin and narrow to absent, pore surface first irregularly hydnoid as the tubes arise from separate plates which grow laterally and then develop into a poroid surface, usually with rather dentate dissepiments, pores angular, 4-6 per mm, along the pore edges dotted with numerous projecting cystidia (strong lens), tubes concolorous with the pore surface, subiculum very thin and whitish.
Hyphal system dimitic, generative hyphae hyaline, thin-walled, 1-3 um wide and with clamps, often difficult to find in dry and old specimens, skeletal hyphae totally dominating, frequently mixed with crystalline and semi-crystalline material, thick-walled to solid, 1.5 - 3 um wide.
Cystidia numerous, strongly encrusted in the upper part, thick-walled and widened, 6-12 µm wide with encrustation.
Basidiospores 4-5 x 2.5 -3 µm, elliptic.
Distribution. Tropical Asia and Africa.
Remarks. The description above is based on the types of *J. crustacea* and *Grammothele delicata*.

Junghuhnia mininitida Ryvarden,

Synopsis 40:103, 2020.
Basidiocarps annual, resupinate, effused up to 5 cm, partly separating from the substratum on drying, toughfibrous, drying brittle margin white, finely velutinate, up to 2 mm wide, pore surface ochraceous buff, the pores angular, 57 per mm, with thin, entire dissepiments, subiculum cream coloured, fibrous, up to 1 mm thick, tube layer concolorous and continuous with the subiculum, up to 1 mm thick, taste mild.
Hyphal system dimitic, subicular generative hyphae thinwalled, with clamps, rarely branched, 24 µm in diam, subicular skeletal hyphae thickwalled, 24 µm in diam, tramal hyphae similar.

Cystidia 40100 x 510 µm, abundant and conspicuous, thickwalled, cylindrical to clavate, heavily encrusted, completely imbedded or projecting to 30 µm.
Basidiospores 3-3.5 x 2-5-2.8 µm broadly elliptic.
Distribution. Only the type from Zimbabwe has been seen.
Remarks. The diagnostic characters for this species are the same as for of *J. nitida* except for the distinctly smaller spores and a cream coloured pore surface.

Junghuhnia minuta I. Lindblad & Ryvarden,

Mycotaxon 71:346, 1999.
Basidiocarps annual, pileate, spatulate to fan shaped, single or imbricate in tiny clusters, up to 10 mm wide, 3-7 mm along the margin up to 1 mm thick, flat and tough when fresh, strongly bent and cartilaginous bony hard when dry, upper surface glabrous, azonate, somewhat furrowed radially due to considerable shrinkage during drying, pale reddish brown to resinous brown, pore surface white to pale ochraceous, pores round angular, thin-walled, 10-12 per mm and invisible to the naked eye, tubes up to 300 µm deep, context dense cartilaginous and pale brown, 100-300 µm thick.
Hyphal system dimitic; generative hyphae with clamps, hyaline, very difficult to observe due to the dense structure of the basidiocarp, 2-3 µm wide; skeletal hyphae abundant, hyaline to pale yellow, 2-5 µm in diam.
Cystidia 30-60 x 7-10 µm, cylindrical to slightly clavate, upper part strongly encrusted.
Basidiospores 2.5-3 x 2- 2.5 µm, elliptic to subglobose.
Distribution. In Africa known only from Ethiopia. Described from Costa Rica.
Remarks. The species is characterized by a tiny, glabrous, pale brown and dense basidiocarp, often with several small fan shaped basidiocarps in clusters, and the tiny basidiospores.

Junghuhnia multicystidiata Ryvarden,

Synopsis Fung. 41: 23, 2020.
Basidiocarps annual, resupinate, soft when fresh, dense and hard when dry, margin white narrow to almost absent, pore surface white with a fait bluish tinge, pores tiny, invisible to the naked eye, 12-14 per mm. round, tubes 2 mm deep, pale ochraceous.
Hyphal system dimitic, generative hyphae delicately thin walled, hyaline, difficult to observe, 2-4 µm wide and with clamps, skeletal hyphae thick walled, hyaline to slightly brownish, 2-6 µm wide, running distinctly parallel to the pore walls.
Cystidia numerous, prominent, partly projecting, smooth, mostly thin walled, hyphoid, in part slightly swollen, 5-10 µm wide, up to 110 µm long, mostly straight, but often bent into the hymenium.
Basidiospores 2-3 x 1 µm, cylindrical, few seen.
Distribution. Known only from the type.
Remarks. The small pores, the dense consistency, the numerous hyphoid cystidia and the tiny spores characterize this species.

Junghuhnia nitida (Fr.) Ryvarden, Fig. 48.

Persoonia 7:18, 1972. *Polyporus nitidus* Fr., Syst. Mycol. 1:379, 1821.
Basidiocarps annual, resupinate, effused up to 10 cm, often separating from the substratum on drying, toughfibrous, drying brittle margin pale ochraceous buff, finely tomentose, up to 2 mm wide, pore surface varying greatly in colour from ochraceous buff to pinkish cinnamon, the pores angular, 5-7 per mm, with thin, entire dissepiments, subiculum cream coloured to pale pinkish buff, fibrous, up to 1 mm thick, tube layer concolorous and continuous with the subiculum, up to 1 mm thick, taste mild.
Hyphal system dimitic, subicular generative hyphae thinwalled, with clamps, rarely branched, 2-4 µm in diam, subicular skeletal hyphae thickwalled, 2-4 µm in diam, tramal hyphae similar.
Cystidia 40-100 x 5-10 µm, abundant and conspicuous, thickwalled, cylindrical to clavate, heavily encrusted, completely imbedded or projecting to 30 µm.
Basidiospores 4-4.5 x 2-2.5 µm broadly elliptic to ovoid.
Distribution. In Africa seen from Ethiopia and Uganda, widespread in the temperate zone.
Remarks. *J. nitida* is characterized by pinkishcinnamon pore surface, abundant encrusted, thickwalled cystidia, and broadly elliptic spores.

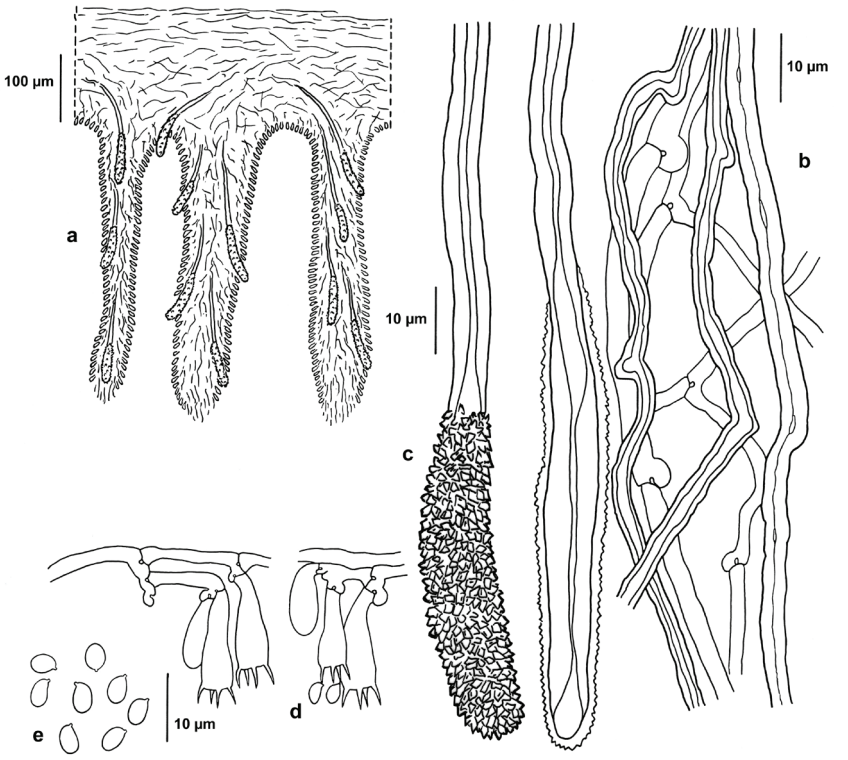


Fig. 48. *Junghuhnia nitida*, a) section through basidiocarp, b) hyphae from trama, c) skeletocystidium, d) basidia, f) basidiospores, Del. I. Melo.

Junghuhnia ochracea Ryvarden,

Synopsis Fung. 39:65, 2019.
Basidiocarps resupinate, effused, up to 2 x 4 cm and 1 mm thick, margin white and narrow, pore surface evenly pale ochraceous, pores round to angular, 5-6 per mm, a few slightly larger apparently as a result of the drying and growth on the side of the log, subiculum thin, white.
Hyphal system dimitic, generative hyphae thinwalled and with clamps, 2-4 µm wide, skeletal hyphae thickwalled to solid, 2-5 µm wide, hyaline.
Cystidia up to 100 µm log and 10 µm wide, thick walled, arising from the trama and partly bending into the hymenium and in the dissepiments, encrusted in the upperpart to a length to about 30 µm.
Basidiospores 3-5-4 x 2.2 µ-2.5 µm, elliptic.
Distribution. Known only from the type locality in Cameroon.
Remarks. The evenly coloured pore surface, the long encrusted cystidia and elliptic spores characterize this species. Macroscopically it is similar to *J. creama*, but is easily separated by larger spores

Junghuhnia schizoporoides Ryvarden,

Synopsis Fung 38:27, 2018.
Basidiocarp annual, resupinate, effused to 5 x 5 cm, up to 3 mm thick, soft when fresh, fragile when dry, margin narrow white and finely adpressed velutinate, pore surface ochraceus in different shades, pores angular, thin walled and in parts split, especially on sloping substrates, 2-3 per mm, reminding of those seen in *Schizopora paradoxa*, in some parts rounder and bout 4 per mm, tubes more or less concolorous with the pore surface, up to 3 mm deep, subiculum thin and white.
Hyphal system dimitic, generative hyphae thinwalled and with clamps, 2-4 µm wide, skeletal hyphae dominating in the basidiocarp, thickwalled to solid, in the outer ends finely encrusted, most easily seen in the dissepiments.
Cystidia numerous bending into hymenium and the dissepiments, more or less cylindrical and of even diameter, coarsely encrusted in upper part, encrustation up to 100 µm long, hyaline 5-8 µm wide.
Basidiospores, 3-3.5 x 2.5-3 µm, subglobose.
Distribution. Known from Ghana.
Remarks. The species may remind one of *J. crustacea* in morphology with its irregular and split pores, but is separated by smaller subglobose spores, being elliptic and larger in the latter.

LAETIPORUS Murrill,

Bull. Torrey Bot. Club 31:607, 1904.
Basidiocarps annual, sessile to stipitate, soft and fleshy, friable and light in weight when dry, pileus surface orange to pinkish brown, becoming glabrous, pore surface yellow to pinkish cream, the pores regular, 34 per mm, context white to pinkish buff, soft, zonate to azonate, hyphal system dimitic, generative hyphae simpleseptate, binding hyphae thickwalled, nonseptate, much branched and interlocked, cystidia absent, basidiospores ovoid to broadly elliptic, smooth, hyaline, negative in Melzer's reagent, causing a brown cubical rot in living hardwoods and conifers.
Type species: *Laetiporus sulphureus* (Bull.: Fr.) Murrill.
Synonym: *Pseudophaeolus* Ryvarden.
Remarks. The genus is characterized by a brown rot, its dimitic hyphal system with wide binding hyphae and simple septate generative hyphae.

Key to species

1. Pileus brown ..... **L. persicinus**
1. Pileus orange to yellow **2**

2. Basidiocarp stpitate, on the ground, first orange becoming brownish with age ..... **L. baudonii**
2. Basidiocarps sessile to dimidiate, on living or dead trees, first orange becoming white with age .....**L. discolor**

Laetiporus baudonii (Pat.) Ryvarden,

Synopsis Fung. 5: 215, 1991. - *Polyporus baudonii* Pat., Bull. Soc. Mycol. Fr. 30:337, 1914. - *Phaeolus manihotis* Heim, Ann. Cryptog. Exot. 4:175, 1931.
Basidiocarps annual, pileate with a central or lateral stipe, solitary or several pilei from the same base, consistency soft when fresh, corky when dry, light weight, pileus orbicular, to flabelliform or semicircular, up to 30 cm in diameter and 2-8 cm thick, upper surface flat, convex to centrally depressed, bright orange when fresh, more brown to fulvous when dry, azonate to weakly concentrically zoned, pore surface bright yellow to fulvous, often decurrent on the stipe, pores round to angular becoming sinuous, 2-3 per mm, tubes up to 1 cm long, orange when fresh, brown when dry, sharply contrasting with the context, context 2-7 cm thick, soft to corky, pale yellow, strongly contrasting with the tubes, darkening in KOH.
Stipe rather short, fulvous and velvety, tapering, towards the base sometimes arising from a pseudosclerotium.
Hyphal system dimitic, generative hyphae hyaline, thin-walled and branched, 3-5 µm wide, predominantly with simple septa, a very few clamps observed but difficult to observe, skeletal hyphae thick-walled, hyaline to pale yellow, straight or sinuous and bent,2-5 µm wide in Melzer, swelling and considerably wider in KOH, gloeopleurous or conducting hyphae present, thin-walled and simple septate, abundantly common in the tubes, and on the pileus, less common to apparently absent from the context, yellowish to reddish-brown, grainy and often agglutinated and difficult to tease apart, diameter variable, in the subhymenium 3-5 µm, in the trama and the pileus up to 15 µm wide.
Basidiospores 5-10 x 3-5 µm, oblong elliptic to cylindrical.
Substrate. On the ground either from buried roots or from a pseudosclerotium, more rarely on stumps. It attacks many different forest trees and is locally a serious root pathogen in Africa.
Distribution. It occurs in a wide zone in Central Africa besides South Africa.
Remarks. The species is easy to recognize because of the bright yellow to orange, large basidiocarps, mostly growing on the ground. The reddish to yellow conducting hyphae are abundantly present in the tubes and are the reason why these are much darker than the context.

Laetiporus discolor (Klotzsch) Corner, Fig. 49

Beiheft Nova Hedwigia 78: 183, 1984. – *Polyporus discolor* Klotzsch, Linnaea 8: 483, 1833.
Basidiocarps annual, laterally substipitate to sessile, pilei single to occurring in large imbricate clusters up to a square meter or more in extent, dimidiate to flabelliform, up to 40 cm wide, upper surface citric yellow to orange when fresh, fading to pale brownish with age or drying and bleaching to white in old, deteriorating specimens, minutely tomentose to glabrous, azonate to faintly zonate, radiately furrowed, margin concolorous, often undulate, rounded, sterile or fertile below, pore surface sulphureus yellow when fresh, fading to pale tan on drying, the pores angular, 34 per mm, with thin dissepiments that quickly become lacerate, context white, azonate, brittle and sappy or succulent when fresh, drying crumbly or chalky, up to 2 cm thick, tube layer sulphureus yellow when fresh, drying pale buff, distinct, up to 4 mm thick, taste and odor nut like, pleasant.

Hyphal system dimitic, contextual generative hyphae thinwalled, hyaline, simpleseptate, with rare branching, 6-12 µm in diam, contextual binding hyphae firm to thickwalled, hyaline, nonseptate, much branched and interlocking, 320 µm in diam.
Basidiospores 5-8 x 4-5 µm ovoid to elliptic.
Substrata. On dead wood or from roots.
Distribution. Kenya, Cameroon and Mauritius (Type locality).
Remarks. The bright orange coloration makes it easily to ientify. Recent studies have shown that there are several species involved in the commonly used wide concept of *L. sulphureus* (the type came from France), see Banik et al (2010) for details. We have used Klotzsch`s name since type came from Mauritius and is the only taxon in the genus with an African type. The situation is similar in Asia with *Laetiporus miniatus* (Jungh.) Overeem, based on *Polyporus miniatus* Junghuhn 1838 from Java.

Fig. 49. *Laetiporus discolor*, photo D. Mossebo.

Laetiporus persicinus (Berk. & M. A. Curtis) Gilbn., Fig. 50

Mycotaxon 12:385, 1981. *Polyporus persicinus* Berk. & M. A. Curtis, Grevillea 1:37. 1872.
Basidiocarps annual, centrally stipitate, pilei single or several from a branching stipe, circular, up to 25 cm in diam, upper surface pinkish brown with darker brown band around the margin, tomentose to finely hispid, azonate to faintly zonate, pore surface pinkishcream when fresh, bruising brown, drying to dark, dull brown, pores circular, 34 per mm with thick, entire dissepiments, stipe simple or branched at the base, up to 7 cm long and 5 cm thick, tube layer decurrent on upper half of stipe, brown and velvety below tubes, context pinkishstraw coloured when fresh, with concentric dark zone lines, drying pinkishbuff, soft fibrous and easily pulled apart, 12 cm thick on pileus, tube layer pinkishtan when fresh, distinct and drying darker than the context, soft, up to 8 mm thick, entire basidiocarp drying very light in weight, odor of fresh specimens is similar to that of ham or bacon.
Hyphal system dimitic, contextual generative hyphae thinwalled, hyaline, simpleseptate, with rare branching, 720 µm in diam, contextual binding hyphae firm to thickwalled, hyaline, nonseptate, much branched, 5-12 µm in diam, gloeopleurous hyphae also present, tramal hyphae thinwalled, simpleseptate, with occasional branching, 2.5-4.5 µm in diam.
Basidiospores 6.5-8 x 4-5 µm, ovoid to elliptic.
Substrata. Attached to roots or base of living or dead trees.
Distribution. Widespread in the tropical zone.
Remarks. *Laetiporus persicinus* shows striking similarities to *L. sulphureus* in all microscopic characters, but easily recognized by its brown colour.

Fig. 50. *Laetiporus percicinus*, photo L. Ryvarden.

LENTINUS Fr.,

Syst. Orb. Veget. p. 77, 1825.
Basidiocarps stipitate, funnel shaped to vase shaped, or centrally depressed, pileus usually circular, hirsute, squamose to glabrous, margin often involute upon ageing and in some species with cilia, hymenophore lamellate, lamellae usually moderate to deeply decurrent, even to lacerate or denticulate, hyphal pegs usually present on the lamellae, stipe central to eccentric and of variable length. Hyphal system dimitic, consisting of non-inflated generative hyphae with clamp connections, and frequently branched arboriform skeletal hyphae in subgenus *Lentinus*, or unbranched skeletal hyphae in subgenus *Panus*, basidiospores cylindrical to elliptic, hyaline, non-amyloid, non-dextrinoid, thin-walled, smooth; basidia typically narrow and cylindrical to clavate snd tetrasterigmatic. Cystidia present or absent. All species (except *L. lepideus*) with a white rot.
Type species: *Agaricus crinitus* L: Fr.
Remarks. The genus is usually easy to recognize in the field due to the stipitate basidiocarps with lamellae and a tough consistency, quite different from macroscopically similar agarics which have a much softer consistency. Almost all species grow on wood, and the genus is related to *Polyporus* s. str., and in principle separated only by its gills instead of pores. *Pleurotus* is a rather similar genus growing on wood, but is separated by having a monomitic hyphal system.
All drawings have, with permission, been taken from David Pegler's excellent world monograph: Pegler, D. 1983: The genus *Lentinus*, a world monograph. Kew Bull. Add. Series 10:1-281, to which the reader is referred for more detailed descriptions than those given here.
Lentinus as defined here, is polyphyletic as demonstrated by Seelan et al. 2015: Phylogenetic relationships and morphological evolution in *Lentinus, Polyporellus* and *Neofavolus* emphasizing south-eastern Asian taxa. Mycologia 107:460-74.

Key to African species of *Lentinus*

1. Arboriform skeletal hyphae present, hyphal pegs often present (subgenus *Lentinus)* **2**
1. Unbranched skeletal hyphae present, hyphal pegs absent (subgenus *Panus*) **9**

2. Pileus dark brown to almost black, more or less densely hairy **3**
2. Pileus white to pale brown, glabrous or with adpressed squamules..... **4**

3. Pileus densely covered with dark brown persistent hairs, margin strongly deflexed, stipe with minute dark brown squamules towards the base, spores 5-7-8 x 2.5-3.5 µm, common species .....**L. villosus**,
3. Pileus loosely covered with hairs, margin slightly deflexed, stipe with dark short hairs, spores 4.5-8 x 1.7-3 µm, from West Africa ..... **L. atrobrunneus**

4. Pileus almost glabrous white to cream coloured, occasionally darker, no squamules **5**
4. Pileus with dark squamules or dark radial lines **6**

5. Basidiocarps usually single, large with strongly decurrent lamellae, spores 5-9 x 1.5-2 µm .....**L. sajor-caju**
5. Basidiocarps usually in clusters, small, lamellae slightly decurrent, spores 6-8 x 2.3-3.5 ..... **L. cladopus**

6. Stipe with a small ring and dark squamules on lower part **7**
6. Stipe without ring, lower part with tiny brown squamules or dark hairs **8**

7. Pileus first loosely hairy then almost glabrous with adpressed squamules hyphal pegs absent, spores 5.5-8.5 x 2-3.2 µm ..... **L. brunneofloccosus**
7. Pileus glabrous with small adpressed squamules, hyphal pegs present, spores 6-9.5 x 2.5-3.5 µm..... **L. tigrinus**

8. Basidiocarps arising from buried pseudosclerotium, stipe with minute brown squamules, spores 7-9.5 x 3-4.2 µm, wide spread species ..... **L. sclerogenus**
8. Basidiocarps growing on dead wood, stipe with short dark brown hairs, spores 4.5-7 x 1.5-2.3 µm, known only from South Africa ..... **L. zeyheri**

9. Pileus velutinate, villose-to hispid, often arising from a sclerotium **10**
9. Pileus glabrous to adpressed finely squamulose, on dead wood or on the ground **11**

10. Pileus whitish to ochraceous, slightly brownish towards the centre, hispid, strigose ..... **L. strigosus**

10. Pileus brown to chestnut brown, velutinate ..... **L. velutinus**

11. Basidiocarp arising from a sclerotium or a sclerotic mass around the underground stipe **12**
11. Basidiocarp on dead wood or on the ground without a sclerotium **13**

12. Pileus ochraceous to deep brown, finely radially pileus, lower part of stipe below the ground with a compact sclerotic mass, cheilocystidia absent ..... **L. cirrhosis**
12. Pileus pale brown to ochraceus soon glabrous, arising from a sclerotium in the ground, cheilocystidia present .... **L. tuberregium**

13. Gloeocystidia or metuloid cystidia present in hymenium **14**
13. Gloeocystidia and metuloid cystidia absent from hymenium **16**

14. Metuloid cystidia present, basidiocarps arising from pseudosclerotium, pileus strongly radially veined ... **L. similis**
14. Gloeocystidia present, basidiocarps growing on dead wood or grass tufts, pileus without radially veins **15**

15. Basidiocarps single, pileus glabrous, white to very pale yellowish, on dead wood, spores elliptic 3.7-5.2 x 2.3-3 µm ..... **L. courtetianus**
15. Basidiocarps in clusters, pileus first tomentose, later glabrous, brown, paler with age, on dead grass tufts, spores subglobose 5.5-7 x 3-4.5 µm ..... **L. caespiticola**

16. Basidiocarps spatulate to flabelliform, cheilocystidia absent, spores 2.5-3.5 µ wide ..... **L. prolifer**
16. Basidiocarps stipitate, cheilocystidia present, spores wider than 3.5 µm **17**

17. Basidiocarps fleshy, large, pileus with scattered dark adpressed squamules, spores 8.5-12 µm long, growing on gymnosperms with brown rot, in Africa known only from South Africa ..... **L. lepideus**
17. Basidiocarps coriaceous, pileus without squamules, white to pale brown with radial striae, spores 6-9 µm long, on hard woods with white rot, wide spread in tropical Africa..... **L. anthocephalus**

Lentinus anthocephalus (Lev.) Pegler,

Bull. Jard. Bot. Nat. Belg. 41:280, 1974. – *Agaricus anthocephalus* Lev., Ann. Sci. Nat. Bot. Ser. 3, 5:115, 1846.
Basidiocarp in clusters, pileus 3-12 cm, fleshy coriaceous, laterally attached or applanate to almost flabelliform, rarely infundibuliform, white to ochraceus brown first covered with a fine tomentum that wears, away, except for the centre, leaving a smooth glabrous surface with darker striae, margin usually lobed, often fimbriate almost to the stipe, lamellae decurrent; 1.5 mm wide, strongly crowded with up to 7 sublamellae, concolorous with the pileus whitish to ochraceous,
Stipe variable from almost absent to elongated lateral to central, 0.5-4 cm 2-5 mm wide, cylindrical, slightly expanding towards apex; concolorous with pileus; white and first finely tomentose, becoming glabrous with age.
Hyphal system dimitic, generative hyphae, not inflated; 1.5-4 µm wide; frequently branched skeletal hyphae 2-6 µm wide, thick walled but with a narrow continuous lumen, up to 1000 µm long.
Cheilocystidia 15-20 x 4-5 µm, smooth, nodulose to constricted, thin-walled and obtuse.
Basidiospores 6-9 x 3.4-4 µm, oblong cylindrical.
Distribution. Central Africa.
Remarks. The *Pleurotus* like clustered basidiocarps with variable pileus in light colours and the finely tomentose pileus and stipe are good field characters.

Lentinus atrobrunneus Pegler,

Bull. Jard. Bot. Nat. Belg. 41:275, 1971.
Basidiocarp stipitate, pileus, 1.5-6 cm wide; umblicate; fuscous to deep chestnut brown with radial striae where ends become free and forming a loose hairs addressed towards centre, more curled and erect towards to margin, becoming glabrous in parts with age, margin entire deflexed when dry, lamellae, deeply decurrent; pale yellow to yellowish orange, up to 2 mm wide, very crowded.
Stipe 4-11 cm x 2-7 mm, central or eccentric, slender; cylindrical, slightly expanding towards apex and base; concolorous with pileus and covered short brown hairs and strigose at base.
Hyphal system dimitic, generative hyphae, not inflated; 1.5-4 µm wide; arboriform skeletal hyphae 2-6 µm wide, thick walled but with a narrow continuous lumen.
Basidiospores 4.5-8 x 1.7-3.5, cylindrical.
Cheilocystidia, 20-37 x 4-8 µm, present on the lamellae edges, smooth, sinuous, thin-walled and obtuse.

Distribution. Scattered in West African countries.
Remarks. The long stipe exceeding the width of the pileus, the strigose dark brown pileus with a silky shine, and the narrow spores, characterize this species.

Lentinus brunneofloccosus Pegler,

Bull. Jard. Bot. Nat. Belg. 41:278, 1971.
Basidiocarp stipitate, pileus, 1-15 cm wide; first convex, then adpressed centrally with a brown loose floccose layer which breaks down exposing a cream to black surface with thick squamules, more or less in concentric circles, slightly striate along the margin entire, straight, lamellae shortly decurrent; furcate, pale pinkish buff or ochraceous, moderately crowded.
Stipe 1.5-8 cm x 2-9 mm long, central; cylindrical, concolorous with pileus; darker towards the base with some scattered, floccose darker squamules.
Hyphal system dimitic, generative hyphae, not inflated; 1.5-4 µm wide; frequently branched skeletal hyphae 3- 12 µm wide, thick walled, but always with a wide continuous lumen.
Hyphal pegs and **Cheilocystidia** absent.
Basidiospores, 5.5-8.5 x 2-3.2 µm, cylindrical, often slight curved.
Distribution. Western to Central Africa
Remarks. The squamose dark pileus, furcate lamellae, absence of hyphal pegs and cylindrical spores characterize this species.

Lentinus caespiticola Pat. & Hariot,

Journ. Bot. Paris 14:240, 1900.
Basidiocarp stipitate, pileus, 0.8-3 cm wide; umblicate; fuscous to deep brown when fresh, drying ochraceous to cream-coloured, first very finely tomentose, but soon glabrous and smooth, margin entire, straight, lamellae, deeply decurrent; whitish to ochraceous, moderately crowded.
Stipe 1.5-3 cm long, central or eccentric, slender; cylindrical, slightly expanding towards apex; somewhat swollen at the base, concolorous with pileus; white and strigose at base.
Hyphal system dimitic, generative hyphae, not inflated; 1.5-4 µm wide; frequently branched skeletal hyphae 2-6 µm wide, thick walled but with a narrow continuous lumen, up to 1000 µm long.
Cheilocystidia, 24-33 x 7-9 µm, present on the lamellae edges, smooth, thin-walled and obtuse.
Gloeocystidia 35-55 x 4-12 µm, abundant in the hymenium, fusoid to pointed, hyaline with a refractive content, sometimes furcate and projecting up to 15 µm above the basidia.
Basidiospores, 5.5-7 x 3-4.5 µm; elliptic.
Distribution. Mali, Tanzania and Mozambique.
Remarks. The small basidiocarps of *P. caespiticola* are restricted to tufts of dead grass and often in large numbers.

Lentinus cirrhosis Fr.,

Relique. Afzel. Fung. Guineense, p. 1, 1837.
Basidiocarp often clustered with 2-5 pilei, 3-30 mm wide; thin, coriaceous, convex soon depressed to umblicate; pale greyish brown to rusty brown, radially pilose with numerous fibrillose squamules, up to 4 mm long, margin persistently involute, paler, pilose, lamellae of two lengths, deeply decurrent with distinct anastomosing, pale greyish, often with a violet tinge.
Stipe 1-3 cm x 2-4 mm, central, slender; cylindrical, slightly expanding towards apex; concolorous with pileus, but first with a velutinate cover with amethyst tints and with dark squamules, expanding below the ground to a sclerotium like mass covered with sand grains.
Hyphal system dimitic, generative hyphae, not inflated; 2-4 µm wide; frequently branched, skeletal hyphae 2-6 µm wide, thick walled to solid.
Cheilocystidia absent, but lamellae edge frequently penetrated by obtuse skeletal hyphae.
Basidiospores 7-9 x 3-4 µm; elongated elliptic to subcylindrical.
Substrate. On the ground among grass.
Distribution. Mauritania, Ghana and Zimbabwe.
Remarks. The sclerotium like subterranean stipe and the lack of cheilocystidia are characteristic.

Lentinus courtetianus Hariot & Pat., **Fig. 51.**

Bull. Mus. Hist. Nat. Paris 15 :88, 1909.
Basidiocarp, 1-6 cm wide; thin, coriaceous, umblicate to deeply infundibuliform; first white, then more yellowish to ochraceous, glabrous, smooth, finely striate, margin entire, first involute, then straight, lamellae 3-4 mm wide, deeply decurrent; whitish to pale ochraceous, moderately crowded, 3-4 sublamellae.

Stipe 1-5 cm x 3-6 mm, long, central, slender; cylindrical, somewhat swollen or bulbous at the base, concolorous with pileus; smooth, glabrous.
Hyphal system dimitic, generative hyphae, not inflated; 1.5-4 µm wide; skeletal hyphae 2-6 µm wide, thick walled but with a narrow continuous lumen.
Cheilocystidia 14-33 x 3-7 µm, smooth, thin-walled and obtuse.
Gloeocystidia 22-45_x 4-12 µm, abundant on the hymenial surface, fusoid to pointed, hyaline with a refractive content, with age slightly thick walled
Basidiospores 3.7-5.2 x 2.3-3 µm, ovoid to elliptic.
Distribution. Central to Eastern Africa.

Fig. 51. *Lentinus courtetianus*, photo D. Mossebo.

Remarks. The smooth whitish basidiocarps and the gloeocystidia are characteristic for the species besides the fairly small, rounded spores.

Lentinus cladopus Lev., Fig. 52

Ann. Sci. Nat. Bot. Ser. 3,2:174, 1844.
Basidiocarp caespitose to clustered, usually branched with two to several pilei, pileus 2-6 cm wide; thin, coriaceous when fresh, soon centrally depressed and infundibuliform, white to buff, glabrous, smooth, radially veined, margin entire to slightly divided into lobes, lamellae deeply decurrent, intervening, cream to ochraceous, strongly crowded, with different lengths.
Stipe 2-8 cm x 2-8 mm, slender, cylindrical, firm, glabrous more or less concolorous with pileus, often blackened at the base.
Hyphal system dimitic, generative hyphae, not inflated; 1.5-4 µm wide; frequently branched skeletal hyphae 5-10 µm wide, thick walled but with a narrow continuous lumen, sparingly branched.
Hyphal pegs abundant 30-50 mm, consisting of generative hyphae, project up to 45 µm above the basidia.
Cheilocystidia 35-60 x 2-5 µm, present on the lamellae edges, sinuous, smooth, thin-walled and obtuse.
Basidiospores, 6-8 x 2.3-3.5 µm; cylindrical.
Distribution. Central Africa.
Remarks. The compound basidiocarps, the glabrous stipe and pileus and the very thin context are distinct characters for this species. It is related to *L. squarrolusus*.

Fig. 52. *Lentinus cladopus*, photo D. Mossebo.

Lentinus lepideus (Fr.) Fr.,

Syst. Orb. Veg. p. 78, 1825.
Basidiocarp 3-15 cm wide, fleshy, thick, convex to applanate or depressed, white to ochraceous to cream-coloured, smooth and shiny, later disrupting into radial darker squamules, larger towards the centre, margin entire, first deflexed, then straight and first finely velutinate, soon glabrous, lamellae decurrent; whitish to ochraceous, up 1 cm wide, moderately crowded.
Stipe 2-11 x 1-3 cm, central or eccentric, slender; cylindrical, often somewhat swollen at the base, concolorous with pileus, annulus formed close to lamellae, but soon disappearing.
Hyphal system dimitic, generative hyphae, not inflated; 3-7 µm wide; frequently branched, skeletal hyphae 3-6 µm wide, thick walled but with a narrow continuous lumen.
Cheilocystidia absent, but long hair like hyphae may project along the edge of the lamellae.
Basidiospores 8.5-12.5 x 4-7 µm, cylindrical.
Substrate. Usually coniferous wood, rarely on hard woods. Causes a brown rot.
Distribution. In Africa only recorded from South Africa. Widespread throughout the world.
Remarks. The large basidiocarps with brown squamules and the brown rot, are distinctive features for this species.

Lentinus prolifer (Pat. & Hariot) Pegler,

Kew Bull. Ser. 6:40, 1977.
Basidiocarp 1-6 cm wide; thin, spatulate to flabelliform with narrow attachment pileus cream coloured to yellowish brown or fuscous brown, glabrous finely striate margin thin, entire to lobed, straight, lamellae, deeply decurrent; cream coloured 1.5 mm wide, with lamellae of 5 lengths, densely crowded.
Stipe lateral, 5-10 x 2-6 mm, cylindrical, white, first finely tomentose, soon glabrous.
Hyphal system dimitic, generative hyphae, not inflated; 2-6 µm wide; skeletal hyphae 2-6 µm wide, thick walled but with a narrow continuous lumen.
Cheilocystidia absent.
Basidiospores 7-9 x 2.5-3.7 µm; cylindrical.
Distribution. Central and East Africa.
Substrate. Mostly found on debris on the ground.
Remarks. The pleurotoid basidiocarps and the lack of cheilocystidia are characteristic for this tough and delicate species.

Lentinus sajor-caju (Fr.) Fr., Fig. 53

Epicrisis p. 393, 1838. – *Agaricus sajor-caju* Fr., Syst. Mycol. 1:175, 1821.
For about 20 taxonomic synonyms, see Pegler 1983:81.
Basidiocarp stipitate, pileus, 3-9 cm, first soft, drying hard, convex then umblicate to infundibuliform, more rarely flabelliform to exocentric, surface variable, first white, then ochraceous, greyish or dark brown, glabrous; smooth, sometimes with small dark squamules especially towards the centre, finely striate, margin entire or lobed, often deflexed, lamellae densely crowded, deeply decurrent or furcate, whitish or concolorous with the pileus, to ochraceous, smaller lamellae between the larger ones.
Stipe 1.5-3 cm long, central or eccentric, solid, slender; short, 0.8-3 x 0.5-1.5 cm, cylindrical, with abrupt base, concolorous with pileus, sometimes blackening towards the base, small ring present towards the apex, firm white to brownish, distinct, but often fallen off.
Hyphal system dimitic, generative hyphae, not inflated; 2-5 µm wide; frequently branched skeletal hyphae 2-8 µm wide, thick walled with a narrow continuous lumen, branches up to 400 µm long.
Hyphal pegs abundant, 50-100 20-40 µm, cylindrical, truncate, and pointing up to 80 µm beyond the basidia
Cheilocystidia 20-30 x 4-6 µm, present on the lamellae edges, smooth, thin-walled and obtuse.
Basidiospores 5-9 x 1.5-2 µm; narrowly cylindrical, often curved.
Substrata. Dead hardwood of all kinds.

Fig. 53. *Lentinus sajor-caju*, photo D. Mossebo.

Distribution. One of the most common *Lentinus* species in the paleotropical zone.
Substrate. Hard woods of all kinds, sometimes from buried roots.
Remarks. The deeply infundibuliform basidiocarps with densely crowded lamellae and an annulus, are often sufficient for a field determination. The distinct cylindrical spores and the large hyphal pegs are distinct microscopical characters.

Lentinus sclerogenus Sacc.,

Nuov. Giorn. Bot. Ital. N. S. 23:230, 1916.
Basidiocarp stipitate, pileus, 1-5 cm wide; umblicate; to infundibuliform, ochraceous to brownish ochraceous developing into small adpressed black squamules becoming ultimately glabrous, margin entire, straight finely ciliate in young specimens, lamellae short decurrent; whitish to pale ochraceous, moderately crowded with lamellae of two lengths.
Stipe 2-7 cm x 2-8 mm, central, cylindrical, solid, woody, concolorous with pileus, arising from a buried pseudosclerotium with black squamules.
Hyphal system dimitic, generative hyphae, not inflated; 2-12 µm wide; frequently branched skeletal hyphae 2-7 µm wide, thick walled with a narrow continuous lumen, up to 300 µm long in the branches, some penetrating into the lamellae edge.
Hyphal pegs moderately abundant, 30-50 mm, projecting up to 50 µm above the basidia.
Cheilocystidia 24-35 x 3-5 µm, smooth, subclavate, thin-walled and obtuse.
Basidiospores 7-9.5 x 3-4.2 µm; elliptic to cylindrical.
Substrate. On the ground from a pseudosclerotium.
Distribution. Central African species reported from Dem Rep. Congo, Ethiopia and Sudan.
Remarks. The ground growing status, large spores and a glabrous squamulose pileus characterize the species.

Lentinus similis Berk. & Broome, Fig 54

Journ. Linn. Soc. Bot. 14:43, 1873.
Basidiocarp 3-15 cm wide; thin, coriaceous, deeply infundibuliform, cinnamon brown to dark chestnut brown, often with purplish or violet tinges, finely velutinate in centre, soon glabrous, radially sulcate with distinct striae to the margin which is curved down, sometimes radially split, lamellae, deeply decurrent; neither furcate or anastomosing, concolorous with the pileus, moderately crowded with up to 5 lamellae.
Stipe 2-15 cm x 3-15 mm, central to eccentric, slender; cylindrical, concolorous with pileus; uniformly velutinate or tomentose, usually arising from a pseudosclerotium
Pseudosclerotium often large 2-16 x 3-8 cm slightly irregular.
Hyphal system dimitic, generative hyphae, not inflated; 2-5 µm wide; skeletal hyphae 2-6 µm wide, thick walled with a narrow continuous lumen-
Cheilocystidia abundant, 18-25 x 3-6 µm, smooth, thin-walled and obtuse.
Sklerocystidia abundant on the hymenial surface, 20-40 x 4-9 µm, pointed, thick-walled, hyaline or brownish, scarcely projecting beyond the basidia
Basidiospores 5-6.5 x 2.5-3.5 µm; elliptic to oblong cylindrical.
Substrate. Mostly from a pseudosclerotium in the ground, usually seen in large groups.
Distribution. Tropical Africa and Asia.
Remarks. The brown colour with distinct radial striae and the velutinate stipe arising from a pseudosclerotium, make this a distinct species.

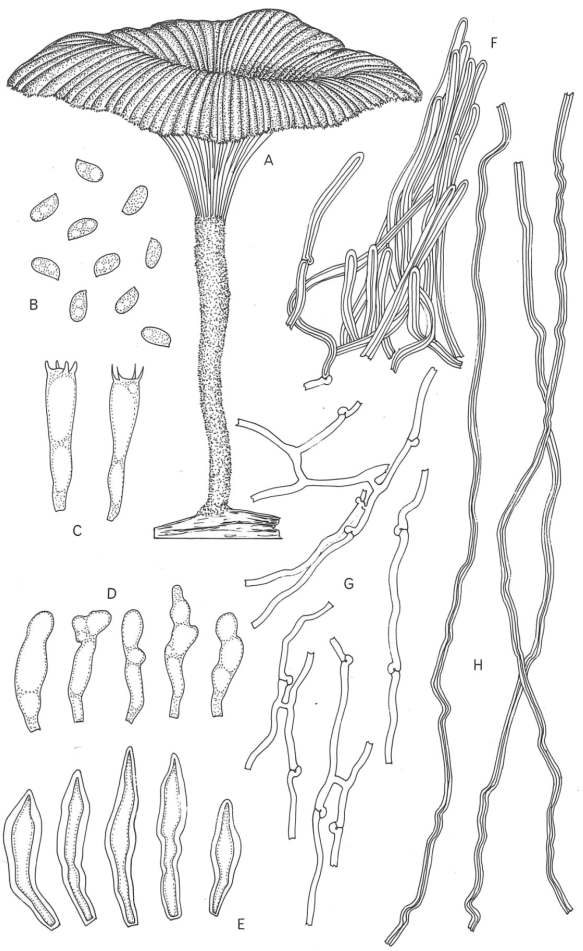


Fig. 54. *Lentinus similis*, a) basidiocarp, b) spores, c) basidia, d) cheilocystidia, e) Sclerocystidia, f) fascicle from pileus, g) generative hyphae, h) skeletal hyphae, del. D. Pegler.

Fig. 55. *Lentinus squarrosulus*, photo D. Mossebo.

Lentinus squarrosulus Mont., Fig 55

Ann. Sci. Nat. Bot. Ser. 2, 18:21, 1842.

Basidiocarp stipitate, single, but mostly in clusters, pileus, 2-10 cm in diameter, thin and pliant, convex soon umblicate to deeply infundibuliform. white to cream discolouring yellowish, radially striate with concentric zones with small squamules which ultimately become blackish, finally glabrous and smooth, margin deflexed, thin, lacerate to lobed, lamellae deeply decurrent; whitish to ochraceous, moderately crowded with lamellae of four lengths, 2-3 mm bread.

Stipe 1.5-5 cm x 2-10 mm long, central or eccentric, slender; solid, tapering below and sometime with a bulbous base, concolorous with pileus, loosely cover and with irregular floccose squamules.

Hyphal system dimitic, generative hyphae, not inflated; 1.5-6 µm wide; frequently branched skeletal hyphae 2-10µm wide, thick walled but with a narrow continuous lumen, skeletal part up to 350 µm long and from apex developing very long tapering branches.

Hyphal pegs sparse to numerous, 35-70 x 15-30 µm, cylindrical to conical.

Cheilocystidia, 24-33 x 7-9 µm, smooth, thin-walled and obtuse.

Basidiospores 5.5-7.5 x 1.7-2.5 µm; cylindrical.

Substrate. Dead wood.

Distribution. Common throughout tropical Africa and Asia.

Remarks. The white, semi-erect squamules on the pileus and stipe, the crowed lamellae and a more or less entire lamellae edge, separate it from the closely related *L. tigrinus*. In its initial monomitic state, it is consumed in some Asian countries.

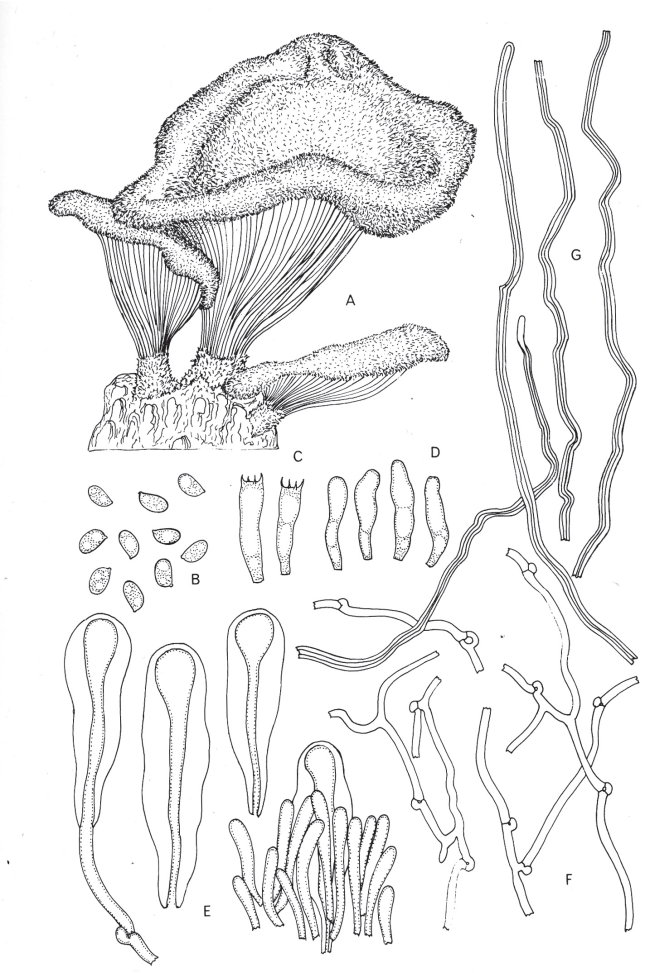


Fig. 56. *Lentinus strigosus* A) Basidiocarp, B) Spores, C) Basidia, D) Cheilocystidia, E) Metuloid cystidia, F) Generative hyphae, G) Skeletal hyphae. Del. D. Pegler.

Lentinus strigosus (Schw.) Fr., Fig. 56

Syst. Orb. Vegetale. p. 77, 1825. – *Agaricus strigosus* Schw., Schrift. Naturf. Ges. Leipzig. 1:63, 1822.
Basidiocarp stipitate, pileus 2-8 cm wide, infundibuliform or spatulate and with a lateral stipe; pileus surface whitish to ochraceous, more brownish towards the centre, at first often with a violet or pinkish tint especially towards the margin, densely tomentose to strigose with up to 2 mm long hairs, and more strigose towards the margin, no zonation or radial lines; margin entire, incurved and strigose, lamellae, deeply decurrent, white to ochraceous sometimes with a pinkish or pale violet tint, of different lengths, edge entire and hyphal pegs absent.
Stipe 2-4 cm long, up to 1 cm wide, lateral or lateral, often short or reduced, concolorous with the pileus and equally covered with erect hairs.
Hyphal system dimitic, generative hyphae 2-4 µm wide, skeletal hyphae almost unbranched, thick-walled, with a narrow lumen, both intercalary and terminally developed, up to 120 µm long.
Cheilocystidia fusoid to clavate, soon collapsing and may be difficult to observe.
Metuloid cystidia abundant to occasional, up to 55 µm long and projecting to 35 µm, smooth, cylindrical to clavate, thick walled except for the apex.
Basidiospores, 2.5-3.5 µm x 5.5-6.5 µm, elliptic-cylindrical.
Distribution, Widespread in the tropical zone of all continents.
Remarks. The densely hirsute to strigose pileus in light colours, often with a pink tint when fresh and the metuloid cystidia, characterize this species.

Lentinus stuppeus Kl., Fig. 57

Linnaea 8:480, 1833.
Basidiocarp stipitate, pileus, 1-6 cm wide; tough, deeply umblicate to infundibuliform; fuscous to deep brown to almost black covered with curled fibrous hispid hairs, up to 7 mm long, becoming glabrous with age, margin strongly and persistently involute, densely pilose, lamellae, short decurrent; whitish to ochraceous to yellowish buff, narrow, 3 mm wide, moderately crowded with 4 to 5 short lamellae.
Stipe 1.5-4 cm x 2-4 mm; cylindrical, solid, slightly expanding towards the apex, yellowish brown sometime with deep purplish tints cover by cinnamon dark brown tomentum at apex lower down with adpressed dark squamules and hispid at the base.
Hyphal system dimitic, generative hyphae, not inflated; 1.5-4 µm wide; frequently branched skeletal hyphae 2-6 µm wide, thick walled but with a narrow continuous lumen, branches up to 400 µm long.
Cheilocystidia 15-35 x 3-7.5, sinuous, nodulose, smooth, thin-walled and obtuse.
Hyphal pegs 40-70 x 20-40 µm, abundant.
Basidiospores 6-8.5 x 2,2-3.2 µm; cylindrical.
Distribution. African equatorial species, especially common in East Africa.
Remarks. The densely pilose dark pileus and stipe and the strongly involute margin and only slightly decurrent lamellae are distinct characters.

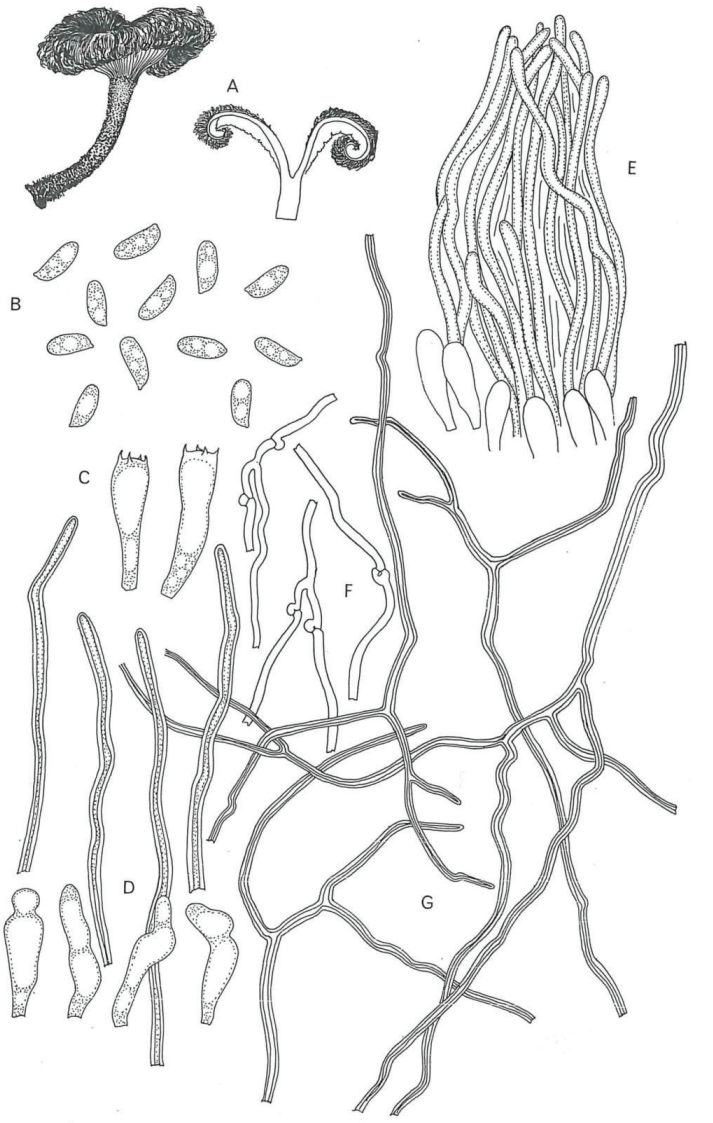


Fig. 57. *Lentinus stupeus*, a) basidiocarps, b) spores, c) basidia, d) cheilocystidia, e) hyphal peg, f) generative hyphae, g) vegetative hyphae, del. D. Pegler.

Fig. 58. *Lentinus tigrinus*, photo D. Mossebo.

Lentinus tigrinus (Bull.: Fr) Fr., Fig. 58.

Syst. Orb. Veg. p 78, 1825. – *Agaricus tigrinus* Bull.: Fr., Syst. Mycol 1:176, 1821.
Basidiocarp often in clusters, pileus 1-10 cm wide; fleshy, coriaceous, first concave and then finally infundibuliform, first greyish brown to blackish brown due to numerous dark adpressed squamules, then becoming paler as the pileus expands and becoming ochraceous cream to almost white with crowded squamules in the centre, margin entire to lobed, first deflexed, then straight and flat when mature, lamellae decurrent; whitish to ochraceous, moderately crowded of four lengths.
Stipe 1.5-10 x 2-10 mm, central or eccentric, slender; cylindrical, slightly expanding towards the base, concolorous with pileus and with numerous dark floccose adpressed squamules, annulus present close to the lamellae, thin, white often disappearing with age.
Hyphal system dimitic, generative hyphae inflated; 2-15 µm wide reminding one of those seen in agarics, frequently branched skeletal hyphae 2-10 µm wide, thick walled with a narrow continuous lumen, skeletal part up to 300 µm long.
Hyphal pegs few to moderately common, irregular fascicles of generative hyphae, up to 60 µm above the basidia
Cheilocystidia 20-33 x 3-6 µm, smooth, thin-walled, often nodulose and obtuse.
Basidiospores 6-9.5 x 2.5 -3.5 µm; narrowly cylindrical.
Distribution. Almost cosmopolitan, rare in Africa.
Remarks. The annulus is characteristic (but often disappears quickly), and this together with the smooth to almost glabrous pileus with radially arranged dark squamules are good field characters.

Lentinus tuberregium (Fr.) Fr., Fig. 59.

Syn. Gen. *Lentinus* p, 10, 1836. –*Agaricus tuberregium* Fr., Syst. Mycol. 1:174, 1821.
Basidiocarp mostly in clusters, 3-25 cm wide; tough, umblicate to deeply infundibuliform; pale greyish to ochraceous, first with a greyish to white floccose tomentum eroding from the margin leaving a glabrous surface, rarely with some scattered darker adpressed squamules, striae and zonation absent, margin entire, first involute, later straight and sometimes lightly split, remnants of veil present along the margin, white, floccose lamellae whitish to ochraceous, deeply decurrent; densely crowded, occasionally dichotomously branched, from 5 to 6 lamellae.
Stipe 3-15 cm long, central or occasionally eccentric, thick, robust, cylindrical, slightly expanding towards the base, concolorous with pileus; finely tomentose to subsquamulose, especially at the base.
Sclerotium present, globose to oblong, 5-25 cm, grey to dark brown, white inside.
Hyphal system dimitic, generative hyphae, not inflated; 2-7 µm wide; skeletal hyphae 2-7 µm wide, thick walled but with a narrow continuous lumen.
Cheilocystidia 20-45 x 3-7 µm, smooth, thin-walled, nodulose and obtuse.
Basidiospores 7.5-11 x 3-4.2 µm; cylindrical.
Substrate. Arising from a sclerotium**.**
Distribution. Throughout tropical Africa and Asia.
Remarks. The sclerotium and the whitish, initially finely floccose basidiocarp makes this a distinct species. In Africa the sclerotium is highly regarded both as food and medicine.

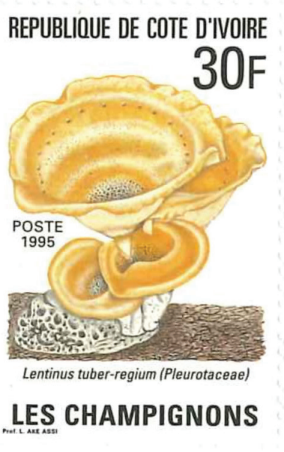


Fig. 59. *Lentinus tuberregium*.

Lentinus velutinus Fr., Fig. 60

Linnea 5 : 510, 1830.

Basidiocarp stipitate, pileus 2-8 cm, wide, thin, tough, deeply umblicate to infundibuliform, pale greyish cinnamon to deep brown or almost chest nut brown, uniformly hispid to velutinate, not striate nor zonate or only so in old specimens, margin thin, first involute then reflexed and densely ciliate to strigose, even or slightly split with age, lamellae arcuate and not anastomosing, short decurrent, ochraceous to greyish brown, often with violet tints, slightly paler than pileus surface; moderately to densely crowded.

Stipe 2-25 x 0.2-1 cm, slender, central, solid, cylindrical, concolorous with the pileus, persistently velutinate to tomentose, slightly expanded both at base and apex, arising usually from a pseudosclerotium.

Pseudosclerotium 2-10 x 1-4 cm, rarely larger, fusoid, consisting of sklerified wood impregnated with hyphae, pale greyish brown and smooth.

Hyphal system dimitic, generative hyphae, not inflated, 2-4 µm wide, frequently branched, skeletal hyphae 2-4 µm wide, sinuous, thick-walled with a narrow continuous lumen, up to 1000 µm long, both terminal and intercalary.

Metuloid cystidia 20-65 x 3-12 µm, present on the edges of the lamellae and on the hymenial surface, abundant, clavate and thin walled, with a refractive cotntent, later thick walled, hyaline to brown and only slightly projecting above the basidia.

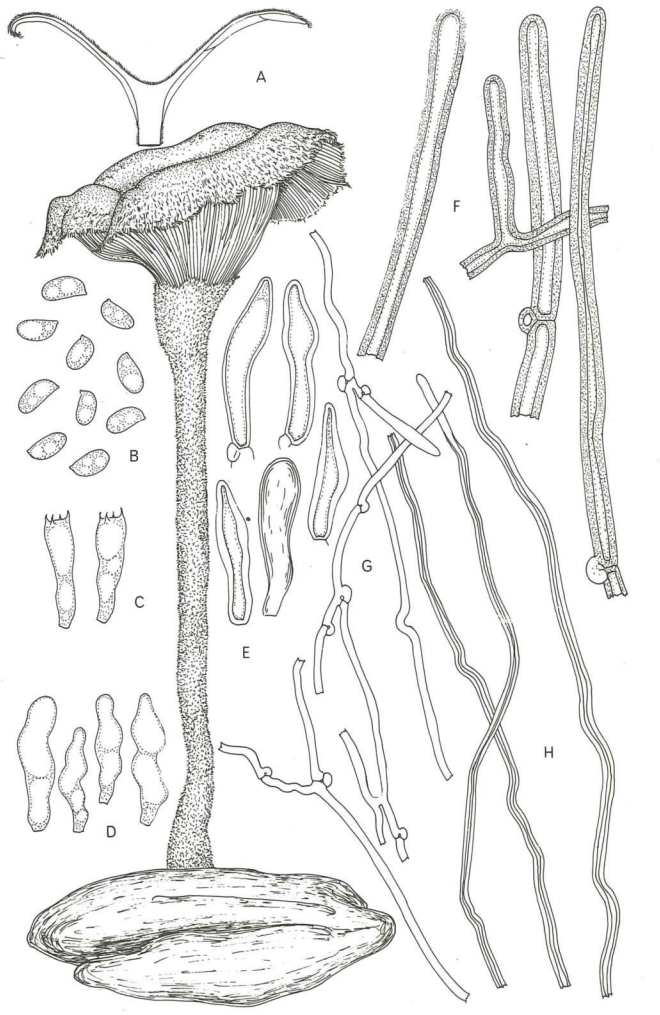


Fig. 60. *Lentinus velutinus* a) basidiocarp (Zaire), b) spores, c) basidia, d) cheilocystidia, e) metuloid cystidia, f) hyphae from pileus surface, g) generative hyphae, h) skeletal hyphae. Del. D. Pegler.

Basidiospores 5-7 x 3-4 µm, elliptic.

Distribution. Widespread in Africa and throughout the tropical zone.

Remarks. The species is recognized by the long slender brown velutinate stipe and equally coloured and velutinate pileus and arising from a pseudosclerotium. It is one of the most common *Lentinus* species and apparently the only one with a pantropical distribution.

Lentinus villosus Klotzsch, Fig. 61

Linnea 8:479, 1833. – *Lentinus weissenbronii* P. Henn., Engl. Bot. Jahrb. 17:31, 1893,

Basidiocarp stipitate deeply infundibuliform to cyathiform, 1-5 cm in diameter, yellowish to dark brown, first smooth and glabrous in the centre, becoming villose to strigose and covered with curled dark hairs, margin strongly and persistently involute, lamellae short decurrent, 3 mm wide, moderately to distinctly crowded, often anastomosing at apex; numerous smaller lamellae, white to ivory coloured.

Stipe central, 3-6 cm x 3-9 mm; glabrous, concolorous with pileus, cylindrical expanding towards the apex finely tomentose above, developing minute adpressed brown squamules towards the base.

Hyphal system dimitic**, g**enerative hyphae 1-4 µm wide, arboriform skeletal hyphae 2-7 µm wide, thick walled, frequently branched.

Hyphal pegs usually abundant, projecting 20-50 µm above the hymenium

Basidiospores 5.7- 8.5 x 2.5-3.5 µm, narrowly to broadly cylindrical.

Distribution, Widespread throughout Africa.

Remarks. The strongly curled pileus margin, the dark hairs and a stipe becoming darker towards the base, are distinctive characters.

Lentinus zeyheri Berk.,

Lond. J. Bot. 2:514, 1843.
Basidiocarp stipitate, pileus, 1-3.5 cm wide; umblicate to infundibuliform, pale yellowish brown becoming fuscous to deep brown with dark brown to black adpressed squamules, pilose with more or less radial hairs towards the margin, first entire, soon split and densely hispid and pilose, lamellae, short decurrent; yellowish buff to ochraceous, paler than pileus, moderately crowded with three to four sublamellae.
Stipe 1.5-3 x 2-6 mm, central, slender; cylindrical, slightly expanded towards the base, dark brown and entirely covered by dark brown hairs.
Hyphal system dimitic, generative hyphae, not inflated; 1.5-4 µm wide; frequently branched skeletal hyphae 2-6 µm wide, thick walled with a narrow continuous lumen, up to 1000 µm long.
Cheilocystidia 16-30 x 4-7 µm, sinuous to nodulose, smooth, thin-walled and obtuse.
Hyphal pegs 40-70 x 20-40 µm, moderately abundant, consisting of generative hyphae, up to 50 µm beyond the basidia.
Basidiospores 4.5-7 x 1.5-2.3 µm narrowly cylindrical.
Distribution. Known only from few localities in South Africa.
Remarks. The species is characterized by the uniformly hispid stipe, narrow spores (slightly wider in *L. crinitus*) and a squamose pileus (not pilose).

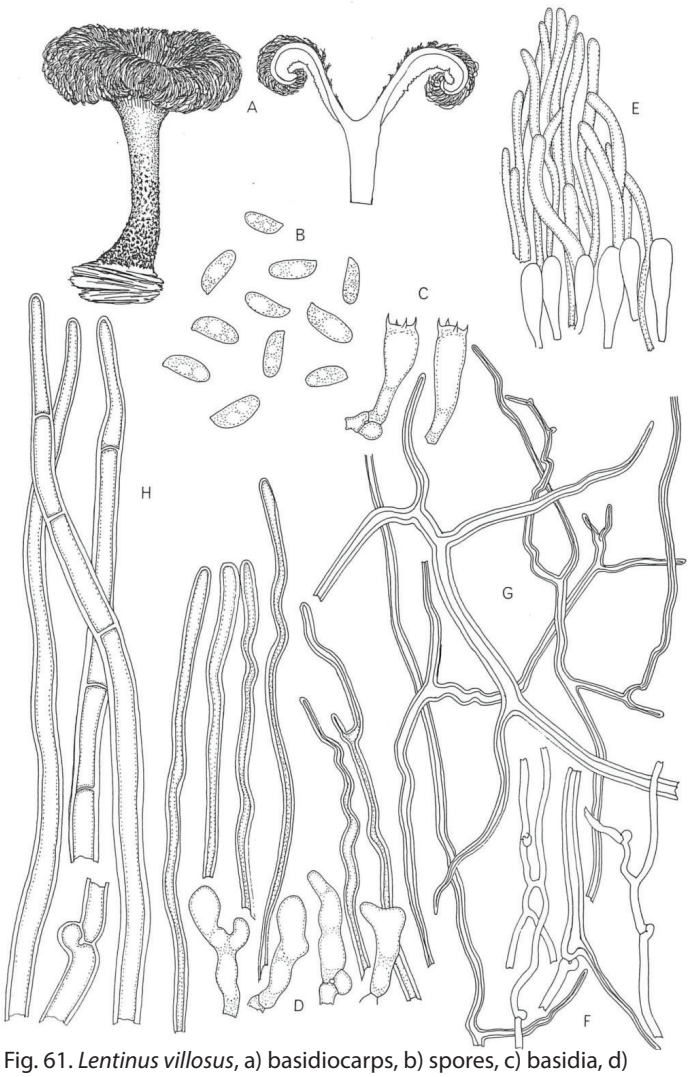


Fig. 61. *Lentinus villosus*, a) basidiocarps, b) spores, c) basidia, d) cheilocystidia, e) hyphal peg, f) generative hyphae, g) arboriform skeletal hyphae h) pileus hairs, del. D. Pegler.

LEUCOPHELLINUS Bondartsev & Singer,

Mycologia 36: 68, 1944.
Basidiocarps pileate, hyphal system monomitic with simple septate generative hyphae, cystidia present, thin to thick walled and cylindrical to tubular, usually smooth, basidiospores elliptic to oval, smooth, hyaline, thick-walled and non-dextrinoid, on hard woods, paleotropical genus.
Type species *Leucophellinus irpicoides* (Bondartsev ex Pilát) Bondartsev & Singer.
Remarks. The genus is seemingly isolated in the family with its smooth tubular cystidia and fairly large thick-walled spores. Monotypic genus.

Leucophellinus hobsonii (Berk. ex Cooke) Ryvarden, Fig. 62

Mycotaxon 31: 51, 1988. - *Polyporus hobsonii* Berk. ex Cooke, Grevillea 15: 20 1886. - *Polyporus mollissimus* Pat., J. Bot. Paris 1 :340, 1897. - *Spongipellis stramineus* Pat., Bull. Soc. Mycol. Fr. 23:52, 1917.

Basidiocarps effused or effused-reflexed, sessile to imbricate, variable in size and thickness, up to 15 cm long, 5-10 cm in width and 1-9 cm thick at base, in effused specimens the margin can be about 1 cm wide, light of weight, consistency soft and watery when fresh, fibrous and loose in texture when dry, pileus white to cream when fresh, straw-coloured, yellow-brown to ochraceous buff when dry, greyish to greenish at base, upper surface densely tomentose to hispid or tufted in old specimens, azonate, cortex absent, pore surface concolorous with the pileus or somewhat paler, pores angular, irregular to labyrinthine, 0.5-3 per mm, often varying in size within the same basidiocarp, dissepiments thin and papery, tubes up to 7 cm long, context thin, concolorous with the pileus, concentrically zoned, up to 3-4 cm thick.

Hyphal system monomitic, generative hyphae in the dissepiments mostly golden and thick-walled, more seldom hyaline and thin-walled, simple-septate, mostly 4-5 µm in diameter, when old the hyphae become heavily encrusted, and the whole basidiocarp then turns more brownish, hyphae sparingly branched at acute angles, hyphae in the context of the same kind, but slightly more agglutinated in strands.
Cystidia a) oblong to cylindrical, projecting up to 30 µm above the hymenium, thin to thick-walled, often with a swollen top and with one to three simple septa, up to 110 µm long and 15 µm wide. Occasionally apically covered with a resinous matter.
b) pointed and mixed with basidia.
Basidiospores 8-10.5 (11) x (5.5) 6-7 µm, broadly elliptic to oval, thick-walled, appearing yellow and refractive in KOH.
Distribution. Paleotropical species, in Africa known from Zambia and Dem. Rep. Congo.
Remarks. The species is characterized by thick walled spores and the multiseptate cystidia.

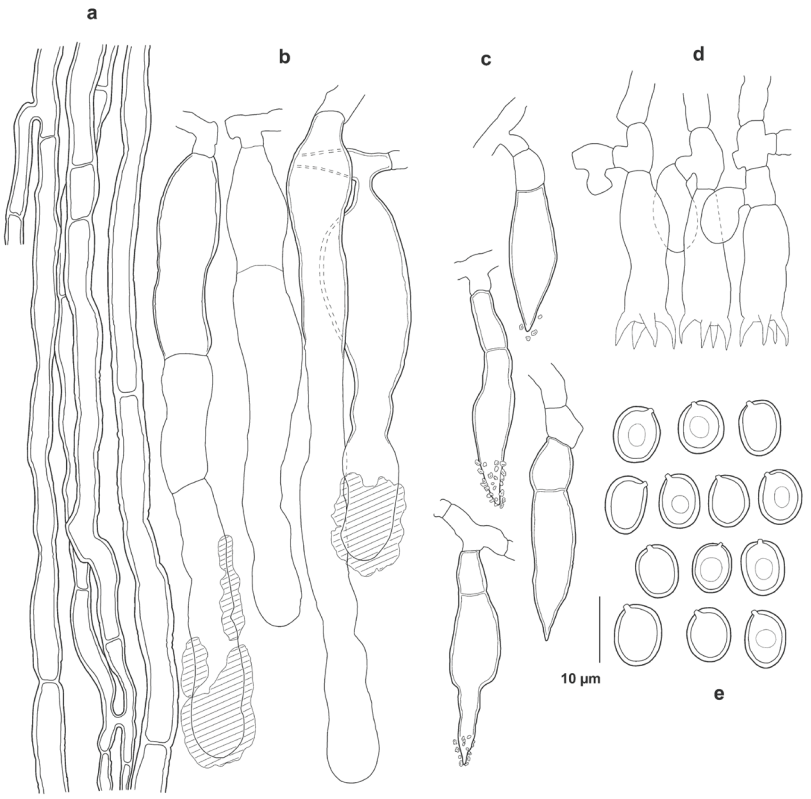


Fig. 62. *Leucophellinus hobsonii*, a) generative hyphae, b) projecting cystidia, c) pointed hymenial cystidia, d) basidia, e) spores, from the lectotype, del. I. Melo.

LIGNOSUS Lloyd ex Torrend,

Broteria (Ser. Bot) 18:121, 1920.
Basidiocarps annual, centrally stipitate, pileus brown to white, smooth to very finely tomentose, pore small to large, stipe white to brown, arising from a sclerotium in the ground, context white. Hyphal system di- or trimitic, generative hyphae with clamps, hyaline binding and skeletal hyphae in context, sclerotium and stipe, cystidia none, spores smooth, elliptic, hyaline and non-amyloid. On the ground, Paleotropical genus.
Type species: *Polyporus sacer* Fr.
Remarks. With stipitate basidiocarps arising from a sclerotium, the genus is characteristic and recognizable in the field.

Key to species

1. Pileus light to dark brown ..... **L. sacer**
1. Pileus white to ochraceous **2**

2. Pores 6-8 per mm ..... **L. dimiticus**
2. Pores 0.5-2 mm wide ..... **L. goetzii**

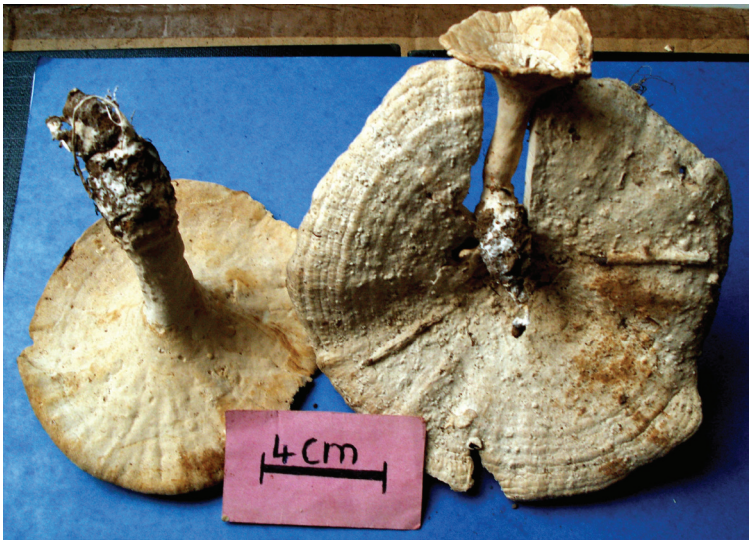


Fig. 63. *Lignosus dimiticus*, photo D. Mossebo.

Lignosus dimiticus Ryvarden, Fig. 63

Bull. Jard. Bot. Nat. Belg. 45:198, 1975.
Basidiocarps centrally stipitate with an infundibuliform pileus, up to 10 cm in diameter and 15 mm thick close to the stipe, pileus white to light ochraceous without cuticle, smooth and dull, a few warts and small irregular outgrowths scattered on the pileus, a few weakly sulcate zones present besides some darker radial lines, margin thin and deflexed, pore surface cream to
ochraceous, pores round and entire, 6-8 per mm, tubes up to 5 mm deep, light ochraceous and with some few zones, context pure white, up to 4 mm thick.
Hyphal system dimitic, generative hyphae with clamps, 2-4 µm in diameter, thin to
slightly thick-walled, skeletal hyphae hyaline and thick- walled, straight to flexuous and with a distinct lumen, unbranched or rarely with a single side branch, 3-6 µm in diameter.
Stipe woody hard, up to 8 cm high, 12-20 mm in diameter, white, smooth, in the type with incorporated leaves and wood debris, enlarged at the base, forming a sclerotium.
Basidiospores 3-4.5 x 2.5-3 µm. broadly elliptic.
Substrate. On the ground.
Distribution. Known only from the type locality in Kivu, Dem. Rep. Congo.
Remarks. The species is distinct and easily separated from *L. goetzii* by far smaller pores and a dimitic hyphal system as binding hyphae are lacking in trama and context.

Lignosus goetzii (Henn.) Ryvarden, Fig. 64b

Norw. J. Bot. 19:232, 1972. - *Polyporus goetzii* Henn., Engl. Bot. Jahrb. 30:255, 1901.
Basidiocarps annual, centrally stipitate, pileus up to 10 cm in diameter, up to 12 mm thick at the centre, evenly thick to the margin which is steep, abrupt and bent down wards, corky to
woody hard, pileus smooth and glabrous, dull, cream to pale ochraceous with a slight pinkish tint, weakly sulcate in concentric zones and radially rugose or furrowed towards the stipe, pore surface cream to ochraceous, pores angular and thin-walled, 0.5-2 mm in diameter, larger towards the stipe, smaller and rounder towards the margin, tubes up to 10 mm deep, separated from the stipe by a narrow annulus.
Stipe up to 10 cm long, 8-10 mm in diameter, ochraceous, slightly darker towards the pileus, finely velutinate, without cuticle, the underground lower part with numerous entangled rhizomorphs or cords, 1-3 mm in diameter and up to 3 cm long, straight or branched.
Sclerotium about 4 cm in diameter and shrunken with a thin darker cuticle covering the white context, bony hard when dry, probably coriaceous when fresh.
Hyphal system trimitic, generative hyphae 2-4 µm in diameter, hyaline and with clamps, context dominated by skeletal hyphae, 3-6 µm in diameter, thick-walled to solid, binding hyphae most common in the trama and lower context, tortuous and much branched, semi-solid, 2.5-4 µm in diameter.
Basidiospores not seen.
Substrate. On the ground in rain forests.
Distribution. Known only from Tanzania and Mozambique.

Remarks. The species should be very easy to recognize in the field due to its light colour, the large pores and the habitat on the ground growing from a sclerotium.

Lignosus sacer (Fr.) Ryvarden, Fig. 64 a

Norw. J. Bot. 19:232, 1972. - *Polyporus sacer* Fr., Epicr. Syst. mycol. p. 436, 1838.
Basidiospores annual, solitary or in small groups, centrally stipitate with a more or less circular pileus, up to 10 cm in diameter, up to 4 mm thick in the centre, tough to coriaceous, pileus hazel to snuff brown or even dark sepia-brown in old specimens, first very finely tomentose in narrow concentric zones, sometimes distinctly sulcate, but soon more or less glabrous in narrow bands, dry specimens usually wrinkled radially, in large specimens the margin may become strongly radially folded with narrow furrows, margin thin and sharp, pileus with a distinct dark cuticle in section, contrasting the white context, pore surface white to light cream, pore variable, angular, slightly radially elongated or irregular and split, 1-3 per mm, up to 1 mm deep, 1-3 with few to numerous hyphal pegs or cylindrical protuberances, up to 200 µm high, context pure white, 1-2 mm thick.
Stipe more or less central, single or a few from the same sclerotium, rarely forked in the upper part, light brown and velvety tomentose, becoming smoother and finally glabrous with age, and with a distinct thin and light brown cuticle, context pure white, stipe, first solid, but soon hollow.
Sclerotium irregular, round to somewhat elongated, up to 5 cm wide, usually dirty and soiled, finely tomentose, smooth to slightly folded when fresh, wrinkled and partly collapsed and bony hard in dry and old specimens, rhizomorphs or cords of mycelium richly to scarcely present, 1-3 mm in diameter, up to 7 cm long, usually growing radially out from where the stipe is attached, which is 1-2 cm below ground, the rhizomorphs are white to light ochraceous, finely velvety, hollow, brittle and easily broken if the basidiocarp is carelessly dug out of the ground. The sclerotium is frequently used for medical purposes.
Hyphal system trimitic, generative hyphae with clamps, in the hymenium thin-walled and hyaline, 2-3 µm in diameter, the tomentum both on the pileus and the stipe consists of such
hyphae, up to 10 µm in diameter and with slightly thickened to semisolid light yellowish, moderately branched and with numerous clamps, skeletal hyphae straight to flexuous, hyaline and thick-walled to solid, 1.5-6 µm wide, in the lower part of context and in the trama mixed with strongly branched, tortuous binding hyphae, thick-walled to solid, 2-6 µm wide.
Basidiospores 5-7 x 3-4.5 µm, broadly elliptic.
Substrate. On the ground in rain forests.
Distribution. Tropical Africa from Sierra Leone to Kenya and south to South Africa. Not common.
Remarks. The brown pileus separates it from the other African species.

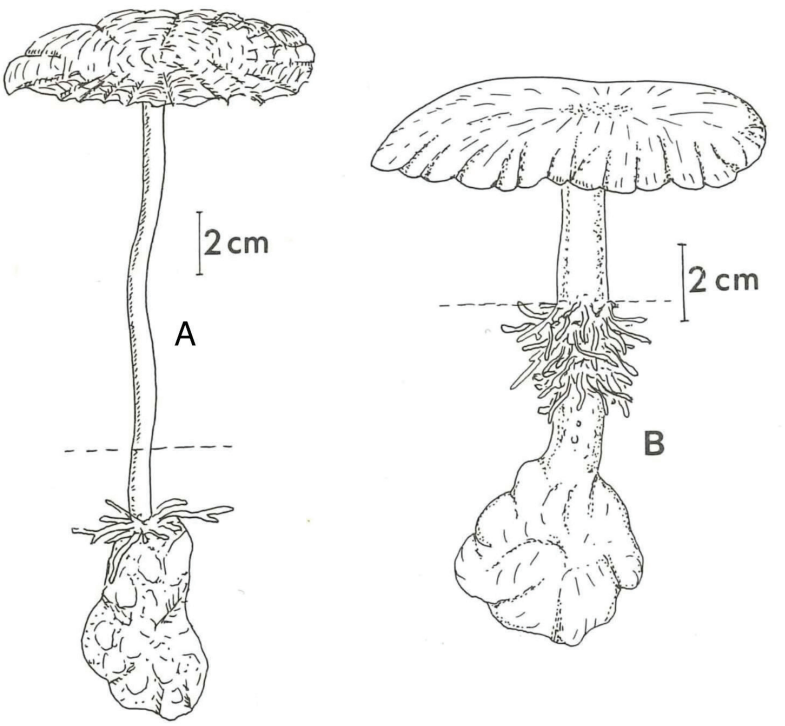


Fig. 64.
A) *Lignosus sacer*, coll. Ryvarden 9544.
B) *Lignosus goetzii*, lectotype, coll. B. Vasconales, del. L. Ryvarden.

MACROHYPORIA Johan. & Ryvarden,

Trans. Br. Mycol. Soc. 72:192, 1979.
Basidiocarps annual to perennial, resupinate, in small patches to widely effused, brittle to hard when dry, pore surface cream to ochraceous or pale brown, dull, pores 15 per mm or larger, context thin. Hyphal system monomiticdimitic, generative hyphae thinwalled and simpleseptate, in the trama and context up to 20 µm wide, binding hyphae or strongly branched thickwalled generative hyphae dominating in the trama and context, non-amyloid to weakly amyloid, also of large diameter, spores hyaline to pale yellow, thin to weakly thickwalled, subglobose to ellipsoid, nonamyloid, growing on wood, one species with a sclerotium.
Type species: *Polyporus dictyoporus* Cooke.
Remarks. The characteristic feature of the genus is the very wide and simple septate generative hyphae and the bindinglike hyphae with lateral swellings and short side branches with a variable amyloid reaction. The hyphal system is somewhat similar to that of *Laetiporus* which, however, includes pileate species with true binding hyphae.

Key to species

1. Spores globose ..... **M. dictyopora**
1. Spores cylindrical to fusoid ..... **M. cocos**

Macrohyporia dictyopora (Cooke) Johan. & Ryvarden,

Op. cit. - *Polyporus dictyoporus* Cooke, Grevillea 12:17, 1883.
Basidiocarp annual to perennial, resupinate, adnate, widely effused, up to 10 mm thick, coriaceous when fresh, woody hard when dry, pore surface first white, then ochraceous to cork or woodcoloured, even or slightly nodulose, pores round or elongated on sloping substrates, 34- per mm, tubes concolorous with the pore surface, up to 8 mm thick.
Hyphal system dimitic, generative hyphae thin to thickwalled, moderately branched, mostly 8-12 µm wide in the trama and context, narrower in the subhymenium, binding hyphae of the *Bovista*type present or often as very thickwalled hyphae with lateral swellings or short sidebranches with somewhat swollen apices, 7-15 µm wide, nonamyloid or weakly amyloid, especially when seen in quantities.
Basidiospores globose to subglobose, 4.5-6 µm in diameter, slightly thickwalled.
Distribution. Australia and Malawi.
Remarks. The species is recognized by the wide hyphae with simple septa and richly branched binding hyphae. The latter are more prominent in the type from Australia than in the African collection.

Macrohyporia cocos (Schw.) Johan. & Ryvarden,

Op. cit. *Sclerotium cocos* Schw., Naturf. Ges. Leipzig Schr. 1:56, 1822.
Basidiocarp annual, resupinate and effused, up to 10 mm thick, margin white to corkcoloured, pore surface white when fresh, pale ochraceous or woodcoloured when dry, flexible and coriaceous when dry, the basidiocarps of the African collection irregularly spread over smaller branches and thus, split and partly nodulose with sterile, smooth to slightly scrupose areas in between fertile parts, pores angular, in places dentate, incised or fimbriate, 1-2 per mm, some also larger, walls rather thin, tubes up to 6 mm deep, context whitish and tough.
Hyphal system dimitic, generative hyphae with simple septa and of variable diameter, in the subhymenium mostly 3-6 µm wide and thinwalled, in the trama and especially in the context much wider and distinct with thickened walls, up to 20 µm wide in parts and moderately branched, vegetative hyphae as modified binding hyphae or skeletal hyphae, in parts dichotomously branched as binding hyphae of the *Bovista* type, in other parts with lateral swellings, thickwalled to almost solid, up to 1-5 µm wide. .
Basidiospores 6-10 x 2.5-3.5 µm, cylindrical to slightly fusoid.
Distribution. North America, Japan, Malawi and Zimbabwe.
Remarks. Microscopically the species is easy to recognize due to the very wide generative hyphae and thickwalled and wide vegetative hyphae. The large sclerotium reported from North America and Japan was not seen in the African collections which were found in a coniferplantation of *Pinus radiata*. Thus, it may be introduced with seedlings of *Pinus* ssp.

MELANOPORELLA Murrill,

North Am. Fl. 9:14, 1907.
Basidiocarps resupinate, perennial, purplish black to fuliginous, pores small, hyphal system dimitic, generative hyphae simple septate, skeletal hyphae pale to dark brown, cystidia none, spores cylindrical, smooth and IKI-negative, causing white rot. Monotypic tropical genus.

Type species: *Polyporus carbonaceus* Berk. & M. A. Curtis.
Remarks. It may be confused with *Nigroporus* which however has clamped hyphae and cylindrical spores.

Melanoporella carbonacea (Berk. & M. A. Curtis) Murrill,

op. cit. - *Polyporus carbonaceus* Berk. & M. A. Curtis, Lond. J. Bot. 10:317, 1868.
Basidiocarps resupinate, perennial, effused, purplish brown to dark fuliginous brown, woody, up to 10 mm thick; margin dark brown, narrow; pore surface dark umber to purplish brown, often with a slight whitish pruina when in active growth, pores irregular, 1-2 mm wide, up to 2-3 mm long on sloping substrates, tubes concolorous with pore surface but in actively growing specimens, the hymenium along the tubes paler than the trama, the tubes normally not stratified, context purplish black, up to 5 mm thick.
Hyphal system dimitic; subicular generative hyphae with simple septa, hyaline, thinwalled, 14 µm wide, often difficult to observe; skeletal hyphae dominating, thick-walled to solid, pale to dark brown, 3-7 µm wide.
Basidiospores 5.5-7.5 x 2.5-3.5 µm cylindrical.
Distribution. West African species seen from Nigeria and Sierra Leone. Widespread in tropical America.
Remarks. The resupinate, perennial, purplish brown basidiocarp with fairly large irregular pores will be diagnostic. *Nigrofomes melanoporus* which occasionally may be resupinate, has almost invisible pores.

MICROPORELLUS Murrill,

Bull. Torrey Bot. Club 32:483, 1904.
Basidiocarps annual, centrally to laterally stipitate or sessile; pilei circular, single or confluent; upper surface tomentose to glabrous, grey to pale buff, concentrically zonate; pore surface pinkish buff to pale ochraceous, the pores small, 8-10 per mm; context white to ochraceous, azonate; hyphal system dimitic; generative hyphae with clamps; skeletal hyphae present in trama, present or absent in context, dextrinoid or negative in Melzer's reagent, ventricose cystidia absent or rare, basidiospores small, subglobose to tear-drop shaped, hyaline, thin-walled, smooth, IKI-. Causing white rot of dead hardwoods. Pantropical genus.
Type species: *Microporellus dealbatus* (Berk. & M. A. Curtis) Murrill.
Remarks. *Microporellus* is most closely related to *Flabellophora* in this manual. The latter is differentiated by being monomitic. The strong dextrinoid reaction of the skeletal hyphae in some species is also distinctive. The cystidia are often difficult to observe.

Key to species

1. Cystidia present **2**
1. Cystidia absent **3**

2. Spores elliptic, 4.2-5.0 µm wide ..... **M. ellipsospora**
2. Spores subglobose, 5-7 µm wide ..... **M. violaceo-cinerascens**

3. Spores irregular 0.5-2 per mm ..... **M. adextrinoides**
3. Pores small 6-8 per mm **4**

4. Spores globose, 4-6 µm in diameter ..... **M. collybiiformis**
4. Spores elliptic 3.5-5 x 2-4 µm ..... **M obovatus**

Microporellus adextrinoides Decock,

Czech Mycol. 59:159, 2007 - *Pereniporia afrostipitate* Henkel and Ryvarden, Synopsis Fung. 38:29, 2018
Basidiocarps annual, stipitate, pileus dimidiate, 1.5-4 cm wide, lobed and slightly depressed in centre, up to 6 mm thick at the base, pileus radially wrinkled, glabrous, pale corky, margin becoming brown, pore surface first white becoming greyish orange, pores irregular, 0.5-2 per mm, 1-2 mm deep, context homogenous, 5 mm thick at base, cork coloured.
Stipe 2 cm long and 2-3 cm in diameter, lateral, solid, cylindrical to somewhat flattened, cork coloured, glabrous, context white.
Hyphal system dimitic; generative hyphae hyaline, thin- walled and with clamps, 2-3 µm wide, skeletal hyphae hyaline, non dextrinoid, 4-7 µm diam.
Basidiospores 6-7 x 4-5.5 µm, broadly elliptic, thin to slightly thick-walled.
Substrate. On the ground from buried roots.
Distribution. Known only from the type locality in Gabon.
Remarks. The small stipitate, cork coloured basidiocarps, absence of cystidia and non dextrinoid hyphae and spores, are distinct characters for this species.

Microporellus collybiiformis (Beeli) Ryvarden,

Bull. Jard. Bot. Nat. Belg. 44:68, 1974. – *Polyporus collybiiformis* Beeli, Bull. Soc. Bot. Belg. 62:59, 1929.
Basidiocarps annual, stipitate, pileus up to 3 cm in diameter, circular, up to 1 mm thick, coriaceous when fresh, hard and rigid when dry, stipe central, cylindrical, up to 3 cm long and 3 mm in diameter, cinnamon to dark brown, pileus glabrous, ochraceous, pore surface ochraceous; pores round, 7-9 per mm, tubes up to 1 mm deep with a dark resinous zone between pores and context.
Hyphal system monomitic; generative hyphae with clamps, 2-7 µm diam.
Basidiospores 4-6 µm in diameter, globose, thin walled.
Distribution. Dem. Rep. Congo and Cameroon.
Remarks. The small size, the dark cinnamon stipe and tiny pores make this a distinct species.

Microporellus ellipsosporus Decock & Ryvarden,

Czech Mykol. 54;20, 2002.
Basidiocarp centrally stipitate, stipe robust, up to 55 mm tall, 12 mm thick at the slightly bulbous base, down to 7 mm at the apex, circular to slightly ellipsoid in cross section, dirty greyish orange, dark dirty cork-coloured, pileus circular, applanate to convex, up to 50-55 mm in diam., 10 mm thick, smooth to slightly concentrically sulcate, wavy, with a few large bands, glabrous, mainly pale cork-coloured, pore surface, dirty greyish brown when dry, pores irregular, round to angular, 2-3/mm , smooth, tube layer pale cork-coloured up to 9 mm deep, corky to fibrous, context homogeneous, thin, up to 2.5 mm thick at the base.
Hyphal system dimitic, generative hyphae with clamps, 2.5-3.0 µm wide, skeletal hyphae, hyaline, strongly dextrinoid, 3.0-5.0 µm wide.
Cystidia 32-50 x 10-26 µm, fusoid to broadly ventricose, thick-walled, the wall notably thicker at the apex, smooth to coarsely incrusted, hyaline to pale yellowish, non-dextrinoid.
Basidiospores 8.0- 10.0 x 4.2-5.0 µm, elliptic, slightly thick-walled.
Substrate. On the ground,
Distribution. Known only from the type locality in Senegal.
Remarks. The elliptic spores separate it from the far more common *M. obovatus*.

Microporellus obovatus (Jungh.) Ryvarden,

Norw. J. Bot. 19: 232, 1972. - *Polyporus obovatus* Jungh., Verh. Batav. Genootsch. 17:65, 1838.
Basidiocarps annual, solitary or in small groups or clusters, usually laterally stipitate or with a tapering base, more rarely sessile to centrally stipitate, round, reniform, spatulate or flabelliform, 1-7 cm wide and broad, usually paper-thin along the margin, up to 4 mm thick close to the stipe, rather brittle and hard when dry; pileus surface first finely tomentose to velvety striate, first white, then cream, ochraceous to straw coloured often with some slightly darker greyish to umber zones, with age becoming glabrous, first zone wise and then totally ochraceous, fulvous to bay, stipe 0-7 cm long, 1-5 mm wide, first finely velvety then glabrous, usually concolorous with the pileus, at the base expanded into a mycelial disc, consistency hard; pore surface white, cream to pale straw-coloured, pores angular, thin-walled, 6-8 per mm; tubes up to 3 mm deep, context white, up to 2 mm thick.
Hyphal system dimitic; generative hyphae with clamps dominating in context, 2.5-6 µm in diameter; skeletal hyphae thick-walled to solid, 3-6 µm wide.
Basidiospores 3.5-5 x 2-4.0 µm, elliptic.
Distribution. Widespread in the tropical zone.
Remarks. The fine pores and the wide generative hyphae are specific for this species.

Microporellus violaceo-cinerascens (Petch) David & Rachjenb.,

Mycotaxon 22:303,1985. - *Polyporus violaceo-cinerascens* Petch, Ann. Roy. Bot**.** Gard. Peradeniya 6:41, 1916**.**
Basidiocarps annual, stipitate, solitary to caespitose, pileus up to10 cm in diameter, circular, lobed and depressed in centre, up to 6 mm thick, coriaceous when fresh, hard and rigid on drying, stipe lateral or eccentric to central, solid, cylindrical to somewhat flattened, unbranched, ashy-grey, pubescent, swollen to a sclerotium at the base, expanded into the pileus above, 2-5 cm long and up to 1 cm wide, pileus first violet becoming pale brown to grey, azonate, irregularly wrinkled, pubescent; pore surface, first white, pale violet and then cream to brown, to greyish brown, pores round to angular, (1-) 2- 3 per mm; tubes cream coloured, up to 4 mm deep, context cream-coloured, up to 2 mm thick.
Hyphal system dimitic; generative hyphae with clamps, 3-8.5 µm diam; skeletal hyphae, thick-walled to almost solid, dextrinoid, 4-9 µm diam.
Cystidia 20-42 x 8.5-18 µm, abundant, ventricose, thick-walled, thickness more pronounced towards apex, some apically incrusted.
Basidiospores 8-10 x 5.5- 7 µm, subglobose to elliptic, hyaline, smooth, weakly dextrinoid.

Substrate. On the ground from buried roots.
Distribution. Described from Sri Lanka, but also recorded from India, Kenya and Tanzania.
Remarks. The large cystidia are diagnostic.

MICROPORUS Beauv. ex Kuntze emend. Pat.,

Rev. gen. pl. 3:494, 1898. - Essai tax. p. 83, 1900.
Basidiocarps annual, centrally or laterally stipitate, pileus circular, flabelliform to spatulate, smooth to hirsute, often zoned, stipe lateral or central, round and usually with expanded foot at the base, white to black, smooth or hirsute, pore surface white to cream, pores round and entire, very small, 5-10 mm, context in pileus and stipe white and tough. Hyphal system trimitic, generative hyphae with clamps, binding and skeletal hyphae hyaline and thick-walled, hymenial cystidia absent, coralloid dichophytic elements present along the dissepiments, spores allantoid to elliptical, smooth, thin-walled, hyaline and non-amyloid. On hard woods. Paleotropical genus.
Type species: *Microporus xanthopus* (Fr.) Kunt.
Remarks. Most species in the genus can be recognized in the field by their stipitate basidiocarps, the minute pores and the tough consistency. The coralloid elements are often difficult to observe, and were not noted in Corners classical study of *M. xanthopus* (Corner 1932).

Key to species

1. Stipe lateral and of variable length, pilei flabelliform, spatulate to dimidiate **2**
1. Stipe central to eccentric..... **5**

2. Pileus with dense and persistent greyish to brownish tomentum, reddish-brown near the cuticle, stipe white to deep brown and densely tomentose .....**M. quarrei**
2. Pileus glabrous, or if tomentose with a thin greyish tomentum, stipe brown to dark bay **3**

3. Pileus glabrous, pure brown to bay, thin and deflexed at the margin and with a distinct light dense mycelial pad at the base, spreading irregularly, pores distinctly visible to the naked eye, 5-6/ mm..... **M. vernicipes**
3. Pileus glabrous to finely tomentose in narrow zones and without mycelial out-growth **4**

4. Pileus glabrous or velutinate to hairy, usually strongly zoned in colours from white to bay .....**M. affinis**
4. Pileus glabrous, completely black and almost invisibly zoned ..... **M. nigroglaber**

5. Pileus smooth and mostly shiny **6**
5. Pileus velutinate to hispid **7**

6. Pileus glossy, brown to chestnut with numerous narrow bands, stipe glabrous, yellowish to light brown, 2-6 mm in diameter, common species .....**M. xanthopus**
6. Pileus dull, deep brown to almost black with numerous zones, stipe hirsute to tomentose, at least in the lower part, brownish, 1-2 mm in diameter, Central African species ..... **M. albo-ater**

7. Context and tomentum in stipe and pileus distinctly coloured close to the cuticle, pileus persistently covered with a dense tomentum, pore surface cream to grey, pores 5-7 per mm, stipe persistently tomentose, deep brown to greyish-white .....**M. quarrei**
7. Context in stipe and pileus pure white throughout, pileus persistently to temporarily covered with soft to hispid tomentum, pore surface cream to light brown, stipe at least smooth in the upper part, light yellowish to black..... **8**

8. Pileus velvety tomentose, more or less persistently and without or with only weak concentric zones, ochraceous to light brown stipe smooth, yellowish to light brown .....**M. concinnus**
8. Pileus tomentum coarse to hispid in greyish shades, wearing away zone-wise, exposing a black cuticle, stipe smooth, more or less black, often slightly wrinkled longitudinally ..... **M. incomptus**

Microporus affinis (Blume & Nees ex Fr.) Kunt., Fig. 65

Rev. gen. Pl. 3: 494,1898. - *Polyporus affinis* Blume et Nees ex Fr., Elench. Fung. p. 126, 1826. - *Polyporus flabelliformis* Kl., Linnaea 8: 483, 1833.
Basidiocarps annual, solitary or in groups, laterally stipitate flabelliform, spatulate, semicircular dimidiate, flat or depressed around the stipe, pileus up to 10 cm long and 8 cm wide, sometimes imbricate with several pilei arising from the same point of attachment, this is most common in specimens with a very short stipe, up to 6 mm thick, pileus glabrous or tomentose, strongly zoned, colour very variable from light yellowish to brown, chestnut, bay to

Fig. 65. *Microporus affinis*, photo D. Mossebo.

almost black, usually darker at the centre than along the margin, tomentum variable, but when present, light greyish and adpressed, pore surface light cream to pale ochraceous, pores round and entire, minute, 7-10 per mm, tubes light cream, up to 1 mm deep.
Stipe lateral, up to 4 cm long and prominent to almost lacking, 2-8 mm in diameter, usually expanded both towards the base and the pore surface, round to slightly flattened, first greyish and finely adpressed tomentose, later glabrous in parts and then almost black with a distinct crust over a white context.
Hyphal system trimitic, generative hyphae hyaline and with clamps, 1.5-3 µm in diameter, skeletal hyphae 3.5-8 µm in diameter, thick-walled to almost solid, binding hyphae tortuous and much branched, mostly 1.5-6 µm wide, coralloid elements present along the dissepiments partly occluding the pore mouths.
Basidiospores 3-4 x 1.5-2 µm (measured from spore print), short cylindrical to oblong elliptic.
Distribution. Common paleotropical species.
Remarks. This is a most variable species and it has repeatedly been described as new based on variation in colour and tomentum on the pileus. It is a more rigid and thicker species than the other species in the genus, and the context and the stipe can be very dense and hard. It is always found with a lateral stipe and the concentrically banded, mostly spatulate to semicircular pileus in colours varying from light yellow to bay or chestnut, are usually good field characteristics.

Microporus albo-ater (Henn.) Kunt.,

Rev. gen. Pl. 3:494, 1898. - *Polyporus albo-ater* Henn., Engl. Bot. Jahrb. 22:92, 1895. - *Polyporus atro-villosus* Ryvarden, Bull. Jard. Bot. Belg. 45:200, 1975.
Basidiocarps annual, solitary or in small groups, centrally or rarely laterally stipitate, pileus infundibuliform, more or less circular, even in laterally stipitate specimens where the lobes often meet around the point of attachment, pileus up to 7 cm in diameter, 1-2 mm thick, coriaceous and papery-thin along the margin, pileus smooth with numerous concentric bands or zones, deep brown, chestnut to almost black, also with thin radiating lines, pores very small and entire, 8-10 per mm, tubes very short, up to 1 mm, pore surface first light cream with a narrow white sterile margin, with age it darkens and is often miscoloured with dark spots, especially around the stipe, context pure white both in stipe and pileus, up to 1 mm thick at the centre.
Stipe up to 4 cm long, light brown to more dirty brown with age, 2-3 mm in diameter, in young specimens greyish hirsute, becoming glabrous.
Hyphal system trimitic, generative hyphae thin-walled and with clamps, 2-3 µm in diameter, skeletal hyphae dominating in the context, hyaline and thick-walled, 3-7 µm in diameter, on the pileus projecting up to 120 µm with darkened walls, binding hyphae, tortuous and much branched, apparently almost solid, 2-5 µm in diameter, in the dissepiments numerous coralloid, strongly branched dichophytic elements.
Basidiospores 5-6 x 1.5-2 µm, cylindrical to allantoid.
Distribution. A rare Central African species and seen from Gabon, Cameroon and Dem. Rep. Congo.
Remarks The species is closely related to *M. concinnus* and *M. incomptus* which, however, both have a more or less persistent tomentum on the pileus, which is glabrous *M. albo-ater*.

Microporus concinnus (Fr.) Kunt.,

Rev. gen. Pl. 3:494, 1898. - *Polyporus concinnus* Fr., Syst. Mycol. 1:350, 1821.
Basidiocarps centrally stipitate and infundibuliform with deflexed margin, thin and coriaceous, up to 10 cm in diameter, 1-2 mm thick, pileus velutinate and soft with a dense tomentum in brown shades, indistinctly zoned as long as the tomentum covers the pileus totally, with age the hairs wear away zone wise and the colour becomes darker as a shiny chestnut or dark brown cuticle is exposed in the glabrous zones, the tomentum seems to be quite persistent and even in old specimens the soft touch of the pileus is easily felt, pore surface light cream with a white, narrow sterile margin, with age light fulvous brown, pores very small, invisible to the naked eye 8-12 mm, context pure white both in stipe and pileus.
Stipe up to 8 cm long and 6 mm in diameter, first covered by a very thin and uneven whitish tomentum which wears away and exposes a cuticle which is light yellowish in young specimens, more light red-brownish in old ones,
Hyphal system trimitic, generative hyphae hyaline, thin-walled and with clamps, 1.5-3 µm in diameter, skeletal hyphae hyaline and thick-walled, in the tomentum up to 10 µm in diameter and very thick-walled, binding hyphae much branched and tortuous, 3-6 µm in diameter. The dissepiments are covered with strongly coralloid hyaline dichophytic elements.
Basidiospores 4-5.5 x1-1.5 µm, allantoid.
Distribution. Rare species in Central Africa.
Remarks. The species may be confused with *M. incomptus.*

Microporus incomptus (Fr.) Kunt., Fig 66a

Rv. Gen. pl. 3:494, 1898. - *Polyporus incomptus* Fr., Epicr. Mycol. p. 437, 1938. - *Polyporus holstii* Henn. in Engler, Planzenw. Ost-Africas, p. 57, 1895.
Basidiocarps annual, centrally stipitate and infundibuliform with deflexed margin which may be even or slightly incised and lobed, thin and coriaceous, 3-6 cm in diameter, up to 2 mm thick in centre, pileus first evenly greyish to dirty brownish and covered with a more or less distinctly zoned hispid and coarse tomentum, wearing zone wise, exposing a deep brown to black, pore surface white to light cream, with age with a thin black margin, pores small and entire, 7-10 per mm, apparently somewhat widened in old specimens and then visible to the naked eye, tubes up to 200 µm deep, context pure white, up to 300 µm deep near the centre with a distinct thin black cuticle.
Hyphal system trimitic, generative hyphae hyaline, thin-walled and with clamps, 1.5-2.5 µm in diameter, skeletal hyphae hyaline and thick-walled, up to 10 µm in diameter in the tomentum, binding hyphae common in the context, tortuous and much branched, thick-walled to solid, 2-6 µm in diameter.
Basidiospores not seen.
Distribution. Central African species and widespread.
Remarks The species is often confused with *M. concinnus* which can be separated by a soft, velutinate and consistent tomentum in brown shades, a cream to ochraceous pore surface and a light yellowish to brown stipe.

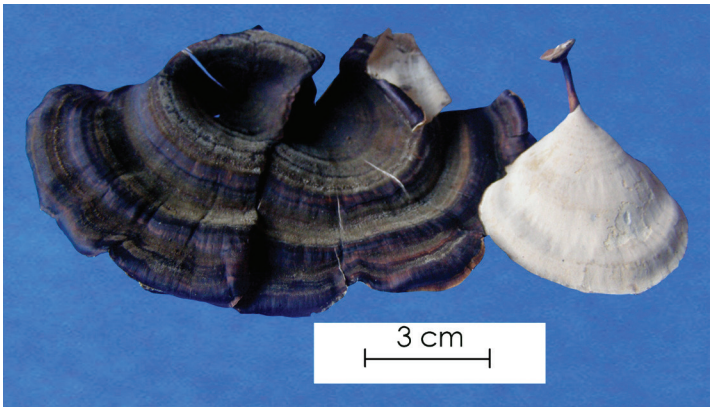


Fig. 66a. *Microporus incomptus*, photo D. Mossebo.


Fig. 66b. *Microporus nigroglaber*, photo C. Decock.

Microporus nigroglaber Decock & Ryvarden, Fig. 66b

Synopsis Fung. 42:9, 2020.
Basidiocarps annual, solitary or in groups, laterally stipitate flabelliform, spatulate, semicircular dimidiate, flat or depressed around the stipe, pileus up to 3 cm long and 2 cm wide, pileus glabrous, distinctly zoned, black to deep brown in small specimens, margin sharp and thin, pore surface pale cream, pores round and entire, minute 7-10 per

mm, tubes light cream, up to 0.5 mm deep, context homogenous, white and dense, up to 1 mm thick
Stipe lateral, up to 2 cm long and prominent, up to 3 mm in diameter, glabrous, pale brown, slightly expanded both towards the base, inner part white and dense.
Hyphal system trimitic, generative hyphae hyaline and with clamps, 2-4 µm in diameter, skeletal hyphae 3-7 µm in diameter, thick-walled to almost solid, binding hyphae tortuous and much branched, mostly 1.5-6 µm wide, coralloid elements not seen.
Basidiospores 3-4 x 1.5-2 µm, cylindrical to oblong elliptic, smooth and IKI-.
Distribution. Know only from the type locality in Gabon.
Remarks. This is a remarkable species by its smooth, completely glabrous and black pileus.

Microporus quarrei (Beeli) D. A. Reid, Fig. 67

Microscopy 32:453, 1975. - *Polyporus quarrei* Beeli, Bull Jard. bot. Etat Brux. 7:250, 1930.
Basidiocarps annual, solitary or in small clusters, laterally to centrally stipitate with a circular to semicircular or reniform pileus, up to 10 cm wide, margin strongly curled in dry condition, in regular specimens the pileus is truly infundibuliform, in others the adjacent edges may fuse and develop pseudo-infundibuliform shapes, hard when dry, flexible and tough when fresh, pileus first densely tomentose, white on the surface, reddish-brown towards the base, with age and growth the tomentum attains a more greyish and becomes variably zonate in different shades from grey and to reddish-brown in narrow bands.
Stipe rudimentary to distinct, 0.5-6 cm long, 3-8 mm thick, more or less circular in section, in fused specimens often forked in the upper part, covered with a grey to dark brown persistent dense tomentum, at the base expanded into a disc like foot, up to 10 mm in diameter, with a distinct dark cuticle.
Hyphal system trimitic, generative hyphae thin-walled and with clamps, 1.5-3 µm in diameter, skeletal hyphae dominating, hyaline in the upper part of the tomentum below the cuticle light yellowish brown, thick-walled to solid, 3-8 µm in diameter, binding hyphae most common in the lower, denser part of the context, thin to thick-walled and moderately branched, 2-4 µm in diameter, in the pore-mouths numerous coralloid hyphae or dichophytic elements.
Basidiospores 4.5-6 x 2 µm, cylindrical to oblong elliptic.
Distribution East African species.
Remarks. This species is usually easy to recognize due to the greyish white, thick and persistent tomentum, occasionally with narrow reddish bands, and the brown to greyish tomentose stipe.

Fig. 67. *Microporus quarrei*, photo D. Mossebo.

Microporus vernicipes (Berk.) Kunt., Fig. 68

Rev. gen. Pl. 3:494, 1898. - *Polyporus vernicipes* Berk., J. Linn. Soc. Bot 16:50, 1878. - *Polyporus makuensis* Cooke, Grevillea 16:25, 1887.
Basidiocarps annual, solitary or in smaller groups, often several pilei are grown together, laterally stipitate, pileus semicircular, up to 10 cm wide, thin, flexible and tough, 1-2 mm thick, pileus light brown to chestnut or bay, glabrous, smooth to strongly veined radially or even slightly undulated in old specimens, narrowly concentrically zoned, a light adpressed ochraceous tomentum spreading from the base in irregular tongues, extending further down the upper side of the stipe, usually strongly contrasting with the much darker pileus surface, pore surface cream to light brownish, often discoloured by dark spots, lighter towards the margin, pore round and entire, 6-7 per mm, tubes concolorous with the pore surface or lighter, up to 1 mm deep, context pure white, up to 1 mm thick, dark cuticle under the pad of adpressed mycelium.
Stipe short and lateral, rarely above 3 cm long, 2-8 mm in diameter, often almost lacking, appearing more like a contracted base between the pileus and the substrate, distinctly delimited towards the upper pad of mycelium, at the base expanded into a broad, smooth disc, up to 2 cm in diameter.
Hyphal system trimitic, generative hyphae with clamps, 2-3 µm in diameter, skeletal hyphae dominating in the

Fig. 68. *Microporus vernicipes*, photo A. Gminder.

basidiocarps, thick-walled to solid, 3-7 µm in diameter, binding hyphae few, tortuous and tapering towards the outer parts, 1-4 µm in diameter, coralloid dichophytic elements present along the dissepiments.
Basidiospores 5-7 x 2-2.5 µm, cylindrical.
Distribution. Widespread in Central and Western Africa and south to Zambia and Zimbabwe.
Remarks The species is usually easy to recognize because of the semicircular to spatulate basidiocarps with a lateral stipe in brown colours and a distinct white mycelial pad at the base of the pileus, a unique characteristic in the genus.

Microporus xanthopus (Fr.) Kunt., Fig. 69 & 70.

Rev. gen. Pl. 3:494, 1898. - *Polyporus xanthopus* Fr., Syst. mycol. 1:350, 1821.
Basidiocarps annual, solitary or in small groups, centrally or laterally stipitate and usually infundibuliform, margin wavy and lobed, often deeply incised, often radially furrowed, pileus up to 10 cm in diameter and 1-3 mm thick, glabrous and shiny when fresh, dull when dry, yellowish-brown to chestnut in numerous narrow concentric zones, often with alternating dark and light colours, pore surface cream to pale buff, almost pure white towards the margin, pores minute, almost invisible to the naked eye 8-10 per mm, tubes up to 0.1 mm deep, context pure white, thin and covered with a distinct cuticle.
Stipe round, glabrous, light yellowish to light brown, up to 6 cm high and 3-9 mm in diameter, at the base finely adpressed tomentose, later glabrous, context of stipe pure white, dense in the periphery, somewhat looser in the core.
Hyphal system trimitic, generative hyphae thin-walled and with clamps, 2,3,5 µm in diameter, moderately branched, skeletal hyphae dominating, hyaline and thick-walled, up to 6 µm in diameter, binding hyphae tortuous, thick-walled to solid, up to 1-3 µm in diameter, strongly coralloid dichophytic elements present along the dissepiments, finely branched and often partly covered with crystalline deposits.
Basidiospores 6-7.5 x 2-2.5 µm, cylindrical.
Distribution. Common from Western Africa through Asia to the Pacific Area.
Remarks. Usually easy to recognize in the field because of the infundibuliform basidiocarps with a glossy and shiny strongly banded pileus, the yellowish glabrous stem and the minute pores. Often collected for sale as souvenirs.

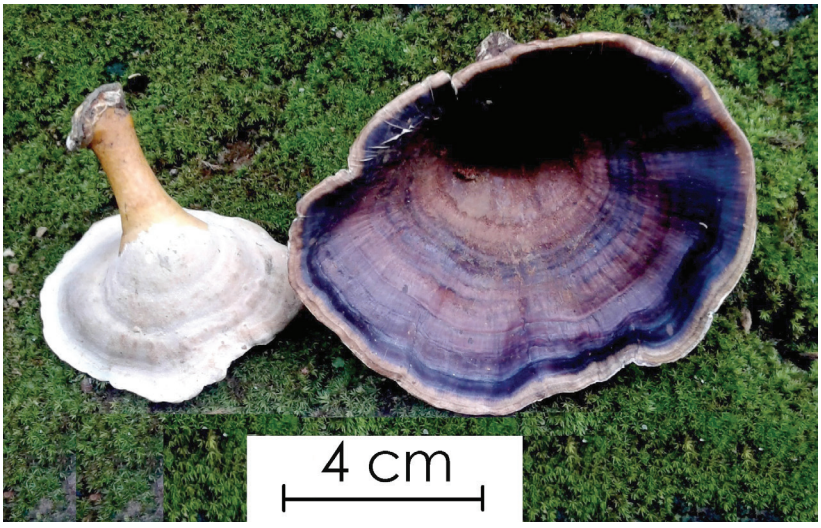


Fig. 69 *Microporus xanthopus*, photo A. Gminder.

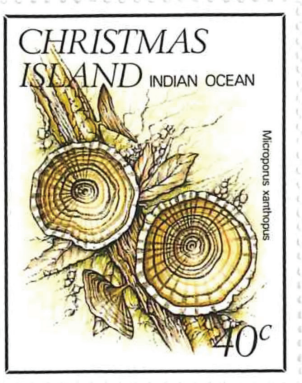


Fig. 70. *Microporus xanthopus*.

NAVISPORUS Ryvarden,

Prelim. Polypore Fl. East Afr. p. 443, 1980.
Basidiocarp pileate, sessile, dimidiate, substipitate, effused reflexed; pileus smooth to finely tomentose in shades of brown; pore surface white to pale cinnamon, pores small to medium, context woodcoloured to pale cinnamon, thick to thin, punky to coriaceous; hyphal system dimitic, generative hyphae with clamps, skeletal hyphae thickwalled and dextrinoid, cystidia absent, basidiospores navicular to oblong fusiform or amygdaliform, hyaline with slightly thickened walls, nonamyloid, and slightly dextrinoid to nondextrinoid. On hardwoods causing a white rot. Tropical genus.
Type species: *Trametes floccosa* Bres.
Remarks. This is a characteristic genus because of its dextrinoid skeletal hyphae and medium to large, cylindrical, navicular to amygdaliform basidiospores. It is reminiscent of *Perenniporia* Murrill, where many species have dextrinoid skeletal hyphae, but where the basidiospores are truncate to pip-shaped.

Key to species

1. Basidiocarps resupinate..... **N. resupinatus**
1. Basidiocarps pileate **2**

2. Pileus partly laccate ..... **N. laccatus**
2. Pileus dull **3**

3. Spores 5-8 µm long **4**
3. Spores longer..... **6**

4. Pores 1-3 per mm **5**
4. Pores 5-8 per mm, round..... **N. deviatus**

5. Spores cylindrical to navicular, basidiocarps sessile .....**N. obscurus**
5. Spores elliptic to ovoid, basidiocarps laterally stipitate ..... **N. cinnamomea**

6. Basidiospores 8-10 µm long..... **N. africanus**
6. Basidiospores 12-15 µm long .....**N. floccosus**

Navisporus africanus Ryvarden,

Micologia 2000 (Trento), p. 482, 2000.
Basidiocarps annual, flabelliform, dimidiate, circular to sessile, 1-10 cm wide and long and 0.2-3 cm thick, corky and flexible, upper surface brown, dull, zonate, adpressed velutinate, slightly concentrically sulcate, in some zones slightly often warted or with short mycelial outgrowth, margin thin, white and wavy to lobed, pore surface white, pores round 1-2 per mm, 1-2 mm deep, context white up to 3 mm thick near the base.
Hyphal system dimitic, generative hyphae hyaline, delicately thin-walled, with clamps, 2-4 µm wide, skeletal hyphae dominating, hyaline, thick-walled to solid, 3-4 µm in diameter, strongly dextrinoid, those of the dissepiments with numerous sharply angular crystals.
Basidiospores 8-10 x 3.5-4 µm, cylindrical to slightly navicular.
Distribution. Known only from the type locality in Dem. Rep. Congo.
Remarks. The medium sized spores and the large pores characterize this species.

Navisporus cinnamomea Ryvarden,

Synopsis Fung. 41:23, 2020.
Basidiocarps annual, laterally stipitate, pileus semicircular, up to 2 cm wide, up to 5 mm thick, tough to corky, pileus evenly cinnamon brown, dull, slightly radially rugulose, margin sharp, pore surface white, pores round to slightly irregular, 1-2 per mm, tubes white up to 3 mm deep in centre, context homogenous cinnamon brown, continuing into the stipe core.
Hyphal system dimitic, generative hyphae hyaline, delicately thin-walled, with clamps, 2-4 µm wide, skeletal hyphae dominating, hyaline, thick-walled with distinct lumen, 3-5 µm wide, slightly dextrinoid.
Basidiospores 7-8 x 4.5-5.5 µm, ovoid to elliptic, non-dextrinoid.
Distribution. Known only from the type locality in Cameroon
Remarks. The lateral, robust basidiocarps with an even cinnamon colour on pileus and stipe besides the large, partly angular pores, characterize this peculiar species. Even if the spores are not distinctly navicular, the other characters seem to indicate that *Navisporus* is a correct genus for this distinct and beautiful species

Navisporus deviatus Ryvarden,

Synopsis Fung. 39:42, 2019.
Basidiocarps annual to biennial in the type, pileate, up to 10 cm long, 4 cm wide, 1 cm thick, soft when fresh, tough to flexible when dry, pileus cinnamon brown, sulcate to concentrically zoned, soft, floccose, irregularly tufted, adpressed, darker toward the attachment, seemingly two different growth seasons, pore surface dark cinnamon, pores round, 6-8 per mm, hardly visible to the naked eye, tubes as pore surface, up to 2 mm deep, context compressed cottony, cinnamon coloured, 2 mm thick.
Hyphal system dimitic; generative hyphae 2-5 µm in diam., difficult to observe, skeletal hyphae dominating, 2-5 µm wide, thick-walled to solid, dextrinoid.
Basidiospores 5-7 x 3.5-4.5, µm oblong elliptic to distinct navicular and non dextrinoid.
Distribution. Known only from the type locality in Uganda.
Remarks. The spores are shorter than in other species in the genus, but their navicular shape is distinct.

Navisporus floccosus (Bres.) Ryvarden,

Prelim. flora of East Africa p. 443, 1980. - *Trametes floccosa* Bres., Ann. Roy. Inst. Bot. Roma 6:179, 1896. – *Ganoderma areolatum* Murrill, N.Y. Bot. Garden 8:149, 1912.
Basidiocarps annual, sessile, ungulate to dimidiate, up to 35 cm in diameter, and 7 cm thick at the base, coriaceous and punky, pileus glabrous, smooth to slightly scrupose at the base and with age with a papery thin cuticle, first whitish, stains when bruised, ochraceous to pale brown, becoming patch wise deep brown to almost black with age, azonate, but somewhat sulcate in parts and then more irregular in outline, margin rounded, pore surface white when fresh and then brownish when bruised, isabelline to pale brown, pores round to angular, 2-3 per mm, tubes isabelline to straw coloured, up to 15 mm deep, context concolorous with tubes or pale orange, slightly punky and homogenous, up to 7 cm thick at the base.
Hyphal system dimitic; generative hyphae 2-4 µm wide, skeletal hyphae, straight to sinuous, 3-6 µm wide, thick-walled, but with a distinct lumen, hyaline and dextrinoid.
Basidiospores 12-15 x 5-7 µm, navicular to amygdaliform, yellowish to golden when mature, slightly thick-walled, slightly dextrinoid in masses.
Distribution. Eastern Africa and widespread in the tropical zone.
Remarks. This species is characteristic by its large basidiocarps and large, navicular basidiospores.

Navisporus laccatus Sharp & Ryvarden,

Synopsis Fung. 40: 110, 2020.
Basidiocarps annual, triquetrous, 1 cm wide, 2 cm long and 1 cm thick, dense, pileus apricot coloured to reddish with a slight laccate surface, pore surface and tubes pale cinnamon, pores round 3-4 per mm, 1-2 mm deep, context white, up to 3 mm thick near the base.
Hyphal system dimitic, generative hyphae hyaline, delicately thin-walled, with clamps, 2-4 µm wide, skeletal hyphae dominating, hyaline, thick-walled to solid, 3-4 µm in diameter, slightly, but distinctly amyloid.
Basidia 25-40 x 8-15 µm with 2 to 4 sterigmata,
Basidiospores 14-16 x 6-7 µm, cylindrical to slightly navicular and dextrinoid.
Distribution. Known only from the type locality in Zimbabwe.
Remarks. Microscopically this species may remind one of *N. floccosus,* which however is a massive species with a dull pileus surface.

Navisporus obscurus Ryvarden,

Synopsis Fung. 40:104, 2020.
Basidiocarps annual, semicircular, partly effused, sessile, imbricate in the type, 1-6 cm wide and long and 0.2-0.5 cm thick, corky and flexible, upper surface brown, dull, zonate, adpressed velutinate, slightly concentrically sulcate, margin thin, ochraceus and wavy, pore surface pale cinnamon, pores whitish, partly irregular on sloping part of basidiocarp, 1-3 per mm, angular, 1-3 mm deep, context cinnamon, up to 3 mm thick near the base.
Hyphal system dimitic, generative hyphae hyaline, delicately thin-walled, with clamps, 2-5 µm wide, skeletal hyphae dominating, hyaline, thick-walled to solid, 3-4 µm in diameter, strongly dextrinoid.
Basidiospores 6-7 x 2.5-3 µm, cylindrical to slightly navicular, non-dextrinoid.
Distribution. Known only from the type locality in Uganda.
Remarks. The relatively small spores, the large pores and the cinnamon colour, characterize this species.

Navisporus resupinatus Ryvarden,

Synopsis Fung. 39:42, 2019.
Basidiocarps annual, resupinate, 5 x 5 cm and 5 mm thick, soft when fresh, brittle when dry, margin 1-2 mm, white to ale cream coloured, pore surface cinnamon - cream coloured, pores round, 6-8 per mm, hardly visible to the naked eye, tubes concolours with surface, up to 3 mm deep, subiculum, cottony, white 2 mm thick.
Hyphal system dimitic; generative hyphae with clamps, 2-5 µm in diam., difficult to observe, skeletal hyphae dominating 2-5 µm wide, thick-walled to solid, dextrinoid.
Basidiospores 8-10 x 3-4 (5) µm oblong elliptic to navicular and non dextrinoid.
Distribution. Known only from the type locality in Uganda.
Remarks. The navicular spores and the dextrinoid skeletal hyphae indicate clearly that it belongs in *Navisporus*.

NIGROFOMES Murrill,

Bull. Torrey Bot. Club. 31:425, 1904.
Basidiocarps perennial, pileate, applanate and very hard when dry; pileus glabrous, sulcate in concentric zones, dark violaceous black and with a distinct black cuticle; pore surface black to dark violaceous purplish, pores very small; tubes concolorous with pore surface, context dense, purplishblack; hyphal system dimitic, generative hyphae with simple septa, hyaline to dark brownish, densely agglutinated, cystidia ventricose, scattered to very rare, umber brown, spores broadly ellipsoid, hyaline, nonamyloid. Monotypic tropical genus with a white rot on hard woods.
Type species: *Nigrofomes melanoporus* (Mont.) Murrill.
Remarks. The species is easy to recognize in the field because of the blackish to dark purplish, dense basidiocarps with minute pores and a black cuticle on the pileus.

Nigrofomes melanoporus (Mont.) Murrill,

op. cit. *Polyporus melanoporus* Mont., Ann. Sci. Nat. Ser. 2, 17:127, 1842.
Basidiocarps perennial, pileate, applanate, sessile to slightly dimidiate, mostly semicircular, up to 20 cm wide and long and 5 cm thick, very hard; upper surface first finely velutinate, and dark brown, then glabrous and purplish black, often with sulcate zones becoming tuberculate and slightly cracked with age and then with a distinct dense and thick cuticle; margin thin and sharp, pore surface dark brown becoming purplish black when dry, pores small and isodiametric, 6-9 per mm, almost invisible to the naked eye; tubes concolorous, often stratified and up to 4 cm deep, context dark chestnut to purplish black, often shiny, hard and intergrading with the cuticle.
Hyphal system dimitic; generative hyphae thin to very thickwalled and with simple septa, hyaline to slightly tinted, 15 µm wide; skeletal hyphae thick walled 25 µm wide, pale olivaceous brown in KOH.
Cystidia 10-30 x 5-12 µm, present, but rare, ventricose, thick-walled, acute and dark fuscous to olivaceous brown.
Basidiospores 4-5 x 3-3.5 µm, broadly elliptic.
Distribution. Widespread in Africa and pantropical.
Remarks. The species is easy to recognize because of the hard, purplish black pileate basidiocarps. *Nigroporus vinosus* has a similar, but more violaceous colour, smaller basidiocarps and is microscopically different with cylindrical spores and clamps.

NIGROPORUS Murrill,

Bull. Torrey Bot. Club. 32:361, 1905.
Basidiocarps annual to perennial, pileate to resupinate; pileus when present, scrupose to glabrous, azonate to concentrically zonate, greyishblue, vinaceousbrown to pink or violet; pore surface of same colours as pileus, pores usually small, entire, round to angular; context vinaceousbrown to pink and purplish; hyphal system dimitic; generative hyphae with clamps; skeletal hyphae fuliginous brown, thickwalled to solid; cystidia none; spores mostly small, longest dimension usually less than 5 µm, hyaline, smooth and thinwalled, allantoid to broadly elliptic, nonamyloid; on hard wood, causing a white rot. Pantropical genus.
Type species: *Nigroporus vinosus* (Berk.) Murrill.
Remarks. The dimitic hyphal system with fuliginous skeletal hyphae which give the basidiocarps the pinkish, violet to dark brown colours, are characteristic.
NB. Since the spores of all species in the genus are hyaline, smooth, thin walled and IKI-, this information is not repeated for each species.

Key to species

1. Basidiocarps stipitate ..... **N. stipitatus**
1. Basidiocarps sessile ..... **N. vinosus**

Nigroporus stipitatus Douanla-Meli & Ryvarden, Fig. 71.

Nova Hedwigia 84: 413, 2007.

Fig. 71. *Nigroporus stipitatus*, photo C. Decock.

Basidiocarps annual, pileate, stipitate, in group to scattered on the substrate; pileus applanate, almost flabelliform, spatulate to nearly infundibuliform, 2-5 cm wide, 3-6 cm long, up to 5 mm thick; consistency tough and coriaceous when fresh, brittle when dry; upper surface mat, finely velutinate, lilac grey violet brown to black brown, becoming dark violet when dry, zonate towards the margin with slightly contrasting bands, narrowly sulcate at centre; margin thin, blackish grey to violet grey when fresh, tending to involute, with a thin cuticle; stipe 0.4-2 x 0.2-0.8 cm, eccentric to lateral, and central in some specimens, concolorous with the pileus, tapering towards the pileus, swollen at base on the substrate; pore surface reddish brown, dark brown to fawn, dry becoming dark grey; pores angular, 10-12 per mm, invisible to the naked eye, thick-walled, tubes 0.5-3 mm deep, concolorous with the pore surface; context fibrose and compact, darker than the tube layer, up to 2 mm thick near the stipe attachment.
Hyphal system dimitic; generative hyphae with clamps, in the hymenium hyaline to pale yellow, thin-walled, 3-4 µm diameter, in the context mostly thick-walled, much branched, 3-5 µm diameter; skeletal hyphae dominating, thick-walled to solid with wide lumen, yellowish brown, up to 7 µm wide.
Basidiospores 3.5-6 x 1.4-2.2 µm; allantoid to cylindrical.
Distribution. Cameroon and Gabon.
Remarks. The stipitate basidiocarps make it a distinct species in the genus.

Nigroporus vinosus (Berk.) Murrill, Fig. 72.

Bull. Torrey Bot. Club. 32:361, 1905. *Polyporus vinosus* Berk., Ann. Mag. Nat. Hist. ser. 2, vol. 11:195, 1852.

Fig. 72. *Nigroporus vinosus*, photo D. Mossebo.

Basidiocarps annual, pileate, broadly attached to dimidiate, semicircular to elongated along the substratum, up to 5 cm wide, 2-10 cm long in reflexed specimens, up to 8 mm thick, rigid and brittle when dry, coriaceous when fresh; upper surface first velutinate, pale violaceous to vinaceous brown, becoming glabrous and purplish brown to dark violet, azonate or with distinct narrow sulcate zones, margin sharp; pore surface purplish brown to dark violet, pores 78 per mm; tubes concolorous, up to 3 mm deep; context umber to vinaceous brown, often paler with age, up to 5 mm thick at the base.
Hyphal system dimitic; generative hyphae with clamps, 2-4 µm in diam; skeletal hyphae thickwalled to solid, fuliginous to pale pinkish brown (in KOH), 2-6 µm in diam, straight and unbranched or with rare dichotomous branching.
Basidiospores 3.5-4.5 x 1-1.5 µm, allantoid to cylindrical.
Distribution. Widespread in Africa and pantropical.
Remarks. The small purplish to violet basidiocarps make the species distinctive in the field and the allantoid to cylindrical spores separate it from *Nigrofomes melanoporus*.

OLIGOPORUS Bref.,

Unters. Gesammtg. Mykol. 8: 114, 1888.
Basidiocarps annual, resupinate to pileate, fleshy when fresh, brittle to hard when dry, mostly white to light coloured, sometimes becoming darker on drying; hyphal system monomitic, generative hyphae with clamps, thin- to thick walled; cystidia mostly absent, present in a few species; basidia tetrasterigmatic with a basal clamp; basidiospores thin-walled, smooth, hyaline, allantoid to ellipsoid, negative or slightly amyloid in Melzer's reagent; chlamydospores absent or present; causes a brown rot, mostly on conifers, more rarely on hardwoods.
Type species: *Oligoporus farinosus* Bref., = *Oligoporus rennyii* (Berk. & Broome) Donk.
Taxonomic synonyms:
Rhodonia Niemelä (*Polyporus placentus* Fr.).
Postia Fr. (*Polyporus tephroleucus* Fr.).
Podoporia P. Karst. (*Podoporia confluens* P. Karst. = *Polyporus cerifluus* Berk. & M. A. Curtis).
Osteina Donk (*Polyporus obductus* Berk.).
Strangulidium Pouzar (*Polyporus sericeomollis* Romell).
Remarks. The genus is here defined to include monomitic species with clamped generative hyphae and with a brown rot. Undoubtedly the genus is polyphyletic, but presently there is no coherent solution to its intricate taxonomy, although single species have been separated as a basis for new genera.
NB. Since all spores in the genus are smooth, hyaline and thin-walled, this information is not repeated for each species. Further, all generative hyphae have clamps and all basidia have clamps at their base, this information is not repeated for each species.

Key to species

1**.** Occurring on *Widdringtonia* ..... **O. widdringtoniae**
1. Occurring on other hosts **2**

2. Pileus bluish, on planted conifers ..... **O. caesius**
2. Pileus whitish, known only from *Juniperus procera* ..... **O. afrostipticus**

Oligoporus afrostipticus Ryvarden,

Synopsis Fung. 38:28, 2018.
Basidiocarps annual, pileate, fan shaped to sessile, up to 3 cm wide and long, up to 1 cm thick at base, soft when fresh, hard and dense when dry, pileus surface whitish with some ochraceous tints, glabrous, flat when fresh, somewhat wrinkled radially when dry, margin sharp and deflexed when dry, pore surface white when fresh, becoming dark ochraceous when dry, pores angular 4-5 per mm, tubes dense and white up to 4 mm deep, context white and homogenous, up to 4 mm thick. Taste distinctly bitter in dry condition.
Hyphal system monomitic; generative hyphae with clamps, 4- 6 µm wide, in context, wider with large clamps.
Basidiospores 3-4 x 1.2-1.5 µm, cylindrical.
Substrate. Dead *Juniperus procera*.
Distribution. Known only from the type locality in Ethiopia.
Remarks. Undoubtedly this species is reminiscent of the boreal *O. stipticus* with its whitish basidiocarp with a bitter taste. However, this species has larger spores.

Oligoporus caesius (Schrad.: Fr.) Gilb. & Ryvarden,

Mycotaxon 22:365, 1985. - *Polyporus caesius* Schrad.: Fr., Syst. Mycol. 1:360, 1821.
Basidiocarps annual, sessile to effused reflexed, usually solitary, dimidiate to narrow, up to 5 x 6 x 1.5 cm; upper surface greyish to bluish, often in spots or streaks, sometimes bruising intensely blue, finely tomentose to strigose, sometimes glabrous; pore surface white, pale grey to bluish, becoming bluish when bruised, dull, the pores angular, 3-6 per mm, with thin dissepiments, these becoming lacerate; context up to 1 cm thick, white to bluish, soft; tube layer white to grey, soft, fragile when dry, up to 6 mm thick.
Hyphal system monomitic; contextual hyphae thin- to thick-walled, hyaline, often branched, 2.5-7 µm in diam.; gloeopleurous hyphae also present.
Basidiospores 4.5-6 x 1.3-2 µm; cylindrical to allantoid, weakly amyloid (to be observed in masses), spore print bluish.
Substrata. Dead conifers.
Distribution. Follows planted coniferous trees in Africa**.** Widely distributed in the boreal conifer zone.
Remarks. Recognized in the field by the bluish tints on the pileus and pore surface.

Oligoporus widdringtoniae Ryvarden,

Synopsis Fung. 38: 10, 2018.
Basidiocarps annual, pileate, individual basidiocarps up to 5 x 3 cm and 5 mm thick, soft when fresh, hard when dry, pileus glabrous, smooth when fresh, slightly radially furrowed when dry, white when fresh, drying dirty whitish brown in even pattern, ultimately greyish brown and then with a thin cuticle on the pileus, margin sharp, deflexed in dry specimens, pore surface white when fresh, sordid brown when dry or touched in fresh condition, pores angular (1-)3-4(-5) per mm, margin wide and white, tubes ochraceous to wood coloured, up to 2 mm deep, context white and homogenous, dense, up to 3 mm thick.
Hyphal system monomitic; contextual hyphae swelling in KOH, thick walled 3-5 µm wide, in subhymenium thin walled 2-4 µm wide.
Basidiospores 4.5-5 x 2.3-2.5 µm, elliptic.
Substrata. Known only from *Widdringtonia whytei*.
Distribution. Known only from the type locality in Malawi.
Remarks. The colour change from white to brownish reminds one of *O. fragilis* from the northern hemisphere, which however has cylindrical spores**.**

OXYPORUS (Bourdot & Galzin) Donk,

Meded. Bot. Mus. Herb. Rijks. Univ. Utrecht 9: 202, 1933. - *Coriolus* sect. *Oxyporus* Bourdot & Galzin, Hymenomyc. France p. 560, 1928.
Basidiocarps annual to perennial, resupinate to pileate, in the latter case broadly attached and fibrous to woody; pileus when present, white to deep cream, pore surface white to light yellowish, pores mostly small and isodiametric, rarely large and angular; tube layer single or distinctly stratified, context white to cream; hyphal system monomitic; generative hyphae thin- to thick walled, sparingly branched, simple septate; apically encrusted hymenial cystidia abundantly present in most species, difficult to demonstrate in others; basidiospores globose to broadly ellipsoid, thin- to thick walled, smooth, hyaline, IKI-; on both hardwoods and conifers, causing a white rot. Cosmopolitan genus.
Type species: *Polyporus connatus* Weinm. (= *P. populinus* Schumach.: Fr.).
Remarks. The genus is reminiscent of *Rigidoporus* Murrill which, however, has tramal cystidia arising mostly from skeletal hyphae. DNA sequencing has further demonstrated that the two genera have different evolutionary history as *Oxyporus* belongs in the clade with Hymenochaetaceae, while *Rigidoporus* belongs in the true polypore clade. *Physisporinus* P. Karst. includes species with the same type of hyphal system and spores as *Oxyporus*, but lacks the cystidia and has much softer, ephemeral basidiocarps with thin walled hyphae.
NB. Since the pores of all species are smooth and hyaline and all basidia have a simple septate base and are tetrasterigmatic, this information is not repeated for each species.

Key to species

1. Pores small, 4-7 per mm **2**
1. Pores larger, 1-4 per mm **4**

2. Basidiocarp perennial, tubes usually stratified ..... **O. populinus**
2. Basidiocarps annual, tubes non stratified **3**

3. Hyphal system dimitic, cystidia with a crystal crown ..... **O. dimiticus**
3. Hyphal system monomitic, cystidia smooth ..... **O. multicorpus**

4. Basidiocarps pileate ..... **O. subflavus**
4. Basidiocarps resupinate **5**

5. Cystidia thick-walled, cylindrical and coarsely encrusted in the upper part ..... **O. pellicula**
5. Cystidia thin to slightly thick-walled, ventricose, only apically encrusted **6**

6. Spores subglobose, 3.5-5.5 µm in diameter ..... **O. latemarginatus**
6. Spores elliptic, 5-9 x 3.5-4.5 µm ..... **O. corticola**

Oxyporus corticola (Fr.) Ryvarden, Persoonia 7:19, 1872. - *Polyporus corticola* Fr., Syst. Mycol. 1:385, 1821.

Basidiocarps resupinate, effused up to 12 cm, soft and leathery when fresh, drying friable; margin fertile, or sterile and then whitish to cream coloured, soft, fimbriate, up to 7 mm wide; pore surface cream coloured to pale tan, the pores circular to angular, 2-4 per mm, with dissepiments that become thin and deeply lacerate; subiculum ivory, azonate, softfibrous, up to 1 mm thick; tube layer concolorous and continuous with the context, up to 3 mm thick; taste mild.
Hyphal system monomitic; subicular hyphae hyaline, simpleseptate, thin to very thickwalled, often incrusted, 25 µm in diam; tramal hyphae similar.
Cystidia of two types; some frequent to rare, cylindrical, capitately incrusted, 17-30 x 3-6 µm, simpleseptate at the base, not projecting or barely projecting from hymenium; gloeocystidia, 33-45 x 6-10 µm, cylindrical to fusiform, thinwalled, with refractive contents, often projecting beyond hymenium.
Basidiospores 5-9 x 3.5-4.5 µm ovoid to broadly ellipsoid.
Distribution. Known from Kibale National park in Uganda.
Remarks. The two types of cystidia characterize this species.

Oxyporus dimiticus Ryvarden,

Synopsis Fung. 39:66, 2019.
Basidiocarps annual, resupinate to effused reflexed with an elongated narrow pileus, discomycete like when dry with curled and with partly lifted basidiocarps, 1-3 cm wide and long and of irregular outline, soft when fresh, dense when dry, pileus up to 4 mm wide, sulcate, first finely velutinate and then ochraceous to pale cinnamon, later glabrous and reddish brown, margin sharp, pore surface ochraceous, pores round to slightly angular when dry, 5-7 per mm, tubes concolorous with pore surface, up to 1 mm deep, context about1 mm thick in the pileate parts.
Hyphal system dimitic, generative hyphae with simple septa, thin to distinctly thick-walled, hyaline, 2-5 µm wide, skeletal prominently present, 4-12 µm wide, thick walled and in many cases ending as skeletocystidia, slightly apically swollen and encrusted.
Cystidia arising from skeletal hyphae, apically swollen with encrusted crown, up to 200 µm long.
Basidiospores globose, 5-6 µm in diameter.
Distribution. Known only from the type locality in Zimbabwe.
Remarks. This is a remarkable species by its discomycete shape with lifted margin, the prominent and wide skeletal hyphae ending as oblong club shaped, large skeletocystidia with a coarse encrusted crown.

Oxyporus latemarginatus (Durieu & Mont.) Donk,

Persoonia 4: 342, 1966. *Polyporus latemarginatus* Durieu & Mont., Syll. Gen. Sp. Crypt. p. 163, 1856.
Basidiocarps annual, resupinate, becoming widely effused, 2-5(-10) mm thick, rather soft when fresh, becoming firm and corky or brittle when dried, readily separable; margin usually sterile, white, fimbriate, up to 1 mm wide; pore surface white to ivory when fresh, drying white to cream coloured, the pores angular, 1-3 per mm, with dissepiments that quickly become thin and lacerate; context white to ivory, azonate, soft to fibrous, up to 1 mm thick; tube layer concolorous and continuous with the context, often drying brittle, up to 7 mm thick; taste mild.
Hyphal system monomitic; subicular hyphae hyaline in KOH, thin walled, often branched, simple septate, 3-8 µm in diam.
Cystidia 20-28 x 4.5-6 µm, rare to frequent, in some specimens very difficult to find, narrowly clavate to cylindrical, apically encrusted, simple septate at the base.
Basidiospores 5.5-7 x 3-4 µm, narrowly elliptic.
Distribution. Cosmopolitan, in Africa an eastern species from Ethiopia, Kenya, Tanzania, Uganda and Zimbabwe.
Remarks. The macroscopic features are similar to those of *O. corticola*. Microscopically, however, this species differs in its narrower hyphae (which give a tougher basidiocarp) and lack of gloeocystidia.

Oxyporus multicorpus Ryvarden,

Synopsis Fung. 39:66, 2019.
Basidiocarps annual, sessile, semicircular, numerous on the substrate, up to 1 cm long and wide, 2 mm thick, soft, pileus whitish grey with adpressed cottony like tomentum in radial lines and agglutinated in separate small and irregular outgrowths, pore surface white to pale ochraceous, pores angular, 4-6 per mm, a few larger and split on lower sloping pore surface, tubes 1 mm deep, context whitish, about1 mm thick at the base, homogenous.
Hyphal system monomitic, generative hyphae with simple septa, thin to thick-walled, hyaline, 2-6 µm wide.
Cystidia hyaline, tubular, smooth, up to 20 µm long, only few observed.
Basidiospores 4-5 x 3.5-4.5 µm, subglobose.
Distribution. Known only from the type locality in Cameroon.
Remarks. The numerous small basidiocarps with adpressed irregular radial elongated tomentum make this a remarkable species. Only few cystidia were observed and may represent projecting hyphal ends.

Oxyporus pellicula (Jungh.) Ryvarden, Fig. 73.

Prelim. Polypore Fl. East Africa p. 455, 1980. - *Polyporus pellicula* Jungh., Verh. Batav. Genootsch. Kunst. Wetensch. 17:44, 1838.

Basidiocarps resupinate, annual, effused, up to 3 mm thick, somewhat coriaceous when fresh, brittle and hard when dry, adnate, margin narrow, white or pale ochraceous or brown, finely felted, pore surface cream to woodcoloured, pores angular to slightly split or incised, 2-3 per mm, on sloping substrates often more split and elongated, in older specimens almost semiirpicoid and similar to those of *Schizopora paradoxa*, tubes up to 2 mm deep, tough; context white to pale cream and dense, up to 1 mm thick.

Hyphal system monomitic, generative hyphae with simple septa, thin-walled in subhymenium, otherwise distinctly thickwalled, 3-6 µm wide, often branched in acute angles.

Cystidia abundantly present, encrusted, clavate, elongated and club like with angular crystals, up to 100 µm long from apex to the septum from which they arise 3-7 µm wide, present throughout the basidiocarp.

Basidiospores 5-8 x 3-5 µm, elliptic.

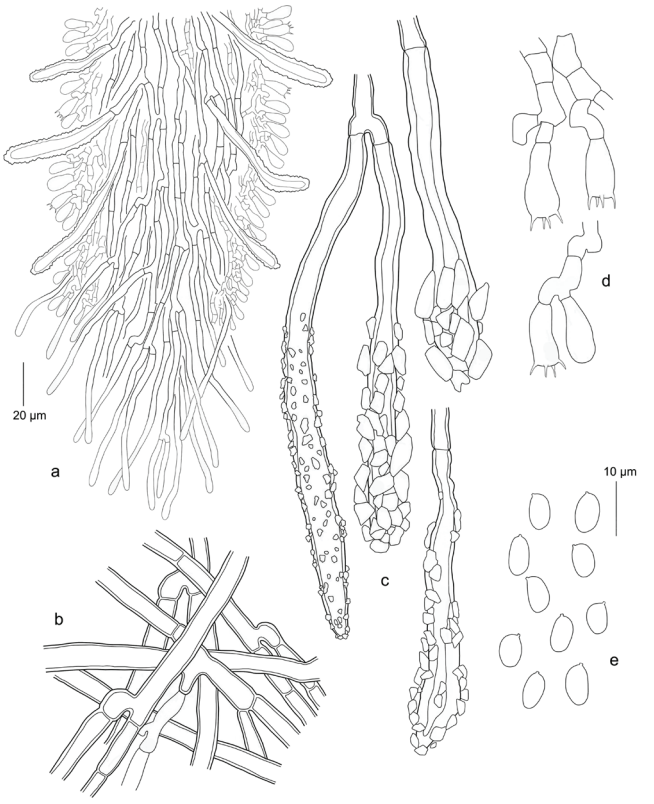


Fig. 73. *Oxyporus pellicula*, a) section of tubes, b) hyphae from context, c) cystidia, d) basidia, e) basidiospores, Del. I. Melo.

Distribution. Common in Eastern Africa from Ethiopia to Zimbabwe.

Remarks. The species is easily recognized because of the clavate cystidia and the large spores. *Irpex lacteus* has similar cystidia, but has cylindrical spores and skeletal hyphae.

Oxyporus populinus (Schumach.: Fr.) Donk,

Meded. Bot. Mus. Herb. Rijks. Univ. Utrecht 9: 204, 1933. *Polyporus populinus* Schumach.: Fr., Syst. Mycol. 1: 367, 1821

Basidiocarps annual to perennial, sessile, effused reflexed to strictly resupinate; pilei often imbricate and laterally fused to large compound basidiocarps, up to 5 x 12 x 5 cm; upper surface cream coloured to buff or darkening with age, finely tomentose to glabrous, often covered with mosses at the base; pore surface cream coloured to buff, the pores circular to angular, 5-7 per mm; context cream coloured to tawny, corky, faintly zonate to azonate, up to 2 cm thick; tube layers concolorous, distinctly stratified in perennial basidiocarps, separated by a thin layer of context tissue, up to 5 cm deep.

Hyphal system monomitic; contextual hyphae simple septate, hyaline, thin to thick walled, 2.5-4.5 µm in diam.

Cystidia 20-35 x 3-4.5 µm, abundant, thin walled, cylindrical to capitate, capitate to entirely encrusted, incrustation dissolving rapidly in KOH, encrusted portion 6-12 µm in diam.

Basidiospores 3.5-4.5 x 2.5-4 µm, subglobose.

Distribution. Circumglobal, in Africa found on the high mountains in Kenya and Ethiopia.

Remarks. Well differentiated by the perennial, sessile basidiocarp with tube layers usually separated by thin layers of context.

Oxyporus subflavus (Lloyd) D. A. Reid,

Journ. South Afr. Bot. 39:172, 1973.- *Trametes subflava* Lloyd, Lloyd Mycol. Writ. 5, letter 66:8, 1917.

Basidiocarps annual to perennial, sessile, sessile, ungulate 10 x 14x 8 cm, light weight, pilei velvety to finely tomentose, cream coloured to yellow, ochraceus when old, pore surface cream coloured to buff, shiny and glancing in incident light, pores 4-6 per mm; tube layer concolorous in type, 1 mm deep, context cream to yellow, fibrous, up to 8 cm thick.

Hyphal system monomitic; hyphae simple septate, hyaline, thin to thick walled, 2.54.5 µm in diam.
Cystidia 15-20 x 6-8 µm, abundant, thin walled, cylindrical, apically encrusted.
Basidiospores 3.24.0 x 2.23,2 µm, subglobose.
Substrata. Known only from living *Celtis kraussiana* Bernh.
Distribution. Known only from the type locality in South Africa.
Remarks. The large basidiocarps with even yellowish to ochraceous colours and the small pores, are diagnostic for this species.
NB This description has been compiled from the descriptions of Lloyd and D. A. Reid respectively. Further collections are desirable to establish its variation.

PANELLUS P. Karst.,

Bidrag til Känned. Finlands Natur och Folk 32:96, 1879. – *Dictyopanus* Pat., Essai tax. p. 137, 1900.
Basidiocarps annual, pileate, hymenophore lamellate to poroid, hyphal system monomitic, smooth cystidia present, achantocystidia present along the dissepiments.
Type species: *Agaricus stipticus* Bull.:Fr.
Remarks. The genus is characterized by pileate basidiocarps with achantocystidia along the dissepiments or pore mouths like in the agaric genus *Mycena*. One pantropical poroid species.

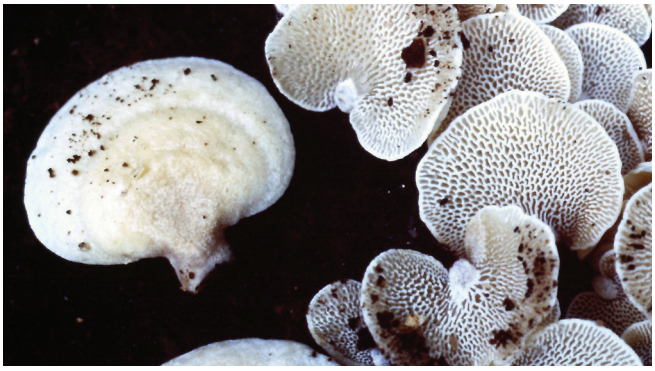


Fig. 74. *Panellus pusillus*, photo L. Ryvarden.

Panellus pusillus (Pers. ex Lév.) Burdsall and Miller, Fig. 74.

Beiheft Nova Hedwigia. 51:85, 1975. - *Gloeoporus pusillus* Pers. ex Lév., Ann. Sci. Nat. Ser.3, 2: 195. 1844. - *Polyporus rhipidium* Berk., Hook., London J. Bot., 6: 319. 1847. - *Polyporus subpulverulentus* Berk. & M. A. Curtis, J. Linn. Soc. Bot., 10; 306. 1869. - *Polyporus diminutus* Mass., J. Bot., 34: 153. 1896.
Basidiocarps reniform to semicircular with short contracted stipe, convex to flat, nearly white to pale tan when fresh, slightly darker when dry, up to 3 cm wide and long, pileus smooth, pubescent to velvety, azonate, margin concolorous, nearly smooth, pores concolorous with pileus, pore surface irregular with some elongated radially pores, 4-5/ mm tangentially 2-3 /mm radially, sometimes becoming sub lamellate, luminescent when fresh, context white, pale cream when dry.
Hyphal system monomitic, generative hyphae with clamps, 3- 10 µm wide with irregularly thickened walls.
Cystidia 20-35 × 3-4 µm, lacking or present only near the pore edge, cylindrical to lanceolate, hyaline, thin-walled, smooth, clamped at base, protruding up to 1/2 of total length, acanthocystidia present along the dissepiments, some with reddish-brown crusted granules, pileocystidia present, imbedded in cuticle, 5-6.5 µm diam, cylindrical, flexuous, thin-walled, hyaline, with refractive content.
Basidiospores 4-5.5 × 2-3 µm, ovoid to broadly ovoid, adaxially flattened, hyaline, thin- walled, smooth, amyloid in Melzer's reagent.
Substrate. Hardwoods of all kinds.
Distribution. Pantropical and locally common.
Remarks. The small basidiocarps with elongated pores, granular dissepiments (lens), amyloid spores and achantocystidia, characterize this species.

PERENNIPORIA Murrill,

Mycologia 34, 595, 1942; Taxon, 55(3), 759–778, 2006.
Basidiocarps mostly perennial, rarely annual, resupinate to pileate; pileus smooth, ochraceous to blackish by age; pore surface white to cream, pores small to irregular; context white, ochraceous to clay or greyish, often woody hard; hyphal system dimitic (trimitic); generative hyphae thinwalled, hyaline, and with clamps, often difficult to observe; skeletal hyphae dominating in the basidiocarps, solid to thickwalled, unbranched to moderately branched, non to strongly dextrinoid; cystidia rare; basidiospores thin to thickwalled, globose to elliptic, drop shaped to truncate, hyaline, non to strongly dextrinoid, often variable within the same basidiocarp. On dead and living hardwoods and conifers causing a white rot. Large, cosmopolitan genus.
Type species: *Polyporus medullapanis* Jacq.: Fr.
Remarks. *Perenniporia* is above all characterized by the elliptic to ovoid, distinctly truncate spores, thickwalled, and with a variable dextrinoid reaction combined with a di to trimitic hyphal system where the vegetative hyphae are dextrinoid in a variable degree (Decock and Stalpers xxx). It is here considered as s.l. Several species were transferred recently from *Perenniporia* sensu lato into *Hornodermoporus*, *Truncospora*, and *Vanderbylia*; they are described here below in their current accepted genera.

Key to species

1. Basidiocarps pileate ..... Key **A**
1. Basidiocarps resupinate ..... Key **B**

Key A

1. Basidiospores longer than 10 µm **2**
1. Basidiospores shorter than 10 µm **3**

2. Pileus 1–7 cm long, yellowish to brown; pores 2–4 per mm ..... **T. ochroleuca**
2. Pileus less than 5 mm long, white; pores 5–6 per mm ..... **P. afrominuta**

3. Basidiospores pip-shaped, 5–9 × 5–6 µm; skeletal hyphae unbranched, strongly dextrinoid; thick-walled hymenial cystidia present (sometimes difficult to observe) ..... **H. latissimus**
3'. Basidiospores globose, subglobose to truncate; skeletal hyphae branched, variably dextrinoid; hymenial cystidia absent **4**

4. Basidiospores subglobose, up to 5 µm long; pileus velutinate, then glabrous ..... **P. inflexibilis**
4. Basidiospores longer than 5 µm; pileus glabrous **5**

5. Basidiospores 8–10 µm × 5–7 µm, broadly elliptic to truncate **6**
5. Basidiospores smaller or differently shaped **8**

6. Pores 5–7 per mm, partly larger on drying; pileus dirty brown then black from base **9**
6. Pores 4–5 per mm; pileus white to ochraceous ..... **P. miniochroleuca**

7. Basidiospores dextrinoid; pores irregular ..... **P. densipora**
7. Basidiospores non-dextrinoid; pores regular, 5–6 per mm ..... **P. beninensis**

8. Basidiospores obovoid, 7–9 × 5–6 µm; chlamydospores in trama and context ..... **V. vicina**
8. Chlamydospores absent **9**

9. Basidiospores obovoid, 5–7 µm in diameter ..... **V. ungulata**
9. Basidiospores differently shaped **10**

10. Basidiocarps effused-reflexed; basidiospores 6–8 × 3.5–4 µm ..... **P. reflexa**
10. Basidiocarps pileate; basidiospores 4.5–6 × 4–5.3 µm ..... **P. mundula**

Key B

1. Dendrohyphidia present in hymenium and dissepiments **2**
1. Dendrohyphidia absent **3**

2. Basidiospores globose, 5–6 µm diam.; skeletal hyphae branched ..... **P. dendrohyphidia**
2. Basidiospores subglobose, 4–5 × 2.5–3.5 µm; skeletal hyphae unbranched, strongly dextrinoid.....
.....**P. subdendrohyphidia**

3. Pores 3–4 per mm or larger **4**
3. Pores 5–8 per mm **5**

4. Basidiospores 5–6 × 3.5–4.5 µm .....**P. djaensis**
4. Basidiospores 4–5 × 3–3.5 µm .....**P. voeltzkowii**

5. Basidiospores globose **6**
5. Basidiospores truncate to subglobose **7**

6. Basidiospores 5–6 µm in diameter; skeletal hyphae arboriform ..... **P. globospora**
6. Basidiospores 4.5–5 µm in diameter; skeletal hyphae unbranched .....**P. africana**

7. Pore surface white; margin reddish brown .....**P. alboferruginea**
7. Pore surface and margin ochraceous to dark brown **8**

8. Pores 6–8 per mm **9**
8. Pores larger **11**

9. Basidiospores pip-shaped, 5–7 × 3–4 µm; pore surface whitish when fresh, brown as dry ..... **P. nigra**
9. Basidiospores differently shaped **10**

10. Basidiocarps effused, the margin slightly reflexed, white to greyish brown ..... **P. abyssinica**
10. Basidiocarps pulvinate, dark brown ..... **P. pulvinata**

11. Pore surface greyish; tubes dark brown ..... **P. tephropora**
11. Pore surface and tubes light coloured **12**

12. Binding hyphae present; pore surface white to pale cork coloured ..... **P. medulla-panis**
12. Binding hyphae absent; pore surface greyish orange ..... **P. vanhulleae**

Perenniporia abyssinica Decock & Bitew,

Plant Ecol. Evol. 145: 273, 2012.
Basidiocarps perennial, mostly resupinate, separable, up to 30 cm long, 15 cm wide, margin occasionally slightly reflexed, forming narrow pileus, projecting up to 5 mm, 30 mm wide, up to 2 mm thick, the upper surface roughly concentrically sulcate, with 2–3 narrow bands, glabrous, dull, mainly light brown to brown, cinnamon to cocoa brown; pore surface even, white when fresh, drying white to greyish white, bruising or aging greyish orange to light brown; pores even, round to angular, occasionally elongated, rectangular, 4–6 per mm; tube layers stratified, with up to 4 layers, in total 7 mm thick, pale corky; context thin, greyish orange.
Hyphal system dimitic; generative hyphae hyaline, thin- to slightly thick-walled, clamped, and sparingly branched, 1.5–2.8 µm wide; skeletal hyphae slightly dextrinoid, loosely arboriform.
Basidiospores elliptic, non- to moderately dextrinoid, 4.5–6.5 × 3.5–4 µm.
Distribution. Known only from montane forests of Ethiopia and Kenya.
Remarks. *Perenniporia abyssinica* is similar to *P. africana*, which however has globose spores and unbranched vegetative hyphae. *Perenniporia mundula* has also similar basidiocarps, mostly resupinate to slightly reflexed but differs in having smaller pores (7–8 / mm) and inhabiting lowland forest.

Perenniporia africana Ipulet & Ryvarden,

Synopsis Fung. 20: 93, 2005.
Basidiocarps perennial, resupinate, dense and hard when dry, up to 8 cm wide, 15 long and 1.5 cm thick; margin narrow, distinct; pore surface ochraceous to cork-coloured; pores thin-walled, round, 6–8 per mm, invisible to the naked eye; tube layer concolorous, up to 15 mm deep, slightly stratified, subiculum 1 mm thick, ochraceous.
Hyphal system dimitic, generative hyphae with clamps hyaline, 3–4 µm wide; skeletal hyphae unbranched, thick-walled to almost solid, strongly dextrinoid after heating in Melzer's reagent, 3.5–5 µm in diam.

Basidiospores globose, thin to slightly thick-walled, slightly dextrinoid, 4.5–5 µm in diameter.
Distribution. Known only from the type locality in Uganda.
Remarks. *Perenniporia africana* belongs to the *Poriella subacida* (Peck) C.L. Zhao complex in tropical Africa; these species share the same basidiocarps, hyphal system, dextrinoid skeletal hyphae, and non-truncate, thick-walled basidiospores. The species reminds superficially about a thick specimen of the widespread *P. medulla-panis*, which however has distinctly truncate spores.

Perenniporia afrominuta Ryvarden,

Index Fungorum 371:1, 2018. - *Perenniporia minutissima* Ryvarden, Synopsis Fung. 38:23, 2018 - nomen illegit, non (Yasuda) Hattori & Ryvarden 2005.
Basidiocarps annual, pileate, sessile, to slightly dimidiate, up to 5 mm wide and long, 3 mm thick, hard, pileus glabrous, whitish with radial furrows and steep margin, dull with a few faint concentric zones; pore surface white; pores round, 5–6 per mm; tube layer pale ochraceous, 2 mm dep, context white, about 1 mm thick.
Hyphal system dimitic; generative hyphae with clamps, thinwalled, 2–3 µm in diam; skeletal hyphae thick-walled, 2–7 µm wide, IKI negative.
Basidiospores elliptic, apically truncate, thick-walled, and dextrinoid, 10–14 × 7–10 µm.
Distribution. Known only from the type locality in Mozambique.
Remarks. The tiny basidiocarps and the large, truncate, dextrinoid spores make this a remarkable species. It was purely accidental that it was discovered as the basidiocarps appeared as small white spots on the wood, and only an examination by a hand lens showed them to actually be a poroid fungus. The morphology of the basidiocarp and the basidiospores point towards *Truncospora*.

Perenniporia alboferruginea Decock,

Plant Ecol. Evol. 144:227, 2011.
Basidiocarps resupinate, effused, adnate, up to 110 mm long, 30 mm wide, 20 cm long and 2 mm to 10 mm thick; margin irregular, white to reddish brown, to dark brown; pore surface even, white when fresh, drying whitish grey to pale cinnamon; pores round to angular, 5–6 per mm, or slightly elongated; tube layer corky, 1–3 mm thick, white to pale corky; subiculum 5–7 mm thick, pale corky to greyish orange.
Hyphal system dimitic, generative hyphae with clamps,1.5–3.0 µm diam; skeleto-binding hyphae hyaline, non- to slightly dextrinoid, variously branched, 2.0–4.0 µm wide**.**
Basidiospores elliptic, apically truncate, thick-walled, non-dextrinoid, 4.5–5.7 × 3.3–4.0 µm.
Distribution. Known only from the type locality (Dja Biosphere Reserve) in south-eastern Cameroon.
Remarks. The thick, resupinate and effused basidiocarp with a tinted ferruginous margin, contrasting the pure white pore surface make the species unique within *Perenniporia*. Microscopically, it is above all characterized by small elliptic to ovoid, and non-dextrinoid basidiospores.

Perenniporia beninensis Olou & Ryvarden,

Synopsis Fung. 44: 10, 2021.
Basidiocarp annual, pileate, 2.5 × 2 cm wide and 1 cm thick at the base, hard when dry; pileus glabrous, finely delicately laccate and reddish at the margin, otherwise evenly dark brown, dull and slightly concentrically zoned; pore surface whitish to ochraceous; pores round, 5–6 per mm; tubes 1 mm deep, ochraceous, context concolorous, dense and homogenous, up to 8 mm thick at the base, in section with a thin cuticle below the brown pileus surface.
Hyphal system trimitic, generative hyphae with clamps, hyaline, delicately thin-walled 1.5–3 2–3 µm wide; skeletal hyphae totally dominating in the basidiocarp, 3–5 µm wide and dextrinoid in Melzers reagent; binding hyphae rare, twisted and with few obtuse side branches, non-dextrinoid.
Basidiospores oblong, apically truncate, smooth, thick-walled, IKI-, 8–11 × 6–8.
Distribution. Seen only at the type locality in Benin.
Remarks. The species reminds one of *P. miniochroleuca* that differs in having a white to ochraceous pileus, distinctly dextrinoid spores, and non-dextrinoid skeletal hyphae. The morphology of the basidiocarp and the basidiospores point towards *Truncospora*.

Perenniporia dendrohyphidia Ryvarden,

Mycotaxon 31:408, 1988.
Basidiocarps annual, resupinate, adnate, tough and hard, up to 15 × 5 cm and 5 mm thick; margin absent to very narrow; pore surface wood coloured to pale isabelline; pores round, 6–7 per mm; tube layer concolorous with pore surface, up to 5 mm deep; subiculum thin, cream coloured to slightly greyish becoming darker towards the substrate, 1–2 mm thick.
Hyphal system dimitic; generative hyphae thinwalled with clamps, 2–4 µm in diam; subicular arboriform skeletal

hyphae dominant, thickwalled, 2.5–4 µm in diam, becoming moderately branched towards the outer ends, dextrinoid, olivaceous in 3 % KOH, especially distinct in older parts of the basidiocarps.
Dendrohyphidia abundantly present in the pore mouths, hyaline, thin-walled, up to 15 µm long
Basidiospores globose, thick walled and dextrinoid, 5–6 µm in diameter.
Distribution. Known only from the type locality in Burundi.
Remarks. This is a remarkable and distinct species by its dendrohyphidia and the hyphae becoming olivaceous in KOH. The dendrohyphidia collapse quickly by drying and several sections may be necessary to ascertain their presence.

Perenniporia densipora Ryvarden,

Synopsis Fung. 39:67, 2019.
Basidiocarps perennial, solitary, pileate, broadly attached, up to 6 cm broad and 15 cm wide, 4 cm thick, consistency woody hard when dry; pileus sessile, semicircular, applanate to deflexed, glabrous, unevenly dirty brown, becoming black from the base without a cuticle; pore surface first white becoming dirty brown with drying and age; pores round to slightly angular, variable from 6–7 per mm to 2–4 mm in older and more angular pores; tubes up to 6 mm deep, brown, context dense, azonate, white and 3 cm thick.
Hyphal system di- to trimitic, generative hyphae with clamps, thin-walled, 1.5–3 µm wide; skeletal hyphae hyaline to yellowish, dextrinoid, thin to thick-walled, 2–7 µm in diameter; binding hyphae scanty, thick-walled sparingly branched, dextrinoid, 1.5–6 µm wide.
Basidiospores elliptic to slightly truncate, thick-walled, dextrinoid, 8–11 × 5–7 µm.
Distribution. Known only from Zimbabwe.
Remarks. The species is recognized by the very hard, broadly attached pileate basidiocarps with a dirty uneven colour and the large, elliptic to slightly truncate basidiospores.
The morphology of the basidiocarp and the basidiospores point towards *Truncospora*.

Perenniporia djaensis Decock & Mossebo,

Syst. Geogr 72:56, 2002.
Basidiocarp resupinate, effused, adnate, individual basidiocarps up to 150 × 30 mm, fusing to form larger basidiocarps, pore surface even, whitish to greyish cork-coloured, orange grey, discoloured light brown when touched; pores even, round to angular, (2)–3–4/mm, occasionally two pores are fused to form larger cavities; tube layer corky up to 1–2 mm thick, concolorous with the pore surface or slightly darker; subiculum very thin, concolorous with the tube layer.
Hyphal system dimitic; generative hyphae abundant, hyaline, sparsely branched, clamped, 1.5–3.0 µm diam; vegetative hyphae hyaline, slightly dextrinoid, sparsely branched, with an unbranched basal part, 50–200 µm long, 2.2–3.5 µm wide.
Basidiospores elliptic truncate, dextrinoid, 5.0–6.0 × 3.5–4.3 µm.
Distribution. Known from the Cameroon (type locality) and Gabon.
Remarks. The light greyish cork-coloured pore surface with 3–4 pores/mm, the dextrinoid, sparingly branched vegetative hyphae, and the dextrinoid, elliptic basidiospores make the species distinct. *Perenniporia subdendrohyphidia* is similar, but separated by its dendrohyphidia, unbranched skeletal hyphae, and non-dextrinoid basidiospores. *Perenniporia centrali-africana*, has a harder, effused reflexed basidiocarp, smaller pores (7–8/mm), and more globose, dextrinoid basidiospores.

Perenniporia globispora Ipulet & Ryvarden,

Synopsis Fung. 20: 94, 2005.
Basidiocarps annual, resupinate, dense and hard when dry, up to 4 cm wide, 6 cm long and 3 mm thick; margin narrow, distinct and white; pore surface greyish white with pinkish hues when fresh, ochraceous to pale straw-coloured; pores thin-walled, round to angular, 5–6 per mm; tube layer concolorous, up to 2 mm deep; subiculum 1 mm thick, ochraceous.
Hyphal system dimitic; generative hyphae with clamps, hyaline, 3–4 µm wide; skeletal hyphae arboriform, thick-walled to almost solid, dextrinoid, 3–7 µm wide in the lower part.
Basidiospores globose to subglobose, thick-walled, variably dextrinoid, 5–6 µm in diameter.
Substrata. On dead strangler fig tree, and other unidentified angiosperms.
Distribution. Known from Ethiopia, Uganda (type locality), and Eastern edge of the Democratic Republic of Congo.
Remarks. The species reminds superficially about a thick specimen of the widespread *P. medulla-panis* (Pers.) Donk, which however has distinctly truncate spores.

Fig. 76. *Perenniporia inflexibilis*, photo D. Mossebo.

Perenniporia inflexibilis (Berk. & M. A. Curtis) Ryvarden,

Norw. J. Bot. 19:233, 1972. – *Polyporus inflexibilis* Berk. & M. A. Curtis, Hooker J. Bot. 8:199, 1856. - *Fomes contrarius* Berk. & M. A. Curtis, Grevillea 15:21, 1886. – *Fomes minutulus* Henn., Bot. Jahrb. 22:88, 1895. - *Fomes glaucoporus* Lloyd, Lloyd mycol. Writ. 4:251, 1915.

Basidiocarp perennial pileate to effusedreflexed, or pendant, semicircular, up to 10 cm wide and long and 2 cm thick at the base, woody hard, but rather light in weight; pileus first velvety and ochraceous and then with a black line below the tomentum, soon weathering and partly with dark tomentum in some zones, partly glabrous, reddening and darkening to almost black in other zones, dull, shallowly concentrically sulcate and sometimes radially cracked with age acute, thin to rather thick; pore surface cream to pale fulvous; pores round, 7–8 per mm; dissepiments slightly farinose; tubes up to 1 cm deep, distinctly stratified, each layer up to 3 mm, context pale cork to woodcoloured, 0.3–0.5 mm thick.

Hyphal system in the context and dissepiments ditrimitic; generative hyphae sparingly present, clamped, hyaline and thickwalled, 2–2.5 µm in diameter; skeletal hyphae abundant, thickwalled with a distinct lumen, hyaline to yellow, 2–4,5 µm wide, dextrinoid, randomly oriented.

Basidiospores broadly mostly subglobose, often angular to almost cylindrical, or collapsed on drying, thickwalled, nondextrinoid, 3.7–4.8 × 3.0–4,0 µm.

Distribution. Pantropical. Common in the Guineo-Congolian rainforest in Gabon and Cameroon, and probably widespread all over Central Africa.

Remarks. The species is characterized by an often almost hanging basidiocarp, often taller than wide, a sulcate and brown, first velutinate, then glabrous pileus with a distinct cuticle, small thickwalled spores and strongly dextrinoid skeletal hyphae.

Hornodermoporus latissimus (Bres.) Cui & Dai,

Fungal Diversity 97: 231, 2019. - *Fomes latissima* Bres., Ann. Mycol. 8: 588, 1910.

Basidiocarp perennial, solitary, pileate, semicircular to dimidiate, mostly broadly attached, up to 15 cm long, 10 cm wide and 8 cm thick, consistency very hard and heavy when dry; pileus applanate to ungulate, glabrous, usually irregularly concentrically sulcate, dark bay, dirty brown to black with a distinct crust up to 2 mm thick, cracking with age; margin obtuse, usually cream to dirty white; pore surface cream to dirty ochraceous; pores round, 45 per mm, thick walled; tubes totally up to 6 cm deep, distinct to indistinctly stratified, each layer up to 8 mm long, cream to corkcoloured, becoming darker towards the context, the latter cream, woodcoloured, dark ochraceous to pale greyishblack in old parts, up to 3 cm thick.

Hyphal system in tubes and context dimitic; generative hyphae hyaline, clamped and thinwalled, 1.5–3 µm in diameter, often collapsed and difficult to find; skeletal hyphae abundant, dominating in the whole basidiocarp, strongly dextrinoid, 2–6.5 µm wide.

Cystidia common to apparently absent, ventricose to clavate, thickwalled, non-dextrinoid to dextrinoid, with an apical encrusted crown, or encrusted in the upper part, mostly embedded and often difficult to observe, 30–70 × 6–12 µm.

Basidiospores pip-shaped to weakly truncate with a distinct tapering end, thickwalled, variably dextrinoid, often of variable size within the same specimen, 5–9 (–10) × 3–6 µm.

Distribution. Paleotropical and in Africa known from Liberia, Kenya, Cameroon, Gabon, Uganda, Democratic Republic of Congo, and Malawi.
Remarks. The species is distinct microscopically with the strongly dextrinoid unbranched skeletal hyphae, ventricose cystidia, and the pip-shaped to tapering spores.

Perenniporia medullapanis (Jacq.: Fr.) Donk s.l.,

Persoonia 5:76. 1967. *Polyporus medullapanis* Jacq.: Fr., Syst. Mycol. 1:380, 1821.
Basidiocarps annual to perennial, becoming widely effused, usually resupinate but sometimes narrowly reflexed on vertical surfaces, toughcorky; pore surface highly variable in colour, cinereous, cream colour to creambuff or bright yellow; pores circular, 5–7 per mm, with thick dissepiments; subiculum thin, cream coloured to yellowish; tube layers concolorous with subiculum, distinctly stratified, each layer up to 1 mm thick.
Hyphal system trimitic; generative hyphae thinwalled, with clamps, 2–4 µm in diam; skeletal hyphae thickwalled, 2.5–4 µm in diam; binding hyphae thickwalled, muchbranched, 1.5–2 µm in diam; skeletal and binding hyphae dextrinoid.
Basidiospores broadly elliptic to ovoid, usually truncate, thickwalled, weakly to strongly dextrinoid 5–6.5 × 3–4 µm.
Distribution. Cosmopolitan species and common in most places, often in open and sunny localities.
Remarks. *Perenniporia medullapanis* as described here includes probably a complex of related species, which need accurate studies and DNA sequencing to elucidate. However, it is characterized by the thick walled dextrinoid spores and rather thin, dextrinoid skeletal and binding hyphae. Macroscopically, the tough, perennial or persistent basidiocarps with the typical pale wood- or cork-coloured pore surface are distinctive. Reflexed basidiocarps are occasionally found on vertical surfaces, such as the sides of stumps.

Perenniporia miniochroleuca Ryvarden,

Synopsis Fung. 39:67, 2019.
Basidiocarps annual, solitary, pileate, broadly attached, semicircular, up to 3 cm broad and 2 cm wide, 5 mm thick, consistency woody hard when dry, upper surface glabrous, white to ochraceous, smooth when fresh, drying with numerous radial ridges or furrows and then with a dense surface as if soaked in resinous substance; pore surface white to pale cream; pores round, 4–5 per mm; tubes up to 2 mm deep; context white, dense, azonate, up to 3 mm thick at base.
Hyphal system trimitic; generative hyphae with clamps, delicately thin walled, 1.5–3 µm wide; skeletal hyphae hyaline, non-dextrinoid, thin to thick-walled, 2–3 µm wide; binding hyphae scanty, thick-walled sparingly branched, non-dextrinoid, 1.5–3 µm wide.
Basidiospores truncate to slightly pip-shaped, smooth, thick-walled, dextrinoid, 8–10 (11) × 6–7 µm.
Distribution. Zimbabwe, Cameroon, and Gabon.
Remarks. The morphology of the basidiocarp and the basidiospores point towards *Truncospora*, reminds much of *T. ochroleuca* from which it differs in having distinctly smaller basidiospores. It is also characterized by having dextrinoid basidiospores but non-dextrinoid skeletal hyphae.

Perenniporia mundula (Wakef.) Ryvarden,

Norw. J. Bot. 19:233, 1972. - *Fomes mundulus* Wakef., Forhand. Kgl. N. Vidensk. Selsk. IX:44, 1936. - *Perenniporia centrali-africana* Decock & Mossebo, Syst. Geogr. Pl. 71:608, 2001.
Basidiocarp perennial resupinate, effused, to effused-reflexed; pileus solitary to imbricate, applanate to nodulose, semicircular to almost dimidiate, up to 5 cm wide and long and 2 cm thick at the base, woody hard when dry, glabrous, concentrically sulcate, dull, brownish orange to light to dark brown; pore surface whitish when fresh, soon becoming greyish to light brown when dry; pores round, 7–8 per mm; dissepiments thin to rather thick, entire and slightly farinose; tubes light brown to pale greyish brown, up to 2 cm deep, distinctly stratified, each layer up to 3 mm; context 1–3 mm thick, pale light brown to cinnamon coloured.
Hyphal system ditrimitic; generative hyphae sparingly present, clamped, hyaline and thickwalled, 2–2.5 µm in diameter; skeletal hyphae abundant, thickwalled with a distinct lumen, hyaline to yellow, 2–4,5 µm wide, pale reddishbrown in Melzer's reagent; binding hyphae present only in the context.
Basidiospores broadly elliptic to subglobose, thickwalled, strongly dextrinoid, 4.8–6.2 × 3.8–5.3.
Distribution. Known from Cameroon, Gabon, Kenya, Zimbabwe; likely widespread, preferably in open habitat, also in anthropogenic substrates, such as pole or fences.
Remarks. The species is characterized by the sulcate and brown, glabrous pileus and the strongly dextrinoid skeletal hyphae. It is similar to *P. africana* which however is a resupinate species with smaller spores.

Perenniporia nigra Metsebing, Mossebo & Ryvarden,

Synopsis Fung. 39:72, 2019.

Basidiocarps resupinate, about 8 × 8 cm and 5 mm thick, tough when fresh, hard and rigid when dry, flat when fresh, curls up when dry due to shrinking; pore surface white-greyish when fresh, dark brown to black when dry; pores round, hardly visible to the naked eye, 8–10 per mm; tube concolorous, up to 4 mm deep; subiculum ochraceous, 200–500 mm thick with a distinct black resinous line.
Hyphal system trimitic; generative hyphae septate, thin- and thick-walled with clamps most often difficult to observe, 2–4 µm wide; skeletal hyphae thick-walled to solid, 3–6 µm wide, dextrinoid in Melzers reagent; binding hyphae thick-walled, 3–5.5 (–6) µm wide, most-often branched with tapering ends.
Basidiospores pip-shaped to oblong truncate, dextrinoid, thick-walled, 5–7 × 3–4 µm.
Distribution. Known from Cameroon (type locality) and Gabon.
Remarks. The strong change of colour when drying is remarkable. The spores are distinctly pip-shaped, a shape being rather rare among resupinate species in the genus.

Truncospora oboensis Decock,

Crypt. Mycol. 32:385, 2011.
Basidiocarps annual, pileate, sessile, soft spongy when fresh; pileus solitary or laterally fused, circular, attached by a small apical vertex, up to 10 mm diam., semi-circular when broadly attached, 5–15 mm wide, applanate to almost triangular in section, up to 12 mm thick at the base, surface smooth to faintly, slightly, glabrous, dull, pure white when fresh, pale greyish orange on aging or bruising; pore white when fresh, drying white to pale greyish orange; pores regular, 3–4 per mm; tubes up to 6 mm deep, white, soft spongy when fresh, drying hard; context homogenous, 1–1.5 mm thick at the base, white, soft, spongy when fresh, drying whitish to greyish orange to pale orange, hard and horny.
Hyphal system dimitic in the context, di- to trimitic in the trama; generative hyphae sparsely branched, hyaline, thin-walled, clamped, 2.0–2.5 µm wide; skeletal hyphae hyaline, faintly dextrinoid, thick-walled to almost solid, 2.5–5.5 µm wide, unbranched or slightly branched with few, short lateral or terminal branches tortuous, thick-walled, 1.8–2.5 µm wide.
Basidiospores elliptic, thick-walled, strongly dextrinoid, 11.0–14.0 (–15.0) × 6.5–9 µm.
Distribution. Known only from the cloud forest in São Tomé.
Remarks. The rather small basidiocarps, white and soft spongy when fresh, fairly large pores, and large dextrinoid spores, make this a distinct species.

Truncospora ochroleuca (Berk.) Pilát,

Sb. Nár. Mus. v Praze, Rada B, Prír. Vedy **9**: 108, 1953. - *Perenniporia ochroleuca* (Berk.) Ryvarden, Norw. J. Bot. 19:233, 1972. *Polyporus ochroleucus* Berk., Hooker's Lond. J Bot. 4:53, 1845. - *Trametes scrobiculata* Berk., Grevillea 6:70, 1877. - *Polyporus compressus* Berk., Lond. J. Bot. 4:53, 1845.
Basidiocarp perennial, solitary or imbricate, sessile or attached with a narrow base rather small; pileus applanate, dimidiate to ungulate, up to 7 cm broad and 5 cm wide, 0.3–2.5 cm thick, corky when fresh, but woody hard when dry, glabrous, creamochraceous, with age discoloured, often zone wise from pale yellowish brown to pale, purplish brown, dull to weakly shiny, distinctly concentrically zoned, sulcate to smooth, finely radiantly striate; pore surface white, cream, ochraceous to discoloured, pale brownish in older specimens; pores round, 24 per mm, dissepiments thick and entire, tubes singlelayered or weakly stratified 3–10 mm long, straw to woodcoloured, context 1–3 mm thick, upper surface as a distinct horny cuticle, white to ochraceous.
Hyphal system trimitic, generative hyphae thinwalled, hyaline, with irregular and few clamps, 1.5–4 µm wide, skeletal hyphae hyaline, thickwalled with a distinct lumen, 2–6 µm wide, often with secondary simple septa straight to slightly tortuous, binding hyphae or arboriform skeletal hyphae, 2–5 µm in diameter, both types of vegetative hyphae more or less dextrinoid.
Basidiospores abundant, elliptic, truncate, thickwalled, weakly to strongly dextrinoid, 12–17 (–20) × 7–10 (–11) µm.
Distribution. Cosmopolitan species, noted from all five continents.
Remarks. The species can be identified by the small, usually rather thick, ochraceous, glabrous pilei and the large truncate spores.

Perenniporia pulvinata Ryvarden,

Synopsis Fung. 39: 43, 2019.
Basidiocarps annual, resupinate, 5 × 10 cm and cm thick, pulvinate with sloping margins, soft when fresh, dense when dry, margin 1–2 mm, white to ochraceous contrasting the pore surface, this dark brown in older parts reminding one about a *Phellinus* species, brown in younger parts, pores round to slightly angular (lens), 7–8 per mm, invisible to the naked eye, tubes concolorous with surface, up to 3 mm deep, subiculum, fibrous, dark olivaceous brown. 1 mm thick.

Hyphal system dimitic; generative hyphae with clamps, 2–5 µm in diam., difficult to observe, skeletal hyphae dark olivaceous brown in 3 % KOH, dominating in basidiocarp, 2–5 µm wide, thick-walled to solid, dextrinoid.
Basidiospores subglobose, slightly thick-walled, some truncate, hyaline, and non-dextrinoid, 4.5–5 (–6) × 4–5 µm.
Distribution. Known only from the type locality in Uganda.
Remarks. The pulvinate dark brown basidiocarps with dextrinoid skeletal hyphae and hyaline subglobose spores, characterize this species.

Perenniporia reflexa Ryvarden,

Synopsis Fung. 40: 104, 2020.
Basidiocarps perennial, resupinate to slightly reflexed with a 2 cm wide elongated pileus , separable, fragments up to 10 cm long and wide, 8 mm thick, margin slightly reflexed, forming narrow pileus, projecting up to 1 cm wide, up to 1 cm thick mm thick, the upper surface irregular, black from base, pale ochraceous in new developed zones, glabrous, dull, margin of resupinate part well delimited, rounded, pale cinnamon brown, pore surface even, pale brown, pores even, round to angular, occasionally elongated, rectangular, 5–7(–8) per mm, tube layers stratified, totally 7 mm thick, pale cork coloured, context almost absent, pale cinnamon.
Hyphal system dimitic; generative hyphae with clamps, hyaline, thin- to slightly thick-walled, 1.5–2.8 µm wide; vegetative hyphae dextrinoid, arboriform, 2–6 µm wide.
Basidiospores subglobose, truncate, thick walled, distinctly dextrinoid, 6–8 × 5–6 µm.
Distribution. Known only from the type locality in Zimbabwe.
Remarks. *Perenniporia reflexa* is similar to *P. abyssinica* with regard as to type of basidiocarp, but the latter has smaller spores, i.e. 4.5–6.5 × 3.5–4 µm

Perenniporia subdendrohyphidia Decock,

Syst. Geogr. Pl. 71:48, 2001.
Basidiocarps annual, resupinate, adnate, tough and hard, margin absent to very narrow; pore surface white, faintly yellowish to pale cork coloured pores round, 6–7 per mm; tube layer concolorous with pore surface, up to 2 mm deep; subiculum thin, cream coloured, 1–2 mm thick.
Hyphal system dimitic; generative hyphae thinwalled with clamps, 2–4 µm in diam; skeletal hyphae dominant, thickwalled, 2.5–4 µm in diam, with many lateral aborted hyphae, strongly dextrinoid.
Dendrohyphidia abundantly present in the pore mouths, hyaline, thin walled, up to 15 µm long.
Basidiospores elliptic to ovate, thick walled and IKI-, 4–5 × 2.8–3.4 µm.
Distribution. Known from the type locality in Cameroon, and Gabon.
Remarks. The species is separated from *P. dendrohyphidia* by its ovate to elliptic spores and being non-dextrinoid (globose and dextrinoid in the former).

Perenniporia tephropora (Mont.) Ryvarden,

Norw. J. Bot. 19: 233, 1972. - *Polyporus tephroporus* Mont., Ann. Sci. Nat. Ser. 3 vol. 4: 358, 1845.
Basidiocarps perennial, usually resupinate, effused, or occasionally forming irregular areas up to 20 × 8 cm or with a small, obliquely reflexed dark portion up to 1 cm broad, very often on vertical or almost vertical surface, woody hard in consistency; reflexed dark portion very finely tomentose to glabrous, dirty greyish to black, often somewhat cracked and sulcate with age, in section with a dark crust; margin thick and round; pore surface clay, buff or grey to milky coffee or pale umber; pores round to angular, 4–6 per mm; tubes snuff brown to even dark brown, distinctly stratified, each strata 2-4 mm thick; context as tubes, 0.5-2 mm thick.
Hyphal system trimitic, generative hyphae thin-walled, often collapsed, with clamps, hyaline and thin-walled, 2–4 µm in diam; skeletal hyphae abundant, thick-walled with a distinct lumen, ochraceous to pale brown, becoming pale olive in KOH, straight to slightly flexuous, 3–5.5 µm in diam, binding hyphae rather rare, thin- to thick-walled, hyaline to pale yellowish, 1.5–3.5 µm in diam, moderately branched, tapering towards the ends; both types of vegetative hyphae dextrinoid to a variable degree.
Basidiospores elliptic to truncate, thick-walled, hyaline to slightly yellowish, dextrinoid, 4.5–6 × 3.5–4.5 µm.
Distribution. Pantropical species.
Remarks. The greyish to dark ochraceous or clay-coloured pore surface and the dark brownish to almost black tubes and context make it a distinct species in the genus. The species usually occurs in open, sub-exposed habitat.

Perenniporia vanhulleae Decock & Ryvarden,

Synopsis Fung. 33: 44, 2015.
Basidiocarps resupinate, effused, adnate, seasonal to bi-seasonal, extending from 10–90 mm long, 10–25 mm wide, up to 1 mm thick; pore surface even, cracking on drying, greyish orange; pores even, round to slightly elliptic, 5–7/ mm, tube layer corky, 05–1 mm thick, concolorous with the pore surface, concolorous with the tubes.

Hyphal system dimitic, both in the context and the trama of the tubes, generative hyphae scarce, hyaline, sparsely branched, clamped, 5–3.0 µm diam; vegetative hyphae hyaline, non- to faintly dextrinoid, mostly shortly arboriform, thick walled.
Basidiospores broadly elliptic to subglobose, apically truncate, thick-walled and dextrinoid, 5.5–6.0 × 4.5–5.5 µm.
Distribution. North-western Zimbabwe, northern Namibia, and Southern Senegal.
Remarks. The combination of thin, resupinate basidiocarps, about 6 pores / mm, a greyish orange pore surface contrasting the white margin, non- to faintly dextrinoid vegetative hyphae, and broadly elliptic to subglobose and dextrinoid basidiospores, make the species distinct.

Perenniporia voeltzkowii (Henn). Ryvarden,

Preliminary polypore flora East Africa, p. 478, 1980. - *Poria voelzkowii* Henn., in Voeltzkow, Reise in Ost-Afrika III. p. 19, 1908.
Basidiocarps annual, resupinate widely effused, up to 10 cm wide and long, 1–2 mm thick, coriaceous when dry, pore surface white to pale cream, discolouring to pale umber in parts when old, margin white, finely velutinate, pores round to moderately thick-walled, 3–4 per mm, tubes whitish to pale cream, up to 1 mm deep, context white, very thin.
Hyphal system trimitic, generative hyphae thin-walled, 2–4 µm wide, and with clamps, skeletal hyphae, straight to slightly flexuous 2–5 µm wide, dextrinoid, binding hyphae more rarely present, solid with moderate branching, 1.5–3 µm wide.
Basidiospores broadly elliptic, smooth, slightly thick-walled, filled with a large oil drop, non-dextrinoid, non-amyloid, 4–5 × 3–3.5 µm.
Distribution. Madagascar, Kenya, and Gabon.
Remarks. The species is characterized by the spores, smaller and elliptic than the larger and truncate ones in the *P. medulla-panis* complex.

Vanderbylia ungulata D.A. Reid,

J. South Afr. Bot. 39:166, 1973.
Basidiocarps perennial, solitary, pileate, broadly attached, up to 35 cm broad and 22 cm wide, 1-9 cm thick, consistency woody hard when dry, pileus dimidiate, ungulate to irregularly applanate, first minutely felty under the lens, whitish when fresh, ochraceous buff when dried, soon developing a dull, blackish-brown, glabrous and resinous hard cortex from behind, which with age covers the whole surface, cortex up to 3 mm thick and cracking with age, pore surface ochraceous buff, darker with age miscoloured, pores round, 5–7 per mm, tubes up to 8 cm thick, distinctly stratified, up to 12 strata, each up to 8 mm, sometimes separated from each other by a 1–2 mm thick sterile layer., context buff to pale cinnamon up to 2 cm thick not distinctly separated from the upper pore layer, towards the crust sometimes with several dark lines.
Hyphal system in the context and the tubes trimitic, generative hyphae with clamps, thin-walled, 1.5–3 µm wide, skeletal hyphae hyaline to yellowish, dextrinoid, thin to thick-walled, 2–6 µm in diameter, often with secondary simple septa, binding hyphae scanty, thick-walled sparingly branched, dextrinoid, 1.5–6 µm wide.
Basidiospores numerous also in old specimens, irregular to subglobose, smooth, thick-walled, and with an apical germ pore, hyaline to yellow, 5–7.5 µm in diameter, dextrinoid.
Distribution. The species seems to be restricted to the *Brachystegia*-zone (Miombo woodland) across Southern and Central Africa.
Remarks. The species is recognized by the very hard, broadly attached, mostly ungulate basidiocarps with a black, often partly cracked crust and an ochraceous, small-pored pore surface. The spores are more or less globose to obovoid, with a distinct germ pore.

Vanderbylia vicina (Lloyd) D. A. Reid, Fig. 78

Perenniporia vicina (Lloyd) Decock & Ryvarden, Mycologia 91:390, 1991. – *Polyporus vicinus* Lloyd, Lloyd Mycol. Writ. 7:1331, 1924. - *Polyporus nigro-applanatus* Van der Byl, South Afr. J. Sci. 21:311, 1924.
Basidiocarp perennial, pileate, dimidiate to semicircular, applanate to effused-reflexed with several rather narrow pilei from a common decurrent pore surface, variable in size, up to 20 cm wide, 30 cm long and 3.5 cm thick at the base, but usually smaller, when effused reflexed single pilei usually up to 2–3 cm wide and then with and oblique surface, woody hard when dry; pileus first whiteochraceous to woodcoloured, dull and soft to touch, then becoming darker and more smooth or slightly tuberculate to warted, with reddish spots or streaks that become bay and spread from the base as the upper hyphae agglutinate, finally black and with a thin, but distinct cuticle, usually azonate, but frequently nodulose and tuberculate; pore surface white to ochraceous, pores round and small, 4–5 per mm, more irregular on effused specimens growing on oblique substrates; tubes as pore surface, up to 8 mm deep; context white to pale cream, woody hard, up to 3 cm thick at the base.

Hyphal system trimitic; generative hyphae with clamps, hyaline, thinwalled and 2–4 µm wide, often difficult to observe; skeletal hyphae dominating in the basidiocarp, in the context straight, thickwalled and strongly dextrinoid, 3–8 µm wide, swelling in KOH to 11–12 µm, little branched, distinctly arboriform in the trama.
Basidiospores globose to truncate, thickwalled and variably dextrinoid, 5.5–9 × 5–6 µm.
Chlamydospores usually present, both in the trama and the context, strongly dextrinoid, mostly globose, 9–13 µm in diameter or more oblong and 8–17 × 9–12 µm.
Distribution. African, medium elevation mountain species, known from Democratic Republic of Congo, Ethiopia, Kenya, South Africa, Uganda, and Zimbabwe.
Remarks. When old and welldeveloped, the dark pileus with a thin cortex is a good field characteristic. However, young specimens are white and can easily be confused with an *Antrodia* sp. or a badly developed *Trametes* sp. The chlamydospores are diagnostic for the species. *Vanderbylia vicina* is related to *V. ungulata*; they inhabit distinct ecosystems.

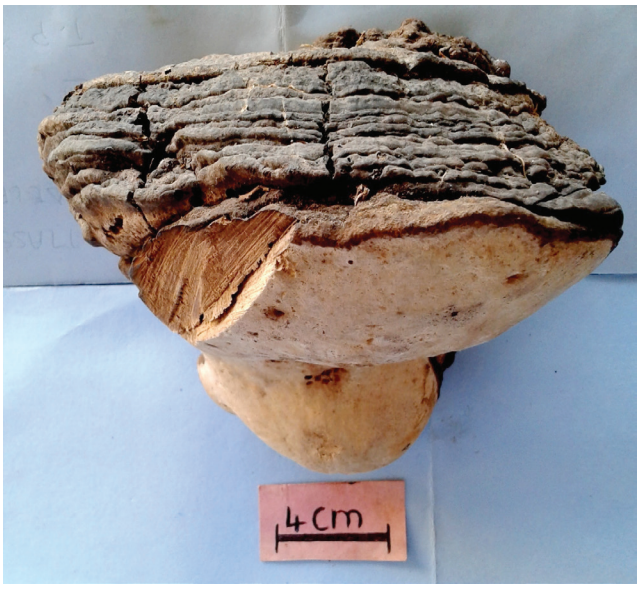


Fig. 78. *Vanderbylia vicina*, photo D. Mossebo.

PHELLINUS Quelet,

Elench. Fung. p. 172, 1886.
Basidiocarps pileate to resupinate, perennial, rarely annual; pileus dark brown to black in species with a crust, more rarely pale ochraceous, glabrous to hirsute, often sulcate, now and then radially cracked in older basidiocarps; pores variable, but mostly small, tubes usually stratified; context thin and dense; hyphal system dimitic, generative hyphae usually hyaline, thinwalled and narrow, more rarely wider and pale golden brown; skeletal hyphae brown; setal hyphae, tramal setae or hymenial setae absent or present; spores of variable shapes, hyaline to rusty brown, thin to thickwalled, IKI negative. All species on dead wood with a white rot. Cosmopolitan genus with numerous species which in many groups can be difficult to separate.
Type species: *Phellinus rubriporus* Quel. (a taxonomic synonym for *P. torulosus* Pers.).
Remarks. *Phellinus,* as defined here, is the largest genus of all polypores and undoubtedly also one of the most difficult. The reason is partly that many type specimens are sterile. Furthermore, it seems that in some groups, such as around *Phellinus igniarius* and *Ph. senex*, there may be races rather than separate species. The user of this book may experience difficulties with determinations, as we suspect that some species may be too narrowly defined.
Phellinus has recently been split into several different generic entities, based on concordant molecular and morphological data. However, to facilitate the determination of species, we have placed all known African species in one comprehensive the key and added recent taxonomic synonyms for those who want to use them.

Main key

1. Setal hyphae or tramal setae present..... **A**
1. Setal hyphae and tramal setae absent **2**

2. Hymenial setae absent..... **B**
2. Hymenial setae present **3**

3. Basidiocarps resupinate Key..... **C**
3. Basidiocarps pileate Key ..... **D**

Key A

Setal hyphae or tramal setae present in the sterile margin and/or the context and/or the trama; hymenial setae absent or present.

1. Basidiocarps resupinate; hymenial setae always present **2**
1. Basidiocarps pileate; hymenial setae present or absent **3**

2. Pores 2–4 per mm; basidiospores 5–7 µm long ..... **P. contiguus**
2. Pores 4–6 per mm; basidiospores 4–5 µm long ..... **P. ferruginosus**

3. Hymenial setae absent; setal hyphae obtuse, 7.5–13 µm wide; basidiocarp up to 5 cm thick ..... **P. noxium**
3. Hymenial setae present; setal hyphae obtuse, 4–8 µm wide; basidiocarp rarely more than 2 cm thick and of even thickness ..... **P. lamaense**

Key B

Setae or setal hyphae absent

1. Basidiocarps resupinate **2**
1. Basidiocarps pileate **4**

2. Basidiospores hyaline to goldenyellow **3**
2. Basidiospores ultimately rusty brown, 4–6 µm long ..... **P. allardii**

3 Basidiospores 3.5–4.5 × 3–4 µm ..... **P. cesatii**
3 Basidiospores 3.5–4 × 2.6–3 µm ..... **Fo. resupinata**

4. Basidiospores cylindrical, 4–5–6 × 2–3 µm ..... **F. discipes**
4. Basidiospores elliptic to globose **5**

5. Pores 3–7 per mm **6**
5. Pores 7–10 per mm **9**

6. Basidiospores hyaline to pale golden brown **7**
6. Basidiospores rusty brown **8**

7. Pileus glabrous without black zone; basidiospores elliptic, hyaline 4.5–6 × 2.7–3 µm ..... **P. amanii**
7. Pileus velvety with a black cuticle, basidiospores subglobose, faintly coloured 4–6 × 3–5 µm ..... **P. grenadensis**

8. Pores 3–5 per mm; pileus glabrous, deep brown, soon becoming black and strongly cracked or creviced; basidiospores rusty brown, broadly elliptic to subglobose, 5–7 × 4–6 µm ..... **P. rimosus**
9. Pores 5–7 per mm; pileus glabrous, first brown and smooth, by age becoming black and then somewhat cracked; basidiospores globose to subglobose, 5–6 µm in diam ..... **P. merrillii**

9. Basidiocarps resupinateeffused to triquetrous, dense and heavy; black lines often present in context next to substratum ..... **P. allardii**
8. Basidiocarps applanate; black line absent next to the substrate **9**

9. Pileus soon glabrous and black with distinct black crust, spores 4–5 × 4–4.5 µm ..... **P. nilgherensis**
9. Pileus first velutinate and brown with a thin black line in context, ultimately becoming glabrous from the base, spores 4.5–6 × 4.5–5.5 µm ..... **P. fastuosus**

Key C

Basidiocarps resupinate, hymenial setae present, setal hyphae and tramal setae absent

1. Basidiospores cylindrical, 6–8 × 2–2.5 µm ..... **F. ferrea**
1. Basidiospores elliptic to globose **2**

2. Basidiospores globose (4.5–)5–6 µm in diameter **3**
2. Basidiospores elliptic, 3.5–4.5 µm long, hyaline to pale yellow **6**

3. Setae strongly ventricose, curved to hooked; basidiocarp cushion-shaped ..... **P. gabonensis**
3. setae straight, acuminate to slightly ventricose 4

4. Setae on average smaller than 20 µm (12−25 × 4−9 µm) ..... **P. guttiformis**
4. Setae on average longer than 20 µm (20−30 µm) **5**

5. Setae 20–25 × 5–8 µm; basidiospores hyaline to yellowish; cushion-shaped ..... **P. resupinatus**
5. Setae 20–30 × 8–10 µm; basidiospores at least some rusty brown on maturity ..... **P. carteri**

6. Pore surface irregular, labyrinthine, daedaleoid; setae 25–75 µm **6**
6. Pores regular and round; setae up to 45 µm long **8**

7. Pores irregularly angular and entire; basidiospores 2–2.5 µm wide ..... **P. beninensis**
7. Pores irregular to labyrinthine, partly split; basidiospores 3–3.5 µm wide ..... **P. irregularis**

8. Setae lanceolate, straight, 25−45 × 5−7 µm ..... **F. pulviniformis**
8. Setae different **9**

9. Setae 6–11 µm wide 18–30 × 6–11 µm, acuminate to slightly ventricose ..... **P. glaucescens**
9. Setae 3.5–8 µm wide (20–) 25–40 × 5.5–8 µm, acuminate. ..... **P. purpureogilvus**

Key D

Basidiocarps pileate, setal hyphae absent, hymenial setae present.

1. Basidiocarps annual, rarely above 1 cm thick at the base, upper surface cinnamon to rusty brown, smooth to scrupose or warted, often in concentric zones ..... **P. gilvus**
1. Basidiocarps perennial and dense, 1–10 cm thick at the base; upper surface rusty brown to black, smooth, rimose with age, or velutinate to tomentose **2**

2. Basidiospores rusty brown on maturity **3**
2. Basidiospores hyaline to goldenyellow **4**

3. Basidiocarps ungulate, rimose with age; setae present; basidiospores 5.0–6 × 4.4–5 µm; mostly on living *Olea* in eastern mountain areas ..... **P. microcystideus**
3. Basidiocarps applanate to ultimately ungulate; setae absent; basidiospores 6−6.5 × 5−5.5 µm; on living *E. croceum* trees, South Africa ..... **Fulvifomes elaeodendri**

4. Setae straight **6**
4. Setae hooked at the tip **5**

5. Spore hyaline, elliptic; setae subulate, hooked at the apex; basidiocarp light in weight ..... **P. wahlbergii**
5. Spores yellowish, subglobose; setae ventricose, curved or hooked; basidiocarp dense and heavy ..... **P. setulosus**

6. Basidiospores 3.5–4.5 µm in longest dimension **7**
6. Basidiospores 4.5–7 µm in longest dimension **9**

7. Basidiospores globose, 3–4 µm in diam; pileus rusty brown and velutinate to tomentose in narrow zones; setae 10–20 (–25) µm long ..... **P. extensus**
7. Basidiospores subcylindrical to broadly elliptic **8**

8. Basidiospores subcylindrical to oblong elliptic, 3.5–4.5 × 2–3 µm; pileus glabrous, concentrically zoned, rusty brown to black from the base; setae 5–8 µm wide ..... **F. callimorpha**
8. Basidiospores broadly elliptic, 3–4(–4.5) × 3 µm; pileus tomentose, rusty brown in narrow sulcate zones becoming black in older parts; setae 8–11 µm wide ..... **P. sanfordii**

9. Basidiocarp usually applanate, semicircular to dimidiate, rarely above 2 cm thick; upper surface dark rusty brown, soon more reddish brown, bay to chestnut; margin thin and acute; pores 7–11 per mm..... **P. senex**
9. Basidiocarp triangular with sloping pore surface or more irregular shapes, up to 11 cm thick; upper surface yellowish brown; margin rounded; pores 5–7 per mm..... **P. torulosus**

Phellinus allardii (Bres.) Ryvarden,

Norw. J. Bot. 19:234, 1972. *Fomes allardii* Bres., Bull. Jard. Bot. Bruxelles 4:19, 1910.
Basidiocarp perennial, variable, pileate and then more or less triquetrous in section and with sharp and undulating margin, up to 10 cm wide and long, up to 6 cm thick, broadly attached and elongated to semicircular or even subpendant and dimidiate with a contracted base, frequently also subresupinate with a steep margin or pileus, more rarely almost completely resupinate, very hard and dense, heavy; pileus usually with numerous narrow ridges or zones sharp in parts, first deep reddishbrown and covered with a tomentum under which there is a distinct black line, later the tomentum disappear and exposes a black surface, first smooth, but with age cracking up both radially and concentrically; pore surface first bright yellowbrown, then fulvous and in old and resting basidiocarps umber brown, glancing when turned in incident light, often irregularly developed and receding; pores 7–10 per mm; tubes fulvous to umber brown, up to 5 cm deep, distinctly to indistinctly stratified; context reddish to umber brown to almost absent.
Setae absent.
Basidiospores 4.5–5.5 (–6) × 4–5 µm, broadly elliptic, pale rusty brown when mature.
Distribution. Common in East Africa.
Remarks. *P. allardii* is variable with respect to shape and size of basidiocarps, but the black zone, either below a variable tomentum or on a glabrous pileus or along the margin and partly below it, is a good field characteristic together with the fairly dense and heavy basidiocarps. Microscopically, the abundantly present rusty brown, elliptic spores and the lack of setae are diagnostic. The basidiocarps of *P. allardii* are often confusingly similar to those of *Phylloporia pectinata*, which, however, has goldenyellow and distinctly smaller spores. *Phellinus allardii* belongs to the *Fulvifomes* lineage.

Phellinus amanii Niemelä,

Norrlina 10:189, 2003.
Basidiocarp annual to perennial, variable, pileate, semicircular up to 10 cm wide and long and 5 mm thick at the base; pileus glabrous, pale brown with slight pink tinges when fresh, concentrically zoned, almost smooth or slightly tuberculate; pore surface brown, dark than pileus, silky shine when turned in incident light, 4–5 per mm; tubes 1 mm deep, greyish brown; context pale brown, 1–2 mm thick.
Setae absent.
Basidiospores 4.5–6 × 2.7–3.1 µm, elliptic, hyaline.
Substrate. The type was collected on *Allanblackia stuhlmanni*.
Distribution. Described from Amani, Tanzania.
Remarks. The species is similar to *F. gilva* by its fairly thin, pliable and flat basidiocarp, but has distinctly more elliptic spores and lack setae. Its phylogenetic affinities are unknown.

Phellinus badius (Berk.) G. Cunn,

New Zealand Dept. Sci. Ind. Res. Bull. 164:233, 1965. - *Polyporus badius* Berk., Ann. Mag. Nat. Hist. 7:453, 1841.
Basidiocarps perennial, sessile, ungulate, up to 16 × 11 × 9 cm; pilear surface at first pale brown, tomentose, quickly becoming blackened and rimose; margin yellowish-brown, tomentose, up to 1.5 cm wide; pore surface yellowish brown; pores circular to angular, 4–6 per mm; context bright, lustrous yellowish brown, firm, fissile, faintly zonate, up to 2 cm thick, with a granular core; tube layers concolorous, not distinct from context, up to 2 cm thick.
Setae absent.
Basidiospores 5–7 × 4–6 µm, ovoid, dark reddish-brown.
Distribution. Pantropical.
Remarks. *Phellinus badius* is recognized by its hoof shaped basidiocarp and lack of hymenial setae. The species belong to the *Fulvifomes* lineage.

Phellinus callimorphus (Lev.) Ryvarden,

Prelim. Polypore Flora East Africa p.145, 1980. - *Polyporus callimorphus* Lev., Ann. Sci. Nat. Ser. 5 Vol, 5:133, 1846
Basidiocarp perennial, pileate applanate, dimidiate to conchate or more broadly attached, semicircular to elongated in shape, up to 7 cm wide and 10 cm long, rarely above 1 cm thick; margin sharp, entire or lobed; consistency woody hard in thickened specimens, tough and somewhat coriaceous in thinner specimens; pileus cinnamon to

reddishbrown and then finely velutinate, soon glabrous, slightly indurated and blackish from the base, surface smooth to distinctly sulcate in narrow bands; pore surface cinnamon in actively growing specimens, deep umber brown in old ones; pores small, round, 7–10 per mm; tubes concolorous, up to 7 mm deep, weaklystratified; context homogeneous cinnamon to reddishbrown.
Setae hymenial abundant, 20–30 × 5–8 µm.
Basidiospores 3.5–4.5 × 2–3 µm, oblong elliptic to subcylindrical, thinwalled, hyaline.
Distribution. Madagascar (type locality) and Rwanda.
Remarks. The oblong elliptic to almost subcylindrical spores are diagnostic for this species. The pileus is glabrous and indurated from the base and with numerous sulcate zones. It is easily separated from species like *P. senex* and *P. gilvus* by its narrow spores. *Phellinus callimorphus* belongs to the *Fuscoporia* lineage (as *Fuscoporia callimorpha* (Lév.) Groposo, Log.-Leite & Góes-Neto).

Phellinus carteri (Cooke) Ryvarden,

Norw. J. Bot. 19:234, 1972. *Polyporus carteri* Cooke, Grevillea 15:25, 1886.
Basidiocarp resupinate, perennial, effused, woody hard, up to 6 mm thick; margin narrow and finely velutinate; pore surface dark fulvous to umber brown; pores round, small, 7–9 per mm, up to 3 mm deep; tubes concolorous up to 3 mm deep; context very thin, 0.1–0.4 mm deep, fulvous to snuff brown.
Setae hymenial, dark brown, straight, slightly ventricose to acuminate, thickwalled, 20–30 × 8–10 µm.
Basidiospores globose, hyaline to goldenyellow, then rusty brown, 4.5–6.5 µm in diameter.
Distribution. India (type locality) and Ghana.
Remarks. The species is recognized by its resupinate basidiocarps and the fairly large globose spores ultimately becoming rusty brown. The setae are quite wide, 8–11 µm wide, giving them a subventricose shape.

Phellinus cesatii (Bres.) Ryvarden,

Norw. J. Bot. 19: 234, 1972. *Poria cesatii* Bres., Studi Trent. Ser. II, 7:57, 1926.
Basidiocarp resupinate, flat, adnate and woody hard, margin fulvous brown and narrow; pore surface dark rusty brown to snuff brown; pores small, round, 7–9 per mm; tubes fulvous, ochraceous on the inner walls, up to 5 mm deep; context deep goldenbrown, fibrous, 0.5 mm thick.
Setae absent.
Basidiospores 3.5–4.5 × 3–4 µm, broadly elliptic to subglobose, hyaline to pale yellow.
Distribution. Known from Kenya and Gabon.
Remarks. The hyaline to pale coloured spores and lack of setae characterize this species. The phylogenetic affinities are uncertain.

Phellinus contiguus (Fr.) Pat., Fig. 80

Essai tax. p. 97, 1900 *Polyporus contiguus* Fr., Syst. mycol. 1 :378, 1821.
Basidiocarp perennial, resupinate, adnate, mostly elongated and effused, up to 20 cm long, 5 cm wide and up to 1 cm thick, smooth and even, hard when dry; pore surface reddishbrown, umber brown, often with a greyish pruina; pores oblique substrata and then often split in front, up to 1 mm wide, along the margin often deeply split into a labyrinthine to irpicoid configuration; tubes indistinctly stratified, up to 15 mm deep, usually with a greyishbrown pruina; context very thin, rusty brown, up to 1 mm thick.
Setae of two kinds a) **tramal setae** acute, tapering from the base, thickwalled and straight, often with a bent base, dark brown to light yellow, most common in the floccose margin and in the trama, 40–120 × 5–12 µm; b) **hymenial setae** abundant and subulate, 40–60 × 6–10 µm.
Basidiospores 5–7 × 3–3.5 µm, oblong elliptic, hyaline, thinwalled.
Distribution. Known from warmer parts of all continents, quite common in Eastern Africa.
Remarks. *Phellinus contiguus* is recognized by its fairly large and partly irregular pores, the tramal setae, and the large hymenial setae. *Phellinus contiguus* belongs to the *Fuscoporia* lineage (as *Fuscoporia contigua* (Pers.) G. Cunn.)

Phellinus discipes (Berk.) Ryvarden,

Kew Bull. 31:88, 1976. *Polyporus discipes* Berk., Hooker Lond. J. Bot. 6:499, 1847.
Basidiocarp annual to perennial, solitary, in small groups or imbricate, pileate, broadly to often narrowly attached, sometimes extended to a short stipe attached to the substrate by a mycelial disc, woody hard when dry; pileus flabelliform to spatulate or semicircular, flat to convex, up to 10 cm broad and wide and 2–4 (–8) mm thick near the base, fulvous to rusty brown or deep cinnamon, usually concentrically zoned and sulcate, first covered with a fine adpressed tomentum (lens, later the tomentum becomes more or less agglutinated making the surface zone wise to totally semiglossy to glossy, no distinct cuticle present, contracted base present, up to 2 cm long and 3–5 mm broad, concolorous with the pileus both on upper and lower side; pore surface dark fuscous, sienna to umber, usually darker

than the pileus; pores round, regular, 5–7 per mm; dissepiments entire and fairly thick; tubes more goldenyellow than the pore surface but contrasting with the context, usually singlelayered up to 2 mm thick, margin usually goldenyellow and sterile, context usually 1–2 mm thick, cinnamon to goldenbrown, fibrous.
Setae absent.
Basidiospores cylindrical, hyaline, 4.5–5.5 (–6) × 2–3 µm.
Distribution. Paleotropical, widespread in East Africa.
Remarks. The species is usually easy to recognize by the pileus becoming partly glabrous and often with some scattered warts. In this respect, it may remind of *F. gilva* but is easily separated by its more cylindrical spores and lack of setae. *Phellinus discipes* belongs to the *Fuscoporia* lineage (as *Fuscoporia discipes* (Berk.) Y.C. Dai & Ghob.-Nejh.).

Fulvifomes elaeodendri Tchotet, M.P.A. Coetzee, Rajchenb. & Jol. Roux,

Mycologia 112: 732, 2020.
Basidiomes perennial, mostly solitary, broadly attached or semicircular to dimidiate, applanate to triquetrous up to ungulate, hymenial surface plane to slightly convex, 11−26 cm wide × 10−20 cm radius × 5−10 cm thick; ungulate specimens up to 11−14 cm thick; margin regular, round to blunt; pilear surface generally covered with mosses, light brown at the growing margin to brown or dark brown in the rest of the pileus; sulcate with relatively wide furrows in the margin, velutinate or smooth, then becoming indurated, glabrous and becoming cracked with age but never rimose; pore surface golden brown to brown, rarely dull brown; pores round, regular, entire, 5−7 per mm; context light brown, relatively 3−20 mm thick, developing a black, continuous line below the pilear surface but a crust lacking, with a woody consistency; tubes concolorous, in distinct strata each 3−10 mm long and separated by a very thin contextual tissue.
Hyphal system mono- to dimitic; upper context monomitic; generative hyphae up to 6 µm diam, with a wide lumen, and thick walls, golden brown to chestnut; lower context and dissepiments dimitic; skeletal hyphae thick-walled, unbranched, 3.5−5 µm diam.
Setae absent.
Basidiospores 6−6.5 × 5−5.5 µm, broadly ellipsoid to ellipsoid, some almost subglobose, with a flattened side, thick-walled, yellowish in water, dull brown in KOH, acyanophilous.
Distribution: on standing living *E. croceum* trees, South Africa.
Remarks. The species is characterized by rather large basidiocarps, absence of setae, and brown basidiospores. It reminds one of *P. fastuosus* and P. *nilgheriensis* that have both smaller basidiospores (respectively mostly 4.5–6 × 4–5.5 µm and 4–5(–5.5) × 4–4.5 µm).

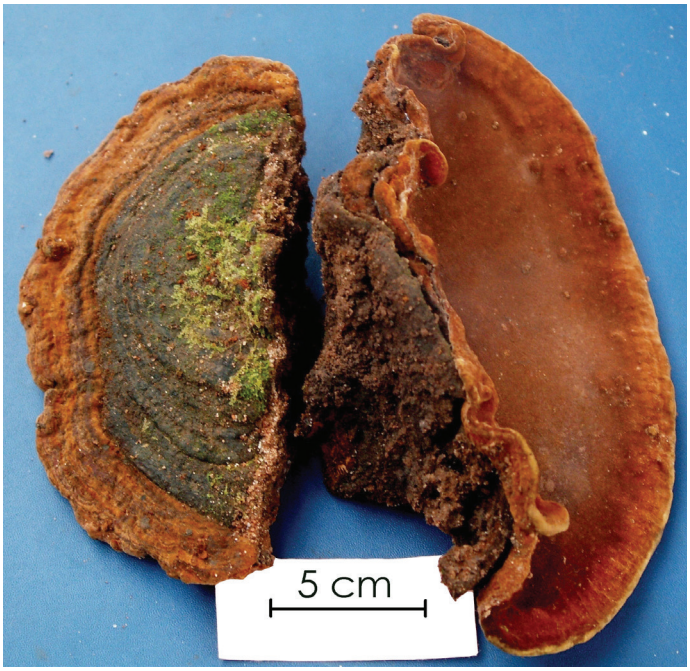


Fig. 81. *Phellinus extensus*, photo D. Mossebo.

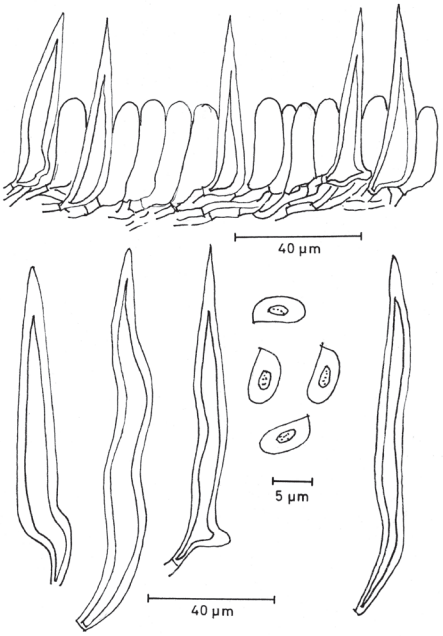


Fig. 80. *Phellinus contiguus*, a) section of hymenium, b) tramal setae, c) basidiospores, del. L. Ryvarden.

Fig. 82. *Phellinus fastuosus*, photo D. Mossebo.

Phellinus extensus (Lev.) Pat., Fig. 81

Essai tax. p. 97, 1900. *Polyporus extensus* Lev., Ann. Sci. Nat. Bot. III, 5: 129, 1846.
Basidiocarp perennial, solitary, pileate broadly attached, woody hard when dry, pileus dimidiate, conchate to applanate, up to 5 cm wide, 7 cm broad and 0.7 cm thick, upper surface reddishbrown to blackish, first covered with a fine tomentum under which there is a distinct thick dark cuticle, soon more or less glabrous in concentric zones, pore surface fulvous to bay; pores round and small, 7–10(–11) per mm; dissepiments entire and rather thick; tubes usually singlelayered or indistinctly stratified up to 2 mm in each layer, totally up to 6 mm deep, context fulvous to reddishbrown with a thick dark cuticle above, fibrous and shiny, up to 5 mm thick.
Hyphal system dimitic, generative hyphae in the tubes hyaline to pale yellow thin to weakly thickwalled, 2–3.5(–4) µm wide, sparingly branched, darker yellow and slightly wider in the context, skeletal hyphae, yellow to bay, 3–7 µm wide.
Setae hymenial ventricose, thickwalled, acute, 10–25 × 5–9 µm.
Basidiospores 3–4 µm in diameter, globose, pale yellow brown, slightly thickwalled with age.
Distribution. Probably pantropical. In Africa seen from Tanzania and Uganda. The type came from the West Indies.
Remarks. The species is macroscopically recognized by the many narrow sulcate zones covered with a fairly persistent reddish brown tomentum under which there is a distinct black cuticle. With age the latter is exposed, usually first at the base or zone wise. Microscopically the small ventricose setae and small pale yellow spores are good characteristics. The species is related to the *Sanghuangporus* / *Tropicoporus* lineage.

Phellinus fastuosus (Lev.) Ryvarden, Fig. 82

Norw. J. Bot. 19(34):234, 1972. *Polyporus fastuosus* Lev., Ann. Sci. Nat. Ser. 3, Vol. 2:190, 1844.
Basidiocarp perennial, solitary or weakly imbricate, pileate broadly attached, consistency woody hard when dry, pileus dimidiate, flat to convex, up to 60 cm broad, 30 cm wide and 7 cm thick, upper surface dark brown, rusty brown to almost black and then with a distinct black crust up to 1 mm thick, first velvety tomentose, later more or less glabrous; pore surface goldenyellow to cinnamon or rusty brown, more fuscous in older specimens; pores round and regular (6–)7–10 per mm; tubes concolorous strongly stratified, context golden-brown to more cinnamon or ferruginous in older specimens, up to 15 mm thick, sometimes with several thin, dark zones.
Setae absent.
Basidiospores 4.5–6 (–6.5) × 4–5.5 µm, broadly elliptic to almost subglobose, yellow to rusty brown.
Distribution. Pantropical, in East Africa rather common.
Remarks. Characteristic is the usually large applanate concentrically zoned and sulcate basidiocarps, first velvety cinnamon, rusty brown to dark fulvous, later more glabrous dark grey to blackish and then with a distinct crust, the lack of setae, and almost subglobose hyaline to rusty brown spores. It is seemingly related to *P. nilgheriensis* and may ultimately be regarded as a variety of that species as the spores of *P. nilgheriensis* are only slightly smaller than those of *P. fastuosus*. The species belongs to the *Fulvifomes* lineage (*Fulvifomes fastuosus* (Lév.) Bondartseva & S. Herrera.

Phellinus ferreus (Pers.) Bourd. & Galzin, Fig. 83

Hymen. Fr., p. 627, 1928. *Polyporus ferreus* Pers., Mycol. Eur. 2: 89, 1825. - *Fuscoporia ferrea* G. Cunn., Bull. N.Z. Dept. Sci. Industr. Res., Pl. Dis. Div. 73: 4, 1948. *Poria usambarensis* Henn., Engl. Bot. Jahrb. 38:108, 1905.

Basidiocarp annual to perennial, resupinate becoming widely effused, adnate, rigid and hard when dry, pore surface dull, pale yellowishbrown, sometimes with a greyish shade, darker fulvous to rusty brown when older, pores round and regular, 4–6 per mm, dissepiments entire, moderately thin, tubes totally up to 15 mm long, mostly stratified, each layer 1–3 mm long, whitestuffed with age, sterile margin pubescent, usually paler than the pore surface, context fulvous to reddishbrown, fibrous.

Setae hymenial subulate, dark ferruginous, thickwalled, 25–40 × 5–10 µm.

Basidiospores 6–8 × 2–2.5 µm, cylindrical, hyaline.

Distribution. Pantropic, but also reaching into the temperate zone.

Remarks. The species is recognized by the relatively large pores, 4–6 per mm and the hyaline, cylindrical, spores. *Phellinus ferreus* belongs to the *Fuscoporia* lineage (as *Fuscoporia ferrea* G. Cunn.)

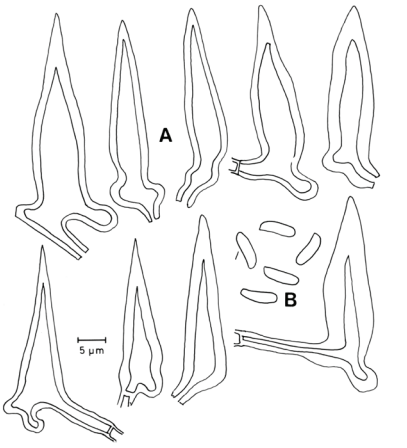


Fig. 83. *Phellinus ferreus*, a) hymenial setae, b) spores, from lectotype, del. L. Ryvarden.

Phellinus ferruginosus (Schrad.) Pat.,

Essai tax. p. 97, 1900. *Polyporus ferruginosus* (Schrad**.)** Fr., Syst. mycol. 1 : 378, 1821. - *Fuscoporia ferruginosa* (Schrad.) Murrill, N. Amer. Fl. (New York) 9(1): 5, 1907.

Basidiocarp annual to perennial, resupinate, adnate, mostly widely effused nodulose along the margin, up to 60–70 cm long, 4–15 cm wide, up to 12 mm thick in old specimens, coriaceous and flexible, pore surface even to nodulose or slightly undulating, fulvous to umber brown, pores usually 5–6 per mm, round and entire on horizontal parts, split on oblique parts of the basidiocarps, tubes concolorous with the pore surface, weakly stratified in old and thick specimens, up to 10 mm deep on oblique parts, context cinnamon to rusty brown, rather loose and cottony, distinct and of irregular thickness, up to 4–5 mm thick.

Setal hyphae present in the margin and cottony subiculum, straight, dark brown and thickwalled, 5.5–12 µm wide, up to 300 µm long, usually easy to observe.

Setae hymenial numerous, subulate, thickwalled and rusty brown, usually with a somewhat elongated horizontal base, (20–) 25–55 (–60) × 6–8.5 µm.

Tramal setae (or short setal hyphae) 30–120 × 5–8 µm, scattered to rare, embedded in the trama and parallel with the tubes, often difficult to observe.

Basidiospores 4–6 × 3–3.5 µm, broadly elliptic, hyaline, thinwalled.

Distribution. Temperate species, but found several times in East Africa.

Remarks. The species is easy to recognize due to the setal hyphae in the margin, numerous hymenial setae and the spores, which are shorter than those of *F. contigua.* The species belongs to the *Fuscoporia* lineage (*Fuscoporia ferruginosa* (Schrad.) Murrill).

Phellinus gabonensis Decock & Yombiyeni,

Mycol. Progr. 10: 358, 2011.

Basidiocarp perennial, resupinate, effused when young, becoming cushion-shaped with age, up to nodulose) up to 700 mm in the longest dimension, 100–210 mm wide, from 2 mm up to 10 mm thick in the thickest, adnate when fresh, difficult to cut off from the substrate but, on drying, separating from the wood and break into pieces; consistency hard and woody; margin 0.5–3 mm wide, densely and very minutely velutinous, indurate in old specimens, (whitish) to yellowish brown at the very margin, turning rusty to dark brown; pore surface light to dark brown, glancing with light; pores regular, round to ellipsoid when growing on standing trunk, 6–8/mm; dissepiments entire, thin to thick; subiculum thin to almost absent, negligible compared to the thickness of the tube layers; tubes with up to 6 individual, weakly distinct layers, each 2–3 mm thick.

Hyphal system dimitic; generative hyphae hyaline to yellowish, thin-walled, slightly branched, 2–3 µm wide; skeletal hyphae densely packed, 2.0–2.3 µm diam at the base to 2.5–3.0(–4 µm) diam in the main part.

Setae hymenial usually abundant, mono-, bi-, or occasionally three-rooted, acuminate to symmetrically or unilaterally ventricose, straight to curved, occasionally slightly sinuous, the apex acute, commonly curved to hamate, hooked, occasionally straight, 16–26.0 × 6.0–10.5 µm.
Basidiospores 4.5–5.5 × 3.5–4.5 µm; ellipsoid to broadly ellipsoid, first thin-walled and hyaline, distinctly thick-walled and faintly yellowish when mature, with 0–1 gutta, negative in Melzer's reagent.
Substrate. Known from dead standing or fallen trunks of various angiosperms.
Distribution: Western edge of the Guineo-Congolian rainforest in Gabon
Remarks. *Phellinus gabonensis* is characterized by the thick, cushion-shaped basidiocarps and the curved to hamate or hooked ventricose setae. It is related to *P. setulosus*, with the same microscopic characters, but which is pileate.

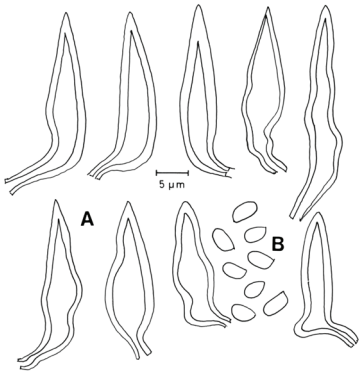


Fig. 84. *Phellinus gilvus*, a) hymenial setae, b) spores, from the lectotype, del. L. Ryvarden.
Fig. 85. *Phellinus gilvus*, basidiocarps, photo D. Mossebo.

Phellinus gilvus (Schw.) Pat., Fig. 84 & 85

Essai tax. p. 97, 1900. *Boletus gilvus* Schw., Fungi Carol. Super. II: 70, 1822. *Polyporus scruposus* Fr., Epicr. p. 473, 1838. - *Trametes pertusa* Fr., Kungl. Vetensk. Akad. Handl. 1848:130, 1848.
Basidiocarp annual to perennial, solitary, imbricate, pileate broadly attached to effused reflexed, weakly coriaceous in thin specimens, firm and woody hard in thick ones, pileus dimidiate to semicircular, up to 14 cm broad and 8 cm wide, 3–20 mm thick near the base, flat to weakly convex, upper surface goldenyellow to cinnamon near the margin, darkening to fuscous, bay to pale chestnut usually with a distinct reddish tint especially near the base and then with a thin crust of agglutinated hyphae, azonate or moderately zoned, sometimes weakly to strongly hispid with tufted skeletal hyphae becoming radially agglutinated (var. *scruposus*), first finely velutinate, soon glabrous smooth to finely to densely warted or with irregular low protuberances, pore surface fulvous to fuscous, usually with purplish tint, pores round and regular, 5–7 per mm, tubes more fulvous to ferruginous, singlelayered or in several strata, each layer 2–5 mm thick, context fulvous to cinnamon, shiny, up to 7 mm thick.
Setae hymenial frequent, ventricose to subulate, thickwalled, 20–45 × 6–11 µm.
Basidiospores 4–5 × (2.7–)3–3.5(–4) µm, oblong to narrowly elliptic, hyaline to pale yellow.
Distribution. Pantropical, common in East Africa.
Remarks. *Phellinus gilvus* is characterized by the thin pileus, a distinct reddish, glabrous, often finely to densely warted pileus, abundant long setae, and narrow elliptic spores. The species belongs to the *Fuscoporia* lineage (*Fuscoporia gilva* Schwein.) T. Wagner & M. Fisch.).

Phellinus glaucescens (Petch) Ryvarden,

Norw. J. Bot. 19 :234, 1972. *Poria glaucescens* Petch, Ann. Roy. Bot. Gard. Peradeniya 6:139, 1916.
Basidiocarp resupinate, effused, adnate, up to 10 mm thick, woody hard, margin narrow, rusty brown, velutinate (lens), pore surface fulvous to reddishbrown, sometimes with a glaucous shade especially when turned in incident light, pores small and entire, 6–8 per mm, tubes concolorous or dark cinnamon, up to 3 mm deep, indistinctly stratified, subiculum less than 1 mm thick, reddish to fulvous brown.
Setae scattered to frequent, straight, acuminate to slightly ventricose, 18–30 × 6–11 µm.
Basidiospores subglobose to elliptic, hyaline to pale yellowish with age, 3.5–4.5 × 3–4 µm.
Distribution. Widespread in Africa from Ethiopia to Malawi.
Remarks. This is a somewhat confusing species but recognized by a reddishbrown to umber pore surface, small pores and hyaline to pale yellow and elliptic spores. The species belongs to the *Sanghuangporus* / *Tropicoporus* lineage.

Phellinus grenadensis (Murrill) Ryvarden,

Norw. J. Bot. 18(34):234, 1972. *Pyropolyporus grenadensis* Murrill North Amer. Flora 9:107, 1908.
Basidiocarp perennial, solitary, pileate broadly attached, light to medium in weight, woody hard when dry; pileus dimidiate to semicircular, convex or more or less ungulate, up to 12 cm broad, 10 cm wide and 4 cm thick near the base, upper surface first covered with a fine rusty velvety tomentum which later wears off and exposes a dark bay to black crust 0.5–1 mm thick, broadly to narrowly concentrically sulcate and weakly zoned, smooth to cracked; margin acute to obtuse, entire or weakly lobed; pore surface fulvous to dark reddishbrown; pores round and regular, 4–7 per mm; tubes distinctly stratified with a thin contextlayer in between the separate layers, each strata up to 5 mm deep; context fulvous to dark cinnamon or rusty brown, 1.5–10 mm thick, fibrous and homogeneous.
Setae absent.
Basidiospores broadly elliptic to subglobose, yellow to golden brown, 4–6 × 3–5 µm.
Distribution. Africa, Central and South America, rare.
Remarks. The species is characteristic by the dark velvety pileus with a distinct crust, distinctly stratified tubes separated by contextlayers, medium sized pores and subglobose spores.

Phellinus guttiformis Tchotet, M.P.A. Coetzee, Rajchenb. & Jol. Roux,

Mycologia 112: 735, 2020.
Basidiocarp perennial, resupinate to pseudopileate, then drop- to hoof-shaped, pendant, 6.5−7.6 cm long × 4−6.5 cm wide × 0.8−2.0 cm thick. Upper surface velutinate toward the margin, smooth, dull brown to dark brown, becoming glabrous, hardening, indurated, and cracking with age; pore chocolate brown; pores round, ellipsoid when growing on a vertical substrate, 6−8 (−10) per mm; context chocolate brown, 2−6 mm thick, woody consistency; tubes light brown to chocolate brown, 3−6 mm long, indistinctly stratified.
Hyphal system dimitic; generative hyphae 2−3 µm diam, thin-walled, hyaline to slightly yellowish; skeletal hyphae straight, 2−3 µm diam;
Setae hymenial, variably abundant, subulate, acuminate to slightly ventricose, or with a relatively wide base, straight, generally 1-rooted, with a terminal or a lateral base, 12−25 × 4−9 µm, thick-walled, dark chestnut.
Basidiospores 5.5−6 × 5−5.5 µm, broadly ellipsoid, subglobose to globose, thick-walled, faintly yellowish to slightly brownish in KOH, thick-walled,.
Distribution: On a branch of *Psydraxobovata* subsp. *obovata* and living *Olea capensis* subsp. *capensis*, in South Africa.
Remarks. The species is characterized by resupinate to pseudopileate basidiocarps and hymenial setae, on average smaller than 20 µm long.

Phellinus irregularis Ryvarden,

Synopsis Fung. 39:68, 2019.
Basidiocarps annual, resupinate, up to 10 cm long, 3 cm wide 2 m thick, pore surface greyish brown, pores irregular, semi labyrinthine 1–3 per mm, at the margin as individual outgrowths, round or plate like, which then grown together to more complex poroid areas, tube walls whitish with numerous pointed setae, 1 mm deep, subiculum 1 mm thick yellowish brown, lighter than the tubes and with a thin black zone towards the substrate.
Setae hymenial abundantly present, acute, dark brown, thick-walled, 25–75 × 6–10 µm.
Basidiospores 4–5 × 3–3.5 µm, elliptic, hyaline, thin-walled.
Distribution. Known only from the type locality in Zimbabwe.
Remarks. The species is characterized by the irregular pore surface, the black line above the substrate and the long and acute setae. It may be related to *P. contiguus*, which however has larger spores and regular pores.

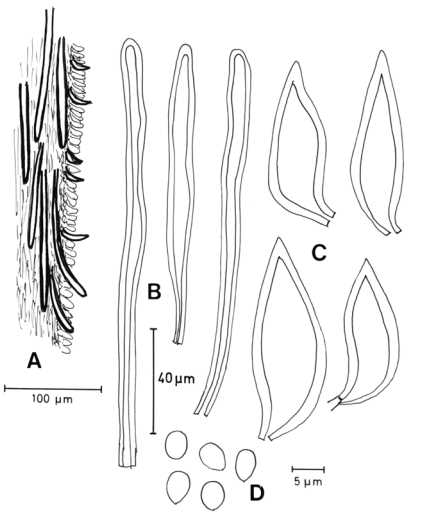


Fig. 86. *Phellinus lamaensis* a) section of tube wall, b) setal hyphae, c) hymenial setae, d) spores, from the lectotype, del. L. Ryvarden.

Phellinus lamaensis (Murrill) Heim, Fig. 86

Ann. Crypt. Exot. 7:2122, 1934. - *Pyropolyporus lamaensis* Murrill, Bull. Torrey Bot. Club 34:479, 1907.
Basidiocarp dimidiate, spatulate to lobate, 2–15 cm long and 4–25 cm wide, 0.2–3 cm thick, more or less of even thickness, applanate, pileus strongly concentrically sulcate in narrow to wide zones, first with a depressed tomentum in shades of fulvous, bay to ferruginous, soon more glabrous and then dark brown to blackish and then with a cuticle, often partly shiny and glossy, pore surface umber to dark fuscous, pores round, 8–10 per mm, tubes often stratified individually 1–10 mm thick, separated by white lines of context tissue, 0.3–1 mm thick, context woody hard, 2.5–10 mm thick, bright yellowbrown to dark cinnamon, strongly contrasting the tubes
Setal hyphae present, 50 to 150 µm long and 5–8 µm wide, in the trama yellow to dark rusty brown, partly running parallel to the tube walls, partly projecting into the hymenium and above it, apex obtuse to rounded, sometimes difficult to separate them from ordinary skeletal hyphae.
Setae hymenial, abundant, slender to ventricose, 20–45 × 5–8 µm.
Basidiospores subglobose to globose, hyaline to pale yellow with age, 3–4 µm in diameter.
Distribution. Pantropical, in East Africa known from Ethiopia, Kenya and Tanzania.
Remarks. The species is recognized by its obtuse setal hyphae, mostly 5–7 µm wide. From *P. noxium* it is separated by having numerous hymenial setae. The species belongs to the *Pyrrhoderma* lineage (*Pyrrhoderma lamaoense* (Murrill) L.W. Zhou & Y.C. Dai)

Phellinus microcystideus Har. & Pat.

Bull. Mus. nat. Hist. nat., Paris 15: 90, 1909.
Basidiocarp perennial, solitary, pileate broadly to more narrowly attached, rigid and woody hard when dry, pileus dimidiate to semi-circular, applanate to ungulate, up to 12 cm wide, 21 cm broad and 8 cm thick near the base, pileus first finely velvety tomentose, dark reddishbrown to rusty, concentrically zoned and sulcate, later glabrous and grey to black from the base, becoming mostly concentrically but also radially rimose; pore surface fulvous to dark reddishbrown, pores round to weakly angular, (5–) 6–8 per mm; context reddishbrown to fulvous, fibrous and shiny, up to 20 mm thick.
Setae hymenial ventricose to acuminate, dark brown, 15–35 µm long.
Basidiospores 5.1–6.0 × 4.4–5.0 µm, globose to subglobose, goldenyellow to rusty brown.
Distribution. Probably pantropical. In Africa seen from Dem. Rep. Congo, Ethiopia, Kenya, Tanzania, and South Africa. In Kenya (Mt Elgon), it was repeatedly found growing on *Olea* spp., which seems to be, locally, the preferential substrate. It was also found on *Olea africana* in Tanzania.
Remarks. Developed basidiocarps are typical being ungulate to subapplanate, with the pileus becoming blackish and rimose with age, frequently covered with mosses or lichens from the base. The species belongs to the *Inonotus linteus* complex, and is also known as *Sanhuangporus microcystideus* (Har. & Pat.) L.W. Zhou & Y.C. Dai.

Phellinus merrillii (Murrill) Ryvarden,

Norw. J. Bot. 19:234, 1972. - *Pyropolyporus merrillii* Murrill, Bull. Torrey Bot. Cl. 34:479, 1907.
Basidiocarp perennial, solitary, pileate broadly attached, of medium weight and woody hard when dry, pileus semicircular, ungulate to conchate, up to 10 cm broad and wide and 6 cm thick near the base, upper surface dark fulvous to rusty brown, concentrically sulcate in broad (usually) to narrow (more rare) zones glabrous from the base and then more blackish and sometimes covered with mosses, with age also becoming more or less cracked but not rimose, pore surface dark cinnamon to fulvous sometimes with a greyish tint, pores round and regular, 5–7 per mm, tubes distinct to indistinctly stratified, each layer up to 8 mm thick, context dark fulvous to reddishbrown, up to 6 mm thick, with one or several dark lines near the pilear surface.
Setae absent.
Basidiospores (4.5–) 5–6 µm in diameter, globose to subglobose, pale yellow to rusty brown.
Distribution. Probably pantropic, but rare.
Remarks. The species is characterized by the thick, almost ungulate basidiocarps with strongly sulcate pileus surface, relatively thin context, mediumsized pores, subglobose coloured spores and lack of setae.

Phellinus nilgheriensis (Mont.) G. Cunningham,

New. Zeal. Dep. Sci. Ind. Res. Bull 164:226, 1965. *Polyporus nilgheriensis* Mont., Ann. Sci. Nat. Ser. 2 vol 18:22, 1842.
Basidiocarp perennial, solitary, pileate, applanate, semi-circular to elongated up to 15 cm long, 10 cm wide and 4–5 cm thick at the base, woody hard and of medium weight, pileus mostly more or less flat, sulcate in wide and mostly rounded zones, first tomentose, but soon glabrous, pale reddishbrown, umber to blackishbrown at the base, with a distinct thin black crust, becoming thicker with age, pore surface dark yellowbrown to umber, pores round, 7–9 per mm, tubes dark brown, mostly distinctly stratified, up to 4 cm thick at the base, context first shiny and rather bright

brown, darkening to fulvous to dark cinnamon, fibrous and easily fragmented.
Setae absent.
Basidiospores 4–5(–5.5) × 4–4.5, subglobose, yellow to rusty brown and thickwalled.
Distribution. Probably pantropical, in Africa seen from Tanzania, Cameroon and Gabon.
Remarks. *P. nilgheriensis* is larger and more applanate species than *P. allardii* which in addition has denser basidiocarps, usually with a hard black crust or lines, frequently next to the substratum. The species belongs to the *Fulvifomes* lineage (as *Fulvifomes nilgheriensis* (Mont.) Bondartseva & S. Herrera).

Phellinus noxius (Corner) Cunningham,

N. Zeal. Dep. Sci. Ind. Res. Bull. 164:221, 1965. *Fomes noxius* Corner, Gard. Bull. Straits Settelem. 52:34245, 1932.
Basidiocarp perennial, solitary to imbricate, pileate broadly attached, effusedreflexed to resupinate, consistency woody hard and light in weight when dry, pileus dimidiate, flat or semiungulate, up to 13.5 cm wide, 25 cm broad and 1–5.5 cm thick, upper surface first finely velvety and pale ferruginous to umber in concentric zones, soon glabrous in irregular sulcate pattern or zones and dark brown to black, with a 0.2–1 mm thick resinous hard crust, thinner towards the margin, pore surface fulvous to dark bay or fuscous, pores small and round, 8–10 per mm, usually invisible to the naked eye, context usually 0.3–2 cm thick, homogeneous.
Setal hyphae 7.5–13 µm wide and up to 100 µm long, in the tubes abundant, thinwalled, dark brown to ferruginous, obtuse, usually projecting into the hymenium, in the context yellow to ferruginous, obtuse to acute, 5–10 µm wide and up to 700 µm long.
Setae absent.
Basidiospores 3.5–4.5 × 3–3.5 µm, broadly elliptic to oval, thinwalled.
Distribution. Pantropical, in Africa found from Sierra Leone to Tanzania.
Remarks. *P. noxius* is recognized by its obtuse setal hyphae, partly projecting into the hymenium and the absence of hymenial setae. The species belongs to the *Pyrrhoderma* lineage (*Pyrrhoderma noxium* (Corner) L.W. Zhou & Y.C. Dai).

Fuscoporia pulviniformis Tchotet, M.P.A. Coetzee, Rajchenb. & Jol. Roux,

Mycologia 112(4): 734, 2020
Basidiomes annual to perennial, solitary, resupinate, thin to distinctly pulvinate, forming ellipsoid cushion-shaped patches, up to 18−30 cm long × 4.5−10 cm wide × 0.3−4 cm thick; margin always present and well developed, very wide when the specimen develops on a vertical substrate, velutinate, becoming slightly indurated in older parts; brown to tobacco brown, pore surface, non-cracked, light brown, contrasting with the darker margin; pores round to ellipsoid, elongated when developed on a vertical substrate, 5−7 per mm; context light chocolate brown, 0.5−3 mm thick, with woody consistency, developing a thin black line below the marginal tissue and a discontinuous to irregular black line against or near the substrate; tubes light chocolate brown to light brown, stratified, up to 4 cm long for specimens developing on vertical substrates, each stratum up to 7 mm long.
Hyphal system dimitic; generative hyphae thin- to slightly thick-walled, hyaline to yellowish, 2−4 µm diam, incrusted with small rosette-like to polyhedric crystals in the hyphae protruding into the hymenium or in the pore mouth; skeletal hyphae straight, non-ramified, 2.5−5 µm diam.
Setae present in the hymenium, lanceolate, straight, numerous to very abundant, 25−45 × 5−7 µm, thick-walled.
Basidiospores not seen.
Distribution: South Africa, on living *Psydrax obovata* subsp. *obovata* and on stump of *Cunonia capensis*.

Phellinus purpureogilvus (Petch) Ryvarden,

Norw. J. Bot. 19:235, 1972. *Poria purpureagilva* Petch, Ann. Roy. Bot. Gard. Peradeniya 6:138, 1916.
Basidiocarp resupinate, perennial, adnate and up to 2 mm thick, woody hard, pore surface purplishbrown to umber, pores tiny, round, 7–8 per mm, tubes up to 2 mm thick, context reddishbrown, almost lacking in the type, 1–2 mm thick.
setae hymenial, acuminate (20–)25–40 × 5.5–8 µm.
Basidiospores 3.5–4.5 × 3.4 µm, broadly elliptic, hyaline to pale yellow.
Distribution. Known from the type locality in Sri Lanka and Tanzania.
Remarks. The purplish colour of the type collection is more prominent than in the African collection which has a more umber tint. Characteristic is the long setae. It is close to *P. glaucescens* and may ultimately prove to be a form of a fairly variable species.

Fomitiporella resupinata (Douanla-Meli & Ryvarden) (Douanla-Meli & Ryvarden) Y.C. Dai, X.H. Ji & Vlasák, Mycologia 109: 318, 2017. - *Phylloporia resupinata* Douanla-Meli & Ryvarden, Nova Hedwigia 84:416, 2007.

Basidiocarps perennial, entirely resupinate, adnate, up to 2.5 mm thick; dense and woody; pore surface blacking in KOH, dark brown, shiny in different incidences, golden-yellow; pores angular, mostly hexagonal, 7–10 per mm, almost invisible to the naked eye; tubes, dark brown, up to 1.5 mm deep; context floccose-cottony, brownish yellow, separated from the tube layer by a disrupted black gelatinous zone.
Setae absent.
Basidiospores 3.5–4 × 2.6–3 µm, broadly elliptic to subglobose.
Substrata. On dead bark of *Entandrophragma cylindricum* (Meliaceae) in a tropical rainforest.
Distribution. Known only from the type locality in Cameroon.
Remarks. The resupinate basidiocarps with small basidiospores are diagnostic**.**

Phellinus resupinatus M. Fisch., M. Cloete, L. Mostert & F. Halleen,

Mycol. Progr. 15: 4, 2016.
Basidiocarp resupinate to cushion-shaped, firmly attached to the host surface, woody hard, perennial; up to 6 mm thick in total; with distinct sterile yellowish margin, up to 5 mm wide; no margin in other specimens; pore surface dark yellowish to pale brownish; bright reddish brown in active specimens; cracked in dry specimens; pores more or less circular to angular, very small, (6–) 7–8 (–9) / mm; dissepiments thin, entire, tube layer stratified, with up to three layers; 2–4 mm thick, of the same colour or slightly darker than the pore, subiculum very thin, up to 1 mm, greyish brown; darkening with KOH.
Hyphal system dimitic; hyphae subparallel in hymenophoral trama; septa without clamp connections; skeletal hyphae golden brown, essentially aseptate, very rarely branched, slightly thick-walled, 2–4 µm wide; generative hyphae hyaline, most evident in subiculum, thin-walled to slightly thick-walled, rarely septate, rarely branched, 2–3.5 µm wide.
Setae hymenial, scattered, straight, more or less ventricose, 20–25 × 5–8 µm.
Basidiospores (4–) 4.5–5 (–5.5) × 3–3.5 (–4) µm; ellipsoid to broadly ellipsoid, hyaline.
Distribution: South Africa.
Remarks. The species is characterized by resupinate to cushion-shaped basidiocarps, ventricose hymenial setae, and broadly ellipsoid basidiospores.

Fig. 89. *Phellinus rimosus*, photo L. Ryvarden.

Phellinus rimosus (Berk.) Pilat, Fig. 89

Ann. Mycol. 38:80, 1940. *Polyporus rimosus* Berk., Lond. J. Bot. 4:54, 1945. - *Polyporus pappianus* Bres., Ann. Roy. Inst. bot. Roma 6:178, 1896.
Basidiocarp pileate, perennial, solitary, mostly ungulate to triquetrous with a sloping pileus, semicircular and dimidiate with a contracted base, up to 12 cm wide and long 3–8 cm thick at the base, pileus first more or less glabrous, fulvous to dark brown, smooth or with a few quite wide sulcate zones, later black and cracking, both radially and along the sulcate zones and often in a tilelike way, pore surface yellowbrown in actively growing specimens, (3–)4–5 per mm, tubes fulvous brown, mostly distinctly stratified, up to 7 cm deep, rather easily sectioned, context rusty to snuff brown, radially fibrillose, but fairly dense and with a fine lustre shine when broken, 0.5–3 cm thick.
Setae absent.
Basidiospores elliptic to subglobose, thickwalled, rusty brown, 5.5–7 × 4.5–6 µm.
Substrata. On hard wood, many collections have been made on trees from Fabaceae (in a wide sense), often in rather arid areas.
Distribution. Paleotropical from Southern Europe and throughout Africa, Asia and Australia.

Remarks. Young specimens of *P. rimosus* may be confused with *P. nilgheriensis*, but this species usually has a tomentum when young. Microscopically the two species may be separated by the smaller pores and spores of *P. nilgheriensis*. The species belongs to the *Fulvifomes* lineage (as *Fulvifomes rimosus* Fiasson & Niemelä).

Phellinus senex (Nees & Mont.) Imazeki,

Bull. Govern. Forest Exp. Sta. 57: 115, 1952. *Polyporus senex* Nees & Mont., Ann. Sci. Nat. Ser. 2 vol 5: 70, 1836.
Basidiocarp perennial, solitary to imbricate, pileate, broadly to more narrowly attached, 3–50 cm wide and long, 0.3–2 cm thick, pileus dimidiate to semicircular, flat or weakly convex, finely velvety tomentose in narrow concentric sulcate zones, first fulvous, ferruginous, then bay to chestnut, usually paler towards the margin, pore surface fulvous, ferruginous to almost bay, pores round and small, 7–11 per mm, usually invisible to the naked eye, tubes concolorous with the pore surface, in larger specimens stratified, context fibrous, shiny, fulvous, ferruginous to bay, usually thin 1–3(–5) mm.
Setae: hymenial, straight, thickwalled, acuminate, often swollen near the base, 15–30 (–40) × 5–9 µm.
Basidiospores 4.5–6 × 3.5–5 µm, broadly elliptic, thinwalled, often with a large oildrop, hyaline to pale yellow with age and then somewhat thickwalled.
Distribution. Pantropical, in Africa it seems to be widespread and common.
Remarks. The species is characteristic with its large, flat basidiocarps when mature, and the thin, tomentose and narrowly concentrically sulcate pileus. *Phellinus senex* belongs to the Fuscoporia lineage (as *Fuscoporia senex* (Nees & Mont.) Ghob.-Nejh.).

Phellinus setulosus (Lloyd) Imazeki,

Bull. Tokyo Sci. Mus. 6:104, 1943. *Fomes setulosus* Lloyd, Lloyd, Mycol. Writ. 4:243, 1915.
Basidiocarp perennial, solitary or imbricate, semiresupinate to pileate broadly attached, woody hard when dry, pileus dimidiate, convex to ungulate, up to 12 cm broad, 8 cm wide and 10 cm thick near the base, upper surface finely tomentose to glabrous, dull, fulvous to reddishbrown becoming blackish, sometimes basally covered with mosses, broadly concentrically zoned and sulcate, when old rimose, without distinct cortex, pore surface fulvous to ferruginous, pores round and regular, 5–8 per mm, tubes 1.5 cm deep, context golden yellow to ferruginous brown, lacking a distinct cuticle above, fibrous, faintly zoned, up to 3 cm thick.
Setae hymenial ventricose, often strongly swollen at the base, apex straight or weakly curved, ferruginous and thickwalled, 15–40 × 5–16 (–20) µm.
Basidiospores 5–7 × 4–6 µm, subglobose to broadly elliptic, pale yellow to fulvous.
Distribution. Pantropic, in Africa known only from the eastern part (Kenya, Tanzania and Rwanda.
Remarks. The important characteristics are the ungulate basidiocarps, fulvous to dark brown pileus without a distinct cuticle, the obtuse often velutinate margin, the swollen setae and the rather large subglobose spores.

Phellinus torulosus (Pers.) Bourdot & Galzin,

Bull. Soc. Mycol. France 41:191, 1925. - *Polyporus torulosus* Pers., Mycol. Eur. 2 :29, 1825.
Basidiocarps perennial, pileate, sessile, triangular in vertical sections with the upper surface horizontal and the pore surface at approximately a 45 degree angle, applanate to thick, up to 46 cm wide, 28 cm deep, and 11 cm thick; margin obtuse, rounded, up to 2 cm thick, pileus buff to pale brown, glabrous to finely tomentose or slightly strigose-matted, in older portions becoming blackened, sulcate; pore surface yellowish-brown, smooth, the pores 5–7 per mm, rounded, with thick, entire dissepiments; context yellowish-brown, faintly zonate, hard and woody, up to 11 cm thick, with one or more thin, black layers that appear as fine black lines on cut or broken vertical surfaces; tube layers distinctly stratified, woody, slightly paler than the context.
Setae hymenial, infrequent, ventricose to subulate, thick-walled, yellowish brown, 20–50 x 6–11 µm.
Basidiospores 4–6 × 3–4 µm, ovoid to elliptic, hyaline.
Substrata. Registered on a long series of hardwoods. More rarely on conifers, like *Cedrus, Cupressus, Larix, Picea* and *Pinus.*
Distribution. Widespread in the Mediterranean area.
Remarks. Basidiocarps of *P. torulosus* develop at the ground line on the base of the trunk or on exposed roots, mosses, and lichens often cover the upper surface. The fairly large setae and the perennial woody rusty brown basidiocarps characterize this species. *Phellinus torulosus* belongs to the *Fuscoporia* lineage (as *Fuscoporia torulosa* (Pers.) T. Wagner & M. Fisch.).

Phellinus wahlbergii (Fr.) D. A. Reid,

Contr. Bolus Herb. 7:97, 1975. *Trametes wahlbergii* Fr., Kung. Vet. Akad. Hand. p. 131, 1848.
Basidiocarp pileate, perennial, applanate, solitary or imbricate, rarely effused reflexed, up to 10 cm wide, 20 cm long and 5–20 mm thick at the base, semicircular to elongated shelflike, woody hard when dry, pileus reddishbrown to

umber, tomentose, narrowly banded in sulcate to flat zones, no cuticle in sections, pore surface deep rusty to chestnut brown, pores small, 7–8 per mm, tubes concolorous, up to 15 mm deep, context chestnut brown, up to 5 mm thick, homogeneous.
Setae hymenial, straight or hooked, thickwalled, dark brown, 15–30 (–35) × 6–9 µm.
Basidiospores subglobose, hyaline to pale yellow, 4–5 × 3.5–4.5 µm.
Distribution. Known from East Africa, Democratic Republic of Congo, and Sao Tomé, mostly in mountain forest; widespread in Asia and Australia.
Remarks. The species is related to *P. senex* and the main characteristic separating the two species is the hooked setae of *P. wahlbergii*, which occur mixed with straight ones. Further, the basidiospores of the latter are in average shorter than those of *P. senex. Phellinus wahlbergii* belongs to the *Fuscoporia* lineage (*Fuscoporia wahlbergii* (Fr.) T. Wagner & M. Fisch.).

PHYLLOPORIA Murrill,

Torreya 4:141, 1904.
Basidiocarps annual or perennial, sessile or stipitate, pileate; pileus in various brown shade, corky, cinnamon to dark brown; smooth, with a trichoderm or a tomentum, with narrow to wide concentric zones; pore surface in various brown shade; pores entire, angular to round; tubes concolorous with pore surface; context light to dark brown, thin, naked, or covered with a trichoderm or a tomentum, often subtending a distinct thin black zone; hyphal system mono- to dimitic; generative hyphae hyaline to light brown, with simple septa; setae absent; spores ellipsoid to subglobose, less than 6 µm in greatest dimension, slightly thickwalled, light yellowish in maturity. On mostly living hardwood tree or bush, on leaves, twigs, branches, trunks, or roots. Mainly a tropical genus.
Type species: *Phylloporia parasitica* Murrill.
Remarks. The genus is morphologically highly variable, and may be confused with *Inonotus* or *Phellinus*. Most remarkable in *Phylloporia* is its ability to grow on living bushes and trees, often on thin branches. It seems to be adapted to invade such substrata and resist the drought often experienced in such a habitat.

Key to species:

1 Basidiocarp stipitate, emerging from soil 2
1Basidiocarp sessile, emerging from trunk, branches, twigs, petioles, leaves of small trees, bushes, or liana 3

2 Pileus surface homogeneous; context without black line; pores 7–9 / mm; basidiospores 2.0–3.0 × 2.5 µm .....
.....**P. minutispora**
2 Pileus surface with silvery concentric lines; context with a black line; pores 10–11 / mm; basidiospores ellipsoid

3 4–4.0 × 2.2–2.7 µm ..... **P. afrospathulata**
3 Basidiocarp emerging from the lower side of leaving leaves; circular, button-shaped ..... **P. parasitica**
3 Basidiocarp emerging from trunks, branches, twigs, petioles; distinctly pileate……. 4

4 Pileus with a tomentum thicker than the underlying context……..... 5
4' Pileus without tomentum or with a trichoderm thinner than the underlying context….. 7

5 Black line absent between context and tomentum; pileus not sulcated……..... 6
5'Black line present between the context and the tomentum; pileus concentrically sulcate.. 7

6 Pileus golden yellow to rusty brown; pores angular, 2–4 per mm…….....**P. frutica**
6 Pileus mostly pale brown, cork-coloured; pores round to angular, 3–5 / mm…..... **P. littoralis**

7 Basidiospores broadly ovoid to subglobose, 2.5–3.5 µm in the longest dimension ..... **P. chrysites**
7 Basidiospores ellipsoid, 3–4.5 × 2–3.5 µm 8

8 Basidiocarp from 30–100 mm wide; pores 5–6 / mm..... **P. weberiana**
8 Basidiocarp up to 20 mm wide; pores 9–10 (–11) / mm..... **P. rinoreae**

9 Pileus with a thin trichoderm over a thin black line; hyphal system dimitic……..... 10
9 Pileus without trichoderm; context without black line; hyphal system monomitic……..... 12

10 Basidiocarp up to ~1 cm wide, 3 mm thick, flabelliform to conical, pendant; pileus greyish orange to pale light brown.....**P. fulva**
10 Basidiocarp larger, thicker, semi-circular, triquetrous in section; pileus dark brown 11

11Basidiospores mostly 2.5–3.5 × 2–2.5 µm; pores 8–10 / mm..... **P. pectinata**
11Basidiospores mostly 3.3–4.5 × 2.4–3.5 µm; pores 7–9 / mm; on *Trichilia emetica* ..... **P. beninensis**

12 Basidiospores oblong ellipsoid, 4.5–5.5 × 2.0–2.5 µm; pores 2–3 / mm…… ..... **P. inonotoides**
12 Basidiospores ellipsoid to ovoid, shorter, on average < 4 µm long; pores 5–6 / mm..... 12

13 Basidiocarp ≤ 1.5 mm thick; margin entire; pileus shining ..... …….**P. flabelliformis**
13 Basidiocarp > 1.5 thick; margin irregular, incised; pileus dull……..……. .....**P. gabonensis**

Since the generative hyphae persistently have simple septa and all spores are smooth, this information is not repeated for each species.

Phylloporia afrospathulata Yombiy. & Decock,

Mycologia 107: 1000, 2015.
Basidiocarp annual, solitary or in small number, stipitate; stipe lateral, up to 25 mm long, in section ellipsoid to laterally flattened, up to 7 × 2 mm, light brown, shortly velutinate to lanose (under the lens); pilei semicircular to dimidiate, thinly applanate, the margin enrolling inward on drying, up to 15 mm long, 25 mm wide, up to ≤ 1.5 mm thick at the base down to ≤ 0.3 mm thick at the margin, faintly concentrically sulcate, finely velutinate, adpressed velutinate (under the lens), cork-colored then dull light brown to brown, dark brown on aging or weathering, with several thin, concentric grayish, silvery, glistening lines; margin acute, whitish when fresh, yellowish when dry; pore surface light brown when dried, with an olivaceous glistening; pores round to ellipsoid, 10–11 per mm; dissepiments 25–40 µm thick; context (both pileus and stipe) with a thin black line separating an upper / external short trichoderm and a lower/internal context; trichoderm shortly velutinous (under the lens), up to ≤ 75 µm thick, agglutinating from the base, brown; lower context / stipe context compact, dense, corky, 0.5–1.0 mm thick at the base, very thin to the margin, light grayish brown; tubes up to ≤ 0.5 mm at the deepest, light grayish brown.
Hyphal system monomitic; generative hyphae simple-septate, little branched, thin- to moderately thick-walled, hyaline to yellowish, darker in alkali; in the context, hyphae tightly packed, yellowish to golden brown, darker brown in alkali, little branched, thick-walled but with the lumen widely open, 3.5–4.5 (–5.0) diam; in the hymenophoral trama, hyphae slightly interwoven, hyaline toward the dissepiments, yellowish to golden yellow deeper in the trama, yellowish brown in alkali, little branched, thin- to thick-walled, the lumen widely open, 3.2–6.4 µm diam; pileus trichoderm with erected to prostrate, thick-walled hyphae, yellowish to brown, mostly unbranched, 3.2–4.8 µm diam; in the stipe trama hyphae mostly parallel, tightly packed, yellowish to golden brown, darker brown in alkali, little-branched 4–7.2 µm diam, darker in alkali; stipe cover a trichoderm, up to 240 µm thick, with erected to prostrate, thick-walled, free ending hyphae, hyaline, yellowish to brown, unbranched.
Hymenium: basidia clavate, with 4 sterigmata; basidiospores mainly ellipsoid, with the adaxial side occasionally flattened (perhaps on drying), distinctly thick-walled, pale yellowish (slightly darker in alkali), without reaction in Melzer's reagent, 3.3–4.0 (–4.3) × 2.2–2.7 µm.
Substrate. Emerging from soil in the forest, presumably connected to (living) rootlets.
Distribution. Guineo-Congolian rainforest, known from the type locality in central Gabon.

Phylloporia beninensis Olou & Langer,

Scientific Reports 11(8879): 6, 2021
Basidiocarp annual, pileate, sessile, imbricate with overlapping pilei, broadly attached or effused-reflexed, hard when dried, projecting up to 3 cm, 5 cm wide, and 1 cm thick at the base; pileus applanate to slightly convex, mustard and ferruginous brown in young or actively growing specimens, almost blackish in old specimens, velvety under stereomicroscope; surface concentrically sulcate and zonate; margin undulate, obtuse, yellowish when young or in actively growing specimens, concolorous with the pileus at maturity. Pore surface buff-yellow to honey, not shining or at least in the dried specimens, pore very small, 7–9 per mm, isodiametric to angular. Context two-layered, with a black line separating an upper tomentum from a lower context; tomentum up to 5 mm thick at the base and in the middle and thinner toward the margin, softer and lighter coloured than the lower

context, tomentum; lower context up to 2 mm thick at the base and thinner at the margin. Tube layer concolorous with pore surface, up to 2 mm long.
Hyphal system dimitic; skeletal hyphae of tomentum golden yellow in water, darker in KOH, thick-walled, unbranched, simple septate, interwoven, 3–6 µm in diam; skeletal hyphae in the lower context golden yellow in water, darker in KOH, thick-walled, unbranched, septate, 3–4 µm in diam., slightly interwoven; trama with generative hyphae, hyaline, thin to thick-walled, occasionally branched, frequently simple septate, without clamp, 2–3 µm in diam.; skeletal hyphae abundant, dominating, unbranched, septate, 3–4.5 µm in diam., thick-walled, wall thickness up to 1 µm, slightly interwoven to partially arranged.
Basidia with four sterigmata; sterigmata up to 2.3 µm long, hyaline, clavate, 9–12 × 4–5 µm, with several guttulate; basidioles abundant, similar in shape to basidia, 9–11 × 4–6 µm; cystidioles frequent, variable in size and shape;
Basidiospores ellipsoid to subglobose, one or two guttulate, thin- to thick-walled, yellow-brown, acyanophilous, (3–) 3.3–4.5 × 2.4–3.5 µm.
Substrata. On deadwood or dead parts of living trees, *Trichilia emetica* Vahl. (Meliaceae).
Distribution. Currently known from the type locality in Benin.

Phylloporia chrysita (Berk.) Ryvarden,

Norw. J. Bot. 19:235, 1972. *Polyporus chrysites* Berk., Hooker's J. Bot. 8: 233, 1856. - *Polyporus capucinus* Mont., Ann. Sci. Nat. Ser. 4, Vol. 5: 369, 1857. *Inonotus corrosus* Murr., Bull. Torrey Bot. Club 31: 598, 1904.
Basidiocarps annual, pileate and sessile, single or imbricate, dimidiate to semicircular, 1–5 x 2–7 cm, up to 15 mm thick at the base, pileus surface yellowishbrown to rustybrown, mostly azonate, or zonate with age with a few sulcate zones, covered with a thick, velvety, spongy, easily compressed tomentum, up to 10 mm thick, below which there is a thin black layer; margin sharp to rounded; pore surface yellowish to dark cinnamon brown, with a thin lightcoloured sterile margin, pores round, small, almost invisible to the naked eye, 6–8 per mm; tubes 1–4 mm long, concolorous with the pore surface; context 1–2 mm thick, dense and distinctly more cinnamon than the overlying tomentum from which it is separated by a dark line, easily seen in longitudinal sections.
Hyphal system monomitic; generative hyphae, yellowish to rusty brown, in the tomentum in a loose texture, 4–8 (–10) µm wide with 0.5–1 µm wide and walls 0.5–1.5 µm thick, in the subhymenium hyaline to light yellowish and richlybranched, 3–5 µm wide.
Hymenium: Basidiospores subglobose, pale yellowish brown, 2.5–3.5 µm in diameter.
Substrata. On living bushes, often on remarkably thin branches.
Distribution. Pantropical species, but not common.
Remarks. The species is easy to recognise because of the tiny pores and a fairly soft basidiocarp.

Phylloporia flabelliforma Decock &Yombiy.

Cryptog. Mycol. 36: 459, 2015.
Basidiocarp annual, pileate, sessile, gregarious, emerging simultaneously in large clusters (up to> 100 basidiocarp), superposed; individual basidiocarp spathulate to flabelliform, rarely clavate, attached by a narrow, discoid basal area, occasionally laterally fused, projecting horizontally (3–) 10–15 (–20) mm, 5–15 mm wide, 0.5 mm thick at the very margin, up to 1.5 mm the thickest part; pileus surface shiny, smooth, radially faintly wrinkled on drying, uniformly grayish orange to brownish orange (cork-colored) when fresh or faintly concentrically zonate with narrow, slightly darker bands, drying yellowish toward the margin and darkening to brownish orange, light brown toward the base; margin thin, entire, acute, regular in outline, or slightly wavy, white, whitish when fresh contrasting with the pileus surface, yellowish grey on drying; pore surface plane, the pore field starting at about 0.5–1 mm behind the very margin, leaving a pale grayish yellow sterile zone, the pore field mostly grayish to pale grayish orange when fresh, drying pale grayish orange to yellowish brown, discoloring rather abruptly to olive brown toward the base; pores irregular, mostly round to angular, overall 5–6 / mm, occasionally radially ellipsoid to oblong, 160–250 × 90–160 µm, or multilobed up to 400 × 350 µm; dissepiments thin, 20–60 µm thick, not agglutinated, with free hyphal tips, appearing slightly plumose under the lens; context homogeneous, without black line, up to 0.5–1.0 mm thick at the base, grayish orange to grayish brown; tube layer up to 0.5 mm deep, pale whitish to grayish and contrasting with the context; context and tube layer briefly discoloring to reddish brown in 3 % KOH, then pale brown.
Hyphal system monomitic both in the context and hymenophoral trama; generative hyphae simple septate, thin- to slightly thick-walled, hyaline, yellowish to light golden brown, darker, brownish in KOH, scarcely ramified, the branches constricted at their emergence point, soon growing parallel to mother' hyphae; in the context hyphae with a parallel to subparallel (synclinal) orientation, mostly moderately thick-walled with the lumen widely open, septate, but with long aseptate segments, (3.5–) 4.0–5.0 (–5.8) µm diam; pileus surface with prostrate hyphae, mostly unbranched, identical to the contextual hyphae; in the hymenophoral trama hyphae with a subparallel disposition, thin- to slightly thick-walled, the lumen widely open, septate, but with long aseptate segments or with occasional with secondary septa, (2.3–) 2.5–3.7 (–4.0) µm diam.

Hymenium: basidioles slightly pyriform to broadly clavate, 6.0–9.0 × 3.5–4.5 µm; mature basidia broadly clavate, with four sterigmata, 9–11 × 4–5 µm; cystidioles few, fusoid, thin-walled; basidiospores ellipsoid to broadly ellipsoid to subglobose, appearing somewhat angular on drying, thick-walled, smooth, pale yellowish in KOH, without reaction in Melzer's reagent, (3.0–) 3.3–4.0 × 2.5–3.0 µm.
Substrate. Base of living, small-stemmed trunks, *Dichostemma glaucescens* and *Anthostema aubryanum* (Euphorbiaceae).
Distribution. Lower Guineo-Congolian rainforest, currently known from southwestern Gabon.

Phylloporia frutica (Berk. & W. A. Curtis.) Ryvarden,

Norw. J. Bot. 19:235, 1972. - *Polyporus fruticus* Berk. & W. A. Curtis., J. Linn. Soc. Bot. 10:310, 1868.
Basidiocarps annual, solitary, broadly attached, usually around small twigs and often on living trees, semicircular to round in outline, 1–5 cm in diameter, up to 2 cm thick, soft and spongy, pileus velvety to strigose and covered with a spongycottony tomentum, up to 1 cm thick, azonate to zonate, golden yellow to rusty brown, in old and weathered specimens even umber brown, pore surface cinnamon to rusty brown, pores angular, thinwalled, 2–4 per mm, tubes up to 2 mm deep, context duplex, the lower part dense and almost like a dark zone just above the tubes, but not distinctly black as in the other species of the genus, the upper part loose and punky, dark cinnamon to rusty brown.
Hyphal system monomitic, generative hyphae with simple septa, in the tomentum thin to thickwalled, rusty brown and up to 8 µm wide, in the tubes hyaline to pale rusty, thinwalled to almost solid, 2–5 µm wide.
Basidiospores 3–4.5 × 2.5–3 µm, broadly elliptic to subglobose, pale yellow, some spores partly collapsed with a flattened side, in some cases looking almost lunate.
Substrata. On living trees and bushes.
Distribution. Widespread in the tropical zone.
Remarks. The relatively large pores characterise this species.

Phylloporia fulva Yombiy. & Decock

Mycologia 107: 1005, 2015.
Basidiocarp annual, pileate, sessile, gregarious, emerging simultaneously in clusters of up to 50 basidiocarps, mostly superposed; individual basidiocarp mostly turbinate, pendant, attached by a small apical/subapical vertex, projecting mostly downward 3–8 (–10) mm, 3–12 mm wide at the margin, flabelliform, conchate to conical in face view, the margin outline semicircular to ellipsoid, applanate to triangular in transversal section with the pores surface concave (incurved inside), with a general hard corky consistency; pileus surface shortly velutinous, slightly concentrically sulcate, mainly cork-colored, very pale toward the margin, then grayish yellow to golden yellow, up to light brown when fresh, darker near the very base, on drying yellowish brown to light brown, with a few paler (grayish), concentric rings, slightly shiny, glistening; margin thin, entire, whitish when fresh, pale cork-colored on drying; pore surface plane to mostly concave (incurved inside), grayish when fresh, drying yellowish brown; pores small, regular, mostly round to ellipsoid, 9–11/mm; dissepiments thin, 16–40 µm thick, not agglutinated, with free hyphal tips (under the lens); context with a thin black line separating a thin upper tomentum, and a lower, homogeneous, dense context; upper tomentum a short trichoderm, 125–250 µm thick, shortly velutinous (under the lens), agglutinating from the base, golden brown to yellowish brown; lower context compacter, denser, 0.5–1.5 mm thick at the base, very thin to the margin, cinnamon brown to brown; tube layer 0.5–1.5 mm deep, concolorous with the lower trama.
Hyphal system dimitic; generative hyphae thin- to slightly thick-walled, hyaline to faintly yellowish, scarcely branched, with a constriction at the branching point, 1.3–2.5 µm diam; lower context dominated by skeletal hyphae, tightly packed, of limited growth, measured up to 400 µm long, 2.0–2.5 µm wide at the basal septa, progressively widening to 3.0–4.5 (–4.8) µm wide (ave = 3.7 µm), golden brown, darker (brown) in alkali, thick- to very thick-walled with the lumen wide to narrow, mostly aseptate throughout, or with few secondary septa near the apices; trichoderm with prostrate to erected hyphae, mostly unbranched, thick-walled with widely open lumen, septate with both true and secondary septa, the apices rounded to open, yellowish to brown, mostly 4–6 (–8) µm diam, the apices 6–8 µm wide; hymenophoral trama dominated by skeletal hyphae, mostly terminal but also occasionally intercalary, of limited growth, measured from 115–350 µm long, 1.8–2.5 µm diam at the basal septa to (2.7–) 3.0–3.8 (–4.0) µm diam (ave = 3.3 µm) in the main part, occasionally geniculated in the basal lower third (then with lateral, short or aborted processes), to mostly straight in the main part, occasionally locally constricted or inflated (up to 5–7 µm), slightly thick-walled at the basal septa, progressively thick- to very thick-walled, the lumen opening then narrow, locally lenticular, ending thin-walled, aseptate throughout but with a few secondary septa near the apices, golden brown, darker brown in alkali.
Hymenium: basidioles slightly pyriform to broadly clavate, 6.0–7.0 × 3.0–4.0 µm; mature basidia few, barrel-shaped to broadly clavate, with four sterigmata; cystidioles few, fusoid to lageniform, thin-walled; basidiospores broadly ellipsoid to subglobose, appearing somewhat angular on drying, thick-walled, smooth, pale yellowish in KOH, without reaction in Melzer's reagent, 3.0–3.5 × (2.2–) 2.5–2.8 µm.

Substrate. On a small-stemmed, living trunk, unidentified angiosperm.
Distribution. Lower Guineo-Congolian rainforest, known from northwestern Gabon.

Phylloporia gabonensis Decock & Yombiy.

Cryptog. Mycol. 36: 460, 2015.
Basidiocarps annual, pileate, sessile, gregarious, emerging simultaneously in clusters of up to ~ 100 individual basidiomata, mostly superposed, occasionally laterally fused; individual basidiomata mostly spathulate to flabelliform, attached to the substrate by a narrowly discoid basal area, projecting horizontally 15–25 mm, 10–15 mm wide, from 0.5 mm thick at the very margin up to 1.5–2.5 mm at the thickest part, the margin enrolling downward on drying; pileus surface dull, smooth, radially faintly wrinkled on drying, mainly cork-colored, very pale toward the margin, progressively darkening toward the base, grayish orange, reddish blond, yellowish brown, faintly concentrically zonate with narrow, darker band; margin thin, irregular in outline, dentate to lobed, pale yellow to pale grayish orange when fresh, drying pale grayish orange; pore surface plane, the pore field starting at the very margin, yellowish brown when dry; pores mostly round to angular, overall 5–6 / mm, (50–) 70–205 (–225) µm wide, occasionally radially ellipsoid to oblong, or fused and multilobed; dissepiments thin, entire to slightly lacerated, 15–55 µm thick, not agglutinated, with free hyphal tips, appearing slightly plumose under the lens; context homogeneous, without black line, soft corky, with a slightly fibrous texture, 0.25 mm thick at the margin up to 1 mm in the middle thickest part, grayish orange; tube layer 0.25–1.5 mm deep, concolorous with the context; context and tube layer briefly discoloring to reddish brown in 3 % KOH, then pale brown.
Hyphal system overall monomitic both in the context and hymenophoral trama; generative hyphae simple septate, thin- to slightly thick-walled, the lumen widely open, hyaline, yellowish to light golden brown, darker, brownish in KOH, scarcely ramified, the branches constricted at their emergence point, soon growing parallel to the mother hyphae; in the context, hyphae with a parallel to sub-parallel (synclinal) orientation, regularly septate but with long aseptate segments, (3.3–) 3.5–5.5 (–6.0) µm diam; pileus surface with prostrate hyphae, mostly unbranched, identical to the contextual hyphae; in the hymenophoral trama, hyphae with a subparallel disposition, septate, but with long aseptate segments or with occasional with secondary septa, (2.5–) 2.5–3.5 (–3.8) µm diam.
Hymenium: basidioles slightly pyriform to broadly clavate, 6.0–10.0 × 3.0–5.0 µm; mature basidia slightly clavate, with four sterigmata; cystidioles few, fusoid to slightly lageniform, thin-walled; basidiospores ellipsoid (broadly ellipsoid), appearing somewhat angular on drying, thick-walled, smooth, hyaline to pale yellowish in KOH, without reaction in Melzer's reagent, 3.7–4.2 (–5.0) × 2.7–3.0 (–3.3) µm.
Substrate. Small-stemmed living trunks, from the base up to 1 m high, *Dichostemma glaucescens* (Euphorbiaceae), understorey compartment
Distribution. Lower Guineo-Congolian rainforest, currently known from Southwestern Gabon.

Phylloporia inonotoides Yombiy. & Decock

Mycologia 107: 1002, 2015.
Basidiocarps seasonal, pileate; pileus solitary, sessile, attached by a circular point, 2–3 mm diam., subdimidiate to broadly spathulate with the margin regular to irregularly lobed, in section applanate (plane) to slightly convex, occasionally slightly umbonate at the attachment point, projecting 15–25 mm, 20–30 mm wide, up to 6–8 mm thick at the base down to <1 mm at the very margin, with a soft consistency when fresh, drying corky; pileus surface almost glabrous or faintly scrupose near the base, smooth when young then irregularly radially sulcate, or knobbed, faintly concentrically sulcate when mature, white, whitish at the very marginal areas, soon grayish orange, then light brown to brown near the base when fresh, with a few very thin concentric black lines; margin regular in young, immature specimen, then irregularly lobed, the lobes acute, overall white, whitish, grayish white; pore surface white to whitish at the very marginal areas, soon pale orange grey, grayish orange, brown on aging and drying; pores very irregular in size and shape, mostly rounded when young, soon irregular, round to sinuous, subdaedeloid, mostly (1.5–) 2–3/mm, (125–) 170–600 (–750) mm diam; dissepiments entire to lacerate, thin, 25–40 µm thick, smooth to slightly plumose on drying, with bundles of hyphae; context mostly homogeneous and without black line, or with a very thin, faint darker line below a very thin velutinous upper part when young and immature, overall soft spongy (watery) when fresh, drying corky, up to 2–4 mm thick at the base (or at the basal umbo), down to < 1 mm thick at the very margin, mainly grayish orange, corky colored, discoloring first to reddish brown in alkali, then pale brown; tube layer single, up to 3 mm deep at the base down to < 1 mm deep at the margin, whitish, grayish to grayish orange, cinnamon brown when fresh, slightly darker on drying. Hyphal system monomitic with simple septate hyphae in all parts; in the context hyphae (thin-) to moderately thick-walled but with lumen widely open, septate, but with long aseptate segments, sparingly branched, hyaline to mostly pale golden yellow, darker in KOH, with a sub-parallel (synclinal) orientation, (3.5–) 4.0–5.5 (–6.0) µm diam; in the hymenophoral trama hyphae, thin- to slightly thick-walled, the lumen widely open, septate, but with long aseptate segments or with occasional with secondary septa, sparingly branched, hyaline to pale golden yellow, darker in KOH, 2.5–3.5 (–4.0) µm diam.

Hymenium: cystidioles few, fusoid, thin-walled; basidioles 8.0–10.0 × 5.0–6.5 µm, hyaline, slightly pyriform; basidia 10.0–15 × 5.5–6.5 µm, clavate to slightly pyriform, with 4 sterigmata; basidiospores oblong ellipsoid, straight or with the adaxial side faintly concave, or sub-allantoid, distinctly thick-walled, smooth-walled, hyaline to faintly yellowish, darker, faintly brownish, in alkali, without reaction in Melzer's reagent, (4.0–) 4.5–5.5 (–6.5) × (2.0–) 2.0–2.5 (–2.5) µm.
Substrate. Living, small-stemmed trunks, *Crotonogyne sp.* (*Euphorbiaceae*).
Distribution. Lower Guineo-Congolian rainforest, known so far only from Southwest Gabon.

Phylloporia littoralis Decock & Yombiy.

Plant Ecology and Evolution 150: 167, 2017.
Basidiocarps solitary, seasonal, pileate, sessile, sub-pendant first, soon broadly attached, semi-circular to amplectens, then often bi- or occasionally multi-lobed, in section hoof-shaped first, soon convex and bent downward toward the margin, to applanate then gradually thinning toward the margin, projecting 8–20 mm long, 5–30 mm wide, from 0.5–2 mm thick at the very margin up to 5–10 mm at the thickest part located near the centre when convex or lobed, or near the base when applanate; pileus surface spongy, tomentose, first regular, faintly velutinate, then irregularly pitted due to agglutination of hyphae and local collapsing of the tomentum, dull, mostly uniformly pale corky when fresh, orange grey to greyish orange, darker with age, light brown (cinnamon), drying greyish orange to yellowish brown; margin thinly rounded when fresh, entire, regular in outline, forming a well-defined rim when dry, white, whitish to pale creamy when fresh, drying pale yellowish grey; pore surface concave near the margin, then plane or gradually convex, the pore field starting at about 0.5–1 mm behind the very margin, mostly pale greyish orange to greyish orange when fresh, drying pale greyish orange to yellowish brown, occasionally slightly ellipsoid to irregular, lobed, mostly (3–) 4 (–5) / mm when fresh [(4–) 5 (–6) / mm on drying], occasionally radially ellipsoid to oblong, 160–250 um long, or multi-lobed; dissepiments thin, entire, 35–75 µm thick, agglutinated; in section, tomentum spongy, loose, slightly hollowed due to agglutination of hyphae, brownish orange to yellowish brown, sometimes darker brown near the context, from 1 mm thick at the margin to 8 mm thick at the thickest part; context very thin to the margin, up to 0.5–1.2 mm thick at the base, shiny, greyish orange (cork-coloured) to greyish brown, without upper black line; tube layer up to 0.5–1.5 mm deep, pale greyish and contrasting with the context; context and tube layer darkening in alkali 3%.
Hyphal system monomitic in all parts; generative hyphae simple septate, thin- to slightly thick-walled, hyaline, yellowish to light golden brown, darker, brownish in KOH, scarcely ramified, the branches constricted at their emergence point, soon growing parallel to mother hyphae; in the tomentum, next to the context, hyphae parallel, adpressed first, soon erected, loosely packed, free or loosely agglutinated in bundles, straight to sinuous, occasionally geniculated, mostly unbranched, slightly thick-walled, sub-hyaline to pale golden brown, from 3.5 µm diam. near the base, gradually enlarging up to 4.5–9.0 µm, locally inflated 11–15 µm; in the context hyphae adpressed to oblique but mostly erected in the continuity of the hymenophoral trama, with a near parallel orientation, moderately thick-walled with the lumen widely open, septate, but with long aseptate segments, (2.5–) 3.5–4.0 µm diam.; in the hymenophoral trama hyphae with a subparallel disposition, straight, occasionally geniculated, the lumen widely open, septate, with aseptate segments or with occasional with secondary septa, (2.0–) 2.5–3.5 µm diam.
Hymenium: basidioles slightly pyriform to clavate; mature basidia mostly clavate, with four sterigmata, ~ 8.5 × 5 µm; basidiospores ellipsoid to broadly ellipsoid, appearing slightly angular on drying, thick-walled, smooth, pale yellowish in KOH, without reaction in Melzer's reagent, (3.5–) 3.8–4.5 (–4.8) × 2.8–3.5 µm.
Substrate. Living branches, twigs, up to near petioles, *Nichallea* (Rubiaceae).
Distribution. Open, coastal sclerophyllous forest on sandy soil, suffering seasonal drought periods, lower Guinean subregion, known for the time being from southwestern Gabon.

Phylloporia minutospora Ipulet & Ryvarden,

Synopsis Fung. 20: 95, 2005.
Basidiocarp annual, solitary, centrally to laterally stipitate, pileus circular, dimidiate to spatulate or reniform, 14cm broad and wide, up to 4 mm thick in centre, margin entire or lobed, paperythin, consistency coriaceous and tough, pileus deep goldenyellow to cinnamon becoming blackish in old specimens, glabrous, concentrically zoned, no zone observed in section, stipe 1–4 cm high, 1–10 mm in diameter, often somewhat swollen towards the base, adpressed velutinate in goldenyellowishbrown to cinnamon, dry specimens often longitudinally wrinkled with age and in tomentum up to 1 mm thick under which there is a distinct thin black line, the core solid, deeper brown and very hard, pore surface often slightly decurrent on the upper expanded part of the stipe, goldenbrown to fulvous, pores entire and round, very small, almost invisible to the naked eye, 7–9 per mm, tubes concolorous, up to 1 mm deep, context homogenous, goldenyellow to cinnamon, up to 2 mm deep.
Hyphal system monomitic, generative hyphae hyaline to goldenbrown to rustybrown, in context up to 8 µm in diameter, in the trama 2–6 um wide, moderately branched and densely agglutinated both in context and in stipe.

Hymenium: basidiospores broadly ellipsoid to subglobose, 2–3 × 2.5 µm.
Substrata. On the ground.
Distribution. Known from the type locality in Uganda and eastern Democratic Republic of Congo.
Remarks. The species could be confused with *p. afrospathulata*, but this species has silvery concentric line on the pileus and a thin black line in the context.

Phylloporia parasitica Murrill,

Torreya 4:141, 1904.
Basidiocarp annual, button shape, pendant from a vertex, with loosened margin, up to 8 mm in diameter, up to 1 mm thick, light brown above; pore surface greyish to rusty brown; margin narrow and concolorous; pores entire, round to angular, shallow, 5–6 (–8) per mm, context very thin and rusty brown.
Hyphal system monomitic, generative hyphae thin to slightly thickwalled, hyaline to light rusty brown, simple septate, moderately branched, 2–4.5 µm in diameter.
Hymenium: basidiospores broadly ellipsoid, hyaline to slightly yellowish with thickened walls, 3.7–4.5 × 2.2–3 µm.
Substrata. On the lower side of living leaves.
Distribution. In Africa, only reported from Tanzania.
Remarks. This is probably a rare species, but is of course very easily overlooked because of its special substrate.

Phylloporia pectinata (Kl.) Ryvarden,

Synop. Fung. 5:196, 1991. - *Polyporus pectinatus* Kl., Linnaea 8:486, 1833.
Basidiocarp pileate, perennial, applanate to semiungulate, frequently imbricate with several partly lobed pilei from a common effused base, mostly rather small, up to 4–5 cm wide, 2–6 cm long and up to 1 cm thick in single pilei, woody hard and quite heavy when dry, pileus with a few to numerous sulcate, rounded to sharp ridges, in young specimens covered with a quite persistent compressible tomentum in cinnamon to rusty colours, with age this tomentum partly wears away or becomes compacted and in old specimens a more blackish surface may become exposed in zones, in sections there is a distinct black, thin and dense zone below the persistent tomentum, a black line often present between successive pilei or as sinuous lines in bands of context between the tube layers, pore surface yellowbrown and glancing when turned in incident light, pores tiny, 8–10 per mm, invisible to the naked eye, tubes distinctly stratified, 1–2 mm in each zone, the tubes up to 8 mm deep in individual pilei, context distinctly duplex, at least in younger specimens, the lower part very dense and cinnamon to fulvous, up to 1 mm thick, with a thin black line, the pileus tomentum, usually much darker and of a more loose consistency than the lower part of the context.
Hyphal system dimitic, generative hyphae thinwalled and simple septate, 1.5–3 µm wide, skeletal hyphae dominating, thick–walled to almost solid, golden to pale rusty brown 2.5–5 µm wide.
Hymenium: basidiospores subglobose, hyaline to very pale yellowish, 3–3.5 (–4) × 3 µm.
Distribution. Pantropical and widespread.
Remarks. The species is usually recognised in the field by its numerous sulcate zones and its duplex consistency with a thin black line below the tomentum. Typically, the pore surface is glancing and often receding with an irregular development, especially in more compound basidiocarps.

Phylloporia pulla (Berk. & Mont.) Decock & Yombiy.,

Mycologia 107:1007, 2015. - *Polyporus pullus* Berk. & Mont., Lond. J. Bot. 3:332, 1844
Basidiocarp pileate, annual to perennial, solitary, broadly to more narrowly attached or effusedreflexed, about 1 cm broad, 0.5 cm wide and 1–3 mm thick at the base, consistency hard and brittle when dry, pileus conchate, flat to convex, finely tomentose in narrow concentric zones, almost glabrous in old weathered specimens, fulvous, deep cinnamon to dark brown, paler towards the margin which is sharp and acute, flat to bent downwards, pore surface dark fulvous to grayishbrown, pores round and regular, invisible to the naked eye, about 9–11 per mm, tubes singlelayered, about 1 mm long, concolorous with the pore surface, context thin and duplex, upper part concolorous with the pileus, surface, radially fibrous and about 0.1–0.2 mm thick, in the middle a dark line and below that a dark fulvous, shiny and fibrous layer up to 2 mm thick near the base.
Hymenium: basidiospores globose to broadly elliptic, hyaline to pale yellowish, 2.5–3.5 × 2–2.5 µm.
Distribution. In Africa, reported from Madagascar.
Remarks. *Phylloporia pulla* is similar to *P. pectinata,* but differs in the small size of the basidiocarp and the tiny spores.

Phylloporia rinoreae Decock, Jerusalem & Yombiy.

Plant Ecology and Evolution 152: 534, 2019.
Basidiocarp solitary, seasonal, pileate, sessile, semi-circular or dimidiate, attached by the vertex, applano-convex in section, bent downward toward the margin, projecting 7–15 mm long, 10–20 mm wide, from 0.5–1 mm thick at the very margin up to 5–7 mm at the base or the attachment point (vertex); pileus surface tomentose, spongy, velvety to

the touch, broadly sulcate with a few (1–4) deep furrows near the base, more narrowly and densely sulcate near the margin, dull, mostly uniformly light brown to brown when dry (cinnamon to cocoa brown, progressively dark brown near the margin, the furrows darker, dark brown to almost black; margin well-marked, forming a well-defined narrow rim, entire, regular in outline, greyish orange on drying; pore surface plane to mostly concave, the pore field starting immediately behind the very margin, mostly light brown when dry; pores regular, mostly round, occasionally slightly radially ellipsoid, mostly 9–10 / mm, tomentum spongy, loose, brown, 1-3 mm thick, hard corky, shiny, light brown to brown, topped with a thin, dense black line, tube layer up to 0.5–1.0 mm deep, light brown to brown.
Hyphal system dimitic, generative hyphae simple septate, thin- to slightly thick-walled, hyaline to yellowish, 1.5–5.5 µm diam, skeletal hyphae horizontal, with a near parallel orientation, golden brown, darker in KOH, moderately thick-walled with the lumen widely open, (2.5–) 3.5–4.0 µm diam.
Basidiospores oblong to elliptical (to broadly elliptical), thick-walled, smooth, pale yellowish in KOH, without reaction in Melzer's reagent, (3.8–) 4.0–4.5 (–5.0) × 2.5–3.0 (–3.2) µm.
Substrate. Living branches and twigs, an unidentified *Rinorea* (Violaceae), understorey compartment, rain forest.
Distribution. Currently known from three spots of the Guineo-Congolian phytochorion, rain forest, in Gabon.

Fomitiporella resupinata Douanla-Meli & Ryvarden
Nova Hedwigia 84:416, 2007.
Basidiocarps perennial, entirely resupinate, adnate, up to 2.5 mm thick; dense and woody; pore surface blacking in KOH, dark brown, shiny in different incidences, golden-yellow pores angular, mostly hexagonal, 7–10 per mm, almost invisible to the naked eye, tubes, dark brown, up to 1.5 mm deep, context floccose-cottony, brownish yellow, separated from the tube layer by a disrupted black gelatinous zone.
Hymenium: broadly elliptic to subglobose, basidiospores 3.7–4 × 2.6–3 µm.
Substrata. On dead bark of *Entandrophragma cylindricum* (Meliaceae) in a tropical rainforest.
Distribution. Known only from the type locality in Cameroon.
Remarks. The resupinate basidiocarps are diagnostic.

PHYSISPORINUS P. Karst.,

Bidrag Känned. Finlands Natur Folk 48:324, 1889.
Basidiocarps resupinate to pileate, annual, soft to waxy, often changing colour on bruising or drying; hyphal system monomitic; generative hyphae with simple septa; cystidia absent; spores globose to ovoid, smooth, IKI negative. Causes a white rot in rotten wood.
Type species: *Polyporus vitreus* Pers.: Fr.
Remarks. The type species and *P. sanguinolentus* have previously often been placed in *Rigidoporus* because of the similar hyphal system and spores. However, both species have resupinate, soft to waxy basidiocarps that often change colour when they are bruised or dried and have hyphae that are thin to only slightly thick-walled. In *Rigidoporus* the basidiocarps are hard and the hyphae are thick-walled and can be easily taken as skeletal hyphae.

Key to species

1. Basidiocarps pileate, spores subglobose, 3-3.5 x 2.5-3 µm..... **P. africanus**
1. Basidiocarps resupinate, spores different **2**

2. Pore surface whitish, quickly becoming red and then brown by touching ..... **P. sanguionlentus**
2. Pore surface deep clay coloured, brownish to almost black when dry **3**

3. Spores 4-5 µm in diameter ..... **P. cataractus**
3. Spores 2.5-3 µm in diameter ..... **P. resinosus**

Fig. 90. *Physisporinus africanus*, the holotype, photo C. Decock.

Physisporinus africanus Decock & Ryvarden Fig. 90.

Synopsis Fung. 44:16, 2021.
Basidiocarps annual, semi resupinate to pileate with decurrent pore surface, probably soft when fresh, drying dense and resinous hard, partly bent and irregular as a part of the drying, pileus up to 4 cm wide, sloping, black, glabrous, younger parts along the margin cream to pale ochraceous, margin round and irregular, pore surface whitish to ochraceous, pores slightly irregular and split in front on decurrent parts, 5-9 per mm, up to 1 cm long in decurrent parts of the pore surface, tubes dense, resinous pale brown, subiculum 1-2 mm, in parts apparently lacking, whitish and dense.
Hyphal system monomitic, generative hyphae with simple septa, hyaline, wavy and sinuous, variable from thin walled and partly collapsed to distinctly thick walled, up to 7 µm wide, negative in Melzers reagent.
Basidiospores 3-3.5 x 2.5-3 µm, subglobose.
Distribution. Known from only the type locality in São Tomé.
Remarks. This is a conspicuous species by its dense and contracted basidiocarps with an irregular outline when dry. The hyphae are variable from very thin walled ones, in parts more or less collapsed, to large and conspicuous thick walled one with rare branching. The latter could easily be taken as skeletal hyphae, but there is a continuous variation from these distinct thick walled ones to the thin-walled ones with irregular outline and in many cases with collapsed walls.

Physisporinus cataractus Ryvarden,

Synopsis Fung. 39:67, 2019.
Basidiocarps annual, resupinate, dense and resinous hard when dry, up to 5 cm wide and long and 1 mm thick, pore

surface dirty whitish when fresh, becoming dark olivaceous to black by drying, pores angular, hardly visible to the naked eye, 7-10 per mm, shallow, up to 200 µm deep, tube layer resinous and fragile, subiculum present as a floccose thin layer.
Hyphal system monomitic, generative hyphae with simple septa, hyaline to slightly tinted, in trama as if glued together, easily seen in subiculum and context as thick walled hyphae, 3-10 µm wide and a wall thickness of about 1 µm, often branched in right angles.
Basidiospores 4-5 µm in diameter, globose.
Distribution. Known from only the type locality in Zimbabwe.
Remarks. This is an easily overlooked species with its black colour, but distinct by the small pores. It is a conspicuous species by the dense, clay-coloured pore surface becoming black and the very wide hyphae.

Physisporinus resinosus Ipuelt & Ryvarden,

Synopsis Fung. 20:97, 2005.
Basidiocarps annual, resupinate, dense and resinous hard when dry, up to 5 cm wide and long and 4 mm thick, pore surface deep clay-coloured with a slightly tint of brown in parts, pores thin-walled, round, 6-8 per mm, invisible to the naked eye, tube layer resinous and very dense, concolorous, up to 3 mm deep, subiculum 1 mm thick, in parts almost absent, deep ochraceous and distinctly paler than the tubes.
Hyphal system monomitic, generative hyphae with simple septa, hyaline to slightly tinted, thin to very thick-walled, often branched in right angles, 3-10 um wide
Basidiospores 2.5-3 µm in diameter, globose.
Distribution. Known from only the type locality in Uganda.
Remarks. This is a conspicuous species by the very dense, clay-coloured pore surface and the wide hyphae.

Physisporinus sanguinolentus (Alb. & Schwein.: Fr.) Pilát, Fig. 90b

Atlas Champ. Europe 3:247, 1940. - *Polyporus sanguinolentus* Alb. & Schwein.: Fr., Syst. Mycol., 1:383, 1821.
Basidiocarps annual or reviving a second year, effused up to 20 cm, soft to tough, cartilaginous and crisp when fresh, drying rigid, readily separable; pore surface white or ivory when fresh, quickly showing bright rusty red blotches after collecting, eventually becoming brown, greyish to blackish on drying, the pores circular to angular, 5-7 per mm, with thick, entire dissepiments; context white when fresh, pale tan when dried, cartilaginous, less than 1 mm thick; tube layer ivory to pale tan, brittle when dry, up to 5 mm thick; taste mild.
Hyphal system monomitic; subicular hyphae, agglutinated, rarely branched, thick to thin-walled, simple septate, 3.5-6.5 µm in diam.
Basidiospores 6-7 x 5-6 µm ovoid to subglobose.
Substrata. Dead wood of conifers and hardwoods.
Distribution. More or less cosmopolitan, scattered in the forested areas in Africa.
Remarks. The distinctive colour change after collecting facilitates the identification of *P. sanguinolentus* in the field.

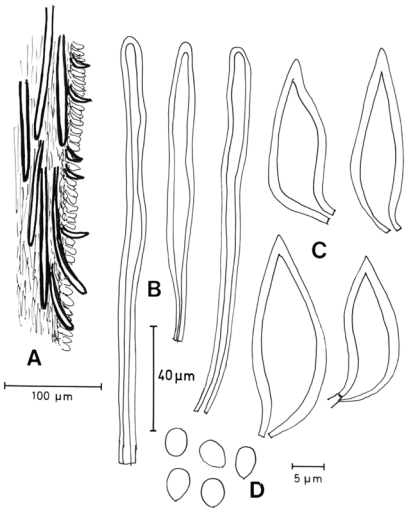


Fig. 90b *Physisporinus sanguinolentus*, a) hyphae from subiculum, b) hyphae from trama, c) section through tube walls, d) cystidioles, e) basidia, f) spores. Del. I. Melo.

POLYPORUS s.str. Fr.,

Syst. mycol. 1:341, 1821.
Basidiocarps annual, centrally to laterally stipitate, pileus smooth to scaly or first finely tomentose, but soon smooth, light to deep brown or almost purplish when old, tough when fresh, hard when dry, pore surface white to cream, pores entire, round to angular, small to large, context white, stipe glabrous to finely tomentose, light to deep brown or even blackish, smooth to longitudinally wrinkled, hyphal system dimitic, generative hyphae hyaline, thin-walled and with clamps, binding hyphae arboriform with long, mostly dichotomous branched segments ending with thin, whip-like tips, cystidia none, spore cylindrical, straight to slightly bent, thin-walled, hyaline, smooth and non-amyloid. On dead hard wood, rarely on conifers. Cosmopolitan genus.
Type species: *Polyporus squamosus* Fr.
Remarks. The genus is circumscribed by pileate, usually stipitate, poroid basidiocarps, a dimitic hyphal system with arboriform binding hyphae. Undoubtedly it is polyphyletic as demonstrated by Salleh, B. 2008: Phylogenetic relationship in *Polyporus* and morphologically allied genera, Mycologia 100: 603-614.

Main key

1. Basidiocarps dimidiate to fan shaped ..... **Key A**
1. Basidiocarps stipitate ..... **Key B**

Key A

1. Spores 14-20 µm long, rare species known only from Ethiopia ..... **P. retirugis**
1. Spores shorter than 10 µm **2**

2. Pileus dark brown and glabrous when dry **3**
2. Pileus light coloured often with veins and fine squamules at base **5**

3. Spores 6-8.5 µm long, generative hyphae with simple septa ..... **P. spatulatus**
3. Spores 4-5 µm long, generative hyphae with clamps **4**

4. Pores 3-4 per mm, spores elliptic 4-5 x 3-4 µm ..... **P. brunneopapyrus**
4. Pores 0.2-0.4 mm wide, spores subcylindrical 5-6 x 2-1.5 µm ..... **P. magnimutabilis**

5. Pores hexagonal to radially elongated, 1-2 per mm, pileus often pustulate, pileus white to cream, often growing in clusters, spores longer than 9 µm ..... **P. tenuiculus**
5. Pores round to radially elongated, pileus cream to brown and smooth or with radial lines, usually single, spores shorter than 9 µm **6**

6. Pores 0.5-1 mm wide ..... **P. philippinensis**
6. Pores 3-5 per mm ..... **P. grammocephalus**

Key B

1. Pores 5-8 per mm **2**
1. Pores 1-4 per mm **5**

2. Pileus brown chestnut to purplish black, stipe dark brown **3**
2. Pileus and stipe differently coloured **4**

3. Pores 7-8 per mm, almost invisible, spores 4-5 x 3-3.5 µm ..... **P. nigrocafricanus**
3. Pores 5-7 per mm, spores (6)7-9 x 2.5-4 µm ..... **P. dictyopus**

4. Margin with cilia, spores 6-7 x 2-3 µm ..... **P. tricholoma**
4. Margin without cilia, spores 7-10 x 3.5-5 µm ..... **P. hemicapnoides**

5. Spores shorter than 10 µm **6**
5. Spores longer than 10 µm **9**

6. Pores 1-3 per mm **7**
6. Pores 3-4 per mm, basidiocarp up to 1 cm thick, spores elliptic, rare species, known only from type locality in South Africa ..... **P. doidgeae**

7. Growing on dead rhizomes of grasses ..... **P. culmicola**
7. Growing on dead wood **8**

8. Pileus brown, stipe glabrous spores cylindrical, common species ..... **P. arcularis**
8. Pileus vinaceous brown, stipe velutinate, spores elliptic ..... **P. pulchram**

9. Pileus with squamules **10**
9. Pileus without squamules **11**

10. Pileus whitish-ochraceous with dark brown squamules ..... **P. squamosus**
10. Pileus greyish to dark brown with a few faint squamules ..... **P. udus**

11. Spores longer than 14 µm, pileus ochraceous to pale brown, rare species, known only from the type locality in Ethiopia ..... **P. retirugis**

11. Spores shorter than 14 µm, pileus dark brown, first velutinate, later glabrous, wide spread species **12**

12. Pores 1-3 per mm, pore surface cream coloured, pileus dull, azonate ..... **P. austroafricanus**
12. Pores 3-4 per mm, pore surface evenly brown pileus often with radial striae or veins ..... **P. virgatus**

NB. Since all basidia are tetrasterigmatic and all spores are smooth, thin walled and non-amyloid, this information is not repeated for each species. All species are growing on hard woods unless indicated differently.
The generative hyphae in all species, except *P. spatulatus,* have clamps at the septa, and their vegetative hyphae are all of the dendroid branched type, thus this is not repeated for each species.

Polyporus arcularius Batsch: Fr.,

Syst. Mycol. 1: 342, 1821. *Boletus arcularius* Batsch, Elench. Fung. p. 97, 1783.
Basidiocarps. annual, centrally stipitate; pilei circular, solitary, up to 2.5 cm in diam. and 0.3 cm thick; surface of the pileus strawcoloured to dark brown, azonate, glabrous, smooth to rugose; margin ciliate, acute, sterile below; stipe central, concolorous with pileus, glabrous, up to 3.5 cm long and 0.4 cm thick; pore surface cream coloured to buff, dull, rough, the pores large, hexagonal, radially aligned, 12 per mm, the dissepiments thin, becoming lacerate; context whitish to buff, azonate, tough, less than 1 mm thick; tube layer concolorous and continuous with context, up to 2 mm thick.
Basidiospores 79 x 2.53 µm, cylindrical, straight or slightly curved.
Distribution. Cosmopolitan pecies, except for the boreal zone.
Remarks. The large, radially elongated pores are the distinguishing feature of *P. arcularius*.

Polyporus austroafricanus Nunez & Ryvarden,

Sydowia 46:63, 1994.
Basidiocarps. annual, centrally stipitate; pilei circular, solitary, up to 10 cm in diam. and 4 mm thick at centre, pileus surface dark brown, azonate, velutinate, smooth to rugose; stipe central, concolorous with pileus, adpressed velutinate, concolorous with pileus, up to 10 cm long and 1.5 cm thick, in section with dark cuticle and homogenous whitish context, pore surface cream coloured to buff, dull, pores decurrent on stipe, slightly radial elongated, 1-3 per mm, dissepiments thin, becoming lacerate; tube layer concolorous and continuous with context, up to 2 mm thick, context whitish to buff, azonate, tough, up to 1.2 cm thick;
Basidiospores (8) 10-12 x 3-5 µm, cylindrical, straight or slightly curved.
Distribution. Known from Malawi, Kenya and Zimbabwe.
Remarks. The species belongs in the *P. melanopus* complex with its dull dark brown, partly adpressed velutinate surface. This latter character separates it from *P. melanopus*, which has a smooth surface, besides smaller spores.

Polyporus brunneopapyrus Ryvarden

Synopsis Fung. 39:69, 2019.
Basidiocarps annual, laterally stipitate; pilei semicircular with contracted base, 10 x 5 cm and up to 1 cm thick at the base, pileus evenly deep brown, azonate, glabrous and with a papery slight wrinkled surface when dry, margin acute; stipe lateral and tap like, 1 x 1 cm, pore surface pale cream, pores angular, thin walled, dendroid 3-4 per mm, tube layer concolorous, 1 mm deep, context, up to 8 mm thick at point of attachment, whitish, homogenous and dense.
Basidiospores 4-5 x 3.5-4 µm, elliptic.
Distribution. Known only from the type locality in Zimbabwe.
Remarks. The semicircular, evenly dark brown and glabrous pileus besides the rather small spores, are diagnostic characters.

Polyporus culmicola Sharp & Ryvarden,

Synopsis Fung. 40: 111, 2020.
Basidiocarps annual, centrally stipitate; pilei circular, solitary, up to 1.5 cm in diam. and 4 mm thick at centre, pileus surface pileus pale to dark brown, azonate, glabrous, but with fine, dark radiating line with tiny tufts of raised hairs, margin with pale, up-turned hairs, stipe 1.5 cm long, central, dull, ochraceous, glabrous, in part covered with angular sandy grains, pore surface white, sub-decurrent, pores irregular angular, mostly 1-2 per mm, tubes white, up to 2 mm deep, context white homogenous and dense.
Basidiospores 6-7 x 3-3.5 µm, elliptic.
Distribution. Known only from the type locality in Zambia.
Substrate. On dead rhizomes of different grasses.
Remarks. The substrate, the large irregular pores and the elliptic spores make this a distinct species.

Fig. 91. *Polyporus dictyopus*, photo C. Decock.

Polyporus dictyopus Mont., Fig. 91.

Ann. Sci. Nat. Ser. II, 3 :349. 1835. - *Polyporus blanchettianus* Berk. & Mont., Ann Sci. Nat. Ser. 3, 11:238. 1849. - *P. atro-umbrinus* Berk., Hooker London J. Bot. 8:154, 1856. - *P. decolor* Berk., Hooker London J. Bot. 8:195, 1856. - *P. diabolicus* Berk., Hooker, Lond. J. Bot. 8:174, 1856. - *P. nephridius* Berk., Hooker London J. Bot. 8: 195, 1856. - *P. vernicosus* Berk., Hooker London J. Bot. 8:175, 1856. - *P. rhizomorphus* Mont., Ann. Sci. Nat. Ser. II, 13:202, 1840.

Basidiocarps annual or biannual, laterally to centrally stipitate; pileus circular to flabelliform, upo 12 cm in diameter and 5 mm thick, upper surface first white in young specimens but soon darkening to chestnut and purplish black in old ones, finely tomentose to glabrous, often slightly radially striate; pore surface ochraceous to dark umber, pores round to angular, 5-7 per mm, slightly decurrent but sharply limited towards the stipe; context straw-coloured, dense, up to 5 mm thick; stipe up to 3 cm long and 1 cm thick, dark brown and velutinate when young, developing a black cuticle, glabrous when old.

Hyphal system dimitic; generative hyphae clamped, 2-6 µm wide, brown, forming a palisade on the stipe surface and a cutis on the pilear surface; skeleto-binding hyphae yellowish to dark brown, solid and tortuous, up to 10 µm wide in the context, in some specimens such as in the type specimen of *P. diabolicus*, swollen to cystidia like organs with lateral branches where the swollen central part can be up to 15 µm in diameter

Basidiospores (6)7-8.5(9) x 2.5-4 µm, elliptical, often variable within the same basidiocarp.

Distribution. Pantropical and rather common.

Remarks. There is a strong variation in pore and spore size and apparently there are many incompatibility groups or sibling species within the taxonomic complex described above.

Polyporus doidgeae Wakef.,

Bothalia 4:948, 1948.

Basidiocarps annual, pileate, centrally to laterally stipitate, growing solitarily or in clusters and then often partly to entirely fused to more complex basidiocarps, up to 10 cm wide and 1 cm thick, consistency coriaceous to brittle when dry, pileus usually orbiculate, flat to centrally depressed, first very finely adpressed tomentose and cinnamon, later glabrous and lighter brown with a tinge of reddish-brown in centre, stipe 1-3 cm long, 3.5 cm wide and somewhat expanding upwards, ochraceous and finely tomentose at the upper part, more brownish to blackish towards the base and somewhat wrinkled, pore surface white to ochraceous, tubes up to 3 mm deep, pores thin-walled, angular, 3-4 per mm towards the stipe and when dry usually smaller but also up to 1 mm wide, context straw to pale ochraceous, brittle and loose, up to 3 mm thick.

Basidiospores 4-6 (7) x 2.5-3.5 µm, broadly elliptic.

Substrate. *Acacia mollissimus* and unknown hard wood.

Distribution. South Africa and Zimbabwe.

Remarks. The closest relative seems to be *P. virgatus*, which, however, has 9-10 µm long spores.

Polyporus grammocephalus Berk.,

Hooker, London J. Bot. 1:148. 1842.

Basidiocarps annual, laterally stipitate; pileus flabelliform, up to 7 cm wide and 4 mm thick, upper surface cream

to tan or pale brown, radially fibrillose, usually with darker squamules towards the base; pore surface straw-coloured to pale brown, pores 3 to 7 per mm, round when young, elongated with age and then partly split, decurrent on the stipe; context cream to ochraceous, up to 4 mm thick; stipe short, up to 1 cm long and 4 mm thick, concolorous with the pileus, glabrous, usually attached to the substratum by a mycelial mat.
Basidiospores (5) 6-8 (10) x 2.5-3 µm, oblong elliptic to cylindrical.
Distribution. Pantropical.
Remarks. *P. philippinensis* differs by having larger pores, up to 2 per mm.

Polyporus hemicapnodes Berk. & Broome,

Jour. Linn. Soc. 14:47, 1873 - *Polyporus pusillus* Rostr., Bot. Tidsskr. 24:359, 1902.
Basidiocarps annual, pileate, laterally to centrally stipitate, 1-10 cm wide and 1-8 mm thick, pileus circular to flabelliform or almost spatulate, infundibuliform or centrally depressed towards the stipe, upper surface pale yellow, pale leather-coloured to very pale umber at the centre, even or with finely radiate streaks or lines or weakly zonate, stipe up to 5 cm long and 1-10 mm thick, centrally to laterally attached, dark brown, velvety when young, more blackish and glabrous when older wrinkled longitudinally when dry, usually sharply limited towards the pore layer pore surface decurrent on the stipe, cream to tan, up to 3 mm thick, pores small and round, (4)5-8 per mm, context up to 1 mm thick, pale straw- to cork-coloured.
Basidiospores 7-10 x 3.5 -5 µm, broadly cylindrical to slightly elliptic.
Distribution. Uganda and Kenya, widespread in tropical Asia.
Remarks. The species is variable with regard to size, but the pale tan to leather-coloured, smooth, often infundibuliform pileus and the small pores are good field characteristics.

Polyporus magnimutabilis Oba, Mossebo & Ryvarden,

Synopsis Fung. 39:79, 2019.
Basidiocarps lateral stipitate to flabelliform, up to 5 cm wide and semicircular, up to 1 cm thick at attachment pileus glabrous, strongly radially veined, finely floccose towards the point of attachment, white when fresh, chocolate brown when dry and then curled and reflexed along the margin, this sharp and thin when fresh, flexible when fresh, rigid and partly fragile when dry, pore surface white when fresh, changing to deep olivaceous brown when dry, pores radially elongate, honey comb like, 0.2-0.4 mm wide and up to 2 mm long, tubes to 0.5 mm deep, context homogenous, ochraceous, 1-2 mm thick, more so towards the base.
Basidiospores 5-6 x 2-2.5 µm, subcylindrical to elliptic.
Distribution. Known only from the type locality in Cameroon and from the Democratic Republic of Congo.
Remarks. Macroscopically this striking species is similar to the widespread and common *Polyporus tenuiculus*. However, the small elliptic spores and the striking change from almost pure white when fresh to deep chocolate brown when dry, make it a distinct species. *P. tenuiculus* remains more or less white to pale cream when dry and besides has much large spores, i.e. 9-12 x 2-3.5 µm.

Polyporus nigrocafricanus Ryvarden,

Synopsis Fung. 39:69, 2019.
Basidiocarps annual, centrally stipitate; pilei circular about 5 cm in diameter deeply infundibuliform, 1.5 mm thick, margin thin and deflexed in dry condition, pileus evenly deep brown to almost black, adpressed finely velutinate, azonate, margin acute; stipe central, about 3 mm in diameter, 2 cm long, pale brown, distinctly delimited towards the pore surface, finely velutinate, pore surface greyish black, patchy black where touched in fresh condition, pores round, 7-8 per mm, invisible to the naked eye, tubes 0.7 mm deep, concolorous with pore surface, context, up to 1 mm thick pale ochraceous, homogenous and dense.
Basidiospores 4-5 x 3- 3.4 µm, elliptic.
Distribution. Known only from the type locality in Cameroon.
Remarks. The species is seemingly closely related to *P. brunneopapyrus*, but is separated by the centrally stipitate basidiocarps and much smaller pores (3-4 per mm in *P. brunneopapyrus*).

Polyporus philippinensis Berk., Fig. 92.

Hooker London J. Bot. 1.:148. 1842.
Basidiocarps annual, laterally stipitate; pileus flabelliform, up to 7 cm wide and 4 mm thick, upper surface cream to tan or pale brown, radially fibrillose, usually with darker squamules towards the base; pore surface straw-coloured to pale brown; pores 1-2 per mm; round when young, elongated with age and then partly split, decurrent on the stipe; context cream to ochraceous, up to 4 mm thick; stipe short, up to 1 cm long and 4 mm thick, concolorous with the pileus, glabrous, usually attached to the substratum by a mycelial mat.
Basidiospores (4.5)6-8 (10) x 2.5-3 µm, oblong elliptic, often varying in size in the same basidiocarp.

Distribution. Tropical and subtropical zones, rare in Africa.
Remarks. The species differs from *P. grammocephalus* Berk. by having larger pores. The group of species around *P. philippinensis* is problematic since there are seemingly a continuous variation in pore and spore size and a change of colour in the drying of the basidiocarp.

Fig. 92. *Polyporus philippinensis*, photo A. Masuka.

Polyporus pulchram Ryvarden,

Synopsis Fung. 39:44, 2019.
Basidiocarps annual, centrally stipitate; pilei circular, solitary, up to 5 cm in diam. and 4 mm thick at centre, pileus surface dark brown, azonate, glabrous, smooth when fresh somewhat rugose when dry; stipe central, dull, dark brown, finely adpressed velutinate, 4 cm long and 5 mm in diameter, round when fresh, longitudinally wrinkled when dry, context homogenous, white, dense, pore surface cream coloured, pores, dentate, slightly radial elongated, 1-3 per mm, dissepiments thin, becoming lacerate; tube layer concolorous, up to 2 mm deep context whitish, 0.5 mm thick.
Basidiospores 4-5 x 3-3.5 µm, elliptic.
Distribution. Known only from the type locality in Cameroon.
Remarks. This is a beautiful small species with a glabrous, dark brown to dark vinaceous pileus, a wrinkled, dull brown stipe and irregular dentate pores. It is macroscopically similar to *P. austroafricanus*, which however is a larger, more robust species with larger spores, i. e. 10-12 x 3-5 µm.

Lentinus ramulicola Niemelä, Fig. 93.

Index Fung. 499, 2021.
Basidiocarps annual, stipitate, cap 2.5–3.5 cm across, up to 1 mm thick, glabrous, waxy white but brownish towards the umbilicate centre and dark brown deeper in, margin fimbriate with projecting white cilia; pore surface white, pores radially elongated or angular, 4–5 per mm; stipe *ca* 1 cm long, 2–3 mm thick, white, surface a little rough; tubes and context white.
Hyphal system dimitic, generative hyphae thin-walled, with clamps, skeletal hyphae thick-walled to subsolid, tapered and branched at apical parts.
Basidiospores 7.9–9.4 × 3.3–3.7 µm, cylindrical.
Distribution. Known only from the type locality in Zambia.
Remarks. This species resembles *Polyporus tricholoma* which, however, has round and very small pores, 7–9 per mm.

Fig. 93. *Lentinus ramulicola*, the holotype, photo T. Niemelä.

Polyporus retirugis (Bres.) Ryvarden.

Prelim. Polyp. Fl. E. Afr. p. 502, 1980. - *Trametes retirugis* Bres., Ann. Inst. Bot. Roma 5:177, 1894.
Basidiocarps annual, dimidiate with a tapering, contracted base, semicircular to flabelliform, up to 13 cm wide and long, up to 4 mm thick, rather fragile when dry, probably fleshy when fresh, pileus glabrous, azonate, ochraceous-dirty brown in the type, smooth to weakly veined with narrow striae or low ridges radially from the base, margin sharp and slightly deflexed in the type, pore surface of same colour as pileus, pores angular, quite thin-walled, 1-2 mm wide, tubes up to 3 mm long, context ochraceous, 2 mm thick.
Basidiospores 14-20 x 6-8 µm, abundant, elliptic.
Distribution. Known only from the type locality in Ethiopia.
Remarks. This rare species, clearly separated from *P. udus* and *P. squamosus* by the azonate pileus with radial veins. Further, it has larger spores than in both these species.

Polyporus spatulatus (Jungh.) Corner,

Beiheft Nova Hedwigia 70:67, 1984. - *Lashia spatulata* Jungh., Verhand. Batav.Genootsch. 17:75, 1838. - *Favolus mollucensis* Mont., Ann. Sci Nat. Ser. 2 vol. 20:365, 1843. - *Favolus multiplex* Lev., Ann. Sci. Nat- ser. 3. vol 2:203, 1844. - *Polyporus vibecenoides* Henn., Engl. Bot. Jahrb. 23:546, 1897. - *Favolus congolensis* Beeli, Bull. Soc. Bot. Belg. 62:57, 1929.
Basidiocarps flabelliform, spatulate to dimidiate, tapering towards the point of attachment, up to 11 cm wide and 2- 4 mm thick, pileus straw- coloured to ochre becoming pale chestnut or bay in older specimens, radiate-striate from base to margin in thin and darker lines, first finely velutinate, soon glabrous consistency coriaceous and tough when fresh, denser and brittle when dry, stipe if present, up to 5 mm in diameter and up to 1 cm long, concolorous with the pileus, often with decurrent pore layer, pore surface concolorous with the pileus, pores hexagonal to radially elongated, partly collapsed in older specimens and in part lamellate, 1-4(5) pores per mm, pore walls thin, papery, dentate to incised, tubes up to 3 mm long, concolorous with the pore surface, context straw-coloured to pale yellow, up to 1 mm thick.
Basidiospores 6-8.5 x 2-3 µm, cylindrical.
Distribution. Paleotropical species and widespread in Africa.
Remarks. The irregular pores and the pale pileus becoming reddish brown when dry are usually sufficient to separate it from the similar *P. tenuiculus* which further has generative hyphae with clamps. The species has been repeatedly described as new because of the variable pore size and the colour which changes from ochraceous to deep reddish-brown with age. The radial striae vary in number and prominence from one specimen to another.

Polyporus squamosus Huds.: Fr.,

Syst. Mycol. 1:343, 1821. *Boletus squamosus* Huds., Fl. Angl. 2. ed., 2: 626, 1778.
Basidiocarps annual, laterally stipitate, pilei dimidiate, reniform, or circular, up to 18 cm wide and 5 cm thick, solitary or several from a branched base; upper surface pale buff with a thin blackish brown pellicle that breaks up to form dark, scalelike patches which with age become agglutinated to the pileus, azonate; margin concolorous; pore surface buff to light brown, the pores angular, 1-2 per mm, dissepiments becoming lacerate; context pale buff, corky, azonate, up to 4 cm thick; tube layer concolorous with context, up to 1 cm thick, decurrent on stipe down to black basal portion; stipe black and minutely tomentose at base, remainder of stipe usually covered by decurrent tube layer.
Basidiospores 14-17 x 5-6 µm, broadly cylindrical.
Distribution. Cosmopolitan, but most common in the temperate zone. In Africa known only from Ethiopia and Tanzania.
Remarks. The scaly pilear surface is usually sufficient for a determination.

Polyporus tenuiculus (Beauv.) Fr., Fig. 94.

Syst. Mycol. 1:344, 1821. - *Favolus tenuiculus* Beauvois, Fl. Oware Benin Afriq. 1:74, 1806. - *Daedalea brasiliensis* Fr., Syst. Mycol. 1:332, 1821, non *Polyporus brasiliensis* Spegazzini 1889, non Rick 1935, non Corner 1984.
Basidiocarps annual, solitary, imbricate or caespitose, centrally to laterally stipitate; pileus flabelliform, or

Fig. 94. *Polyporus tenuiculus*, photo T. Niemelä.

infundibuliform, 2-10 cm in diameter, up to 6 mm thick at the base and thinning towards the margin; upper surface white when fresh, drying deep tan to rarely purplish bay, glabrous except for the basal part of the pileus, smooth or distinctly tessellate reflecting the pores below, light and brittle when dry; pore surface concolorous with the pileus, pores hexagonal to radially elongated, 1-2 per mm, rather shallow, decurrent along the whole stipe; context white to pale ochraceous, up to 2 mm thick, stipe up to 1 cm long and 5 mm thick, concolorous with the pileus.
Basidiospores (8)9-12 x 2-3.5 µm, cylindrical to sub navicular.
Distribution. Pantropical.
Remarks. *P. tenuiculus* as described here is probably a species complex. Before sequencing and eventually mating tests among the different morphological forms with different pore sizes have been performed, they are treated as a variable species. In a wide sense it is a common, often occurring in large numbers and are quickly attacked by insects. In Africa young specimens are commonly eaten.

Polyporus tricholoma Mont., Fig. 95.

Ann. Sci. Nat. Ser. II, 8:365. 1837. - *Polyporus raphanipes* Wakef., Bull. Misc. Inf. Kew 1914:157, 1914.
Basidiocarps annual, centrally stipitate, solitary to caespitose; pileus circular, flat to infundibuliform, up to 4 cm in diameter and 2 mm thick, upper surface cream, drying pale tan to pale brown, smooth, glabrous, usually ciliate along the margin; pore surface ochraceous, pores round to angular, up to 9 per mm, not or slightly decurrent on the stipe; context whitish to tan, up to 1 mm thick; stipe up to 4 cm long, 1-3 mm thick, pale tan to dirty brownish, longitudinally wrinkled when dry, mostly glabrous.
Basidiospores 6-7 x 2-3 µm, cylindrical.
Distribution. In Africa known only from Nigeria. Widespread in the Neotropical zone.

Fig. 95. *Polyporus tricholoma*, photo D. Mossebo.

Remarks. The species is characterized by its light colours and the mostly prominent cilia along the margin of the pileus.

Polyporus udus Jungh., Fig. 96.

Tidschr. v. Nat. Gesch. Phys. 7:289. 1840. - *Polyporus maculatus* Berk. Hook. J. Bot. 3:80, 1951. - *Polyporus platyporus* Berk., ibid 81, 1851. - *Polyporus fuscomaculatus* Bres. & Pat., Lloyd Mycol. Writ. 6:49. - *Polyporus discoideus* Berk. & M. A. Curtis, J. Linn. Soc. Bot. 10:303, 1868. - *Polyporus glutinifer* Berk. ex Cooke, Grevillea 15:19-20, 1886. - *Polyporus lentinoides* (Henn.) Lloyd, Lloyd mycol Writ. 3:85, 1918 - *Polyporus evanido-squamulosus* Henn. Engl. Bot. Jahrb. 22:90, 1897 in Engl. Planzw. Ost-Africas, p. 57, 1895, nom. nov. for *P. squamulosus* Henn. 1895, nom. illegit., non Bres. 1890.
Basidiocarps annual, laterally to centrally stipitate; pileus circular to fan-shaped, flat to strongly infundibuliform, up to 12 cm in diameter and 2 cm thick, upper surface greyish-brown often with pinkish to violet tints when fresh, sometimes with adpressed small squamules or tufts of brown hairs; surface glabrous when dry, covered by a wrinkled papery cuticle; pore surface white to ochraceous, pores irregular to angular, brittle, 1-2(3) per mm, context white, distinctly paler that the pore layer, brittle when dry, up to 2 cm thick; stipe up to 6 cm long and 2 cm thick, light brown or concolorous with the pileus, even or with tufts of brown hairs, often with shallow decurrent pores in the upper part.

Fig. 96. *Polyporus udus*, photo D. Basset.

Basidiospores 10-15 x 4-6 µm, cylindrical to broadly elliptic, often variable in single preparations.
Distribution. Pantropical, but in Japan found also in the temperate zone.
Remarks. The species belongs in the group *Squamosus*, and is recognized by its smooth, greyish-brown papery cuticle with rose tints and small squamules or raised hairs when fresh. The stipe is often partly villose with dirty brown hairs, which may disappear by age. The colour variation in this species is often bewildering as it changes from one collection to another, some being distinctly more pinkish than other brown to grey ones. It may be that more than one species is involved.

Polyporus virgatus Berk. & M. A. Curtis,

Jour. Linn. Soc. Bot. 10:304. 1868.
Basidiocarps annual, centrally to laterally stipitate; pileus infundibuliform, seldom spatulate, up to 10 cm wide and 2-5 mm thick, upper surface sienna, umber becoming chestnut, usually with red tints, first finely velvety, soon glabrous, the surface breaks radially exposing the lighter context; pore surface umber to dark brown when dry, pores circular to angular, 3-4 per mm, decurrent on the stipe; context pale yellow to ochraceous, distinctly lighter than the tubes, hard, 1-3 mm thick; stipe up to 3 cm long, 4 mm to 1 cm thick, dark brown, finely wrinkled and with a black cuticle covered by brown tomentum that soon disappears.
Basidiospores 9-12.5 x 4-5 µm, cylindrical.
Distribution. Pantropical to subtropical, but in Africa seen only from Uganda.
Remarks. The striate, usually infundibuliform pileus and large spores make the species easily recognizable.

PORODISCULUS Murrill,

N. Am. Flora 9:47, 1907.
Basidiocarps pileate, pendent from a stalklike base, 1-3 mm wide; upper surface and dissepiments farinaceous, ashy white to pale brown; pore surface concave, pores 8-10 per mm; hyphal system monomitic, hyphae simpleseptate; much branched trichocyst hyphae on pilear surface and dissepiments; basidia in a compact palisade, 3-4 µm in diam, tetrasterigmatic, cystidia absent; basidiospores allantoid, 3-4 x 1 µm. Associated with a white rot of dead hardwoods. Monotypic tropical genus.
Type species: *Porodisculus pendulus* (Schw.) Murrill.
Remarks. This genus has no apparent close poroid relatives. The small pendent basidiocarps and the distinctive coralloid trichocyst hyphae, suggest relationships with *Mycena* and related genera.

Porodisculus pendulus (Schw.) Murrill, Fig. 97.

N. Am. Flora 9:47, 1907. *Peziza pendula* Schw., Schr. Nat. Ges. Leipzig 1:92, 1822. *Polyporus cupulaeformis* Berk. & M. A. Curtis, Grevillea 1:38, 1872.
Basidiocarps annual, pileate, single but usually fruiting in large numbers, usually pendent from a dorsal or lateral narrowed stalklike base developing from a lenticel, or a mass of mycelium that ruptures the bark, circular to elliptical in outline, 1-3 mm in diam; upper surface ashywhite, farinaceous, azonate, margin pale brown, also farinaceous, rounded, fertile below; pore surface convex, the pores 8-10 per mm, almost obscured by the thick, farinaceous and sugary looking dissepiments; context cream coloured with a pale brown upper layer composed of the surface tomentum, azonate, up to 1.5 mm thick, firmcorky; tube layer distinct and appearing cartilaginous in dried specimens, pinkish buff, up to 1 mm thick; dorsal or lateral stalklike part with surface characters like pileus surface.
Hyphal system monomitic; contextual hyphae hyaline, thinwalled, simpleseptate, 2-3 µm in diam, hyphal walls swelling greatly in KOH; tramal hyphae similar.
Vesicular chlamydospores like structures present in trama, elliptic to spherical, moderately thickwalled, 15-20 x 12-15 µm, those on the pileus surface strongly amyloid

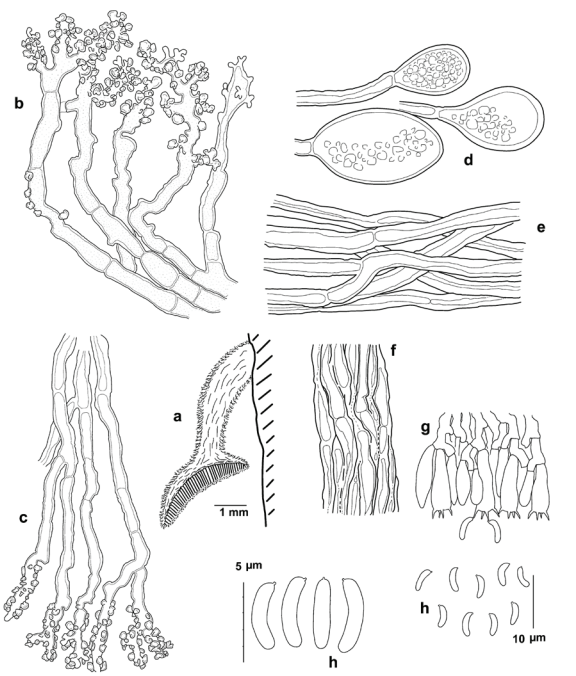


Fig. 97. *Porodisculus pendulus*, a) section of basidiocarps, b) trichocysts from pileus, c) same from pore mouths, d) chlamydospores, e) hyphae from context, f) hyphae from trama, g) part of hymenium, h) basidiospores. Del. I. Melo.

so that the entire layer turns blueblack in Melzer's reagent.
Trichocysts present on pileus surface and dissepiments, covered with minute dichotomously branched projections and often with coarse crystalline material.
Basidiospores 3.54.5 x 1 µm, allantoid.
Distribution. Apparently rare, in Africa seen from Tanzania, Zaire and Nigeria, but easy to overlook by its small size and dark brown colour. Widespread in America.
Remarks. This species has the smallest basidiocarps of any of the polypores described in this book.

POROGRAMME Pat.,

Essai Tax. p. 63, 1900.
Basidiocarps resupinate, adnate, bluish grey, reddish to almost blackish, pores angular and irregular, in parts labyrinthine or consisting of irregular plates, hymenium whitish and restricted to the base of the pores, context dark and resinous hard, old tubes filled with white mycelium, substrate usually reddened in zones, hyphal system monomitic, generative hyphae with clamps, first hyaline, later thickwalled and tinted brownish, dextrinoid, dark brown in KOH, densely intertwined and agglutinated, clamps often difficult to observe, cystidia and dendrohyphidia absent or present, spores elliptic, smooth, thinwalled and nonamyloid.
Type species: *Porogramme dussii* (Pat.) Pat.
Remarks. The genus is usually easy to recognize because of the extremely tiny pores. The hyphal system may be mistaken to be dimitic, but an examination of the thickwalled hyphae will demonstrate clamps, thus, they must be interpreted as sklerified generative hyphae. Their reaction in Melzer and in KOH is quite unique.

Key to species

1. Basidiocarps bright bluish-green ..... **P. azurica**
1. Basidiocarps differently coloured **2**

2. Basidiocarp dark bluish to almost black, substrate with red zones, on hardwood ..... **P. albocincta**
2. Basidiocarp light ashy blue, substrate without red zones, on monocotyledons, especially palms ..... **P. fuligo**

Porogramme albocincta (Cooke. & Massee) Lowe,

Lloydia 21:102, 1958. *Poria albocincta* Cooke & Massee, Grevillea 20:106, 1892.
Basidiocarp resupinate, widely effused, adnate and hard, up to 2 mm thick in mature specimens, smooth in young specimens, with deep polygonal cracks in older specimens, substratum distinctly reddened by the fungus, often in several zones or bands, pore surface dark bluish grey to brownish grey when older, pores very small, 8-20 per mm and variable, mostly angular and thinwalled, entire or sinuous to labyrinthine or even consisting of isolated, sinuous vertical plates, under a lens the walls appear as being almost black, while the bottom of the pores is filled to variable heights with a white mycelium, in sections the basidiocarp appears darkcoloured with white spots where old pores have been filled with these mycelial masses.
Hyphal system monomitic, generative hyphae with clamps, developing thicker walls and scattered clamps in the dissepiments, in the sterile parts of the basidiocarp olivaceous brown in KOH and water, dextrinoid, strongly agglutinated and the clamps are difficult to observe, moderately thickwalled, hymenium restricted to bases of the pores, in fresh, actively growing specimens there is a distinct subhymenium, up to 3-5 µm deep with vertical and highly branched hyphae.
Basidiospores 4-6 (6.5) x 3-3.5 µm, broadly elliptic.
Distribution. A pantropical species and quite common.
Remarks. The species is easy to recognize in the field because of its dark bluishblackish surface when old, ashier blue when young and then white at the bottoms of the pores. Further, red irregular zones or bands are developed below the basidiocarps. The only other species with the same type of zones, is *Tinctoporellus epimiltinus*, which, however, is a true polypore with a more reddish buff pore surface.

Porogramme azurica Ryvarden, Fig. 98.

Synopsis Fung. 38:23, 2018.
Basidiocarps resupinate widely effused, loosely attached, soft when fresh, brittle when dry, margin bluish white wide to narrow, pore surface brilliant light blue, pores angular, thinwalled and entire, 7-10 per mm, tubes shallow, up to 250 µm deep, dissepiments finely encrusted (lens) and white, tube walls bluish whitish, trama blackish blue, hymenium restricted to the bases of the tubes, context as trama, in places up to 150 µm thick.
Hyphal system dimitic, generative hyphae hyaline and with clamps, 2-4 µm wide, skeletal hyphae dominating in context and sterile tubewalls, thickwalled to solid, olivaceous light brown in KOH, dextrinoid in Melzer's reagent, 3-6 µm in diameter, unbranched or rarely with short side branches.

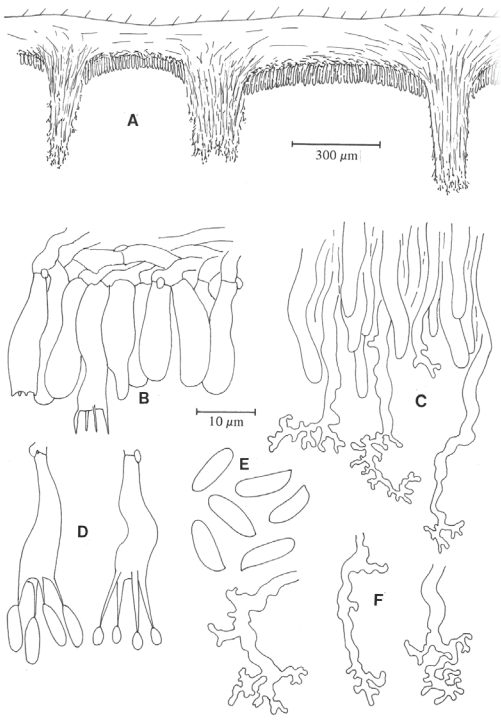


Fig. 98. *Porogramme azurica*, photo C. Sharp.
Fig. 99. *Porogramme fuligo*, a) section of basidiocarp, b) pat of hymenium, c) dendrohyphidia, d) basidia, e) basidiospores, f) dendrohyphidia from pore walls, from the lectotype, del. L. Ryvarden.

Dendrohyphidia present, especially along the pore edges, arising from generative hyphae, moderately to strongly branched towards the apices, also observed along the sterile walls of the pores.
Cystidia none, but sterile hyphal ends often occur in the hymenium, simulating narrow and cylindrical cystidia.
Basidiospores 5-6 x 2.5-2.8 µm, cylindrical.
Substrate. Known only from dead palms.
Distribution. Known from Mozambique and Cameroon.
Remarks. The bright blue colour with greenish tints is characteristic for this beautiful species, besides having shorter spores than those of *P. fuligo*, a related species with darker and hard basidiocarps.

Porogramme fuligo (Berk. & Broome) Pat., Fig. 99.

Essai tax. p. 64, 1900. - *Polyporus fuligo* Berk. & Broome, J. Linn. Soc. Bot. 14:53, 1875.
Basidiocarps resupinate widely effused, strongly adnate, hard and brittle, margin wide to narrow, bluish white when fresh, pore surface bluish white, grey or glaucous, darkening with age to almost black, pores angular, thinwalled and entire, 8-16 per mm, tubes shallow, up to 400 µm deep, variable from specimen to specimen, tube walls whitish under a lens, but trama dark brown, hymenium restricted to the bases of the tubes, context dark brown and very thin.
Hyphal system trimitic, generative hyphae hyaline and with clamps, 2-4 µm wide, skeletal hyphae dominating in context and sterile tubewalls, thickwalled to solid, olivaceous light brown in KOH, dextrinoid in Melzer's reagent, 3-6 µm in diameter, unbranched or rarely with short side branches.
Dendrohyphidia present, especially along the pore edges, arising from generative hyphae, moderately to strongly branched towards the apices, also observed along the sterile walls of the pores.
Basidiospores 7-9 x 2.5-3.5 µm, cylindrical to slightly allantoid.
Substrata. Restricted to monocotyledons and especially common on palms, but also registered on bamboo and banana, usually on stems or dead, still attached leaves.
Distribution. Pantropical species and quite common when the right habitats are examined.
Remarks. The species is usually easy to recognize in the field because of the special habitat and the glaucous to blackish colour. It does not redden the substrate as *Porogramme albocincta* with which it has often been confused and which grows on different hard woods.

PROTOMERULIUS A. Møller,

Protobasidiomyceten p. 129, 1895.
Basidiocarps resupinate to pileate, annual; hyphal system dimitic; generative hyphae with clamps; skeletal hyphae with a wide lumen and dominant in the basidiocarp; basidia longitudinally septate and 4-celled; basidiospores hyaline, allantoid and negative in Melzer's reagent; causes a white rot in dead hardwoods. Cosmopolitan Heterobasidiomycete genus.
Type species: *Protomerulius brasiliensis* A. Møller.
Synonym: *Aporpium* Singer 1944 (*Poria canescens* P. Karsten).
Remarks. The genus is unique among the poroid fungi with its longitudinally septate basidia, and it belongs in the Tremellaceae. The generative hyphae are often very difficult to find and basidia seem to collapse rapidly after spore discharge.

Key to species

1. Basidiocarps pileate ..... **P. camerooniensis**
1. Basidiocarps resupinate..... **2**

2. Spores cylindrical to oblong elliptic, gloeocystidia absent ..... **P. caryae**
2. Spores broadly elliptic, gloeocystidia present .....**P. africanus**

Protomerulius africanus (Ryvarden) Ryvarden,

Synopsis Fung. 5:212, 1991. – *Aporpium africanum*, Ryvarden, Norw. J. Bot. 22:32, 1975.
Basidiocarps annual, resupinate, consistency soft when fresh, brittle when dry, pore surface first whitish, drying sordid light brownish, pores angular, elongate to irregular, 1-2 per mm, dissepiments first thick, later thin and lacerate, tubes up to 5 mm long, brownish, lighter towards the context, margin up to 4 mm wide, finely felted, white to cream.
Hyphal system dimitic, generative hyphae thin-walled, hyaline and clamped, 1.5-3.5 µm in diameter, skeletal hyphae dominating, hyaline, thick-walled, straight to slightly sinuous, 3-6 (8.5) µm in diameter, those of the context of the same kind, but completely dominated of skeletal hyphae.
Basidia longitudinally septate, septa visible as thin dark lines along the basidia, mature basidia almost globose and up to 15 µm wide with a stalk like base, sterigmata or epibasidia up to 10 µm long.
Gloeocystidia up to 35 µm long, arising in the subhymenium and bending into the hymenium and with a yellow and oily content.
Basidiospores 6 -7 x 4-5 µm, broadly elliptic.
Distribution. Ethiopia and Kenya.
Remarks. The large pores, the presence of gloeocystidia and the wider spores separate it from *P. caryae*.

Protomerulius camerooniensis (Metsebing, Mossebo & Ryvarden) Ryvarden

Synopsis Fung**.** 44:36, 2021**.** – *Aporpium camerooniensis* Metsebing, Mossebo & Ryvarden, Synopsis Fung. 39:74, 2019.
Basidiocarps pileate, dimidiate to partly sessile, 4 cm long, 3 cm wide, about 1 cm thick at the base with whitish hymenophore sometimes extending downwards along the substrate, soft when fresh, fragile to rigid when dry, pileus whitish at its borders and greenish from middle till base when fresh, darker at base and fading towards the margin when dry, surface soft and loose, partly agglutinated hyphae in irregular tomentose to strigose pattern on pileus surface, partly flattened in parts, pore surface whitish when fresh, drying buff to pale brown, pale brown, pores elongate angular to irregular, 1-2 per mm, first angular, then more sinuous and wavy when dry and then tube walls parchment like and dense, fragile, up to 2 mm deep, older pore walls with numerous white hyphal pegs, context whitish 1-2 mm thick, homogenous.
Hyphal system dimitic, generative hyphae 3-6(8) µm wide, septate, clamped, thin- and thick-walled with the latter slightly dominating, skeletal hyphae totally dominating, 3-7 (8) µm wide, regularly tube like with narrow walls.
Basidiospores 3.5-6(7) x 3-4(5) µm, subglobose.
Chlamydospores present in context, 5-7 x 4-5 µm, almost rectangular to oblong elliptic, thick walled.
Distribution. Known only from the type locality in Cameroon.
Remarks. At macroscopical level, the whitish-greenish and irregular tomentose to strigose pattern of the pileus surface as well as the elongate angular, sinuous to wavy pores, are distinctive.

Protomerulius caryae (Schwein.) Ryvarden,

Synopsis Fung. 5:212, 1991. - *Polyporus caryae* Schwein., Trans. Am. Phil. Soc. II 4:159, 1832.
Basidiocarps poroid, annual, resupinate; pore surface pale pinkish brown, often spotted, turning light reddish brown when bruised; pores regular, circular, 3-5 per mm; margin whitish to pale buff, usually less than 1 mm wide, tomentose; context less than 0.5 mm thick, pale buff; tube layer concolorous with context, up to 3 mm thick.
Hyphal system dimitic; generative hyphae inconspicuous, thin-walled, hyaline, with clamp connections, 2-3 µm in diam; skeletal hyphae conspicuous, thick- walled but with a rather wide lumen, nonseptate, 2-4 µm in diam.
Cystidia or other sterile hymenial elements absent; hyphal pegs present.
Basidia longitudinally septate, broadly clavate when immature, 4-spored, 5-7.5 µm in diam, 10-15 µm long, with a basal clamp, epibasidia up to 12 µm long at maturity.
Basidiospores 5.5-7 x 2-2.5 µm, allantoid.
Distribution. This is a rather rare species, but widespread in Africa.
Remarks. The septate basidia make the species distinct. The generative hyphae are often difficult to observe. Unless the cruciate basidia are observed, *P. caryae* is easily mistaken for an *Antrodia* or *Diplomitoporus* species.

PSEUDOFAVOLUS Pat.,

Essai Tax. Hymen. p. 80, 1900.
Basidiocarps annual or reviving for a second season, solitary or imbricate, pileus flabelliform to spatulate narrowing behind to a stipe like base pileus glabrous, smooth or tessulated, sometimes radially striate, context thin, pores large to rather small, angular to hexagonal, tubes short and lined with basidia both at the bottom and along the walls. Hyphal system dimitic, generative hyphae with clamps, binding hyphae arboriform and thick-walled, hyaline and with a variable dextrinoid reaction, mostly towards the dissepiments, cystidia none, dendrohyphidia present among the basidia, spores cylindrical, smooth, non-dextrinoid and large. Pantropical genus.
Type species: *Polyporus miquelii* Mont.
Remarks. *Pseudofavolus* is an intermediate genus with *Polyporus* str. and *Datronia* sharing the same hyphal system and with cylindrical hyaline smooth spores. The shallow pores, the large spores and presence of dendrohyphidia, are characteristic.

Key to species

1. Spores 15-20 x 6-8.5 µm, pileus reddish-brown to bay, tessulate and with a distinct resinous cuticle, 1-2 pores per mm ..... **P. miquelii**
1. Spores 10-16 x 4-6.5 µm, pileus whitish, tan to dirty brownish, smooth, with or without a thin cuticle, pores 2-5 per mm ..... **P. cucullatus**

Fig. 100. *Pseudofavolus cucullatus,* lower side, photo D. Mossebo.
Fig. 101. *Pseudofavolus cucullatus,* upper side, photo D. Mossebo.

Pseudofavolus cucullatus (Mont.) Pat., Fig. 100 & 101.

Favolus cucullatus Mont., Ann. Sci. Nat. Ser. 2 Vol. 17: 125, 1842. - *Favolus curtipes* Berk. & M.A. Curtis, Hooker J. Bot. 1:234, 1849.
Basidiocarps annual, pileate, up to 8 cm wide and 3-4 mm thick, laterally attached with a small disc or a diminutive stipe, consistency rigid when dry, pileus dimidiate to flabelliform, upper surface glabrous and smooth, sometimes finely radiate-striate, whitish, pale ochraceous to pale dirty umber, often with a dark reddish tint along the margin, which is entire to weakly incised, often wavy and depressed in dried specimens, stipe contracted, lateral. a few mm long, often attached to the substrate with a small disc up to 1 cm in diameter, pore surface dark ochraceous to umber or dirty fuscous, pores angular to hexagonal, regular to irregular, (1)2-3 per mm, tubes about 2 mm long, concolorous to weakly paler than the pore surface, hymenium as a fine white lining both on the bottom and along the walls, context straw-coloured to pale ochraceous, 1-2 mm thick.
Hyphal system dimitic, generative hyphae thin-walled, hyaline and with clamps, 2-4 um wide, binding hyphae thick-walled and yellow, 3-5 um wide, arboriform, variably dextrinoid, usually strongest reaction in the dissepiments.
Dendrohyphidia present, hyaline, often difficult to observe, most common towards the dissepiments.
Basidiospores (11.5)13-16 x 4-6 µm, cylindrical.
Distribution. Pantropic. In Africa from Tanzania, Kenya and Madagascar.
Remarks. The shallow pores and an even ochraceous surface are distinct field characteristic. The large spores separate it from similar *Polyporus* species.

Pseudofavolus miquelii (Mont.) Pat.,

Essai Tax. Hymen. p. 81, 1900. - *Polyporus miquelii* Mont., Ann. Sci. nat. III, 4:357, 1845. - *Favolus induratus* Berk., Ann. Mag. Nat. Hist. II, 9:197, 1852.
Basidiocarp annual, solitary, pileate, usually laterally to more rarely dorsally attached, 2-10 cm wide and 2-5 mm thick, flexible when fresh, fragile and
indurated when dry, pileus sessile reniform to semicircular, upper surface reddish-brown, umber to chestnut to purplish-black, glabrous, usually tessulated, reflecting the bottoms of the pores due to the thin context, often also radially wrinkled or striate especially near the point of attachment, a thin dark cuticle is present, pore surface darker ochraceous, pores angular, 0.5-2 mm in diameter, tubes often whitish to grey and strongly granular, 1-3 mm deep, context very thin to almost absent 0.1-0.4 mm thick, straw-coloured to buff.
Hyphal system dimitic, generative hyphae with clamps, thin-walled, 2-5 um wide, often collapsed in dried specimens, binding hyphae, strongly arboriform solid to thick-walled, pale yellow to golden, variably dextrinoid, mostly so in the dissepiments.
Dendrohyphidia present among the basidia and in the sterile pore mouths.
Basidiospores (14.5)16-20 x 6.5-8 µm, cylindrical to broadly elliptic.
Distribution. Pantropic, in Africa known from Sierra Leone, Uganda, Tanzania, Kenya and Ghana.
Remarks. The tessulated and dark reddish-brown pileus, the thin context and the large angular pores are diagnostic.

PSEDUOPIPTOPORUS Ryvarden,

Preliminary Polyp. Fl. East Africa p. 524, 1980.
Basidiocarps, pileate, sessile, dimidiate, smooth, glabrous, whitish, ochraceous to dirty lurid-brown, pores wood-coloured to dirty straw-coloured, tubes agglutinated and fragile, context pale, crumbly and fragile. Hyphal system dimitic, tubes monomitic, context dimitic, generative hyphae with clamps, skeletal hyphae unbranched to distinctly arboriform, thick-walled and amyloid, spores elliptic to ovate, thick-walled, pale yellowish, dextrinoid. Monotypic genus.
Type species: *Polyporus devians* Bres.
Remarks. The genus is deviating by its large whitish basidiocarps, partly resembling those of *Piptoporus betulinus*, and the combination of amyloid skeletal hyphae, gloeopleurous hyphae and dextrinoid spores.

Fig. 102. *Pseudopiptoporus devians*, photo L. Ryvarden.

Pseudopiptoporus devians (Bres.) Ryvarden, Fig. 102.

op. cit. - *Polyporus devians* Bres., Ann. Mycol. 18:32-33, 1920.
Basidiocarp annual, solitary, pileate, dimidiate to substipitate with a contracted base, semicircular in outline, up to 30 cm wide and long and 1-8 cm thick at the base, punky and soft when fresh, soft and fragile when dry, pileus smooth, azonate, glabrous and with a thin cuticle, easily dented with a nail, white when fresh, when old and weathered dark brown to lurid yellow-brown, ochraceous to greyish-isabelline and acute, pore surface white to cream, pores round to slightly elongated, 3-4 per mm, tubes fragile, resinous pale brown to straw-coloured and distinctly darker than the context, up to 10 mm deep, context pale ochraceous to cork-coloured, , up to 6 cm thick at the base, becoming bluish-black in Melzer's reagent.
Hyphal system dimitic, generative hyphae with clamps, in the context thin-walled, up to 8 um wide, usually collapsed, giving the context the rather loose structure, skeletal hyphae, arboriform, amyloid, 2-5 um wide.
Gloeopleurous hyphae present in the context, up to 12 um wide, thin-walled and filled with a grainy to fluid brown material.
Basidiospores 5.0-6.5 x 4-5 µm, elliptic, thick- walled, pale straw-coloured and dextrinoid.
Distribution. Known only from two localities in Mozambique.
Remarks. The whitish basidiocarps with amyloid skeletal hyphae and dextrinoid spores, make this a distinct species.

PYROFOMES Kotlaba & Pouzar,

Feddes Repert. 69: 140, 1964.
Basidiocarps perennial to annual, pileate to resupinate; pileus smooth to pubescent, ochraceous pink to brick coloured; pore surface orange pink to red; context concolorous; hyphal system dimitic; generative hyphae with clamps; skeletal hyphae slightly tinted, thick walled to solid, rarely branched; basidiospores smooth, thick walled, truncate and slightly dextrinoid to IKI. On both living and dead conifers and hardwoods wood, causing a white rot. Cosmopolitan genus.
Type species: *Polyporus demidoffii* Lev.
Taxonomic synonym: *Piloporia* Niemelä (Type *Piloporia albomarginata*)
Remarks. The genus is easy to recognize by its coloured basidiocarps and truncate spores.

Key to species

1. On *Juniperus procera* ..... **P. demidoffii**
1. On hard woods **2**

2. Pores 2-3 per mm, basidiocarps pileate ..... **P. perlevis**
2. Pores 5-7 per mm, basidiocarps resupinate to reflexed ..... **P. albomarginatus**

Pyrofomes demidoffii (Lev.) Kotl. & Pouzar,

op. cit.- *Polyporus demidoffii* Lev. in Demidoff, Voy. Russie Merid. 2: 92, 1842.
Basidiocarps perennial, sessile, solitary, ungulate, often becoming columnar, to 15 cm wide, 7 cm thick and 10 cm high; pileus brownish and tomentose in young specimens, becoming blackened and rimose with age, concentrically sulcate; pore surface light ochraceous buff to ochraceous buff, smooth, pores circular, 2-3 per mm, context orange to cinnamon, woody, azonate, up to 2 cm thick; tube layers ochraceous buff to yellow, indistinctly stratified, each layer to 7 mm thick.
Hyphal system dimitic; contextual generative hyphae difficult to discern, thin walled, hyaline in KOH and Melzer's reagent, with clamps, 2.5-4 µm in diam; contextual skeletal hyphae moderately thick walled, rarely septate, with rare branching, pale brownish in KOH and dextrinoid in mass in Melzer's reagent.
Basidiospores 6-12 x 5-7 µm ovoid to broadly elliptic or more elongated, angular, pale brownish, thick walled, slightly dextrinoid.
Substrata. Exclusively on *Juniperus* spp., in Africa on *J. procera.*
Distribution. Ethiopia and Kenya, known also from Eastern Europe, western U.S and Central Asia.
Remarks. In the field, *Pyrofomes demidoffii* is readily distinguished by the bright rusty red colour of the context tissue and its restriction to *Juniperus* spp.

Pyrofomes albomarginatus (Lev.) Ryvarden,

Norw. J. Bot. 19:236, 1972. - *Polyporus albo-marginatus* Lev., Ann. Sci. Nat. Ser. 3, Vol. 2:191, 1844. - *Polyporus kermes* Berk. & Broome, J. Linn. Soc. Bot. 14:49, 1875. - *Polyporus laeticolor* Berk., J. Linn. Soc. Bot. 16:46, 1877. - *Fomes pyrrohocreas* Cooke, Grevillea 14:11, 1885. - *Polyporus purpureoaurantiacus* Beeli, Bull. Soc. Bot. Belg.62:64, 1929.
Basidiocarps annual to perennial, effused-resupinate to reflexed or distinctly pileate, elongated-semicircular to dimidiate with a contracted base when applanate and pileate, most commonly effused with a reflexed portion, up to 8 cm wide to 20 cm long in laterally fused specimens, 2-4 cm thick at the base, coriaceous to hard when dry, pileus first velutinate and cinnamon to pale brown, azonate to zonate with a few slightly sulcate zones, adpressed velutinate or slightly scrupose, with age a distinct dark cuticle is developed, pore surface first whitish and then glancing and changing colour when turned in incident light, with age and in old specimens brick-red with brownish tints, pores round 5-7 per mm, tubes whitish trama brick-red and visible as thin lines in sections, up to 15 mm deep, context bright orange to brick-red, dense with age, frequently with thin, black lines reflecting earlier growth, cherry-red with KOH.
Hyphal system dimitic, generative hyphae with clamps, hyaline and 2-4 µm wide, skeletal hyphae reddish-brown, distinctly cherry-red in KOH, thick-walled to solid, up to 6 µm wide.
Basidiospores 5-6 x 4-5 µm, truncate, thick-walled.
Distribution. Paleotropical, in Africa from Nigeria, Angola and Zaire, widespread in Asia.
Remarks. The brick red to orange colour, easiest seen in the context, is a distinctive character.

Pyrofomes perlevis (Lloyd) Ryvarden,

Norw. J. Bot. 19:236, 1972. *Fomes perlevis* Lloyd, Lloyd Mycol. Writ. 4, Lett. No 39:2, 1912.
Basidiocarps perennial, solitary, semi ungulate to applanate, broadly attached to dimidiate with a tapering base, semicircular to flabelliform, up to 15 cm long, 10 cm wide and 7 cm thick, woody hard when dry, pileus brownishbrickred or cinnamon with orange tints, greyishbrown with age, first velutinate, soon more glabrous as the hyphae agglutinate, often in a finely warted or scrupose pattern, azonate or with rather broad sulcate zones, margin rounded and persistently velutinate, pore surface whitish to fulvous with orange tints, pores round, 2-3 per mm, tubes concolorous with pore surface, lighter and more brownish than the context, up to 5 cm thick, variably stratified, context bright red to orangebrown, radially fibrous, up to 6 cm thick at the base, cherryred in KOH.
Hyphal system trimitic, generative hyphae hyaline and with clamps, thin to slightly thickwalled, 1.54 µm wide, skeletal hyphae dominating, pale rustyred, thickwalled, 3-8 µm wide.
Basidiospores 5-7 x 4-5.5 µm, truncate to globose, thickwalled, and with germ pore, pale yellowish to rustyred.
Distribution. Specimens have been examined from Madagascar and Uganda. Also known from South America.
Remarks. Seemingly related to *P. demidoffii*, but restricted to hard wood trees.

RIGIODOPOROPSIS Johan. & Ryvarden,

Trans. Br. Mycol. Soc. 72:192, 1979.
Basidiocarps annual, resupinate, adnate, consistency resinous to hard when dry, pore layer cream to pale brown, pores medium-sized, round and regular, non-stratified, context very thin, hyphal system mono to semidimitic, generative hyphae simple-septate, 3-6 (10) µm wide, cystidia none, basidia up to 50 µm long, tetrasterigmatic, basidiospores ellipsoid, hyaline, finely asperulate and amyloid.
Type species: *Rigidoporus amylospora* Johan. & Ryvarden.
Remarks. *Rigidoporopsis* is characterized by the combination of simple septate hyphae and asperulate, amyloid spores.

Rigidoporopsis amylospora Johan. & Ryvarden, op.cit.

Basidiocarp annual, resupinate, widely effused, up to 6 mm thick, adnate, sterile margin entire, brittle to resinous hard when dry, pore surface first cream to pale fulvous, discolouring dirty yellow with brown patches when dried and handled, reddish-brown resinous matter secreted, especially along the margin, pores circular, 4-6 per mm, tube layer up to 5 mm long, context almost absent or up to 1 mm thick, concolorous with the tubes or paler.
Hyphal system mono to semidimitic, generative hyphae in sub-hymenium hyaline to pale yellow, thin to slightly thick-walled, moderately branched with simple septa, 3-6 µm in diameter.
Basidiospores 4-5 x 2.5-3 µm, broadly ellipsoid, hyaline, finely asperulate and amyloid.
Substrate. Hard wood and *Bambusa* spp.
Distribution. Known only from Malawi and Ghana.
Remarks. The amyloid finely asperulate spores and the simple septate generative hyphae characterize this species.

RIGIDOPORUS Murrill,

Bull. Torrey Bot. Club 32:478, 1905.
Basidiocarps annual to perennial, coriaceous to bony hard when dry, resupinate to pileate, reddish orange to pinkish, isabelline or ochraceous; pileus tomentose to glabrous, pore surface concolorous, context dense and fibrous; hyphal system monomitic to apparently dimitic; generative hyphae with simple septa, cystidia absent or present, mammillate, spores ovoid to globose, thinwalled and IKI-. White rot in hardwoods, rarely coniferous wood. Cosmopolitan genus.
Type species: *Polyporus micromegas* Mont. (R. *microporus* (Fr.) Overeem.
Remarks. Microscopically the genus comes close to *Oxyporus* Donk, which has the same type of generative hyphae and in which most species have cystidia. However, all species in *Oxyporus* are light coloured, and the cystidia are hymenial and not tramal as in *Rigidoporus*.

Key to species

1. Basidiocarp small and with a vertical, lateral stipe ..... **R. biokoensis**
1. Basidiocarp differently shaped **2**

2. Basidiocarps resupinate **3**
2. Basidiocarps sessile to effused reflexed **7**

3. Cystidia absent **4**
3. Cystidia present in hymenium **5**

4. Hyphae dextrinoid, pores 6-9 per mm ..... **R. dextrinoideus**
4. Hyphae non-dextrinoid, pores 5-7 per mm ..... **R. crocatus**

5. Spores 3-4 x 2.5-3.5 µm, elliptic..... **R. subvinctus**
5. Spores larger **6**

6. Pore surface pinkish becoming darker when dry or touched, spores subglobose ..... **R. vinctus**
6. Pore surface pale ochraceous, unchanged when dry, spores globose ..... **R. undatus**

7. Encrusted cystidia present **8**
7. Encrusted cystidia absent **9**

8. Pileus more or less glabrous, no black line in context ..... **P. lineatus**
8. Pileus tomentose with a black line between tomentum and context ..... **R. tomentosus**

9. Basidiocarp thick and woody hard, pileus white to cream, spores 4.5-8 x 4-7 µm ..... **R. ulmarius**
9. Basidiocarp thin and pliable when fresh, woody hard when dry, spores smaller **10**

10. Basidiocarps hoof-shaped, bone hard, pileus dark brown ..... **R. perennis**
10. Basidiocarps sessile and more or less flat, pliable, pileus white pale reddish brown **11**

11. Pileus reddish-brown to dark ochraceous, pore surface bright orange to reddish brown, pores 5-9 per mm, spores 3.5-5 x 3.5-4 µm ..... **R. microporus**
11. Pileus whitish becoming pale reddish with age, pore surface whitish, pores 12-15 per mm, invisible to the naked eye, spores 3.5-5 x 2.5-3 µm ..... **R. delicatus**

NB Since the spores of all species in the genus are hyaline, smooth and non-amyloid, this information is not repeated for each species.

Rigidoporus biokoensis (Lloyd) Ryvarden,

Norw. J. Bot. 19:236, 1972. - *Polyporus biokoensis* Lloyd, Lloyd Mycol. Writ. 3:131, 1912.
Basidiocarps annual, pileate and laterally stipitate, pileus dimidiate to flabelliform, up to 4 cm long and 3 cm from margin to attachment and 2-4 mm thick, smooth with a fine adpressed tomentum, concentrically zoned, tan to dark ochraceous with pinkish tints, probably more so in fresh condition, dull to slightly shining; pore surface and tubes tan to reddish-brown, fading to ochraceous, pores round to angular, 6-9 per mm, context cream to wood-coloured, radially fibrous, up to 1 cm thick, stipe up to 3 cm long, 2-3 mm wide, often a little bent or twisted, concolorous with the upper pileus surface and without cuticle.
Hyphal system pseudodimitic; generative hyphae with simple septa, thin- to slightly thick-walled, 3-5 µm wide; present are also thick-walled hyphae, especially in the context where septa are difficult to observe and which are reminiscent of ordinary skeletal hyphae, up to 10 µm wide.
Cystidia 20-25 x 10-12 µm, thick-walled, numerous, smooth or with a few apical crystals.
Basidiospores 4.5-5 µm, subglobose, thin-walled.
Distribution. Widely distributed in the African tropical zone.
Remarks. The small stipitate basidiocarps combined with the globose spores and cystidia make this to a distinct species. It may be looked upon as a stipitate counterpart to *R. lineatus*.

Rigidoporus crocatus (Pat.) Ryvarden,

Occ. Papers. Farlow Herb. 118:13, 1983. - *Poria crocata* Pat., Journ. Bot. 8:220, 1894.
Basidiocarps annual to perennial, effused up to 10 cm, tough, crisp when fresh, drying rigid and horny, easily separable; margin fertile or sterile, then buff, finely tomentose, up to 2 mm wide; pore surface flesh-coloured or very light pinkish or pinkish-brown, drying pinkish brown to smoky grey, the pores circular to angular, 5-7 per mm, context pinkish-buff, azonate, corky to rigid, up to 1 mm thick; tube layer darker, distinct, pinkish tan, hard, horny, up to 3 mm thick.
Hyphal system monomitic, subicular hyphae simple-septate, thin- to thick-walled, 3-8.5 µm in diam, gelatinizing on drying and difficult to separate; tramal hyphae similar, 3-4 µm in diam.

Basidiospores 3.5-5.5 x 3.5-5 µm, ovoid to subglobose.
Distribution. Kenya and Cameroon.
Remarks. The horny consistency of dried basidiocarps and the pinkish or flesh-coloured pore surface that darkens on drying besides lack of cystidia, characterize this species.

Rigidoporus delicatus (David & Rachjenb.) Ryvarden,

comb. nov. Index Fung. Basionym: *Flaviporus delicatus* David & Rachjenb., Mycotaxon 45:132, 1992.
Basidiocarp small, flabelliform to dimidiate, up to 2 x 3 cm and 2 mm, soft and water soaked when fresh, shrinking and becoming hard when dry, pileus first cottony to finely tomentose, with age becoming glabrous and with a reddish thin margin becoming deflexed when dry, pores tiny invisible to the naked eye, 12-15 per mm, pore surface whitish, tubes to 1.5 mm deep, translucent when fresh and then white, appearing as if impregnated with a reddish to chestnut coloured resinous substance with age and drying, context 1 mm deep becoming dark and hard with age.
Hyphal system monomitic, generative hyphae hyaline and simple septa, thin to thick walled and 3-5 µm in diameter, densely glued together with a coloured resinous substance.
Basidiospores 3-3.5 (4) x 2.5-3 µm, subglobose.
Distribution. Known only from a few localities in Gabon.
Remarks. The simple septate hyphae and the small subglobose spores characterize the species.

Rigidoporus dextrinoideus Johan. & Ryvarden,

Trans. Br. Mycol. Soc. 72:195, 1979.
Basidiocarps annual to perennial, resupinate, effused or appearing as small patches, usually adnate, up to 3 mm thick, resinous-waxy when fresh, woody hard when dry, taste slightly bitter, pore surface pale ochraceous cork-coloured to very pale brown with a whitish tint, darkening when touched in fresh condition, dull to slightly shiny when turned in incident light, pores circular, 6-9 per mm, somewhat more irregular and slightly sinuous on sloping substrates, tubes non-stratified or with a few faint darker lines, to 3 mm deep, concolorous with the pore surface, context very thin to apparently absent, but in some specimens there is a thin black line between the bottom of the tubes and the substratum.
Hyphal system monomitic, generative hyphae simple septate, hyaline to pale yellow, 2.5-3.5 µm wide in Melzer's reagent, swelling up to 5 µm in KOH, slightly encrusted in the pore mouths, thin-walled to almost solid, weakly to strongly dextrinoid in Melzer's reagent.
Basidiospores 3-4.5 x 2-2.5 µm, elliptic.
Distribution. Kenya and Tanzania, probably wide spread in Africa.
Remarks. The dextrinoid reaction of the hyphae makes this species distinct and deviating in the genus.

Rigidoporus lineatus (Pers.) Ryvarden, Fig. 103 & 104.

Norw. J. Bot. 19:236, 1972. - *Polyporus lineatus* Pers., in Gaudichaud, Voyage aut. du Monde p. 174, 1827. – *Polyporus zonalis.* Berk. Ann. Mag. Nat. Hist. 10:376, 1843.
Basidiocarps annual, pileate, more rarely resupinate, solitary to imbricate, sessile, substipitate or narrowing behind to a distinct stipe, brittle and hard when dry; pileus dimidiate, flabelliform to spatulate, up to 7 cm wide and broad and 0.1 to 0.5 cm thick, concentrically zonate-sulcate, pinkish buff to reddish-brown and velutinate, later wood-coloured, darker brown and glabrous, often radially striate; margin thin, often bent; stipe, if present, concolorous with the

Fig. 103. *Rigidoporus lineatus*, photo C. Decock.
Fig. 104. *Rigidoporus lineatus.*

pileus, up to 7 mm long and 3 mm thick; pore surface bright orange-red when fresh, drying ochraceous to dirty greyish-brown, sometimes with a pink tint, pores round to angular, 6-9 per mm, tubes 1-4 mm long, concolorous with the context, but often slightly darker; context up to 4 mm thick, white to wood-coloured, radially fibrous.
Hyphal system pseudodimitic; generative hyphae with simple septa, in the hymenium and subhymenium thin-walled, moderately branched, 3-6 µm wide, in the trama, and especially in the context up to 8 µm wide, thick-walled to almost solid.
Cystidia present, rare to abundant, club like, thick-walled, smooth to strongly encrusted, partly embedded in the trama, partly projecting obliquely into the hymenium, 6-15 µm wide, up to 200 µm long.
Basidiospores 4.5-6 x 4-5 µm, subglobose to globose.
Distribution. Widespread in the subtropical and tropical zones.
Remarks. *P. lineatus* is separated by its cystidia and slightly larger spores from the macroscopically similar *R. microporus.*

Rigidoporus microporus (Fr.) Overeem, Fig. 105 & 106

Icon. Fung. Malayensum 5:1, 1924. - *Polyporus microporus* Fr., Syst. Mycol. 1:376, 1821.
Basidiocarps annual, rarely perennial, occasionally resupinate, but mostly pileate, sessile or broadly attached, often imbricate or growing together in clusters, consistency brittle and hard when dry; pileus dimidiate to flabelliform, up to 22 cm long and 10 cm from margin to attachment and 0,2-1,5 cm thick, upper surface first orange-reddish -brown and slightly velutinate, later glabrous and fading to wood-colour, concentrically zonate-sulcate, dull to slightly shining; pore surface first bright orange to reddish-brown, fading to ochraceous, pale brown or grey, pores round to angular, 6-9 per mm, tubes single-layered but sometimes stratified and up to 1 cm deep, reddish-brown at least near the pore mouth; context white, cream to wood-coloured, radially fibrous, up to 1 cm thick.
Hyphal system pseudodimitic; generative hyphae with simple septa, thin- to slightly thick-walled, 3-5 µm wide, present are also thick-walled hyphae, especially in the context where septa are difficult to observe and which are reminiscent of ordinary skeletal hyphae, up to 8 µm wide.
Cystidia absent.
Basidiospores 3.5-5 x 3.5-4 µm, subglobose.
Distribution. Widely distributed in the tropical zone. It has also been recorded in greenhouses outside the tropics.
Remarks. In fresh condition the reddish colour and the minute pores will be rather diagnostic; when dry it becomes paler and dark ochraceous. A microscopical examination is then necessary to separate it from the acystidiate *R. lineatus.* The species is a serious pathogen in the tropics on crop plants such as rubber, cacao, coconut, coffee, tea and bamboo.

Fig. 105. *Rigidoporus microporus*, photo A. Buck.

Fig. 106. *Rigidoporus microporus*.

Rigidoporus perennis Ryvarden,

Synopsis Fung. 39:69, 2019.
Basidiocarps pileate, perennial, pileus up to 5 cm long, 3 cm wide and 3 cm thick, almost hoof shaped with vertical margin, dense, bone hard, surface glabrous, dark brown, sulcate with numerous more or less circular zones, margin narrow and pale brown, pore surface ochraceous when fresh, pale brown when dry, pores tiny, invisible to the naked eye, 8-10 per mm, tubes wood coloured, multi-layered, up to 2.5 cm thick, context almost absent, ochraceous and dense.
Hyphal system monomitic, generative hyphae thickwalled and with simple septa, 3-10 µm wide.
Cystidia absent.

Basidiospores 3-4 µm in diameter, globose.
Distribution. Known only from the type locality in Cameroon.
Remarks. The bone hard and hoof shaped basidiocarps make this a distinct species. *R. ulmarius*, the only other African species of the genus with perennial and thick basidiocarps, has flat and wide basidiocarps and larger spores.

Rigidoporus subvinctus Ryvarden,

Synopsis Fung. 42:29, 2020.
Basidiocarps annual, resupinate**,** 4 x 2 cm, up to 1 mm thick, dense and resinous hard when dry, slightly contracting by drying, pore surface white to pale ochraceous becoming darker towards the subiculum, pores thin walled, angular 3-5 per mm, larger on parts of the sloping substrate, subiculum pale cinnamon, restricted by a dark line towards the substrate, margin lacking.
Hyphal system monomitic; generative hyphae hyaline, thick-walled to almost solid, difficult to find thin walled hyphae with distinct septa, 3-7 µm in diam.
Cystidia not seen.
Basidia not seen,
Basidiospores 3-4 x 2.5-3.5 µm subglobose, hyaline and thin walled, negative in Melzers reagent.
Distribution. Known only from the type locality in Cameroon.
Remarks. The species looks like the wide spread *Rigidoporus crocatus* (Pat.) Ryvarden, which however has 5-6 µm larger globose spores.

Rigidoporus tomentosus Ryvarden,

Synopsis Fung. 38:29, 2019.
Basidiocarps annual, pileate, sessile, dimidiate to semicircular, consistency brittle and hard when dry; pileus, up to 2 cm wide and broad and 0.5 cm thick, slightly concentrically zonate, ochraceous, adpressed tomentose, margin thin, pore surface wood coloured, pores round, 10-12 per mm, invisible to the naked eye, tubes 1-4 mm long, concolorous with the pore surface, context up to 4 mm thick, pale cream to wood-coloured, dense, and with a black thin zone separating the context and pileus tomentum.
Hyphal system pseudo dimitic; generative hyphae with simple septa, moderately branched, 3-8 µm wide, very long unbranched thick walled hyphae present, up to 10 µm wide (generative hyphae with rare septa or true skeletal hyphae?).
Cystidia present, club like, thick-walled with slightly widened apical part, strongly encrusted, partly embedded in the trama, partly projecting obliquely into the hymenium, 6-12 µm wide, up to 200 µm long.
Basidiospores 5-6 µm, globose.
Distribution. Known only from the type locality in Zambia.
Remarks. Both micro- and macroscopically this new species may remind one of the more widespread *R. lineatus*, but is separated by the back line below a distinct tomentum, a character absent in the latter species.

Rigidoporus ulmarius (Sowerby: Fr.) Imazeki, Fig. 107

Bull. Govt. Exp. Sta. Meguro 57:119, 1952. - *Polyporus ulmarius* Sowerby: Fr., Syst. Mycol. 1:365, 1821.
Basidiocarps perennial, sessile, effused-reflexed, up to 6 cm thick and 30 cm long, reflexed portion up to 9 cm wide; pileus pale buff to cream (pinkish-buff to light buff), glabrous to finely tomentose, smooth or tuberculate; pore surface pinkish buff when fresh, drying pale brownish pink (avellaneous to vinaceous buff) or discolouring darker brownish, the pores angular, 5-6 per mm, with thin; context pale buff when dried, firm, corky-fibrous, azonate, up to 5 cm thick; tube layer pinkish brown when dried indistinctly stratified, up to 1 cm thick.
Hyphal system monomitic hyphae thin- to moderately thick-walled, with rare branching, simple septate, 2-4(-5) µm in diam.
Cystidia none.
Basidiospores 7-11 x 6, 5 -10 µm, globose to subglobose, becoming thick-walled.
Distribution. Circumglobal species, in Africa seen from Cameroon, Ethiopia and Kenya.
Remarks. The large basidiocarps and spores separate it from the other species in the genus.

Fig. 107. *Rigidoporus ulmarius*, photo T. Henkel.

Rigidoporus undatus (Pers.: Fr.) Donk,

Persoonia 5:115, 1967. - *Polyporus undatus* Pers.: Fr., Elench. Fung. 1:111, 1828.
Basidiocarps resupinate, annual, effused, flat to undulating, up to 10 mm thick, tough and partly gelatinous when fresh, hard and partly cartilaginous and very dense when dry; pore surface isabelline to beige, pores circular and regular when fresh, often partly shrunken and more irregular when dry, hardly visible to the naked eye, 7-9 per mm; context very thin to almost absent, dense and cartilaginous; tube layer concolorous with pore surface, up to 3 mm thick.
Hyphal system monomitic; generative hyphae simple-septate, hyaline, usually distinctly thick-walled, 3-6 µm in diam, running parallel to the tubes and agglutinated.
Cystidia present as cylindrical thick-walled hyphal ends and usually with an apical crown of crystals, 4-10 µm in diam and up to 120 µm from the septum from which they arise, straight and embedded in the trama or bending into the hymenium, often abundantly present.
Basidiospores 5-5.5(6) µm in diam, globose.
Distribution. In Africa known from Ethiopia.
Remarks. The tough consistency and beige to isabelline colour and the cystidia clearly point to a relationship with other *Rigidoporus* species, especially *R. vinctus* var. *vinctus*. The latter has however, more prominent swollen and coarsely encrusted cystidia.

Rigidoporus vinctus (Berk.) Ryvarden,

Norw. J. Bot. 19:139, 1972. - *Poria vincta* Berk., Ann. Mag. Nat. Hist. 2,9:196, 1852, var. *vincta* and var. *cinerea* (Bres.) Setliff.
Basidiocarps resupinate, annual to perennial, first in small patches but becoming widely effused, rarely effused-reflexed with a fragmentary pileus, up to 9 mm thick, tough when fresh, hard when dry, adnate, pore surface pale ochraceous buff to pinkish ochraceous (var. *vincta*) becoming grey, dark brown or almost black (var. *cinerea*), pores round 6-12 per mm, almost invisible to the naked eye; pore layer indistinctly to distinctly stratified, up to 1 mm thick in each stratum, context brown, fibrous, up to 0,5 mm thick, sometimes limited towards the substrate by a thin, black line.
Hyphal system apparently dimitic; generative hyphae with simple septa, in the subhymenium hyaline and thin-walled, in the context and trama more thick-walled, but freely branched, 2-5 µm wide, in the trama and subiculum also present are very thick-walled to almost solid hyphae in which septa are very difficult to observe, hyaline to slightly tinted, 3-7 µm wide, these may represent either skeletal hyphae or sklerified generative hyphae; gloeopleurous hyphae often present in the trama, 3-6 µm wide, with oily content, apparently absent in some collections.
Cystidia 20-70 x 8-18 µm, abundant to rare, strongly encrusted, club like and often slightly widened towards the apex where often the walls are thicker, hyaline to slightly tinted, either embedded in the trama or obliquely projecting into the hymenium.
Basidiospores 4-5.5 x 3-4 µm, ovoid to subglobose.
Distribution. Widespread throughout the tropical zone.
Remarks. The resupinate basidiocarp and the large encrusted cystidia are diagnostic. The colour is remarkably variable; in the field pinkish to ochraceous basidiocarps can found becoming grey to almost black when dry, in other cases the ochraceous to buff colour remains more or less unchanged.

SCHIZOPORA Velen.,

České Houby p. 638, 1922.
Basidiocarps annual, resupinate or rarely with narrow, imbricate pilei over a decurrent tube layer; pore surface and subiculum cream to pale buff, the pores regular, angular to daedaleoid or hymenophore irregularly hydnaceous; hyphal system di- or monomitic; generative hyphae moderately thick-walled, with clamps; skeletal hyphae thick-walled, cystidia or fusoid or capitate; basidiospores elliptic to subglobose, hyaline, negative in Melzer's reagent. Causes a white rot of dead hardwoods, rarely on conifers. Small cosmopolitan genus with three wide spread species.
Type species: *Polyporus laciniatus* Velen. (= *Hydnum paradoxum* Schrad.: Fr.).
Remarks. Usually the typical generative hyphae of this genus with thickened walls and narrow width will be sufficient to recognize the genus. The bulbous swollen cystidia or hyphal ends are also diagnostic for the genus, but can be difficult to observe in some specimens.

Key to species

1. Pores angular 1-3 per mm or irregular, sinuous, labyrinthine to irpicoid; basidiocarps always resupinate **2**
1. Pores round to angular 3-5 per mm; basidiocarps resupinate to effused reflexed; ..... **S. trichilae**

2. Apically encrusted cystidia present..... **S. paradoxa**
2. Apically encrusted cystidia absent **3**

NB. All spores are smooth, thin walled and non-amyloid and thus, this information is not repeated for each species.

Schizopora cystidiata David & Rachjenb.,

Mycotaxon 45:140, 1992.
Basidiocarps annual, resupinate to effused-reflexed and then forming an elongated narrow pileus, up to 0.7 cm wide, tomentose, fibrillose, light in weight, 2-3 mm thick, milky white when fresh, light ochraceous when dry, hymenial surface concolorous, pores 2-3 per mm, sometimes more or less concentrically arranged, context cottony, up to 2 mm thick, tubes up to 0.5 mm long.
Hyphal system monomitic, generative hyphae clamped, 3-5 µm diam., walls thickened to 1 µm, clamps small and hemispheric; hyphae loosely interwoven.
Basidiospores 5-6 x 3-4 µm, ovoid to elliptic.
Cystidia 15-20 x 5-6 µm, hymenial, cylindrical, lageniform or mammiform, apically incrusted, with thickened walls up to 1 µm thick.
Distribution. Known from Reunion, East Africa, Congo and Zimbabwe..
Remarks: The species is easily recognized by its light weight and the apically incrusted hymenial cystidia.

Schizopora paradoxa (Schrad.: Fr.) Donk, Fig. 108.

Persoonia 5: 76, 1967. - *Hydnum paradoxum* Schrad.: Fr., Syst. Mycol. 1: 424, 1821; Elench. Fung. 1: 150, 1828.
Basidiocarps resupinate, often extensive, on vertical substrata often with small protuberances, white to cream-coloured or darkening with age (greyish-ochraceous-brownish), 1-5 mm thick; hymenophore usually split and irregularly hydnoid with flattened teeth, or labyrinthine to lacerate-denticulate if poroid, pores of varying sizes, on sloping substrata more or less prolonged,; subiculum cream to pale buff, fibrous, up to 2 mm thick; tube layer concolorous and continuous with context, up to 3 mm thick.
Hyphal system dimitic, generative hyphae predominant, with thin or somewhat thickened walls, more or less branched, 2-3 µm in diam, with clamps; skeletal hyphae 3-4(-5) µm wide, thick-walled and with a narrow lumen, sinuous, hyaline or yellow, reaching a length of 100-350 µm; hyphal ends on the edges of the dissepiments obtuse, encrusted with granular crystals.
Cystidia usually capitate and with a cap of crystals.
Basidiospores 5.5-6.5 x 3.5-4.5 µm, elliptic.
Distribution. Cosmopolitan species.
Remarks. Usually *S. paradoxa* has a fairly split and irregular, often partly hydnoid pore surface, but a microscopical examination should be done to verify the determination. The skeletal hyphae will usually be sufficient for an identification. The monomitic, rather similar species, *S. radula* has not been seen by us in Africa.

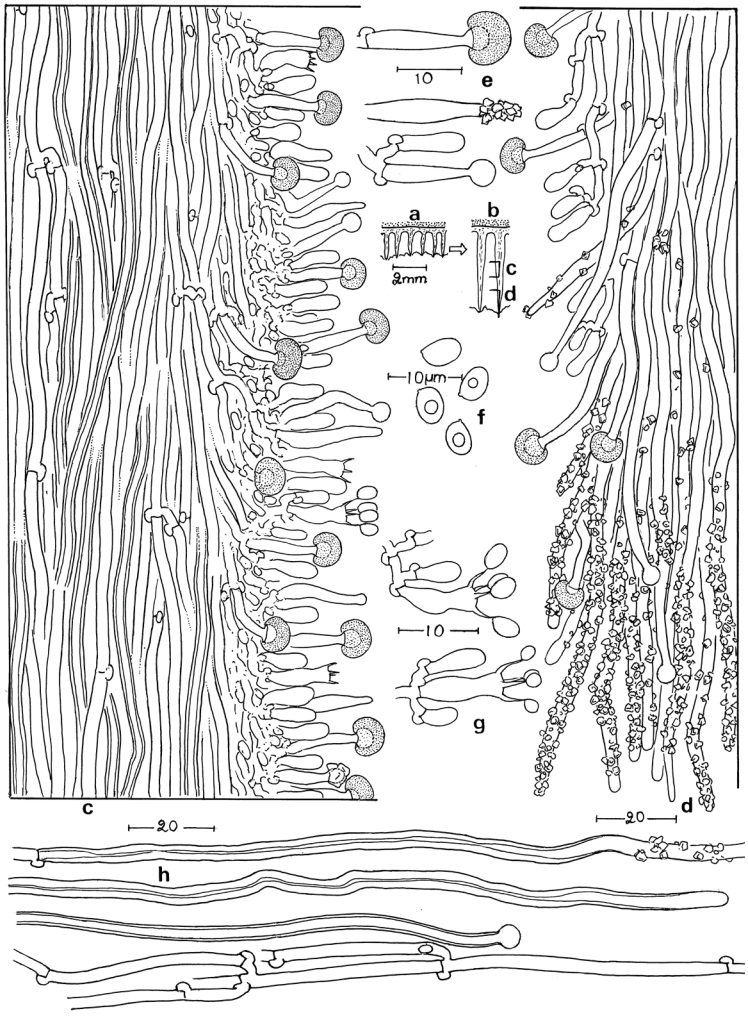


Fig. 108. *Schizopora paradoxa*, a-b) sections through basidiocarps showing position of section c and d, c) section through hymenium and trama, d) section through dissepiments, e) cystidia in the hymenium f) spores, g) basidia, g) skeletal and generative hyphae. Del J. Eriksson 6440.

Schizopora trichiliae (Van der Byl) Ryvarden,

Prelim. Polypore fl. East Africa p. 1980 - *Polyporus trichiliae* Van der Byl, S. Afr. J. Sci. 18:262, 1922. - *Polyporus acaciae* Van der Byl, S. Afr. J. Sci. 22:168, 1925.
Basidiocarps annual, resupinate, becoming widely effused, leathery when fresh, becoming corky or tough-fibrous when dried, pore surface whitish to cream when fresh, discolouring to buff on drying, the pores regular, angular to daedaleoid, 3-5 per mm, with thin dissepiments that often split to form a semihydnoid hymenophore; context cream to buff, azonate, less than 1 mm thick; tube layer concolorous and continuous with the context, up to 3 mm thick; taste mild.
Hyphal system monomitic; generative hyphae, thin- to thick-walled, with abundant small clamps, 2-6 µm in diam.
Cystidia 12-24 x 3-4 µm, of two types present, a) smooth to sparingly encrusted, fusoid cystidia in the hymenium, b) smooth bulbous cystidia present in subiculum and trama, rarely in the hymenium, up to 40 µm long.
Basidiospores 3.5-4.5(-5) x (2.5-) 3-3.5 µm, elliptic.
Distribution. Common in southern parts of Africa.
Remarks. The small spores and regular pores distinguish this species from *S. radula* and *S. paradoxa*. *Schizopora flavipora* (Cooke) Ryvarden is a similar species and was described on basis of a specimen from Colombia. It may prove ultimately to be a prior name for this widespread taxon. For the time being we prefer using a name based on an African taxon.

SERPULA (Pers.) S. F. Gray,

A nat. arr. British plants 1: 637, 1821 - *Merulius* sect. *Serpula* Pers.
Basidiocarp effused reflexed pileate imbricate, membranaceous, soft fleshy, thin rather thick; hymenium meruloid poroid, brownish, when fully developed dark brown; rhizomorphs present; hyphal system dimitic, polymorphic; generative hyphae with clamps, skeletal hyphae present; cystidia absent; basidia clavate, with 4 sterigmata; spores broadly ellipsoid ovoid, smooth, yellowish brownish.
Type species: *Merulius destruens* Pers. (syn.: *S. lacrymans* (Wulf.:Fr.) Schroet.).
Remarks. The genus is characterized by the folded brown hymenial surface on soft to tough basidiocarps restricted to mostly coniferous wood, while the spores are thick-walled and rusty brown. One species in Africa.

Serpula similis (Berk. & Broome) Ginns, Fig. 109.

Mycologia 63: 231, 1971. - *Merulius similis* Berk. & Broome, Jour. Linn. Soc. Bot. 14: 58, 1875.
Basidiocarp annual, 8 to 4 cm long and wide, 1-1.5 mm thick when fresh, resupinate to distinctly pileate, imbricate, sessile, fleshy and more or less watery when fresh, becoming corky, brittle and light in weight on drying, pileus flabelliform to semicircular, cream to light lemon yellow, azonate, uneven, smooth, tomentose, shiny, hymenophore meruloid to reticulated to folded, more so towards the centre, lemon yellow to yellowish brown, poroid, pores 1-2/ mm, irregular to daedaloid, context, pale cream color, soft corky to spongy, up to 14 mm thick.
Hyphal system, dimitic, generative hyphae with clamps, hyaline, 2.5-6.0 µm wide, skeletal hyphae hyaline and with wide lumen, thick walled, 1.5-3.0 µm wide.
Basidiospores 4.5 5.5 x 3.5-4.5µm, subglobose, bright yellow, thick walled and smooth.
Substrate: Dead hard woods causing a brown rot.
Distribution: Paleotropical species, widespread, but not common.
Remarks. The brown folded hymenium and coloured spores are distinctive characters for this striking species.

Fig. 109. *Serpula similis*, photo D. Mossebo.

SIDERA Miettinen & K.H. Larsson,

Mycol. Progress 10:136, 2011.
Basidiocarps annual, resupinate, becoming widely effused, soft to tough, hyphal system dimitic; generative hyphae with clamps, hyaline, thin-walled, skeletal hyphae straight to sinuous, thickwalled to solid, nonseptate, rarely branched, cystidia present as smooth thin walled cystidioles, in the poroid species hyphidia present as hyphal ends out of which many have a crystal crown, basidia clavate, tetrasterigmatic, basidiospores in the poroid species allantoid to lunate, hyaline, thinwalled, negative in Melzer's reagent. Both on hardwoods and coniferous hosts causing a white rot.
Type species: *Physisporinus lenis* P. Karst.
Remarks. The genus includes in addition to the poroid species described here, also a grandinoid corticoid species.

The type species and its sibling *Polyporus vulgaris* are both characterized by lunate spores, dimitic hyphal system and hyphal ends with a small crystalline crown.

Sidera vulgaris (Fr.) Miettinen, Fig. 110.

Mycol. Progress 10:136, 2011. – *Polyporus vulgaris* Fr., Syst. Mycol 1: 381, 1821.
Basidiocarps annual, resupinate, becoming widely effused, up to 3 mm thick, soft, separable and light in consistency, margin narrow and white; pore surface white to cream or when dry yellowish cream, pores small, 5-8 per mm, tube layer white, up to 3 mm thick with thin dissepiments; context white, cottony to fibrous, soft, 13 mm thick.
Hyphal system dimitic; generative hyphae with clamps, thinwalled, smooth, hyaline, 2-4 µm in diam, some generative hyphae with a swollen tip in the dissepiments; skeletal hyphae thickwalled, hyaline, unbranched and straight to sinuous, 2-3 µm in diam, a few hyphae with crystal clusters which may mimic small encrusted cystidia.

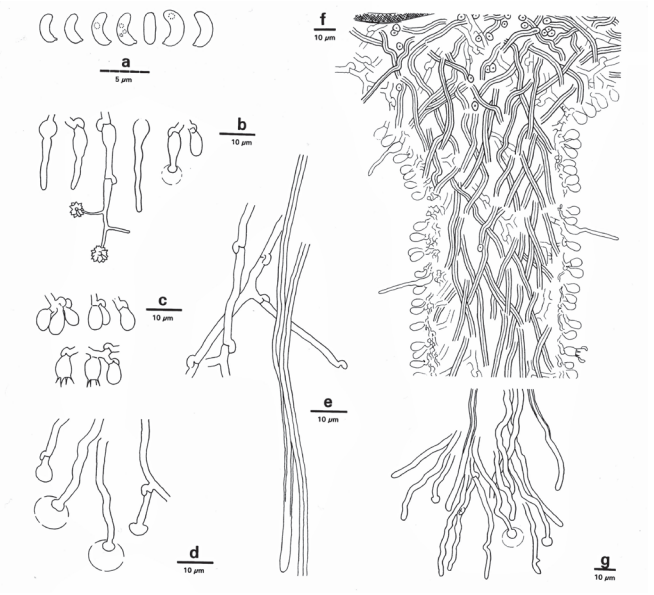


Fig. 110. *Sidera vulgaris*, a) basidiospores, b) hyphae with crystal crown, c) basidia, d) cystidia, e) hyphae, f) section of tubes, del. I. Melo.

Cystidia usually absent; sometimes with a few bulbous halocystidia scattered in the hymenium, embedded fusoid cystidiols variably present in the hymenium, thin-walled, smooth, 15-20 x 3-4 µm.
Basidiospores 3-4 x 1-1.5 µm, lunate to allantoid.
Distribution. A cosmopolitan species. In the tropical zones known only from areas with seasonal drought.
Remarks. The lunate spores and the occasional skeletal hyphae with a crystal cap characterize the species.

SKELETOCUTIS Kotl. & Pouzar,

Ceska Mykol. 12:103, 1958.
Basidiocarps annual to perennial, resupinate to pileate, white, cream pink to lilac, often slightly discoloured when dry; pores usually small; hyphal system di- to trimitic; generative hyphae with clamps, often encrusted, especially in the dissepiments; skeletal hyphae hyaline; cystidia absent, spores hyaline, cylindrical to ellipsoid, negative in Melzer's reagent; causes a white rot.
Type species: *Polyporus amorphus* Fr.
Remarks. This genus is related to *Antrodiella* mainly separated by the finely encrusted hyphae seen in *Skeletocutis.*

Key to species

1. Basidiocarps pileate **2**
1. Basidiocarps resupinate **4**

2. Context duplex **3**
2. Context homogenous ..... **S. nivea**

3. Context with black line below pileus cover ..... **S. pseudoamorpha**
3. Context without black line ..... **S. amorpha**

4. Spores lunate (strongly bent), hyphae with an apical cap of crystals ..... **Sidera vulgaris**.
4. Spores cylindrical to slightly allantoid, hyphae apically smooth **5**

5. Margin with rhizomorphs **6**
5. Margin without rhizomorphs **7**

6. Spores 3.5-5 um long ..... **S. alutacea**
6. Spores 5-7.5 µm long ..... **S. percandida**

7. Pores irregular, angular 3-4 per mm **8**

7. Pores regular, round, 6-10 per mm **9**

8. Spores allantoid 2.8-3 x 0.8-1 µm..... **S. africana**
8. Spores elliptic 5-7 x 2.3-3 µm ..... **S. ugandensis**

9. Spores 4-5 x 2-2.3 µm ..... **S. grandisporus**
9. Spores smaller..... **10**

10. On *Phellinus* sp. ..... **S. afrochrysella**
10. On dead wood **11**

11. Spores 3-3.5 x 1.2-1.5 µm ..... **S. afronivea**
11. Spores 4-5 x 0.5-1 µm ..... **S. nivea**

Skeletocutis africana Ryvarden & P. Roberts,

Kew Bull. 61: 72, 2006.
Basidiocarps annual, resupinate, up to 3 cm x 3 cm and 1 mm thick, pore surface cream, margin more or less absent, pores angular 3-4 per mm, slightly dentate, in parts larger and more irregular, subiculum up to 200 µm almost invisible.
Hyphal system dimitic; generative hyphae with clamps 2-5 µm in diameter, skeletal hyphae thick walled, 2-6 µm in diameter, strongly encrusted in the dissepiments.
Basidiospores 2.8-3 x 0.8-1 µm, allantoid.
Distribution. Known only from the type locality in Cameroon.
Remarks. The irregular pores and the tiny allantoid spores characterize this species. From the microscopically similar *S. afronivea*, it is separated by having larger pores and a distinct cream coloured pore surface.

Skeletocutis afrochrysella Ryvarden,

Synopsis Fung. 39;70, 2019.
Basidiocarps resupinate, annual, up to 3 x 2 cm, 2 mm thick, margin narrow, white, pore surface pale ochraceous, pores round to slightly angular, 6-8 per mm, invisible to the naked eye, tube layer concolorous, 2 mm deep, context whitish, almost invisible.
Hyphal system dimitic; generative hyphae hyaline, thin-walled with clamps, 2.55 µm in diam, but difficult to find, skeletal hyphae encrusted over long distances, solid to distinctly thick-walled, 2-5 µm in diam.
Basidiospores 3-3.5 x 0.8-1 allantoid.
Substrate. Dead basidiocarps of *Phellinus* cfr *gilvus*.
Distribution. Known only from the type locality in Zambia.
Remarks. This is a remarkable species by growing on old basidiocarps of a *Phellinus* sp., thus strongly reminding one of *Skeletocutis chrysella* Niemelä, which however is known only from the boreal *Phellinus abietis* growing on gymnosperms. Besides the different host, this species also has larger pores, i.e. 3-4 per mm.

Skeletocutis afronivea Ryvarden,

Synopsis Fung. 38: 30, 2018.
Basidiocarps annual, resupinate, up to 6 cm x 3 cm and 5 mm thick, pore surface white to pale ochraceous, margin rounded, felty white and distinct, pores round 6-8 per mm, slightly elongated on sloping substrate, white, up to 3 mm deep, subiculum 1-2 mm, white and slightly cottony.
Hyphal system dimitic; generative hyphae with clamps 2-4 µm in diameter, skeletal hyphae thick walled, 2-5 µm in diameter, strongly encrusted in the dissepiments.
Basidiospores 3-3.5 x 1.2-1.5 µm, cylindrical to slightly allantoid.
Distribution. Known only from the type locality in Uganda.
Remarks. Macroscopically the species reminds one of the widespread *S. nivea*, but the spores are distinctly wider than in that species (3-4 x 1 µm).

Skeletocutis alutacea (J. Lowe) Jean Keller,

Persoonia 10:353, 1979. - *Poria alutacea* J. Lowe, Mycologia 38:202, 1946.
Basidiocarps annual, resupinate, effused up to 20 cm, soft, easily separated from substratum; sterile margin white to cream-coloured, cottony to fimbriate or with conspicuous, white to cream-coloured rhizomorphs up to 1 mm in diam; pore surface white to pale ochraceous buff, glancing, the pores circular to angular, 4-8 per mm, with thin, entire dissepiments that appear finely granulose; subiculum white to cream-coloured, soft-fibrous, less than 1 mm

thick; tube layer cream-coloured, drying brittle and shattering when cut, up to 1 mm thick.
Hyphal system dimitic; subicular skeletal hyphae thick-walled, hyaline, nonseptate, rarely branched, 2-4 µm in diam; subicular generative hyphae thin-walled, hyaline, with clamps, rarely branched, 2.5-4.5 µm in diam; tramal hyphae similar, encrusted in dissepiment edges.
Basidiospores 3.5-5 x 1-1.5 µm cylindrical to slightly curved.
Distribution. Ethiopia, widespread in the temperate zone.
Remarks. The rather soft, separable basidiocarps and the conspicuous white rhizomorphs are good field characters for *S. alutacea.*

Skeletocutis amorpha (Fr.) Kotl. & Pouzar,

Česká Mykol. 12:103, 1958. - *Polyporus amorphus* Fr., Syst. Mycol. 1:364, 1821.
Basidiocarps annual, effused-reflexed to rarely resupinate; pilei solitary or imbricate, dimidiate to elongated, often laterally fused, up to 2 x 4 x 0.3 cm, thin and coriaceous, pileus whitish to grey or pale buff, zonate or azonate, tomentose to adpressed-hirsute, smooth to deeply sulcate; pore surface cartilaginous, pinkish buff to reddish-orange, the pores circular to angular, 3-5 per mm, context consisting of a soft, fibrous upper layer and a firm, cartilaginous lower layer, the whole up to 1 mm thick; tube layer concolorous and continuous with the lower layer of the context, up to 1 mm thick; sections pale yellowish or reddish in KOH; taste slightly bitter.
Hyphal system dimitic; generative hyphae hyaline, becoming thick-walled, with clamps, 2-6 µm in diam., encrusted at the dissepiments edges; skeletal hyphae hyaline, thick-walled, aseptate, with rare branching, 3-6 µm in diam., in the trama with irregular structure; tramal hyphae similar.
Basidiospores 3-4.5 x 1.3-1.8 µm, allantoid.
Substrata. Dead wood of numerous genera of the Pinaceae, especially *Pinus*, but also on *Abies, Larix* and *Picea*.
Distribution. Zimbabwe and Kenya in conifer plantations.
Remarks. When typical with a pale orange cartilaginous tube layer, the species is easy to recognize.

Skeletocutis grandisporus Ryvarden,

Synopsis Fung. 39:70, 2019.
Basidiocarps annual, resupinate, up to 5 x 4 cm, 2 mm thick, margin narrow white and floccose, pore surface white when fresh, drying wood coloured with brown patches when touched in fresh conditions, pores angular and irregular in dry condition, 4-6 per mm, large and more split on sloping substrate, tube layer concolorous, 1 mm deep, context, up to 1 mm thick.
Hyphal system dimitic; generative hyphae hyaline, thin-walled with clamps, 2.55 µm in diam, but difficult to find, skeletal hyphae encrusted over long distances, solid to thick-walled, 2-5 µm in diam.
Basidiospores 4-5 x 2-2.3 µm, allantoid to cylindrical.
Distribution. Known from several localities in Zimbabwe, and by all probability widespread in Southern Africa.
Remarks. The wood coloured pore surface with brown patches when touched in fresh condition and the fairly large spores, are diagnostic.

Skeletocutis nivea (Jungh.) Jean Keller, Fig. 111.

Persoonia 10:353, 1979. - *Polyporus niveus* Jungh., Verh. Batav. Genootsch. 17:48, 1839.
Basidiocarps annual, effused-reflexed or often resupinate, rarely sessile, pilei solitary or imbricate, dimidiate to elongate, sometimes laterally fused, up to 3 cm wide; upper surface white to cream coloured, azonate, finely tomentose to glabrous; pore surface white to cream coloured, glancing, the pores circular to angular, 8-10 per mm, with thin, entire dissepiments; context white, azonate, up to 5 mm thick; tube layer white to pale buff, distinct from context, easily sectioned, up to 2 mm thick.

Fig. 111. *Skeletocutis nivea*, photo D. Mossebo.

Hyphal system trimitic; generative hyphae thin-walled, with clamps, 2-3.5 µm in diam; skeletal hyphae thick-walled, 3-5 µm in diam; binding hyphae, thick-walled, much branched, compactly arranged and difficult to separate.
Basidiospores 4-5 x 0.5-1 µm, allantoid.
Distribution. Almost cosmopolitan and known throughout Africa.
Remarks. The species is characterized by the white to irregular brownish pileus, tiny pores and microscopically, by the tiny allantoid spores besides the trimitic hyphal system.

Skeletocutis percandida (Malençon & Bertault) Jean Keller,

Persoonia 10:353, 1979. - *Poria percandida* Malençon & Bertault, Acta Phytotax. Barcinon. 8:35, 1971.
Basidiocarps annual, resupinate, easily detached, soft, effused, up to 12 wide and long and 4 mm thick; margin wide, rhizomorphic, white and cottony; pore surface white to pale cream, pores circular to angular, thin-walled, (4-)5-6 per mm; subiculum white and cottony, up 2 mm thick; tube layer concolorous with pore surface, up to 1 mm thick.
Hyphal system dimitic; generative hyphae with clamps, hyaline, thin-walled, branched, 2-3.5 µm in diam.; skeletal hyphae thick-walled to solid, sinuous, dominating in the subiculum, 2.5-3.5 µm in diam., finely encrusted in the dissepiments.
Cystidia absent; fusoid cystidiols in the hymenium, thin-walled, smooth, 15-20 x 5-6 µm.
Basidiospores 5-7.5(-8) x 2-3 µm, cylindrical, slightly curved.
Substrata. Hard wood, in Europe rarely on conifers like *Abies, Juniperus* and *Pinus*.
Distribution. Known from Northern Africa and around the Mediterranean area.
Remarks. Easily recognized in the field because of the soft, white and rhizomorphic basidiocarp. Microscopically the large spores are diagnostic.

Skeletocutis pseudoamorpha Ryvarden,

Synopsis Fung 38: 30, 2018.
Basidiocarps annual, pileate, broadly attached and elongated along the substrate, 1 x 2 cm and up to 4 mm thick at base, pileus surface densely tomentose, whitish and slightly concentrically zonate, margin sharp and deflexed when dry, pore surface ochraceous to wood-coloured, pores angular to semi labyrinthine in parts, 5-7 per mm in areas with in round pores, larger and more irregular in other parts, tubes dense semi translucent, thin walled, context resinous and dense, blackish brown, distinctly delimited toward the pileus tomentum.
Hyphal system dimitic; generative hyphae with clamps 2-5 µm wide, skeletal hyphae thick walled, 2-5 µm wide, coarsely encrusted in the dissepiments, negative in Melzers agent.
Basidiospores not seen.
Distribution. Known only from the type locality in Zambia.
Remarks. Even if spores have not been observed, this species may be recognized in the field due to the duplex pileus with a white woolly surface layer and a lower, dark brown, resinous hard context.

Skeletocutis ugandensis Ryvarden,

Synopsis Fung. 39:44, 2019.
Basidiocarps annual, resupinate, effused, up to 10 cm wide and long, up to 2 mm thick, soft when fresh, brittle when dry, pore surface white when fresh, pale brown when touched or dry, pores angular, honeycomb like with thin walls, 3-4 per mm, context almost invisible, white.
Hyphal system dimitic; generative hyphae with clamps, 2-4 µm in diam; skeletal hyphae hyaline, thick walled, 3-5 µm wide strongly encrusted, especially along the dissepiments.
Basidiospores 5-7 x 2.3-2.5 µm, oblong elliptic.
Distribution. Known only from the type locality in Uganda.
Remarks. This is a beautiful species with its honeycomb pores and where the pore surface changes from pure white to pale brown or deep ochraceus when dry, and distinctly becoming darker when touched in fresh condition.

SPONGIPELLIS Pat.,

Hym. Europ. p. 140, 1887.
Basidiocarps annual, pileate, broadly attached, semicircular, reflexed to resupinate; pileus tomentose to smooth, white to ochraceous; hymenophore poroid to dentate, pores circular to sinuous; tubes concolorous with pore surface; context white to cream, mostly duplex, lower part fibrous and dense, upper part looser and more cottony; hyphal system monomitic; generative hyphae with clamps; cystidia or other sterile elements absent; spores ellipsoid to globose, smooth, hyaline, thick-walled and IKI-, on living and dead hard wood, causing a white rot.
Type species: *Polyporus spumeus* Sowerby: Fr.
Remarks. The genus is similar to *Tyromyces*, but is distinguished by a distinct duplex consistency and thick-walled subglobose to elliptic spores.

Spongipellis africana Ipulet & Ryvarden,

Synopsis Fung. 20:97, 2005
Basidiocarps annual effuse reflexed, soft when dry, pileus white to cream, azonate, dull, glabrous, up to 1 cm wide and long, hymenophore hydnoid with basally fused and flattened and in parts irregular teeth, white, individual spines up to 2 mm long, context white to 6 mm thick measured vertical.

Hyphal system monomitic, generative hyphae with large and conspicuous clamps, 4-8 µm wide.
Basidiospores 4-4.5 µm in diameter globose, thick-walled.
Distribution. Known from the type locality in Uganda.
Remarks. The species is macroscopically identical with the temperate *S. pachydon*, but it is easily separated by the much smaller basidiospores.

THELEPORUS Fr.,

Kungl. Vet. Akad. Handl. 11:138, 1848.
Basidiocarps resupinate, adnate, irregularly poroid, light cream to ochraceous, pores, angular to semi labyrinthine (lens), hymenium restricted to the bases of the pores hyphal system mono to ditrimitic, generative hyphae with clamps, vegetative hyphae probably of two types, partly as skeletal hyphae, dendrohyphidia present, gloeocystidia present or absent, spores elliptic, smooth, and non-amyloid. On hard wood, a tropical genus with white rot.
Type species: *Theleporus cretaceus* Fr. op.cit.
Remarks. The genus is above all characterized by its semi poroid white basidiocarps with basidia covering usually both the vertical pore walls and the bottom part of the shallow pores. The genus is related to *Grammothele* which however has dextrinoid skeletal hyphae and hydnoid to distinctly poroid basidiocarps.

Key to species

1. Hymenophore labyrinthine, spores 2.5-3 µm log ..... **T. labyrinthicus**
1. Hymenophore poroid, spores longer than 3 µm **2**

2. Pores 1-3 per mm, spores globose ..... **T. africanus**
2. Pores 3-7 per mm, elliptic to subglobose **3**

3. Hyphal system dimitic, most pores with a central papilla, spores 7-8 x 3-3.3 µm..... **T. cretaceus**
3. Hyphal system trimitic, pores usually without a central papilla, spores 57.5 x 45 µm ..... **T. calcicolor**

Theleporus africanus Decock & Ryvarden,

Synopsis Fung. 42:12, 2020.
Basidiocarps annual, resupinate, adnate and widely effused, dense and brittle when dry, pore surface white, pores 1-3 per mm, pores up to 200 µm deep, pores densely dotted with hyphal pegs, hymenium restricted to the bases of the pores, difficult to observe properly, consistency dense, subiculum thin, along margin cob webby and partly transparent.
Hyphal pegs numerous covering pores and sterile dissepiments, white about 20-40 x 50-120 µm.
Hyphal system dimitic, generative hyphae hyaline, thinwalled and with clamps, 24 µm wide, skeletal hyphae thickwalled to solid, 24 µm wide, densely agglutinated and difficult to separate. IKI negative.
Dendrohyphidia 15-30 x 3-5 µm, hyaline, difficult to observe properly, mostly collapsed.
Basidia 12-16 x 4-6 µm, tetrasterigmatic.
Basidiospores globose, 5-6 µm in diameter with distinct apiculus.
Distribution. Known only from the type locality in Gabon.
Remarks. The white basidiocarp with shallow angular pores densely dotted with hyphal pegs should make it possible even to recognize the species in the field. It is similar to: *T. cretaceus* Fr., which however has mostly one central papillae or hyphal pegs besides broadly cylindrical spores, i.e. 7-8 x 3-3.2 µm.

Theleporus calcicolor (Sacc. & Syd.) Ryvarden,

Trans. Br. Mycol. Soc. 73:12, 1979. *Poria calcicolor* Sacc. & Syd., Syll. Fung. 14:192, 1899. - *Poria amaniensis* Henn., Engl. Bot. Jahrb. 38:109, 1905.
Basidiocarps annual, adnate, effused, up to 15 cm long and wide, 5 mm thick and deep, margin white, finely fimbriate, pore surface white to pale cream, or pale buff in old specimens, pores in part irregular, angular, 5-7 per mm, up to 200 µm deep, finely pruinose along the uneven and partly incised dissepiments, hymenium restricted to the bases of the pores, distinctly paler than the pore walls, subiculum very thin.
Hyphal system trimitic, generative hyphae with clamps, 2-3 µm wide, skeletal hyphae narrow, solid, 2-3 µm wide, more or less parallel in the tube walls, binding hyphae present in the subiculum and the dissepiments, in the subiculum 1-15 µm wide, sparingly branched and difficult to tease apart.
Dendrohyphidia present, difficult to observe in older specimens, hyaline, most easily seen in the dissepiments.
Basidiospores 5-7.5 x 4-5 µm, broadly elliptic to subgloboseovoid.
Distribution. Known from Sri Lanka, Malaya, Kenya and Tanzania.
Remarks. The irregular pore surface and dendrohyphidia are diagnostic for this species.

Theleporus cretaceus Fr.,

Kungl. Vet. Akad. Handl. 11:138, 1848.
Basidiocarps annual, resupinate, adnate and widely effused, dense and brittle when dry, pore surface white to cream, pores angular and in parts irregular and connected to adjacent pores by narrow openings, on average, 3-4 per mm, pores up to 200 µm deep, hymenium restricted to the bases of the pores and more whitish than the sterile pore walls, subiculum very thin.
Hyphal system trimitic or dimitic, generative hyphae hyaline, thinwalled and with clamps, 24 µm wide, skeletal hyphae thickwalled to solid, 2-3.5 µm wide, arranged more or less parallel in the tube walls, binding hyphae probably present, solid, 2-4 µm wide.
Basidiospores 7-8 x 3-3.2 µm, broadly cylindrical.
Gloeocystidia 20-40 x 4-7 µm, tubular and slightly sinuous in outline and with oil drops.
Dendrohyphidia 15-32 x 3-7 µm, hyaline and non- amyloid.
Distribution. Known from Natal and Transvaal in South Africa.
Remarks. The whitish basidiocarp with shallow and partly irregular pores with a central papilla, should make it possible to recognize it in the field.

Theleporus labyrinticus Decock & Ryvarden,

Synopsis Fung. 42:12, 2020.
Basidiocarps annual, resupinate, adnate, 5x 3 cm brittle when dry, pore surface pale ochraceous, pores labyrinthine to occasionally angular, 7-8 pore walls per mm, 0.5 mm deep, subiculum white, very thin, almost invisible.
Hyphal system dimitic, generative hyphae hyaline, thinwalled and with clamps, 24 µm wide, skeletal hyphae thickwalled to solid, 2-5 µm wide, twisted and irregularly bent.
Basidiospores 2.5-3 x 1.5 mm, cylindrical, smooth, thin walled.
Distribution. Known only from the type locality in Gabon.
Remarks. The strongly labyrinthine pore surface with small openings and distances between individual walls, make this a very distinct species.

TINCTOPORELLUS Ryvarden,

Trans. Br. Mycol. Soc. 73:18, 1979.
Basidiocarp resupinate, pore surface blush grey to pale violet, pores angular, 7-9 per mm, hyphal system dimitic, generative hyphae with clamps at the septa, skeletal hyphae thickwalled, hyaline to light golden yellow in KOH, weakly dextrinoid, basidia clavate, with 4 sterigmata, spores elliptic to subglobose, smooth, hyaline and IKI, causes a white rot with reddish in zones in the substratum. On dead hard woods.
Type species: *Polyporus epimiltinus* Berk. & Broome.
Remarks. The genus is easy to recognize by the beige to isabelline colour and the very hard substrate with a distinct reddish zone below the basidiocarp. It may be related to *Porogramme* where the same type of reddish zones in the substrate is present.

Tinctoporellus epimiltinus (Berk. & Broome) Ryvarden, Fig. 112.

Trans. Br. Mycol. Soc. 73:18, 1979. *Polyporus epimiltinus* Berk. & Broome, J. Linn. Soc. 14:54, 1873.
Basidiocarps resupinate, adnate and widely effused, woody hard, up to 3 mm thick, distinctly delimited towards the wood which is coloured in red zones; pore surface bluish grey, glaucous to light beige or violet, pores angular to round, 7-9 per mm, almost invisible to the naked eye, in more mature and thicker basidiocarps a few larger and somewhat elongated, on sloping substrate the pores become split in front and more irregular; margin lacking or very narrow, bluish white; tubes up to 3 mm thick, whitish inside due to a cover of excreted crystals and old tubes stuffed with white mycelium seen in dry specimens.
Hyphal system dimitic, generative hyphae thinwalled, 1.5-2.5 µm in diameter, with clamps, often difficult to find and apparently restricted to the thin subhymenium along the tubes; skeletal hyphae 2-4 µm in diameter, hyaline to golden yellow, slightly dextrinoid.
Basidiospores 4.5-5.5 x 2.5-3 µm, broadly elliptic to subglobose.

Fig. 112. *Tinctoporellus epimiltinus*, photo Terry Henkel.

Distribution. Pantropical, wide spread in Africa.
Remarks. The species is usually easy to identify because it is the only true polypore described in this book that reddens the substrate. *Porogramme albocincta* which also commonly develop reddish zones, but has shallow small pores and bluish black pore surface.

TRAMETES Fr.,

Fl. Scand. p.339, 1835.
Basidiocarps annual to perennial, pileate, sessile, dimidiate to fan shaped, single or imbricate, flexible to hard; upper surface hispid to glabrous, often zonate; pore surface white, cream to pale grey, context white to isabelline, homogeneous or duplex, hyphal system trimitic; generative hyphae hyaline and with clamps, skeletal hyphae straight, thick-walled to solid, hyaline, binding hyphae tortuous, solid, hyaline; cystidia lacking, in some species pointed hyphal ends may penetrate the hymenium; spores elliptic to allantoid, hyaline, thin-walled and IKI-; causes a white rot in hard woods, rarely on coniferous wood, cosmopolitan genus with many common and widespread species.
Type species: *Trametes suaveolens* (Fr.) Fr.
Taxonomic synonyms with type species:
Lenzites Fr. 1835, *Daedalea betulina* Fr.
Pycnoporus P. Karst. 1881, *Polyporus cinnabarinus* Fr.
Coriolus Quél.1886, *Polyporus hirsuta* Wulf.: Fr.
Funalia Pat. 1900, *Polyporus monsveneris* Jungh. (= *Polyporus leoninus* Kl.).
Coriolopsis Murrill 1905, *Polyporus occidentalis* Kl. (= *Polyporus polyzona* Pers.).
Artolenzites Falck 1909, *Deadalea repanda* Pers. (= *Lenzites elegans* Fr.).
Leiotrametes Welti & Courtec. 2012, *Polyporus lactinea* Berk.

Remarks. The generic concept used here is based on pileate basidiocarps, a trimitic hyphal system and smooth, thin-walled, IKI- spores. Several genera occurring in Africa, as seen above, are proposed with type species included in the wide concept adopted here.
The basidiocarps of *Trametes* spp. are often strongly susceptible to attack from insects and should be treated in a deep-freezer as soon as possible after collecting and drying.
NB. Since all spores in the genus are hyaline, thin walled, smooth and non-amyloid, and all basidia are tetrasterigmatic with a basal clamp, this information is not repeated for each species. Further, since all species described here occur on hardwoods in Africa, this information is not indicated for each species.

Key to African Trametes species

1. Context reddish-orange, white, yellowish to ochraceus, subgenus *Trametes* **2**
1. Context in shades of brown, subgenus *Coriolopsis* ..... **Key C**

2. Pores 1-3 per mm or larger, regular, lamellate, daedaleoid, semi-labyrinthine or lacerate to almost hydnoid .. **Key A**
2. Pores 3-8 per mm, round to angular, more or less entire ..... **Key B**

Key A.

1. Hymenophore distinctly lamellate **2**
1. Hymenophore poroid, daedaleoid, semi-labyrinthine or lacerate to almost hydnoid **4**

2. Pileus hirsute in distinct zones ..... **T. betulina**
2. Pileus more or less glabrous or slightly scrupose **4**

3. Lamellae up to 5 mm apart, often wavy, context yellowish ..... **T. inaequabilis**
3. Lamellae smaller, often mixed with sinuous pores, context white ..... **T. elegans**

4. Pileus hirsute to hispid **5**
4. Pileus more or less glabrous, smooth to scrupose **7**

5. Pileus with a dense, up to 2 cm thick mat of hairs ..... **T. leonina**
5. Pileus hairy to hispid without a dense layer **6**

6. Basidiocarps thin and flexible with regular round to angular pores ..... **T. villosa**
6. Basidiocarps thick and tough, up to 1 cm thick, pores irregular, round to elongated ..... **T. socotrana**

7. Hymenophore with regular angular pores or sinuous ones mixed with lamellae and daedaleoid pores **8**
7. Pores round to slightly elongated **9**

8. Context pale yellow, pileus more or less smooth ..... **T. inaequabilis**
8. Context pure white, pileus asperulate to semi hispid ..... **T. vespacea**

9. Robust species, pileus up to 2 cm thick, tough to rigid ..... **T. lactinea**
9. Thin and flexible species, pileus rarely more than 3-4 mm thick **10**

10. Spores up to 4 µm long, rare West African species ..... **T. parvispora**
10. Spores longer than 8 µm, wides spread species **11**

11. Pileus glabrous, ochraceus to brown, pores regular, round 2-3 per mm, spores 8-11 µm long ..... **T. mimetes**
11. Pileus velvety becoming glabrous, whitish to greyish, pores often irregular, spores longer than 5 µm... **T. menziesii**

Key B

1. Basidiocarp reddish to orange **2**
1. Basidiocarps differently coloured **3**

2. Pores 5-6 per mm ..... **T. sanguinea**
2. Pores 1-3 per mm ..... **T. punicea**

3. Pileus hirsute to tomentose; context often duplex with a black line between tomentum and context, at least close to the base **4**
3. Pileus glabrous or adpressed velutinate, dull to subshiny and soon becoming glabrous context homogeneous **6**

4. Pileus multizonate, often in different colours with alternating tomentose and glabrous zones, pore surface white becoming pale tan with age ..... **T. versicolor**
4. Pileus azonate or with zones in different colours, white to ochraceous **5**

5. Pileus tomentose to velutinate or radially strigose; pore surface becoming yellowish with age ..... **T. pubescens**
5. Pileus hirsute, white to grey; pore surface becoming grey with age ..... **T. hirsuta**

6. Basidiocarps perennial, woody hard with a reddish cuticle spreading from base ..... **T. africana**
6. Basidiocarps annual, rarely perennial, flexible to tough, no reddish cuticle spreading from base..... 7

7. Pileus greyish and black from base ..... **T. cingulata**
7. Pileus greyish, tan, ochraceous to dark brown from base or in zones **8**

8. Pileus strongly tuberculate, dark ochraceus to brown, spores 10-12 µm long ..... **T. subreticulata**
8. Pileus smooth to sulcate in zones, whitish to ochraceous, spore shorter than 10 µm **9**

9. Basidiocarps robust, up to 2 cm thick, tough and hard, pileus glabrous, smooth ..... **T. lactinea**
9. Basidiocarps soft and flexible, rarely morethan 5 mm thick, pileus often velutinate becoming glabrous **10**

10. Context pale pinkish to cafe au lait, red to brownish with KOH, fading to dark spots **11**
10. Context white to ochraceous or cork coloured **12**

11. Basidiocarps flat and flexible, upper surface soft velvety to glabrous in zones, spores 1.5-2 µm wide..... **T. modesta**
11. Basidiocarps elongated semicircular, 5-20 mm thick, upper surface azonate and glabrous, spores 2.5-3 µm wide... ..... **T. roseola**

12. Pores 3-4 per mm, often slightly irregular, spores cylindrical **13**
12. Pores 4-5 per mm, more or less round, spores elliptic ..... **T. varians**

13. Basidiocarps effused reflexed, pileus flexible and papery thin, spores 7-10 µm long ..... **T. cotonea**
13. Basidiocarps single, sessile to dimidiate, tough, up to 6 mm thick, spores 6-7 µm long ..... **T. marianna**

Key C

1. Pileus more or less glabrous **2**
1. Pileus velutinate, tomentose to hispid or with irregular protuberances **5**

2. Pileus, context and tubes olivaceous brown, pileus smooth or with basal outgrowths ..... **T. strumosa**
2. Pileus, tubes and context cinnamon to dark brown, pileus smooth or with some scrupose warts or striae **3**

3. Basidiocarps cinnamon to golden brown, pileus mostly azonate, often warted and sometimes with a reddish cuticle spreading from the base, spores 5-8 µm long ..... **T. sanguinaria**
3. Basidiocarps dark reddish brown, pileus zonate, smooth or with some warts and striae, spores 7-l2 µm long..... **4**

4. Surface mostly striate or with some scattered scrupose warts, pores 3-4 per mm, spores 3-4.5 wide ..... **T. asper**
4. Surface smooth, pores mostly 3-5 per mm, spores 2-3 µm wide..... **Datronia caperata**

5. Pileus hirsute, tomentose to hispid **6**
5. Pileus soft and adpressed velutinate **12**

6. Pileus with stiff erect and often forked hairs **7**
6. Pileus with tomentum, mostly of simple hairs **12**

7. Pileus with crowded. antler-like protuberances, up to 1 cm tall, 4-5 pores per mm..... **T. anthleroides**
7. Pileus more or less tomentose, pores 1-4 per mm **10**

8. Pileus dark reddish brown, pores 3-4 per mm..... **T. asper**
8. Pileus ochraceous to cinnamon, pores larger 1-2 per mm **9**

9. Pileus with antler like forked hairs, spores up to 10 µm long, pores mostly 1-2 per mm ..... **T. telfarii**
9. Pileus with adpressed tomentum when old, partly glabrous, spores 10-16 µm long, pores1-3 m wide ..... **T. gallica**

10. Pileus grey-dark brown, context dark brown, pore surface mostly pale brown and with a distinct bluish pruina .... **T. floccosa**
10. Pileus, tubes and context golden brown to dark ochraceous..... **11**

11. Pileus azonate and soft..... **T. helvola**
11. Pileus narrowly zonate, hirsute ..... **T. polyzona**

12. Pileus cinnamon, pores 5-6 per mm, spores 4-6 µm wide ..... **T. byrsina**
12. Pileus variably dark reddish brown, pores 2-5 per mm, spores 2-4 µm wide **13**

13. Basidiocarps mostly effused with a narrow pileus, tubes and pore surface light coloured, skeletal hyphae dextrinoid..... **Datronia brunneo-leuca**
13. Basidiocarps mostly applanate pileate, tubes and pore surface dark brown, skeletal hyphae non- dextrinoid .... **Datronia caperata**

Trametes africana Ryvarden,

Synopsis Fung. 18:83, 2004.
Basidiocarp perennial, pileate, solitary, more rarely fused to more compound basidiocarps, semicircular, broadly sessile to dimidiate with a tapering base, when young applanate and rather thin, with age becoming triquetrous in section, up to 15 cm long and 10 cm wide, usually 0.5-8 cm thick at the base, rigid to corky when fresh, woody hard when dry, pileus first adpressed velutinate and ochraceous to pale buff, soon glabrous and leathery brown to dirty brown and then from the base developing a cuticle, brownish to deep bay or reddish-black. pore surface ochraceous, wood coloured, pale leathery-brown, isabelline or pale umber with age, pores round and entire, 5-7 per mm, tubes as pore surface, context first ochraceous becoming golden-brown and finally almost umber brown.
Hyphal system trimitic, generative hyphae clamped, hyaline and thin- to slightly thick-walled, 2-3 µm in diameter, skeletal hyphae abundant, golden to pale brown, thick-walled with a distinct lumen, 5- 8 µm wide, binding hyphae light yellow, thick-walled, about 3-4 µm wide, slightly irregularly branched, not abundant.
Basidiospores 6,5-8 x 2.5-3.3 µm, cylindrical.

Distribution. Cameroon, Ethiopia, Kenya, Rwanda and Uganda.
Remarks. The species may be recognized by its perennial and woody hard basidiocarps with pileus becoming reddish to bay and laccate from the base.

Trametes afrozonata Niemelä & Ryvarden, Fig.113.

Index Fung. 499, 2021**.**
Basidiocarps annual, sessile, ungulate to triquetrous, 6–10 cm broad, projecting 3.5–5 cm from substrate, up to 5 cm thick at base, above matt, pale beige coloured but with narrow brownish zones; pore surface greyish brown, pores round, 3–4 per mm; context golden brown to pale tobacco, with regular, narrow, paler-and-darker zones, concentric from the point of attachment; tube layer concolorous, up to 1 cm.
Hyphal system trimitic; generative hyphae thin-walled, 2–3 µm, with clamps; skeletal hyphae yellow-brown, thick-walled, 4–6 µm, dextrinoid; binding hyphae brown, subsolid, 2–3 µm, branched.


Fig. 113. *Trametes afrozonata*, the holotype, photo T. Niemelä.

Basidiospores 11–13 × 3.8–4.4 µm, narrowly elliptic, often tapering towards the distal end, thin-walled, hyaline and negative in Melzer's reagent.
Substrate. On a robust stump of *Brachystegia* left standing in an agricultural field.
Distribution. Known only from the type locality in Tanzania.
Remarks. The sturdy shape and brown colours make this species reminiscent of some *Fomes* or *Inonotus* species, but microscopy does not support any links to those genera. Basidocarps are light-weight when fresh, and easy to cut with a knife.

Trametes anthleroides (Douanla-Meli & Ryvarden) Ryvarden,

Synopsis Fung. 44: 36, 2021.
Basidiocarps annual, pileate, broadly sessile; pileus effused-reflexed to dimidiate or semi-circular, imbricate, with a decurrent tube layer, up to 10 cm wide, 5 cm high and up to 2 cm thick at the base; consistency tough, flexible, nearly spongy when fresh, yellowish brown to rusty brown on old specimens, adpressed tomentose with numerous crowded antler-like protuberances, coralloid to digitate, up to 1 cm tall, 2-3 mm wide, mostly pointed and at times flattened, concentrically zonate towards the margin, rugose to warted, entire, crenulated, slightly undulating; pore surface cinnamon brown to dark brown, pores round to angular, 4-5 per mm, at times radially elongated, 1-3 mm deep, context dense and shiny, golden brown, distinctly duplex, upper part floccose-cottony, up to 4 mm thick, lower layer fibrous, compact, up to 6 mm thick, ,black line not observed.
Hyphal system trimitic; generative hyphae with clamps, thin-walled, hyaline, almost collapsed, up to 2.5 µm wide, binding hyphae tortuous with long branches, thick-walled to solid, hyaline to pale yellowish), 1-2,5 µm diameter; skeletal hyphae dominating, thick-walled to almost solid, 3-5 µm diameter, yellow to yellowish brown.
Basidiospores (5.5-)6-8(-8.5) x (3-)3.5-4.5 µm; broadly elliptic to cylindrical, slightly thick-walled.
Distribution. Known only from the type locality in Cameroon.
Remarks. The pileus with forked to simple protuberances make this to distinct species. Superficially it may remind one of *T. subtuberculata*, but this species has much longer spores.

Trametes aspera (Jungh.) Bres**.,**

Hedwigia 53: 68, 1913. - *Polyporus asper* Jungh., Verh. Batavisch. Genootsch. 17:60, 1838. - *Polyporus strigatus* Berk., Lond. J. Bot. 6:502, 1847. - *Polyporus olivaceus* E. Rostr. in Johs. Schmidt, Bot. Tidsskr. 24:359, 1902. - *Polyporus hostmannii* Berk., Hooker, Lond. J. Bot. 1:139, 1842. - *Trametes badia* Berk., Hooker, Lond. J. Bot. 1:151, 1842. - *Polyporus koenigii* Berk., Ann. Nat. Hist. 3:383 1842. - *Fomes lineato-scaber* Berk. & Broome, Trans. Linn. Soc. Bot. Ser. 2, vol. 2:59, 1883. - *Polyporus curreyii* Berk. & Cooke, Grevillea l5:21, 1886. - *Polyporus fuscellus* Lev. in Zollinger, Syst. Verzeichnis p. 17, 1854. – *Polyporus cohaerens* Lev. Ann. Sci. Nat Ser. 3 vol 5:132, 1844. - *Trametes amplopora* Lloyd, Bull. Lloyd Lib. Mus. 35:142, 1936. – *Polyporus heteroporus* Mont., Ann. Sci. Nat. II. 16:273, 1841.
Basidiocarps annual to perennial, solitary or imbricate making clusters of pilei from the same base, up to 10.5 cm

broad, 5.5 cm wide and 1.5 thick, hard when dry, pileus dimidiate to flabelliform with a tapering base, flat to slightly convex, dark fulvous to ferruginous in young specimens, more chestnut to reddish-brown with darker patches when older, usually with a distinct reddish tint, concentrically sulcate and ridged, radially striate with warts and scrupose tuft of agglutinated hairs, most erect near the base, more flattened near the margin, pore surface fulvous to rusty-brown often with an ashy grey tint, usually darker than the context, pores round, entire, relatively thick-walled, 3-4 per mm, tubes concolorous, up to 7 mm long, context fulvous, rusty-brown to umber, up to 10 mm thick.
Hyphal system trimitic, generative hyphae often collapsed and difficult to find, hyaline, thin-walled, up to 8 µm in diameter, binding hyphae irregular in outline, strongly branched or with a few long tapering branches, skeletal hyphae thick-walled yellow to light brown, up to 6 µm in diameter.
Basidiospores, 9-12 x 3-4.5 µm cylindrical.
Distribution. Throughout the paleotropical area, in Africa from Cameroon, Ethiopia, Kenya and Tanzania.
Remarks. The species may be recognized when it is typically developed by its forked hairs and erect processes on the pileus, reddish-brown pileus and rather large pores. Later the hairs disappear and only a more finely scrupose or warted surface is left.

Trametes betulina (L.;Fr.) Pilát**,**

Atlas Champ. l' Europe, Polyporaceae (Praha) 1: 262, 1939. - *Daedalea betulina* L.; Fr., Syst. Mycol. 1:333, 1821. - *Agaricus betulinus* L.**,** Sp. pl. 2: 1176, 1753.
Basidiocarps annual, single to a few together, pileate, dimidiate to semicircular or broadly attached with a partly resupinate, effused part, 15 x 28 x 0.3-2.0 cm, margin even to lobed or incised, corky and coriaceous, upper surface tomentose to hispid in concentric, partly sulcate zones, first white, later greyish to cream, old specimens often have a greenish tint because of algae in the tomentum, hymenophore lenzitoid with thin radial lamellae, when young and along the margin straight, 10-15 per cm measured tangentially, about 100-200 µm thick, in older parts and when dry, mostly undulating or flexuous, first white, later cream to ochraceous, lamellae up to 12 mm deep at the base, context thin, 12 mm thick, fibrous and white, distinctly lighter than the lamellae.
Hyphal system trimitic, generative hyphae hyaline and with clamps, skeletal hyphae solid to thickwalled, 3-7 µm wide, binding hyphae common in both the context and trama, hyaline, thickwalled to solid, tortuous and much branched, up to 10 µm wide.
Cystidia none, but in collapsed hymenia the sword like branches of the binding hyphae may easily be mistaken for thickwalled cystidia unless a careful examination is undertaken.
Basidiospores 5-6 x 2-3 µm, cylindrical, often slightly bent.
Distribution. Cosmopolitan species, but rare in the tropical zone.
Remarks. The species is easy to recognize because of the hirsute to tomentose zoned pileus and the lamellate hymenophore.

Fig. 114. *Trametes byrsina*, photo D. Mossebo.

Trametes byrsina (Mont.) Pat., Fig. 114.

Essai Tax. p. 93, 1900. - *Polyporus byrsinus* Mont., Ann. Sci. Nat. Ser. 2 vol. 17:126, 1842.
Basidiocarps annual, pileate, reflexed and effused, frequently with elongated pilei, more or less laterally fused, along an effused or decurrent pore layer or with numerous small pilei mostly up 3 cm wide, in fused basidiocarps up to 15 cm long, thin and flexible 1-3 mm thick pileus pale cinnamon to rusty-brown or umber-brown in old specimens, narrowly concentrically zonate, often sulcate or applanate, adpressed tomentose to velvety and soft to touch, pore surface whitish to pale cinnamon when fertile, more cinnamon in sterile specimens, pore surface soft to touch, pores

round and entire, rather thick-walled, (4)5- 6 per mm, tubes concolorous with pore surface, up to 2 mm deep, context cinnamon to tan, 1-2 mm thick.
Hyphal system trimitic, generative hyphae thin-walled and with clamps, 1-3 µm wide, skeletal hyphae dominating, thick-walled to almost solid, yellow to golden-brown 3-6 µm wide, binding hyphae hyaline to pale golden-brown, solid, moderately branched and often twisted, richly present in the context, more scattered in the trama, 2-5 µm wide.
Basidiospores 9-14 x 4.5-6 µm, oblong elliptic to sub-cylindrical.
Distribution. Widespread in tropical Africa and seen throughout East Africa.
Remarks. The species is recognized by its soft basidiocarps with thin, narrow pilei and small pores. Further, the wide spores easily separate it from all other *Trametes* species described in this manual.

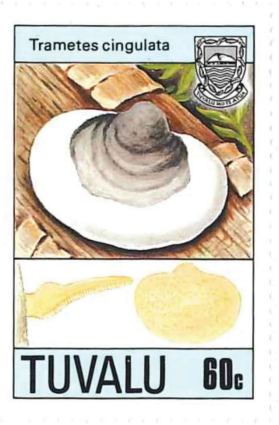


Fig. 115. *Trametes cingulata*. Fig. 116. *Trametes cingulata*, photo D. Mossebo.

Trametes cingulata Berk., Fig. 115 & 116.

Hook. J. Bot. 6:164, 1854.
Basidiocarps annual to perennial, solitary, more rarely imbricate or fused laterally to connate rows of basidiocarps, applanate and of almost even thickness to the margin, dimidiate to semicircular with a contracted base, up to 5 cm wide and 7 cm long, 2-10 mm thick at the base, coriaceous to hard when dry, pliable when fresh, pileus first finely velvety, but soon becoming glabrous, dull to semiglossy, whitish to ochraceous in young and small specimens, soon becoming greyish to sooty black, spreading from the base, but often also in concentric zones which may be slightly sulcate, older specimens often with warts, irregular outgrowths or protuberances from the inner parts, context cream to ochraceous, 14 mm thick.
Hyphal system trimitic, generative hyphae clamped, hyaline and thickwalled, 1-3 µm in diameter, skeletal hyphae abundant in the whole basidiocarp, yellow and thickwalled, in the context especially golden and solid, 3-6 µm wide, often with simple secondary septa, binding hyphae also frequent, thickwalled to almost solid in the context, hyaline to yellow, 1-4 µm wide.
Basidiospores 5-6.5 x 3.5-4 µm, broadly elliptic (from spore print).
Distribution. Pantropical.
Remarks. *T. cingulata* is usually easy to recognize because of the sooty black colours on the glabrous, often concentrically sulcate, pileus.

Trametes cotonea (Pat. & Hariot) Ryvarden,

Norw. J. Bot. 19:236, 1972. *Polyporus cotoneus* Pat. & Hariot, Bull. Soc. Mycol. Fr. 9:208, 1893.
Basidiocarps annual, mostly resupinate effused with elongated pilei along the upper edge single or as fused rows of semicircular pilei, more rarely applanate, broadly attached without decurrent resupinate parts, pilei often imbricate or lobed to incised, single pilei up to 5 cm wide and 3-6 cm long, papery thin and flexible, up to 3 mm thick at the base, pileus flat, undulating, cream white to pale ochraceous, first finely velutinate, but soon glabrous and dull, usually concentrically sulcate in variable zones, often also radially furrowed, veined or striate, sometimes with warts, irregular protuberances or outgrowths at the base, pore surface cream to pale ochraceous, sometimes with a greyish tint, pores first round and thickwalled, about 5 per mm, later more thinwalled and 3-4 per mm, often slightly radially elongated, tubes up to 2 mm long, concolorous with the pore surface, context cream to pale ochraceous, cottony, 0.5-1 mm thick.
Hyphal system trimitic, generative hyphae clamped, hyaline and thinwalled, 1-3 µm in diameter, often strongly branched in the hymenium, sometimes difficult to find, more thickwalled and up to 4 µm wide in the pilear

tomentum, skeletal hyphae abundant, hyaline to pale yellow, moderately thickwalled in younger parts, almost solid in older parts, 2-7 µm in diameter, often with simple secondary septa, binding hyphae abundant to sparingly present, hyaline to pale yellow, thin to thickwalled, moderately branched, 14 µm wide.
Basidiospores 7-10 (11) x 2.5-3.5 µm, cylindrical, difficult to find in dried specimens.
Distribution. Widespread in tropical Africa.
Remarks. Quite easy to recognize because of the thin and flexible basidiocarps with an even whitishpale ochraceous colour, mostly widely effused with small pilei and small pores.

Fig. 117. *Trametes elegans*. Fig. 118. *Trametes elegans*, photo D. Mossebo.

Trametes elegans (Spreng.:Fr.) Fr**.** Fig 117 & 118.

Epicr. Syst. Mycol. p.492, 1838 - *Daedalea elegans* Spreng.: Fr., Syst. Mycol. 1:335,1821. - *Daedalea elegans* Spreng., Sv. Vetensk. Akad. Handl. 1820:51.
Basidiocarps annual to perennial, flabelliform, dimidiate or circular, sessile or with a short stipe like base, 1-35 cm wide and long and 0.2-3 cm thick, corky and flexible when fresh, more rigid when dry; pileus white, cream, grey, buff ochraceous or even blackish from the base in older specimens, surface very finely tomentose, soon glabrous, smooth or concentrically sulcate, often warted or with slightly uneven elevated areas, margin thin and often deflexed, even or lobed; stipe absent or up to 3 cm long, 1.5 cm in diameter, glabrous, white to pale cream; pore surface very variable, partly poroid, pores round to angular, 1-2 per mm, partly sinuous-daedaleoid and radially split, up to 2 mm wide, partly purely lamellate with straight to sinuous lamellae, 4-7 per cm measured tangentially, this variation may occur in a single specimen, even in poroid specimens some parts of the hymenophore will usually have a few lamellae or sinuous pores, tubes or lamellae up to 6 mm deep; context white to pale cream, up to 15 mm thick near the base, woody hard when dry.
Hyphal system trimitic; generative hyphae hyaline, thin-walled, with clamps, 2-4 µm wide; skeletal hyphae dominating, yellow to golden, thick-walled to solid, 3-7 µm in diameter; binding hyphae hyaline to pale yellow, thick-walled, up to 5 µm wide, irregularly branched.
Cystidia not present, but binding hyphae project into the hymenium and may easily be interpreted as acute cystidia until a section is squashed and their hyphal nature is revealed.
Basidiospores cylindrical to oblong elliptic, 5-7 x 2-3 µm.
Distribution. Pantropical.
Remarks. In their typical aspect, basidiocarps of this species are easy to recognize because of the irregular hymenophore, often changing from the base to the margin. The colour and shape are very variable and have caused descriptions of numerous new species.

Trametes floccosa (Jungh.) Bres., Fig. 119.

Annuar. R. Ist. bot. Roma 6: 179, 1896. - *Polyporus floccosus* Jungh., Verh. Batav. Genootsch. 17:49 1838. - *Polyporus nigrocinctus* Berk., Ann. Nat. Hist. 10:377, 1843. - *Polyporus proteus* Berk., Hooker, Lond. J. Bot. 2:514, 1843. - *Trametes rigida* Berk. & Mont., Ann. Sci. Nat. Ser. 2, 11:240, 1849. - *Polystictus ecklonii* Berk. apud Cooke, Grevillea 15:23, 1886. – *Polystictus fergussonii* Berk. apud Cooke, Grevillea 15:23, 1886. - *Polyporus rusticus* Lloyd, Mycol. Notes No 53 in Mycol. Writ. 5:75l, 1918. - *Polyporus flexilis* Van der Byl, S. Afr. J. Sci. 18:271, 1922. – *Polyporus glaucoporus* Lloyd apud Van der Byl. S. Afr. Sci. 21:313, 1925. - *Polyporus livingstoniensis* Van der Byl, S. Afr. J. Sci. 22:168-169, 1926. - *Polyporus illontus* Kalch. ex Cooke, Grevillea 10:102, 1882. - *Polystictus sordidus* Berk. in Fr.,

Nova Symb. 1851, p. 80. - *Trametes carteri* Berk. ex Sacc. Syll. Fung. 9:196, 1891.
Basidiocarps annual, pileate, sessile, single or laterally- fused or connate and elongated, frequently with decurrent pore layer, up to 4 cm wide and 15 cm long in fused basidiocarps, margin entire, crenulated, lobed or dentate, undulating and sharp, pileus ochraceous to deep hazel brown frequently greyish- brown, hirsute to tomentose, even hispid at the base as the tomentum may become agglutinated to erect protuberances, distinctly to indistinctly zonate, 1-5 mm wide, also somewhat radially striate, pore surface greyish-brown with a distinct bluish- ashy grey tint which is typical for this species, in old specimens more tobacco to greyish brown, pores round to angular, entire 2-4 (5) per mm in old specimens and on the decurrent pore layer frequently larger and elongated radially, up to 1-2 mm long, tubes concolorous with the pore surface in the trama dark brown, thus the trama and the tube walls are contrasting, up to 6 mm deep, context distinctly duplex, lower part dense, tobacco-brown and shiny fibrous, up to 4 mm thick, upper part looser and floccose, more greyish-brown, in some specimens the two parts are separated by a thin black line.
Hyphal system trimitic, generative hyphae hyaline, thin-walled and with clamps 1.5-4 µm in diameter, often collapsed and distorted in preparations, skeletal hyphae abundant, yellow to
almost golden, thick-walled, 3-8 µm wide, in the context lighter and more thin-walled, binding hyphae thin-walled to slightly thick-walled 1.5-4 µm, hyaline to yellowish, irregular in outline, with numerous relatively short tapering branches.
Basidiospores 8-11(14) x 2,5-4(5) µm, cylindrical.
Distribution. Pantropical and rather common in East Africa in savannah and dry forests.
Remarks. This is a variable species, and the pileus surface may be soft tomentose to hispid without zones, to distinctly zoned with a variable type of tomentum from zone to zone. The pore surface is in most cases very typical with its greyish to bluish ashy tints also colouring the inner tubes.


Fig. 119. *Trametes floccosa*, photo D. Mossebo.

Trametes gallica (Fr.) Fr.,

Epicr. Syst. Mycol., p. 489, 1838. - *Polyporus gallicus* Fr., Syst. Mycol. 1:345, 1821.
Basidiocarps annual to biennial, pileate, broadly sessile, up to 15 cm wide, 7 cm broad and 1 cm thick, semicircular or elongated, often several imbricate pilei from a common, effused resupinate part, corky to tough; pileus surface densely hirsute to hispid, at first brownish, but soon dirty grey, zonate or azonate, more hispid at the base than at the margin, the hirsute tomentum clearly differentiated towards the brown context; pore surface brown to grey, pores angular, thinwalled, 1-3 mm in diam, in larger and older specimens often radially elongated and deeply split; context mostly thin, more rarely up to 10 mm thick, rusty to umber brown, at first black in KOH, then fading back almost to the original colour; tube layer up to 15 mm thick, tubes whitish to grey on the inner walls, trama brown.
Hyphal system trimitic; generative hyphae thinwalled, hyaline, with clamps, 2-4.5 µm in diam.; skeletal hyphae thickwalled to solid, golden brown in trama and context, hyaline in the tomentum, 2.5-6 µm in diam.; binding hyphae tortuous, thickwalled to almost solid, light golden brown, 2.5-4.5 µm in diam.
Basidiospores 10-16 x 3-5 µm cylindrical.
Distribution. Almost cosmopolitan. In Africa seen only from Zimbabwe.
Remarks. When typically developed this is an easy species to recognize because of its quite thick basidiocarps with a hispid to villose, often brown-greyish pileus, large pores, and a brown pore surface and context.

Trametes helvola (Fr.) Sacc.,

Syll. fung. 6: 349, 1888. - *Polyporus helvolus* Fr., Elench. Fung. p. 103, l828.
Basidiocarps annual, solitary, pileate, dimidiate to flabelliform, up to 11 cm broad and 7.5 cm wide, 3-9 mm thick, coriaceous and flexible when dry, pileus rusty- brown, fulvous to straw-coloured, finely velvety to tomentose, azonate or very weakly concentrically zoned, occasionally radially striate and finely warted or scrupose with warts about 2 mm high and broad, especially near the base, pore surface pale fulvous to rusty-brown, pores first round to angular, thick-

walled, 2-3 per mm, later the dissepiments become lacerate, split and almost irpicoid in parts, tubes 2-4 mm long, often lighter than the pore surface, straw-coloured to deep ochraceous, context ochraceous to light brown, fibrous, 1-4 mm thick.
Hyphal system trimitic, generative hyphae clamped, hyaline and thin-walled, 2-3 µm in diameter, skeletal hyphae abundant, thick-walled to almost solid, yellow to pale brown, 3-7 µm wide, binding hyphae hyaline to pale yellow, with few to many branches, thick-walled 2-4 µm wide
Basidiospores 7.5-9 x 3-3.5 µm, cylindrical.
Distribution. West Africa from Ivory Coast, Sierra Leone, Cameroon to Nigeria.
Remarks. *T. helvola* is related to *T. polyzona* and is mainly separated by its velvety, almost azonate pileus, while in *T. polyzona* it is hirsute to almost hispid and distinctly zonate.

Trametes hirsuta (Fr.) Pilát,

Atl. Champ. Europ. 3: 265, 1939. - *Polyporus hirsutus* Fr., Syst. Mycol. 1: 367, 1821.
Basidiocarps annual, effused-reflexed or rarely resupinate, coriaceous when fresh; pilei dimidiate, applanate to thick, upper surface hirsute, grey, zonate or concentrically sulcate; margin often yellowish-brown, tomentose; pore surface white to tan or cinereous, the pores (1-)3-4 per mm, with thick, context duplex, the upper layer grey, soft-fibrous, up to 3 mm thick, at least at the base separated by a thin black line from the lower part, the latter ivory white, corky, up to 15 mm thick; tube layer concolorous with lower context, up to 6 mm thick.
Hyphal system trimitic; contextual generative hyphae thin-walled, with clamps, 2.5-9 µm in diam; contextual skeletal hyphae thick-walled, often sinuous, hyaline, no septate, with rare branching, 3-7 µm in diam; binding hyphae thick walled, 2-4 µm in diam; tramal hyphae similar.
Basidiospores 6 x 9 x 2 x 2.5 µm, cylindrical.
Distribution. Rare in Africa, but seen from Kenya and South Africa. Cosmopolitan species.
Remarks. *T. hirsuta* is a part of the group of species with hirsute to hispid pileus, but it is separated by medium pore sizes and a pore surface becoming greyish with age.

Trametes inaequabilis (Berk,) Ryvarden,

Synopsis Fung**.** 36**:** 55, 2016. - *Daedalea inaequabilis* Berk.**,** Ann. Mag. nat. Hist., Ser. 1 10: 378, 1842. - *Lenzites acuta* Berk., London Journ. Bot. 1:146 1842. – non *Trametes acuta* Lév. 1844, (= *Trametes strumosa)*, non *Trametes acuta* Cooke 1882 (= *Trametes floccosa* (Jungh.) G. Cunnningh.
Basidiocarps annual to perennial, pileate broadly attached or dimidiate with a contracted base, in some cases almost stipitate with a sterile base arising laterally, pileus commonly semicircular to flabelliform, up to 15 cm wide and 25 cm long and up to 3-4 cm thick at the base in large and broadly attached basidiocarps, pileus first dull and very finely velutinate and soft to touch, with age becoming glabrous, but without a cuticle, azonate to concentrically zonate, weakly sulcate smooth or with dotted warts and small rounded protuberances especially close to the base, first white, cream, pale ochraceous to claycoloured or tan, then leathercoloured or dirt brownish, pore surface in warm buff to tan colours, mostly with a yellowish tint, pore surface variable, in some specimens poroid with 1-4 mm wide pores, mostly angular, but frequently zone wise poroid, mixed with daedaleoid to sinuous lamellae up to 5 mm wide, in other specimens purely lamellate up to 6 mm between the lamellae, straight or wavy, especially towards the base where they are deeper, pore mouths even or frequently incised and dentate, tubes or lamellae up to 12 mm deep, context cream to tancoloured to distinctly yellowish, up to 8 mm thick.
Hyphal system trimitic, generative hyphae hyaline and with clamps 1.5-3 µm wide, skeletal hyphae straight, thinwalled and pale yellowish, up to 8 µm wide, binding hyphae common, richlybranched, solid and up to 6 µm wide in the main trunk.
Cystidia proper not present, but binding hyphae project into the hymenium and simulate subulate to rounded cystidia.
Basidiospores cylindrical 6-8 x 2-3 µm.
Distribution. Rare in Africa, widespread in tropical Asia.
Remarks. The species has repeatedly been described from Asia as new because of the very variable hymenophore. The typical character is the yellowish to tan colour of all parts of the basidiocarps and the large wavy lamellae.

Trametes lactinea (Berk.) Pat., Fig. 120.

Essai Tax. p. 92, 1900 *Polyporus lactineus* Berk., Ann. Nat. Hist. 10:373, 1942
Basidiocarp annual to perennial, solitary to more rarely imbricate, pileate, broadly to narrowly attached, 115(28) cm broad and wide, and 0.2-1.2 cm thick, consistency corky to woody hard when dry, pileus dimidiate to semicircular, applanate, soft and velvety to touch, with age becoming warted or with irregular outgrowths especially near the base, mostly azonate, sometimes very slightly concentrically sulcate and zoned near the margin, somewhat radially striate, dull, first white to cream, becoming ochraceous to tan, pore surface cream, ochraceous to pale fulvous, slightly darker

and more grey than the upper surface, sometimes discoloured when old, pores round to angular, mostly 1.5-2 per mm, but in some collections 3-4(5) per mm, dissepiments thin to rather thick, entire, tubes concolorous with the context, usually not stratified, 110 mm long, context 2-10 mm thick, cream, ochraceous to pale fulvous, darker brown with KOH, soft, corky to woody hard, homogeneous.

Fig. 120. *Trametes lactinea*, photo C. Decock.

Hyphal system trimitic, generative hyphae clamped, hyaline and delicately thinwalled, 14 µm in diameter, often collapsed and not easy to find in dried specimens. Skeletal hyphae abundant, hyaline to pale yellow, thinwalled to almost solid, 3-8 µm wide in the tubes, more golden and up to 10 µm in diameter in the context, binding hyphae, hyaline to pale yellow, thickwalled, arboriform to coralloid, 17 µm in diameter, often with short, tapering branches.
Basidiospores 4-7.5 x 2.2-3 µm, cylindricalellipsoid.
Distribution. Widespread in Africa.
Remarks. The species is recognized by the glabrous upper surface in variable ochraceous to dirty often unevenly brown colours, from the upper side it may remind one about *T. elegans* which however has a different hymenophore.

Fig. 121. *Trametes leonina*. Fig. 122. *Trametes leonina*, photo D. Mossebo.

Trametes leonina (Klotzsch) Imazeki**,** Fig. 121. & 122**.**

Bull. Gov. Forest Exp. Stn. Tokyo 57**:** 120, 1952. - *Polyporus leoninus* Klotzsch, Linnaea 8:486, 1833. - *Polyporus funalis* Fr., Epicr. Syst. Mycol., p. 469, 1838. - *Polyporus mons-veneris* Jungh., Verh. Batav. Genootsch. 17:61, 1838.
Basidiocarps annual, pileate, mostly with convex pileus and flat pore surface, but also deflexed with narrow pileus and decurrent pore surface, broadly attached, semicircular to
elongated, up to 5 cm wide and 10 cm long and 3 cm thick at the base, soft when fresh, tough when dry, pileus flat to convex, covered with a dense mat of strigose hairs, becoming hispid in old specimens, pure white when fresh, soon straw-coloured and finally greyish in old specimens, the tomentum is distinct down to 2 cm depth at the base, pore surface flat or decurrent on oblique substrates, first white, soon straw coloured when old and dry, pores large and angular, mostly 1-2 per mm in young specimens, later larger and often deeply split and almost hydnoid, tubes up to 10 mm deep at the base, context white, hard, fibrous and horizontal in the lower part, up to 5 mm thick in this layer, the upper part looser and with fibres bent upwards and into the tomentum.
Hyphal system trimitic, generative hyphae with clamps, the tomentum consists of long hyaline skeletal hyphae, thin walled in the apices, more of less thick-walled to almost solid deeper in the pileus, 4-8 µm in diameter, in the hard context there are strongly branched binding hyphae.
Basidiospores 11-14.5 x 3.5- 4.5(5) µm, cylindrical.
Distribution. Widespread and scattered throughout tropical Africa.
Remarks. The species is usually easy to recognize in the field because of the pure white basidiocarp with a dense mat of strigose hairs on the pileus. On drying the colour changes to straw coloured. Microscopically the long cylindrical spores are diagnostic. *T. socotrana* a similar species, has scattered pileus hairs and larger pores.

Trametes marianna (Pers.) Ryvarden, Fig. 123.

Persoonia 7:309, 1973. *Polyporus mariannus* Pers., in Gaudichaud Voya. aut. Monde p. 173, 1827.

Basidiocarp annual, solitary, pileate, applanate, dimidiate to semicircular with a contracted base, up to 6 cm wide and long, up to 6 mm thick at the base, coriaceous to corky hard when dry, pileus glabrous, dull to semiglossy, broadly zonate in flat to weakly sulcate zones, pale ochraceous to tan, a very thin cuticle absent or present, seen only in old and weathered specimens, margin sharp and entire, pore surface cream to ochraceous, darkens to pale cinnamonfulvous in old specimens, pores round and entire, 4-6(7) per mm, tubes as pores, up to 3 mm deep, context ochraceous to corkcoloured, 13 mm thick.

Hyphal system trimitic, generative hyphae with clamps, 2-3 µm wide, skeletal hyphae abundant, thickwalled, hyaline, 3-7 µm wide, binding hyphae also abundant, strongly branched with thickwalled to solid side branches, 3-5 µm wide.

Basidiospores 6-7 x 2-2.5 (3) µm, cylindrical to narrowly elliptic.

Distribution. Pantropical species and quite rare and its circumscription is not known properly.

Remarks. The species is quite close to *T. cingulata* Berk., which, however, soon becomes sooty grey to black on the pileus and distinctly dull. *T. marianna* is characterized by the glabrous, semiglossy, pale tan pileus, commonly in wide and sulcate zones and the fairly small pores.

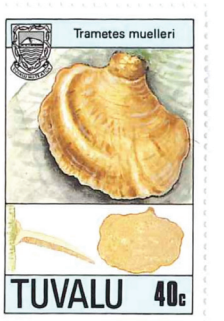


Fig. 123. *Trametes marianna*.


Fig. 124. *Trametes menziesii*, photo D. Mossebo.

Trametes menziezii (Berk.) Ryvarden, Fig. 124.

Norw. J. Bot. 19:236, 1972. *Polyporus menziezii* Berk., Ann. Nat. Hist. 10378, 1843. *Polyporus murinus* Lev., Ann. Sci. Nat. ser. 3, vol 2:185, 1844 (56 per mm). *Polyporus blumei* Lev., Ann. Sci. Nat ser. 3, vol 2:185, 1844 (34 per mm). *Polyporus didrichsenii* Fr. Nov. Symb. p. 76, 1851 (34/mm). *Polyporus kurzianus* Cooke, Grevillea 15:22, 1886. *Polyporus gallopavonis* Berk. & Broome, Trans. Linn. Soc. ser 2, vol 2:59, 1883 (56 per mm). *Polyporus meleagris* Berk., J. Linn. Soc. Bot. 16:42, 1877 (24 per mm).

Basidiocarps annualperennial, variable in size, pileate and applanate with a narrow contracted base to almost semistipitate, semicircular to even almost circular when grown on top of logs, normally dimidiate, but also flabelliform to spatulate with an even or strongly incised to lobed margin, single or imbricate, up to 15 cm wide and long, 1-10 mm thick, fairly flexible and tough when fresh, pileus first adpressed velvety, but usually soon becoming glabrous, first white to ochraceous, in most cases becoming greyish in different shades and with age sooty grey to almost black, normally with numerous, narrow, 13 mm wide, concentric zones, smooth or slightly sulcate, others may develop a variable outgrowth from the base, either flat or radially striate, veined or furrowed, the greyish colour is often darker towards the base, pore surface first white becoming creamish to pale tan when dry, in old and weathered specimens more pale dirty brown to deep ochraceous, pores variable, partly entire, round and small (as in type of *P. gallopavonis*) 6-7 per mm, but also larger, round to angular and from 2-6 per mm, in some specimens slightly to distinctly elongated radially and in some cases deeply incised and dentate and reminding of a tiny *Lenzites*, thus very variable, tubes more or less concolorous with the pore surface, up to 4 mm deep, context pure white and fairly dense when fresh, becoming ochraceous to very pale cinnamonfulvous in old specimens, in sections with a distinct greyish to sooty blackish upper layer which is evenly paler towards the white context. Stipe or contracted base often distinct with a 2-10 mm long sterile area between the pore layer and the substrate, white to deep grey.

Hyphal system trimitic, generative hyphae with clamps, hyaline, thinwalled and 2-3 µm wide, skeletal hyphae, thickwalled to almost solid, 37 µm wide, binding hyphae prominent and abundant both in context and trama.

Basidiospores 5-7 x 12- um, elliptic to cylindrical.

Distribution. Paleotropical species, widespread in Africa.
Remarks. The species is a very variable one and after having examined numerous collections we have come to the conclusion that the pore size is not a reliable characteristic for delimitation of species in this group. When typically developed in greyish, narrow bands, the species is easy to recognize but even within the same collections there are often deviating specimens.

Trametes mimetes (Wakef.) Ryvarden, Fig. 125.

Norw. J. Bot. 19:237, 1972. *Polystictus mimites* Wakef., Forh. Kgl. N. Vidensk. Selsk. IX:47, 1936.
Basidiocarps annual, solitary or fused in small groups, pileate broadly to more narrowly attached, the inner part often somewhat resupinate effused, up to 7 cm long and 3 cm wide, 13 mm thick near the base, coriaceous, flexible and tough when dry, pileus dimidiate semicircular, to flabelliform, flat to concave when dry, upper surface, narrowly concentrically zoned and sulcate, radially wrinkled, glabrous, appearing waxy, colour ochraceous, fulvous to dark brown, margin thin, acute, entire or slightly lobed and incised, pore surface ochraceous to pale bay often with a greywhite tint, pores round, 23- per mm, tubes concolorous with the pore surface, 0.5-1 mm deep, context fibrous, homogeneous, white to pale ochraceous, paler than the tubes, 12 mm thick.
Hyphal system trimitic, generative hyphae clamped, hyaline and thinwalled, 1.5-2.5 µm wide, often collapsed and difficult to observe in dried specimens, skeletal hyphae abundant, thickwalled to solid, hyaline to golden and slightly wider, binding hyphae common, thickwalled to solid, hyaline to pale yellow, moderately branched to arboriform, 2-5 µm in diameter.
Basidiospores 8-11 x 3.2-4 um, cylindrical to slightly allantoid.
Distribution. Known from Zimbabwe, Kenya and Dem. R. Congo.
Remarks. The rigid texture and the upper surface strongly remind one of *Hexagonia glaber*, hence the epithet *mimites* (an imitator). It can be recognized by the thin, strongly concentrically zoned and sulcate pileus and the large pores and spores.

Fig. 125. *Trametes mimetes (above)*, photo D. Mossebo.
Fig. 126. *Trametes modesta (right)*, photo D. Mossebo.

Trametes modesta (Fr.) Ryvarden, Fig. 126.

Norw. J. Bot. 19:236, 1972. - *Polyporus modestus* Fr., Linnaea 5:519, 1830.
Basidiocarps annual, pileate, applanate to slightly concave or bent downwards, single or frequently in clusters or fused laterally to compound basidiocarps, semicircular to flabelliform with a contracted base, occasionally more broadly attached, up to 6 cm wide and 7 cm long, very rarely above 3-4 mm thick, flexible and glabrous when fresh or dry; upper surface variable with age and development, first finely velutinate and soft to velvety to glabrous and then dull, very finely concentrically zonate, pale pinkish brown to buff with pink to lilac shades or café au lait, becoming paler tan to pale brown and usually more radially wrinkled and with radial wrinkled spots or streaks, sometimes becoming whitish, azonate, frequently covered with irregular pale outgrowths spreading from the base, usually ochraceous, lacking in many specimens; pore surface pale pinkish-beige, buff to pale greyish-pink, when viewed obliquely paler and even whitish with a faint pink shade, pores round and small, 6-10 per mm and almost invisible to the naked eye; tubes more or less concolorous with the pore surface, tan to pale brown, non-stratified and up to 2 mm deep; context whitish to pink, beige or pale cocoa, becoming pale cinnamon-pink or very pale tan with age, fibrous, up to 2 mm thick, red in KOH, fading after 2-5 seconds, but persistent as a pale cherry red spot when dry.
Hyphal system trimitic; generative hyphae thin-walled, hyaline, with clamps, 2-4 µm wide; skeletal hyphae straight, pale pink to yellow, thick-walled, 2-5 µm in diam, binding hyphae scarce in the context, sparingly branched, more

common and more densely branched in the dissepiments, thick-walled to solid, 2-3 µm wide.
Basidiospores 4.5-6 x 1.5-2(-2.5) µm, cylindrical.
Distribution. Widespread in Africa.
Remarks. Specimens of *T. modesta* may be confused with those of *Fomitopsis feeii* which however have a more distinct pink colour and causes a brown rot. The pale isabelline colour with a lilac tint and the outgrowth from the base of the pileus, are good field characteristics.

Trametes parvispora Olou, Yorou & Langer,

Mycokeys 65:38, 2020.
Basidiocarps probably perennial, pileate, applanate, semicircular, up to 13 cm long and 8 cm wide, up to 2.5 cm thick at the base, coriaceous to woody and hard when dry without odor or taste when fresh, pileus surface dull, glabrous and whitish, zonate, margin thick, obtuse, pore surface whitish, pores daedaleoid or sinuous, context whitish, thin 1-1.5 mm, homogeneous, without black lines.
Hyphal system trimitic, generative hyphae hyaline branched with clamp connections, thin-walled, 1.5-2.0 µm in diameter; skeletal hyphae solid to thick-walled, hyaline, non-septate, 3-4 µm in diameter, binding hyphae, thick-walled.
Hyphal pegs present, regular and usually conspicuous, 25-30 µm long.
Basidiospores 3.2–4.6 × 2.0 - 2.8 µm, broadly elliptic.
Substrate: On dead wood of *Dialium guineense* Willd.
Distribution. Known only from the type locality in Benin.
Remarks. The daedaloid pore surface and the small spores characterize this species. In the field it may be mistaken for an *Antrodiella* species.

Trametes polyzona (Pers.) Corner Fig. 127.

Fig. 127. *Trametes polyzona*, photo D. Mossebo.

Beih. Nova Hedwigia 97:43, 1989. - *Polyporus polyzonus* Pers., Gaudichaud Voy. aut. Monde., Bot. p. 170, 1827. - *Polystictus occidentalis* Kl., Linnaea 8:486, 1833. - *Fomes womballensis* Beeli, Bull, Jard, Bot. Etat Brux. 8:258, 1930. – *Polyporus scytinus* Berk., Ann. Nat. Hist. 10:376, 1843. - *Trametes lanata* Fr., Epicr. p. 490, 1838. - *Polyporus torridus* Fr., Epicr. p. 490, 1838. - *Trametes cyclodes* Fr., Nova Acta Soc. Sci Upal. Ser. 3 vol. 1:90, 1851. - *Polystictus scorteus* Fr., Ibid. p. 89. 1851. – *Trametes whalenbergii* Fr., K. Sv. Vetensk. Hand. 1848:11, 1848. - *Trametes scalaris* Fr., Ibid. p. 12, 1848. – *Trametes devexa* Berk. J. Linn. Soc. Bot. 13:165, 1873.
Basidiocarps annual to perennial, pileate, sessile, dimidiate, flabelliform to reniform, sometimes reflexed with an effused and resupinate pore surface, commonly broadly attached, less often with a contracted base, solitary or in clusters, imbricate or fused laterally to elongated lobed basidiocarps, single pilei up to 10 cm wide and 15 cm long, 2-7 mm thick at the base, coriaceous and flexible to corky, pileus yellowish-ochraceous when fresh, soon darker, fulvous, ochraceous-brown or greyish-brown, in old specimens frequently with green tints due to algae in the tomentum, tomentose to slightly hispid in numerous sulcate to flat, concentric zones, pore surface cream to beige when fresh, darkening to golden-brown or fulvous, pores angular to round, on average 2-3 per mm, on oblique substrates somewhat elongated radially and up to 1 mm long, tubes concolorous with pore surface, in section often lighter than the trama, up to 4 mm deep, sometimes stratified. context duplex, lower part fibrous and sub-shiny in section, ochraceous to golden- brown, darker towards the base, upper part loose and more faded.
Hyphal system trimitic, generative hyphae with clamps, thin-walled and hyaline, slightly to strongly branched, 1.5- 2.5 µm wide, skeletal hyphae dominating, thick-walled with a distinct lumen, hyaline to yellow, 3-8 µm wide, binding hyphae more sparingly present, hyaline to slightly yellowish, with short branches, 3-6 µm in diameter.
Basidiospores (4.5)5-8.5 x (2)2.5-3.5 µm, oblong to slightly elliptic.
Distribution. Pantropical, in Africa noted from almost all countries south of Sahara.
Remarks. *C. polyzona* is a variable species especially with regard to the shape of the basidiocarps and colour of the pileus, frequently it is darker and more hispid at the basal part than at the margin.

Trametes pubescens (Schumach.: Fr.) Pilát,

Atl. Champ. Europ. 3:268, 1939. - *Polyporus pubescens* Schumach.: Fr., Syst. Mycol. 1:367, 1821. – Observ. Mycol. 1:124, 1815. - *Boletus pubescens* Schumach., Enum. Pl. 2:384, 1803. - *Polyporus velutinus* Pers.: Fr., Syst. Mycol. 1:368, 1821.
Basidiocarps annual, sessile or effused-reflexed, up to 6 cm wide, pilei dimidiate, often in imbricate clusters, thin, coriaceous; upper surface tomentose to finely pubescent or almost glabrous, cream colour to warm buff, azonate or faintly zonate; pore surface cream colour to pale straw coloured; the pores angular, 3-5 per mm; dissepiments becoming thin; context white to cream, tough-fibrous, azonate, up to 5 mm thick; tube layer cream coloured to pale buff, up to 4 mm thick.
Hyphal system trimitic; generative hyphae thin-walled, hyaline and with clamps, 2-4 µm in diam.; skeletal hyphae thick-walled, hyaline, with occasional branching, 5-10 µm in diam.; binding hyphae thick-walled, nonseptate, much branched, 1.5-4 µm in diam.; tramal hyphae similar.
Basidiospores 5-7 x 2-2.5 µm, cylindrical, slightly curved.
Distribution. In Africa seen from Uganda, Kibale National Park**.** Circumpolar in the boreal-temperate zone.
Remarks. The uniformly cream to buff, azonate and tomentose pileus and straw-coloured pore surface distinguish it from other species in the so-called *Coriolus* group.

Trametes punicea Fr., Fig. 128.

Nova Acta Reg. Soc. Sci. Ups. Ser. III, Vol. 1:98, 1851.
Basidiocarps annual and reviving, solitary, broadly attached, up to 4-5 cm in diameter and 1.3 cm thick, corky to hard when dry, pileus more cinnabar when young, becoming almost black with a cinnabar tinge when old, azonate, surface glabrous to somewhat furrowed, later more shining and cracked, pore surface concolorous with the pileus or somewhat lighter, tubes in one layer up to 0.8 cm long and with a greyish tinge, pores, 1-3 per mm, round to somewhat angular, context up to 4 mm thick, cinnabar to dark red.

Fig. 128. *Trametes punicea*, photo D. Mossebo.

Hyphal system dimitic, generative hyphae with clamps, thin to slightly thick-walled, hyaline to yellowish, 2.5-4 um in diameter, skeletal hyphae thick-walled to solid, up to 6 µm in diameter, binding hyphae irregular, thick-walled to solid and yellowish golden, up to 5 µm wide.
Basidiospores 4.5-6 x 2-3 µm, elliptic.
Distribution. Paleotropical, specimens have been examined from Ghana, Nigeria, Zaire, Angola, India, Malaysia and New Caledonia.
Remarks. The species is separated from *P. sanguineus* by its larger pores and usually more robust and thicker basidiocarps.

Trametes roseola Pat. & Hariot,

Journ. Bot. (Paris) 14:239, 1900.
Basidiocarps annual to perennial, solitary, pileate, broadly attached to effusedreflexed, elongated to semicircular, up to 8 cm wide and broad, 5-20 mm thick near the base, consistency soft corky when fresh, drying to tough and corky, pileus convex, finely velvety tomentose, with age more glabrous and dull, azonate, but often slightly irregular with small warts and shallow depressions, first whitegreyish to pale ochraceous buff, later darker buff or more pale dirty brown, margin obtuse, thick, even to slightly lobed, pore surface pink to vinaceous buff, when old more dirty brownish, cracking on drying, pores round to slightly angular, 5-8 per mm, entire, tubes pale ochraceous grey, up to 5 mm deep, context pink to corkcoloured, brown in KOH, fading and leaving a pale greyish spot, 1-20 mm thick, usually homogeneous, but sometimes with a few weak concentric zones.
Hyphal system dimitic, generative hyphae, 1-4 µm in diameter, skeletal hyphae abundant, hyaline to pale brownish, thickwalled, usually with a distinct lumen, 2-4 µm in diameter, weaklybranched and with few secondary simple septa.
Basidiospores 4.5-7 x 2.5-3 µm cylindrical to oblong elliptic.
Distribution. Paleotropical species, scattered in East Africa.
Remarks. The relatively thick basidiocarps with a whitishgrey to buff azonate pileus, the small pinkish pores and the pale pink to buff context, are the important characteristics. It seems to be close to *T. modesta*, but does not share its cherry red reaction in KOH and binding hyphae present in *T. modesta*.

Trametes sanguinaria (Kl.) Ryvarden, IF 556041

nov. comb. Basionym: *Polyporus sanguinarius* Kl., Linnaea 8:484, 1833. - *Polyporus pruinatus* Kl., Linnaea 8:486, l833. - *Polyporus anebus* Berk., Lond. J. Bot. 6:504, 1847. - *Polyporus bicolor* Jungh., Verh. Batav. Genootsch. 17:54, 1838. - *Polyporus loreus* Beeli, Bull. Jard. Bot. Etat Brux. 8:225, 1930.

Basidiocarps annual to perennial, pileate to resupinate, solitary to densely imbricate or often, as several pilei, more or less fused along the upper edge of a widely effused basidiocarps, single pilei rarely above 6 cm wide and 10 cm long, 2-4 mm thick, but in fused specimens up to 1 cm at the base, single basidiocarp**s** may occur, then sessile, dimidiate, conchate to flabelliform to reniform, margin undulating, frequently lobed or incised and sharp, pileus glabrous, rarely smooth, commonly with a finely warted or rough surface and with some faint radial striae, azonate or with some weak concentric zones, first ochraceous then evenly cinnamon to yellowish-brown, with age a reddish cuticle may develop from the base as irregular patches or bands as the upper hyphae agglutinate, in old specimens with a chestnut or bay colour, pore surface ochraceous when young, cinnamon to deep fulvous in older specimens, frequently, but not always, with a whitish-bluish-ashy bloom or tint, pores round to slightly angular, 5-8 per mm, in some specimens almost invisible to the naked eye, tubes up to 4 mm long, concolorous with pore surface. context fibrous, golden-brown to cinnamon, 2-8 mm thick.

Hyphal system trimitic, generative hyphae with clamps, hyaline to light yellow, thin-walled, 2-3 µm in diameter, skeletal hyphae thick-walled but always with a distinct lumen, golden-yellow to brown, 2-8 µm in diameter, thin to slightly thick-walled, hyaline to yellowish, mostly 2-4 µm wide, often with many short branches tapering towards the ends.

Basidiospores 5-8 x 2-3.5 µm, oblong elliptic to sub-cylindrical.

Distribution. Paleotropical species, widespread in Eastern Africa.

Remarks. The species is usually easy to recognize because of the samall pores and the narrow pilei, either imbricate or as small pilei on an effused and decurrent pore surface. The pileus is finely roughened and dull when young.

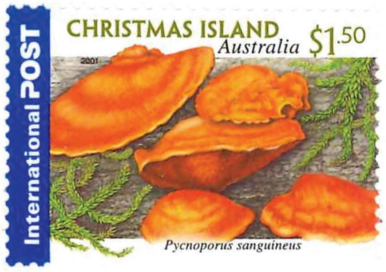


Fig. 129. *Trametes sanguinea*, photo D. Mossebo.

Fig. 130. *Trametes sanguinea*.

Trametes sanguinea (L.: Fr.) Lloyd, Fig. 129 & 130.

Mycol. Writ. 7, letter 27, p. 1291, 1924. *Boletus sanguineus* L., Sp. Pl. ed. 2, p. 1646. 1763. - *Polyporus sanguineus* L.: Fr., Syst. Mycol. 1:371, 1821.

Basidiocarps annual, sessile to effused reflexed, single or in imbricate clusters, dimidiate, thin and applanate, up to 8 x 5.5 x 0.4 cm, pileus surface orange red, colour quite persistent but fading to salmon buff in some old specimens, finely tomentose at the growing margin, soon becoming scrupose to glabrous on older portions, azonate, pore surface dark red, the pores circular, 5-6 per mm, with thick dissepiments, context tough to fibrous, orange buff and azonate in some specimens, strongly concentrically zonate in others with alternating zones of pale buff and pale orange, up to 3 mm thick, tube layer orange red, up to 2 mm thick.

Hyphal system trimitic, skeletal hyphae thick walled, hyaline, 2-7 µm in diam; binding hyphae thick walled, 2-4 µm in diam; generative hyphae thin walled, hyaline, with frequent clamps, rarely branched, 2.5-4 µm in diam.

Basidiospores 5-6 x 2-2.5 µm, cylindrical.

Distribution. Widespread throughout the tropical zone.

Remarks. *Trametes sanguinea* is easily identified by its striking colour.

Trametes socotrana Cooke, Fig. 131.

Fig. 131. *Trametes socotrana*, photo D. Mossebo.

Grevillea 11:39, 1882.
Basidiocarps annual to perennial, pileate, solitary or in clusters often of elongated and partly fused laterally, broadly attached to dimidiate with a contracted base, semicircular to somewhat elongated along the substrate, 1-7 cm wide, up to 10 cm long in fused specimens, 2-10 mm thick at the base, coriaceous and tough, pileus velvety soft to touch, finely tomentose becoming more hispid with age and weathering, azonate, tomentum up to 2 mm deep first white, cream to pale yellowishbrown in various shades, pore surface first white, then cream to strawcoloured, pores variable, in smaller specimens entire, angular and rather small, and often so also along the margin in larger specimens 2-3 per mm, with age the porewalls develop irregularly and become dentate and incised , often semidaedaloid to sinuous, the larger pores up to 2-3 mm wide, tubes concolorous with pore surface, up to 6 mm deep, context white to pale cream, dense and in section rather distinctly delimited towards the looser tomentum, but without a black zone, up to 3-4 mm thick at the base.
Hyphal system trimitic, generative hyphae clamped, hyaline and thinwalled, 1-4 um wide, skeletal hyaline to yellow, thin to thickwalled to almost solid, 38- um wide, binding hyphae, thickwalled, hyaline to pale yellow, 2-5 um wide, weakly to strongly branched.
Basidiospores 6.58.5 x 2.5-3 µm, cylindrical to broadly elliptic.
Distribution. Eastern Africa and seen from Ethiopia, Kenya, Tanzania, Burundi and Malawi.
Remarks. The species is related to *T. villosa*, but the pores are larger and basidiocarps distinctly more robust and thicker.

Trametes strumosa (Fr.) Zmitr., Wasser & Ezhov,

Int. J. Med. Mushrooms 14: 318, 2012. - *Polyporus strumosus* Fr., Epicr. p. 462, 1838. - *Polyporus latus* Berk., Ann. Nat. Hist. 3:325, 1839. - *Trametes acupunctatus* Berk., J. Linn. Soc. 13:164, 1872. - *Polyporus luteo-olivaceous* Berk. & Broome, Trans. Linn. Soc. Ser. 2, vol 1:402, 1879. - *Polyporus aratus* Berk., J. Linn. Soc.16:53, 1877.
Basidiocarps annual, solitary or as small clusters, usually dimidiate with a contracted or tapering base, applanate flabelliform to reniform, up to 15 cm long and 12 cm wide, up to 5 mm thick at the base, coriaceous and flexible, margin thin and sharp, in some specimens with a short sterile stipe-like extension of the base, rudimentary stipe up to 2 cm long and about 1 cm in diameter ; pileus olivaceous-brown, umber or hazel-brown, glabrous, first dull and velvety to touch, soon smoother and semi- shiny with numerous concentric, slightly sulcate zones, with age the pileus becomes finely warted to finely scrupose starting from the base, often a secondary outgrowth will develop from the base and cover the semi-glossy pileus, pore surface in shades of brown from whitish-brown when actively growing, then darkening when touched, later more dull sepia to olivaceous-brown, pores entire, round, 4-6 per mm; tubes more or less concolorous with pore surface, 1-2 mm deep; context dark olivaceous-brown, dense, homogenous, up to 5 mm thick.
Hyphal system trimitic, generative hyphae with clamps, 1-3.5 µm in diameter, skeletal hyphae thick-walled but always with a distinct lumen, often only moderately thickened walls, hyaline to yellow, 3-8 µm in diameter, walls usually 1-1.5 µm thick, binding hyphae often difficult to observe, hyaline, moderately thick-walled and branched, about 2.5 µm wide.
Basidiospores (8.5)9-12 x 3-3.5(3.7) µm, cylindrical.
Distribution. Widespread in the paleotropics from Western Africa to Australia.
Remarks. The species may be recognized by its small pores, the dimidiate basidiocarps, the glabrous, mostly olivaceous pileus and the secondary warts and growth from the base when they are developed. The pores are in some specimens almost invisible to the naked eye and darken when touched in fresh condition. It is easily separated from large specimens of T. *sanguinaria* which have equally small pores, but has a yellowish-brown to pale rusty-brown colour and a reddish cuticle spreading from the base.

Trametes subtuberculata Ryvarden,

Synopsis Fung. 44:36, 2021. - *Coriolopsis tuberculata* Ryvarden, Micologia (Trento) p. 480, 2000.- non *Trametes tuberculata* Bres. 1912.
Basidiocarps annual, pileate, broadly sessile, up to 10 cm long, 6 cm broad and 1 cm thick at the base with a decurrent pore layer, often comprised of several fused adjacent lobed pilei, corky to tough; pileus surface glabrous,

densely tuberculate, at first ochraceous, later the tubercles become dark brown making the pileus dotted, azonate, pore surface reddish brown, pores angular, thickwalled, 4-5 per mm, but hardly visible to the naked because of the thick walls,; tube layer up to 4 mm thick, concolours with pore surface, context 1-3 mm, dense, dark ochraceous. Hyphal system dimitic; generative hyphae thinwalled, hyaline, with clamps, 2-4.5 µm in diam; skeletal hyphae thickwalled to solid, golden brown, 2.5-6 µm in diam.
Basidia 20-30 x 5.5-8 µm, clavate.
Basidiospores 10-12 x 3.5-5 µm, cylindrical.
Distribution. Known only from the type locality in Dem. Rep. Congo.
Remarks. The species is easy to recognize by its dark brown, densely tuberculate pileus giving the surface a strange dotted pattern.

Trametes telfarii (Klotzsch) Corner, Fig. 132.


Fig. 132. *Trametes telfarii*, photo D. Mossebo.

Beih. Nova Hedwigia 97:167, 1989. -- *Polyporus telfarii* Klotzsch, Linnaea 8:484, 1833. - *Polyporus zeylandicus* Berk., Ann. Nat. Hist. 10:377, 1843. - *Trametes cristata* Cooke, Grevillea 10:132, 1886 (K'). - *Hexagonia dybowskii* Pat., Bull. Soc. mycol. Fr. 8:54, 1892. - *Trametes wildemanii* Bres., Ann. mycol. 9:269, 1911.
Basidiocarps annual to biennial, solitary or imbricate, in some cases fused laterally to elongated lobed or incised basidiocarps, broadly attached to dimidiate, flabelliform to reniform or semicircular, applanate to conchate with concave surface, up to 7 cm wide, 10 cm long, 2-5 mm thick, thin and flexible when dry, pileus variably covered with antler- like, forked hairs, 1-5 mm long, in some specimens very dense, in others more scattered, surface ochraceous to fulvous in old specimens, slightly concentric zonate, mostly strongly radially striate, most easily seen in specimens with few hairs or when the hairs agglutinate or wear away with age, margin thin, sharp and deflexed. pore surface wood-coloured to ochraceous, pale fulvous in old specimens, pores angular, thin-walled, 1-2 per mm, in older specimens becoming lacerate and dentate to almost irpicoid in parts in such cases from 1-3 mm wide, in some specimens with a distinct pale whitish- blue bloom, tubes up to 7 mm deep, light-coloured in the tubes, ochraceous to pale fulvous in section, context fibrous, ochraceous to fulvous when older.
Hyphal system trimitic, generative hyphae hyaline and thin-walled, with clamps 1.5-3.5 µm in diameter, skeletal hyphae thick-walled, hyaline, yellow to almost golden, 3-7 µm wide, binding hyphae irregular, hyaline to slightly yellowish, most easily demonstrated in the context, 1.5-4 µm wide, tapering towards the ends.
Basidiospores 8-11.5 x 3-4.5 µm, cylindrical.
Distribution. Paleotropical species, but rather rare and scattered. In Africa seen from Sierra Leone, Ethiopia, Zambia, Angola and Malawi.
Remarks. When typically developed, easily recognized by the antler-like and forked hairs on the pileus. More weathered specimens are strongly radially striate and hairs may only be found around the base.

Trametes varians Van der Byl,

South Afr. J. Sci. 18:281, 1922. *Polyporus radiato rugosus* Bres., Ann. Mycol. 18:36, 1920 - nomen illegit. non Berk. 1839. *Polyporus griseus* Bres., Ann. Mycol. 10:494, 1912, nomen illegit. non Peck 1874. *Polyporus durbanensis* Van der Byl, S. Afr. J. Sci. 18:261, 1922.
Basidiocarps annual (perennial?), pileate, single or mostly imbricate, applanate or concave, up to 4 cm wide and 6 cm long in fused and more compound fruitbodies, up to 8 mm thick in individual pilei, tough to hard when dry, pileus azonate, radially scrupose to fibrillose or with veins and somewhat sharp irregular lines, in parts more warted to scrupose, whitish to greyish, pore surface probably white when fresh, woodcoloured towards the margin, in older parts grey to pale dirty brown, pores round, 5-6 per mm, tubes concolorous, up to 4 mm deep, context woodcoloured, hard, up to 4 mm thick.
Hyphal system trimitic, generative hyphae with clamps, thin to distinctly thickwalled, 2-5 µm wide, skeletal hyphae dominating, thickwalled to solid, pale yellowish, 48 µm wide, binding hyphae solid, moderately branched, 2-4 µm wide.
Basidiospores 4.5-6 x 2-2.5 µm cylindrical to oblong elliptic.
Distribution. African species, known from Tanzania, Mozambique and South Africa.
Remarks. The species is characterized by its rugose to scrupose azonate pileus in grey shades and rather small pilei,

often in imbricate clusters. It could be confused with immature specimens of *T. menziezii*, but this has a distinct concentric zonation on the pileus.

Fig. 133. *Trametes versicolor*

Trametes versicolor (L:Fr.) Pilát, Fig. 133.

Atl. Champ. Eur. 3:261, 1936. - *Boletus versicolor* L., Sp. Plant., p.1176, 1753. - *Polyporus versicolor* L:Fr., Syst. Mycol. 1:368, 1821.
Basidiocarps annual, sessile or effused-reflexed, dimidiate, often in large imbricate clusters; upper surface hirsute to tomentose, highly variable in colour, with sharply contrasted concentric zones of various shades of brown, buff, reddish-brown or bluish colours; pore surface cream-colored to cinereous, the pores angular to circular, 4-5 per mm, dissepiments thick; context cream-colored, tough-fibrous, with a thin black layer below the surface tomentum, up to 5 mm thick; tube layer concolorous and continuous with the context, up to 3 mm thick.
Hyphal system trimitic; contextual generative hyphae thin-walled, with clamps, 2.5-3 µm in diam; contextual skeletal hyphae thick-walled, nonseptate, 4-6 µm in diam; contextual binding hyphae thick-walled, 2-4 µm in diam; tramal hyphae similar.
Basidiospores -, 5-6 x 1.5-2 µm, cylindrical and slightly curved.
Distribution. Circumglobal species.
Remarks. This is probably the most common wood rotting fungus throughout Africa and also on other continents. The pileus has a very variable colour and zonation.

Trametes vespacea (Pers.) Zimitr. Wasser, & Ezhov,Fig 134.


Fig. 134. *Trametes vespacea*, photo C. Decock.

Int. J. Med. Mushrooms 14:313, 2012. - *Polyporus vespaceus* Pers. in Gaudichaud, Voy. au. Monde p. 170, 1827. - *Daedalea aspera* Kl., Linnaea 8:480, 1833. - *Lenzites alba* Beeli, Bull. Soc. Bot. Belg. 62:66, 1929. - *Daedalea inconcinna* Berk., In Hooker, Lond. J. Bot. 1:151, 1842. - *Hexagonia albida* Berk., J. Linn. Soc. 16:47, 1877. - *Daedalea intermedia* Berk., J. Linn. Soc. 18:385, 1881. - *Hexagonia favoloides* Cooke, Grevillea 14:118, 1886, nom. illegit. non Peck 1883. - *Hexagonia cookei* Sacc., Syll. Fung. 6:363, 1888.
Basidiocarps annual, pileate-sessile, broadly to narrowly attached, mostly rather small, but up to 8 cm wide, 10 cm broad and 1 cm thick near the base, consistency flexible and corky when dry, dimidiate to semicircular or flabelliform, applanate to slightly convex, pileus pure white, pale straw coloured to ochraceous, first finely velvety tomentose, soon the hyphal strands agglutinate to typical asperulate zones with hispid small tufts, pileus usually concentrically sulcate and often striate especially towards the margin, pore surface concolorous with the upper surface or somewhat darker, hymenial surface very variable from poroid with hexagonal to sinuous pores, then pores 1-3 mm wide, daedaloid or labyrinthine to purely lamellate even within the same collection, 5-11 lamellae per cm, lamellae papery thin, often forked and split to flattened teeth, up to 2 cm deep, context white, 0.5-2 mm thick.
Hyphal system trimitic, generative hyphae in tubes and context thin-walled, hyaline and clamped, 2-4 um in diameter, heavily branched, skeletal hyphae abundant, thick-walled, hyaline to pale yellow, 3-7 um in diameter, swelling strongly in KOH, binding hyphae 2-5 um in diameter, moderately branched with tapering ends.
Cystidia none, but thick-walled skeletal hyphae project into the hymenium as cystidial organs, thick-walled and often with small crystals.
Basidiospores broadly elliptical, 4.0-5 x 2.5 um (from spore print).
Distribution. Paleotropical species. In Africa seen from Tanzania, Dem Rep. Congo, Kenya, Zambia and Mauritius, but evidently rare. Widespread in Asia and Australia.
Remarks. The finely asperulate surface and the often irregular hymenophore are good field characteristics.

Trametes villosa (Fr.) Kreisel,

Monogr. Cienc. Univ. Habana, Biol. Ser.4, no 16:84, 1971. - *Polyporus villosus* Fr., Syst. Mycol. 1:344, 1821. - *Trametes pocas* (Berk.) Ryvarden, Mycotaxon 20:351, 1984.
Basidiocarps annual, pileate, dimidiate to flabelliform, more rarely effused-reflexed, often fused laterally to form compound basidiocarps, flexible, up to 7 cm wide and long,up to 2 mm thick at the base; upper surface strigose

to hirsute, white, grey to unevenly pale to dirty brown, distinctly zonate with persistent tomentum, margin thin, undulated to lobed, often curled in dry specimens; pore surface white to cream, with age becoming more brownish, pores angular, thin-walled, 1-3 per mm, often slightly elongated radially in a characteristic way, dissepiments usually dentate to lacerate, tubes up to 1 mm deep, context white and thin.
Hyphal system trimitic; generative hyphae with clamps, hyaline, thin-walled, 1-2.5 µm wide; skeletal hyphae hyaline, thick-walled to solid, 2-5 µm wide; binding hyphae tortuous, solid, hyaline, common, 1-2.5 µm wide.
Basidiospores 5.5-8.5 x 2.5-3.5 µm, cylindrical to allantoid.
Distribution. In Africa only seen from the eastern part.
Remarks. Usually easy to recognize because of the thin pliable basidiocarp with a hirsute pileus and the large pores with dentate pore mouths. *T. socotrana* is a more robust species with larger pores while *T. hirsuta* has smaller pores.

TRECHISPORA P. Karsten,

Hedwigia 29:147, 1890.
Basidiocarps annual, resupinate to pileate, mostly soft and fragile, loosely attached; hymenial surface smooth to hydnoid or poroid; hyphal system monomitic in most species; generative hyphae with clamps, commonly ampullate at some septa; cystidia present or absent; basidia clavate, tetrasterigmatic, basidiospores globose to shortcylindrical, rarely smooth or commonly ornamented with spines or warts, negative in Meltzer's reagent. All species with a white rot.
Type species: *Trechispora onusta* P. Karst.
Trechispora is a large genus in the Corticiaceae and most species have a smooth to hydnaceous hymenial surface. Four poroid species are included here.

Key to African poroid species of *Trechispora*

1. Skeletal hyphae present..... **T. brasilensis**
1. Skeletal hyphae absent **2**

2. Cystidia present ..... **T. regularis**
2. Cystidia absent **3**

3. Spores angular, smooth, on termitery, very rare ..... **T. polygonospora**
3. Spores subglobose, ornamented, common species ..... **T. mollusca**

Fig. 136. *Trichaptum abietinum*, a) section of tube, b) hyphae from pileus, c) hyphae from trama, d) basidia, e) basidiospores, f) cystidia, del. I. Melo.

Trechispora brasiliensis (Corner) K.H. Larsson,

The genus *Trechispora* (Corticiaceae, Basidiomycetes) 3: 4, 1992. - *Cristelloporia brasiliensis* Corner**,** Beih. Nova Hedwigia 96: 22, 1989. – *Cristelloporia dimitica* Johan. & Ryvarden, Trans Br. Mycol Soc. 72: 189, 1979. - Non *Trechispora dimitica* Hallenb., 1980.
Basidiocarp annual, resupinate to effused reflexed, often widely effused, up to 20-30 cm long and filling cavities in the rotten wood and 4 mm thick, upper surface white, adpressed cottony, up to 1 cm wide and 10-15 cm long in fused specimens, margin cottony with long white to pale yellow rhizomorphs, taste mild, consistency cottony to coriaceous, pore surface cream to pale yellow, pores at first angular 2-4 per mm, later irregular and larger, dissepiments thin and entire becoming more incised, context white to cream coloured, cottony and of loose consistency and thin.
Hyphal system dimitic, generative hyphae hyaline, thin walled, with clampconnexions, 2-3 µm in diam. skeletal hyphae yellow to golden and thickwalled, 3-4 µm wide, often with secondary simple septa. Needlelike crystals present among the hyphae.
Cystidia 18-27 x 3-4.5 µm, hyphoid, hyaline, smooth and thin walled, usually tapering towards the apex, weakly projecting and often difficult to observe.
Basidiospores (3.5) 4-5 x 3-3.5 µm, broadly elliptic or irregular in shape, asperulate, with spines about 0.5 µm long,
Distribution. In Africa known from Ghana, in America from Brazil and Venezuela.
Remarks. The effused reflexed soft white basidiocarp often with distinct rhizomorphs is good field characters. The dimitic hyphal system sets the species easily apart from the other poroid *Trechispora* species in the area.

Trechispora mollusca (Pers.: Fr.) Liberta, Fig. 135.

Can. J. Bot. 51:1878, 1973. *Polyporus molluscus* Pers.: Fr., Syst. Mycol. 1:384, 1821. - *Boletus molluscus* Pers., Syn. Fung. p. 547. 1801.
Basidiocarps annual, resupinate, effused up to 6 cm, very soft and fragile, readily separable; margin white, often very thin, arachnoid, rhizomorphic; pore surface white to cream coloured, the pores angular, 2-4 per mm, with thin, pubescent dissepiments that become lacerate with age; context white, azonate, soft, less than 0.5 mm thick; tube layer continuous and concolorous with the context, soft and fragile, up to 2 mm thick; taste mild.
Hyphal system monomitic; subicular hyphae thinwalled, hyaline, often ampullate and incrusted, frequently branched, with clamp connections, 2.5-5 µm in diam; tramal hyphae similar.
Basidiospores 3.5-4.5 x 2.5-3.5 µm, ovoid to subglobose, echinulate.
Distribution. Cosmopolitan species.
Remarks. *Trechispora mollusca* is distinguished by its fairly small spores and lack of cystidia.

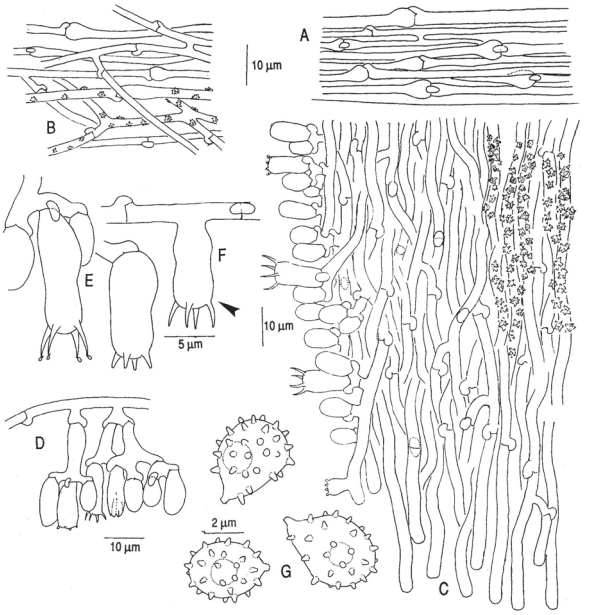


Fig. 135. *Trechispora mollusca*, a) hyphae from subiculum, b) hyphae from trama, c) section of tubes, d-f) basidia, g) basidiospores, del. K.-H. Larsson.

Trechispora polygonospora Ryvarden,

Bull. Jard. Bot. Nat. Belg. 45:202, 1975.
Basidiocarps annual, resupinate, consistency soft and brittle pore surface light cream, becoming reddish with pressure in fresh condition, pores angular 2-3 per mm, dissepiments thin-walled, tubes up to 2 mm deep, margin fibrous, somewhat lighter than the tubes, subiculum up to 200 µm thick, white and soft.
Hyphal system monomitic, generative hyphae thin-walled, hyaline and with clamps, 2-4 µm wide, but swellings of hyphae near the septa up to 8 µm in diameter.
Basidiospores abundant, angular, 4-5.5 µm in diameter, thin-walled, non-amyloid, in a light microscope appearing smooth, but in scanning microscope demonstrated to be finely ornamented.
Substrata. On termitery.
Distribution. Only known from the type locality in Zaire.
Remarks. The angular spores and the habitat are the diagnostic characteristics.

Trechispora regularis (Murr.) Liberta,

Can. J. Bot. 51:1878, 1973. *Poria regularis* Murr., Mycologia 12:87. 1920.
Basidiocarps annual, resupinate, effused up to several cm, soft and fragile, easily separated from substratum; pore surface white to cream coloured, the pores angular, irregular, mostly 5-7 per mm but larger in some areas, with thin, floccose dissepiments; margin white, loosely floccose to arachnoid, with white mycelial strands or slender rhizomorphs; subiculum thin, soft, arachnoid, very thin; tube layer white to cream coloured, soft and fragile, up to 2 mm thick.
Hyphal system monomitic; subicular hyphae thinwalled, hyaline, with frequent branching, with abundant clamps and some simple septa, often ampullate at the septa, 2-6 µm in diam.; tramal hyphae similar.
Cystidia 40-60 x 4-6 µm, abundant, cylindrical, thinwalled, strongly incrusted with elongated crystals.
Basidiospores 4-4.5 x 3-3.5 µm, subglobose to ovoid, echinulate, hyaline, negative in Melzer's reagent.
Substrata. Dead hard wood.
Distribution. Pantropical, but rare in Africa and seen only in Kenya.
Remarks. *Trechispora regularis* is quite similar to *T. mollusca* but is readily recognized by the conspicuous incrusted cystidia.

TRICHAPTUM Murrill,

Bull. Torrey Bot. Club 31:608, 1904.
Basidiocarps annual, resupinate, effused-reflexed or pileate; upper surface hispid to adpressed tomentose, blackish, grey or dirty white; hymenophore irpicoid, lamellate or poroid, mostly pale brownish to purplish when actively growing, tubes brownish, context distinctly duplex, lower part dense and dark, upper part white and loose; hyphal system di- to trimitic; generative hyphae with clamps; skeletal hyphae dominate in the basidiocarps; binding hyphae rarely present, apparently absent or at least very difficult to demonstrate; cystidia present in the hymenium, thin-to thick-walled, subulate to clavate, smooth or apically encrusted; spores cylindrical to elliptic, smooth, hyaline, IKI-, thin-walled. On both coniferous and hard woods, causing a white rot. Cosmopolitan genus.
Type species: *Polyporus trichomallus* Berk. & Mont. (a taxonomic synonym of *Trichaptum perrottetii* (Lév.) Ryvarden, - based on the same type specimen).
Remarks. The genus is characterized by the purplish to violet pore surface in actively growing specimens, paling to buff or pale brown with age and on drying. Microscopically the dimitic hyphal system, the cylindrical spores and the cystidia, are diagnostic.
NB Since all species have hyaline, smooth, thin-walled and non-amyloid spores and all basidia are tetrasterigmatic with a basal clamp, this information is not repeated for each species.

Key to species

1. Pores large, 5-8 per cm, whole basidiocarp dense and deep purplish to almost black ..... **T. sprucei**
1. Pores smaller, basidiocarps greyish, clay coloured to pale brown, pore surface pale violet when fresh fading to beige or pale brown **2**

2. Pores 8-10 per mm, hardly visible to the naked eye, basidiocarps often bluish grey..... **T. durum**
2. Pores larger, basidiocarps grey to pale brown..... **3**

3. Pores 1-2 per mm, pileus hispid to hairy and loose,..... **T. byssogenum**
3. Pores 3-5 per mm, velutinate to slightly tomentose, often in dense zones ..... **T. biforme**

Trichaptum biforme (Fr. in Kl.) Ryvarden,

Norw. J. Bot. 19:237, 1972. - *Polyporus biformis* Fr. in Kl., Linnaea 8:486, 1833.
Basidiocarps annual, sessile ; pilei solitary or imbricate, dimidiate to flabelliform or spatulate, up to 6 cm wide and 3 mm thick; pileus surface grey to buff, hirsute to glabrous with age, zonate; margin acute; pore surface purple to violaceous or fading to pale buff, often becoming irpiciform, the pores angular, 3-5 per mm; dissepiments become thin and lacerate or splitting to form spines; context pale buff, azonate, tough-fibrous, up to 1.5 mm thick; tube layer violaceous or concolorous with context, up to 2 mm thick.
Hyphal system dimitic; contextual generative hyphae thin-walled, with clamps, occasionally branched, 2.5-6 µm in diam; contextual skeletal hyphae thick-walled, nonseptate, rarely branched, 3-6 µm in diam; tramal hyphae similar.
Cystidia 20-35 x 3-5 µm, abundant, slightly thick-walled, fusoid, apically encrusted, and projecting to 20 µm.
Basidiospores 6-8 x 2-2.5 µm cylindrical, slightly curved.
Distribution. Rare in Africa.
Remarks. The species is usually easy to recognize in the field with its imbricate clusters of semispatulate basidiocarps with a hirsute to tomentose pileus, often mixed with glabrous zones. The pore surface has a nice delicate violet tinge when actively growing, fading however, to pale ochraceous or brown when dry. Common in temperate and subtropical hardwood forests.

Trichaptum byssogenum (Jungh.) Ryvarden, Fig. 137.

Norw. J. Bot. 19:237, 1972. - *Polyporus byssogenus* Jungh., Verh. Botav. Genootsch. 17:43, 1838.
Basidiocarps annual, resupinate to effused-reflexed or sessile; upper surface matted-tomentose to hispid or strigose, chestnut brown, wearing away, surface finally greyish-tan, coarsely strigose; pore surface purplish when fresh, dull purplish- brown with age and drying, the pores circular to angular, 1-2 per mm, with thick entire dissepiments that become thin and lacerate, in older specimens often split and partly sinuous to daedaleoid with a tendency to become lamellate towards the margin, context pale wood-brown, soft, spongy and fibrous, up to 3 mm thick; tube layer sharply distinct from context, pale wood brown, rarely two-layered, up to 1 cm thick.
Hyphal system dimitic; contextual generative hyphae thin-walled, with inconspicuous clamps, 2-3.5 µm in diam; contextual skeletal hyphae hyaline, thick-walled, aseptate or with rare clamps, with rare branching, 2-4 µm in diam; tramal hyphae similar.
Cystidia 15-35 x 3-6 µm, abundant, fusoid, thin- to moderately thick-walled, apically encrusted.

Basidiospores 5.5-8 x 2-2.5 µm, cylindrical, slightly curved.
Substrata. On all sorts of hardwoods.
Distribution. Pantropical species.
Remarks. The large pores, the loosely fibrous context, and the abundant encrusted cystidia characterize *T. byssogenum*.

Fig. 137. *Trichaptum byssogenus*, photo D. Mossebo.

Trichaptum durum (Jungh.) Corner,

Beiheft Nova Hedwigia 86:219, 1987. *Polyporus durus* Jungh., Verh. Batav. Genootsch. 17:62, 1838.
Basidiocarp, usually rather small, solitary or imbricate, applanate to ungulate, mostly dimidiate with a contracted base, more rarely broadly attached on a decurrent pore surface, up to 8 cm long and 6 cm wide, 220 mm thick at the base, woody hard, pileus first finely tomentose and then pale brownish to dirty greyish, soon more glabrous and then dingy greyish to almost blackish, smooth, tuberculate or warted, mostly azonate, margin rather acute, pore surface dark brown, dark bluishgrey to chocolate, pores round and entire, almost invisible to the naked eye, 810 per mm, tubes up to 5 mm deep, vinaceous brown, dark brown or almost blackish, indistinctly zonate, tubes often with a white lining of a hymenium, more or less collapsed in dry specimens, context bone hard, umber to dark brown or vinaceous brown, up to 10 mm thick.
Hyphal system dimitic, generative hyphae with clamps, hyaline and thinwalled, often difficult to find, 24 µm wide, skeletal hyphae thickwalled to almost solid, 410 µm wide, pale yellowish to fuscous or fuliginous.
Cystidia 7-13 x 5-6 µm, common to rare, ventricose, thinwalled, usually with a slight apical encrustation that easily falls off in microscopic preparations.
Basidiospores 3.5 5 x 22.5 µm, broadly elliptic.
Distribution. Pantropical species, wide spread in tropical Africa.
Remarks. The species is in most cases easy to recognize in the field because of the often warted of tuberculate pileus in greyishblue to umber or blackish colours, a hard consistency and almost invisible pores. The cystidia are often very difficult to observe in dry and old specimens.

Trichaptum sprucei (Berk.) Rajchenb. & Bianchin.,

Mycol. Research 96:956, 2000. - *Daedalea sprucei* Berk., Hook. J. Bot. 8:236, 1856. - *Hexagonia erubescens* Berk., Ibid. p. 237, 1856.
Basidiocarp perennial, solitary or imbricate, pileate, effusedreflexed or entirely resupinate, broadly attached, semicircular to dimidiate, flat to slightly concave, variable in size, 3-40 cm wide, 2-20 cm measured radially and 0.7-8 cm thick, often triangular in section, usually woody hard when dry, upper surface first finely tomentose and ochraceous to pinkish fawn, soon agglutinating and glabrous and darkening to almost black in old specimens sometimes covered with green algae, concentrically zoned and sulcate, often uneven and warted, irregularly cracking up both in radial and tangential direction making the surface highly coarse, pore surface hazel to deep sepia or cigarbrown with a pinkish or greyish tinge when dry, initially poroid to daedaleoid and labyrinthine, radially elongated, becoming lamellate to irpicoid, more seldom consistently poroid, pores 5-8(9) per cm measured tangentially near the margin, tubes or lamellae up to 8 cm deep, context medium brown, up to 1 cm thick, homogeneous or slightly zoned reflecting the growth stages.
Hyphal system trimitic, generative hyphae clamped, hyaline and thinwalled to slightly thickwalled, 2-3 µm in diameter, skeletal hyphae abundant in the whole basidiocarp, thickwalled to almost solid, yellow to pale brown, 45 µm in diameter, binding hyphae rather scanty, hyaline to pale yellow, appearing solid, 2-2.5 µm wide.
Cystidia numerous, present as ventricose bodies, slightly tapering, projecting and embedded at various levels, those near the hymenium thinwalled and hyaline, sometimes with apical encrustation on the older ones, thickwalled and yellow to pale brown, 13-27 x 5-7 µm.
Basidiospores 4-5.5 x 2-3 µm, elliptic.
Distribution. Pantropical,
Remarks. *T. sprucei* is recognized in the field by its massive and very hard basidiocarps with dark brown colours (margin violet in actively growing specimens) and the large irregular pores. Microscopically the many ventricose cystidia are diagnostic.

TYROMYCES P. Karst.,

Rev. Mycol. 3, no. 9:17, 1881.
Basidiocarps annual, pileate to resupinate, short-lived and sappy when fresh, usually rigid and fragile when dry, often with shrinking, taste mild to bitter; upper surface mostly white, drying darker; pore surface white to cream, drying darker; hyphal system mono- or dimitic; generative hyphae with clamps; gloeopleurous hyphae present in some species; cystidia absent, but cystidiols sometimes present, spores hyaline, thin-walled, allantoid to ovoid, IKI-, on deciduous or coniferous wood with a white rot. Cosmopolitan genus.
Type species: *Tyromyces chioneus* (Fr.) P. Karst.
Remarks. The genus is here restricted to species with generally pileate, and short-lived basidiocarps, clamped generative hyphae, a monomitic hyphal system and a white rot. Some species may have a restricted number of skeletal hyphae in the trama.

Key to African species

Main key

1. On gymnosperms (*Juniperus, Podocarpus* or *Widringtonia*) ..... **Key A**
1. On hardwoods **2**

2. Pileus dark brown to black and hirsute to strigose ..... **Key B**
2. Pileus white, ochraceous to pale brown, velutinate to glabrous **3**

3. Pores 1-4 per mm ..... **Key C**
3. Pores smaller 4-8 per mm **4**

4. Spores allantoid to cylindrical, ... **Key D**
4. Spores globose, to elliptic ..... **Key E**

Key A On gymnosperms

1. On *Widringtonia* or *Juniperus* **4**
1. *On Pododcarpus* **2**

2. Spores cylindrical 3.5-4 x 1.2-2 µm, pores 6-7 per mm ..... **T. afrochioneus**
2. Spores elliptic, pores larger **3**

3. Spores 4-4.5 x 2.3-2.6 µm, pores 4-5 per mm ..... **T. cinereobrunneus**
3. Spores 3-3.5 x 2.2-3 µm, pores 5-6 per mm ..... **T. ethiopicus**

4. On *Widringtonia* ..... **T. widdringtoniae**
4. On *Juniperus procera* ..... **T. densiporus**

Key B - Pileus dark brown to black and hirsute

1. Spores allantoid ..... **T. atrostrigosus**
1. Spores elliptic ..... **T. pelliculosus**

Key C - pores up 3 per mm or larger

1. Spores elliptic **2**
1. Spores allantoid to cylindrical **3**

2. Cystidia with crystal crown, basidiocarp minute up to 5 mm wide and long ..... **T minutus**
2. Cystidia absent, basidiocarps wider than 1 cm ..... **T. minitellus**

3. Spores 10-14 µm long ..... **T. longisporus**
3. Spores shorter **4**

4. Spores allantoid, up to 1.5 µm wide ..... **T. grandiporus**
4. Spores cylindrical, 2-3 µm wid ..... e **5**

5. Spores 3-3.5 x 1.5 µm ..... **T. rabiensis**
5. Spores larger **6**

6. Pileus dark brown to dark ochraceous, spores 5-6 x 2-2.5 cylindrical to sub allantoid ..... **T. dentatus**
6. Pileus white to cream, spores 4.5-6 x 2.5-3 mm, cylindrical to elliptic ..... **T. raduloides**

Key D – spores cylindrical to allantoid

1. Skeletal hyphae present ..... **T. chioneus**
1. Skeletal hyphae absent **2**

2. Spores 4-5 µm long ..... **T. centroafricanus**
2. Spores shorter **3**

3. Pores 7-8 per mm ..... **T. microsporus**
3. Pores 4-5 per mm ..... **T. kenyensis**

Key E - spores elliptic to globose

1. Spores globose to subglobose **2**
1. Spores elliptic **3**

2. Spores 2.5-3 x 2.5 µm 6-8 pores per mm ..... **T. globosporus**
2. Spores 4-5 x 3.5-4 µm 10-12 pores per mm ..... **T. minutoporus**

3. Cystidia present ..... **T. minutus**
3. Cystidia absent **4**

4. Pores 6-9 per mm, hardly visible to the naked eye **5**
4. Pores 2-6 per mm **6**

5. Basidiocarps dorsally attached, more or less unchanged by drying, spores broadly elliptic, 2.7-3 µm wide ..... **T. pendens**
5. Basidiocarps sessile to effused, basidiocarps distinctly contracting by drying, spores narrowly elliptic, 2-2.5 µm wide ..... **T. contractus**

6. Spores 3-3.5x 2-2.3 µm **7**
6. Spores larger **8**

7. Pileus white, smooth ..... **T. ethiopicus**
7. Pileus yellow, radially wrinkled ..... **T. luteus**

8. Spores 4-5 x 2-2.5 µm elliptic 3-4 per mm, pileus glabrous, strongly veined pileus white dirty white ..... **T. striatus**
8. Spores 5-6 x 3.5-4.5 µm, pileus pale to dark brown finely velutinate- glabrous, 2-4 per mm ..... **T. brunneus**

NB Since spores in all species are hyaline, thin walled and non-amyloid, these characteristics are not repeated for each species. The same goes for the generative hyphae which all have clamps at their septa and basidia which all are tetrasterigmatic.

Tyromyces afrochioneus Ryvarden,

Synopsis Fung. 39:48, 2019. - *Tyromyces subchioneus* Ryvarden 2018, nomen illegit non Murrill 1907.
Basidiocarps annual, pileate, applanate to slightly convex, broadly attached to semicircular and dimidiate, up to 7 cm broad and 10 cm wide, 0.5-2 cm thick, soft and fleshy when fresh, drying rather hard and brittle, upper surface azonate, whitish when fresh, becoming unevenly patchy pale brown to dirty white, glabrous, rugulose and azonate, no cuticle of agglutinated hyphae, pore surface ochraceous,, pores round 6-7 per mm, tube layer concolorous with pore surface, up to 3 mm thick, context pale ochraceous up to 1.5 cm at base, homogenous, chalky when dry and without structure.
Hyphal system monomitic; generative hyphae, moderately branched with large clamps, swelling in 3 % KOH, 3-8 µm in diam,

Basidiospores 3.5-4 x 1.2-2 µm, cylindrical.
Substrate. Dead *Podocarpus* sp.
Distribution. Known only from the type locality in Ethiopia.
Remarks. The fairly small spores and basidiocarps with an uneven brown to dirty white colour characterize the species.

Tyromyces atrostrigosus (Cooke) Cunningh.,

Bull. New Zealand Dep. Sci. Ind. Res. 164:120, 1965. – *Polyporus atrostrigosus* Cooke, Grevillea 19:2, 1890.
Basidiocarp annual, solitary, sessile, sometimes dimidiate and in imbricate clusters, up to 5 cm wide and long, 8 mm thick at the base, pileus hirsute to strigose, azonate but with faint radial lines or striae, dark brown in variable shades, apparently becoming darker when the hairs wear away at the base, no cuticle present, margin thin, often split and deflexed when dry, pore surface wood-coloured to pale brown when fresh, darkens when touched, dries to pale dirty brown, pores angular, thin-walled and variable, mostly 4-6 per mm, often with dentate dissepiments, tubes concolorous, up to 5 mm deep, context white to pale cork-coloured near the tubes, close to the surface pale brown and in the upper 1 mm darker brown without any abrupt colour change, up to 5 mm thick at the base, brittle when dry.
Hyphal system monomitic, generative hyphae, 5-7 µm wide with large clamps in the context, narrower in the trama, hyaline in the trama and context, pale brown and more distinctly thick-walled in the pileus cover.
Basidiospores 4-5.5 x 1.5-2 µm, allantoid,
Distribution. In Africa seen from Rwanda, Malawi and Uganda.
Remarks. The dark brown and strigose pileus, the pale pore layer and the allantoid spores characterize this species. The spores separate it from *T. pelliculosus* which has similar basidiocarps, but where the spores are elliptic.

Tyromyces brunneus Ryvarden,

Synopsis Fung 38:35, 2018.
Basidiocarp annual, sessile, single, semicircular, broadly attached or dimidiate, up to 3 cm wide, 7 cm long and 1 cm thick at the base, soft when fresh, rigid when dry, taste mild, upper surface pale brown becoming dark brown when dry, dull, azonate, first finely velutinate becoming glabrous, pore surface unevenly brown, pores thin-walled, angular, 2-4 per mm; tubes up to 5 mm deep, pale whitish brown, context whitish to pale brown, homogeneous, brittle, up to 5 mm thick at the base.
Hyphal system monomitic; generative hyphae thin- to thick-walled, swelling strongly in 3 % KOH, 2.5-4 µm wide.
Basidiospores 5-6 x 3.5-4.5 µm, subglobose to broadly elliptic.
Distribution. Known only from the type locality in Ethiopia.
Remarks. The brown colours, the velutinate pileus and the subglobose spores characterize this species.

Tyromyces centroafricanus Ryvarden,

Synopsis Fung 38:35, 2018.
Basidiocarp annual, solitary or imbricate, pileate, semicircular to flabelliform, up to 3 cm wide and broad, 2-4 mm thick at the base, soft when fresh, somewhat flexible when dry, pileus white to cream, glabrous, azonate, slightly wrinkled radially when dry, in parts covered with a very thin, smooth pellicle, more rough in other parts, pore surface white to cream or pale ochraceous, pores round to slightly angular, 4-5 per mm, thick walled, tubes concolorous with pore surface, up to 2 mm thick. context white, homogenous, 2 mm thick.
Hyphal system monomitic, generative hyphae with conspicuous clamps, 2-5 µm wide.
Basidiospores 4- 5 x 1.5-2 µm, cylindrical.
Distribution. Known from Ethiopia, Cameroon and St. Thome.
Remarks. The small flabelliform basidiocarps with small pores and cylindrical spores characterize this species. It is undoubtedly similar to *T. chioneus* by having straight generative hyphae without any branching, a character typical for *T. chioneus.* Further, the skeletal hyphae seen in the trama of the latter are absent in *T. centroafricanus*.

Tyromyces chioneus (Fr.) P. Karsten,

Rev. Mycol. 3, no. 9:17, 1881.- *Polyporus chioneus* Fr., Syst. Mycol. 1:359, 1821.
Basidiocarps annual, pileate, applanate to slightly convex, broadly attached to semicircular and dimidiate, more rarely spatulate, single or a few specimens together, up to 8 cm broad and 10 cm wide, 0.5-2 cm thick, soft and fleshy when fresh, drying rather hard and brittle, upper surface azonate, at first whitish and finely tomentose, soon becoming glabrous as the hyphae agglutinate, then finely scrupose and warted, cream, light yellowish, or pale greyish to straw-coloured, as the agglutination proceeds there develops a smooth pellicle which on drying becomes radially to irregularly wrinkled, pore surface white to pale cream, slightly shiny, pores angular to circular, 3-4(-5) per mm, with thin dissepiments; context white and dense in dry condition, usually distinctly thicker than the tubes, up to 1.5-2 cm

thick at the base; tube layer concolorous with pore surface, up to 8 mm thick.
Hyphal system dimitic; generative hyphae with clamps, in the context intricately branched and twisted and difficult to separate in long sections, side branches partly as tube-like hyphae, being characteristic and diagnostic for the species, they are randomly oriented, occasionally mixed with more unbranched, long hyphae, skeletal hyphae rare, straight, rarely branched, thick-walled, 2-4.5 µm in diam, present only in the trama.
Basidiospores 4-5 x 1.5-2 µm, cylindrical to slightly bent.
Substrate. Dead hard wood and *Juniperus procera*.
Distribution. A wide spread species, common in the temperate zone. In Africa we have only seen specimens from different localities in Ethiopia.
Remarks. The slightly applanate, short-lived basidiocarp, frequently with a thin yellowish to greyish, often wrinkled pellicle are useful macroscopic characters for a field determination.

Fig. 138. *Tyromyces chlamydosporus*, photo D. Mossebo.

Tyromyces chlamydosporus Oba, Mossebo & Ryvarden, Fig. 138

Synopsis Fung. 42:21, 2020.
Basidiocarp annual, single, dimidiate with strongly narrow point of attachment, up to 6 cm wide, 8 cm long and 1 cm thick at the base, soft when fresh, rigid when dry, pileus finely velutinate, azonate, reddish brown when fresh, fading to pale brown when dry, slight rugulose, margin sharp and wavy, pore surface whitish grey when fresh, dries pale brown, pores thin-walled, wavy, angular and irregular, 1-3 per mm, 5 mm deep, concolorous with pore surface, context duplex, lower part white and horizontally fibrous, about 0.5 mm thick, upper part homogenous, pale cinnamon, slightly punky, about 1 cm thick at base.
Hyphal system monomitic; generative hyphae with clamps, thin- to thick-walled, 3-6 µm wide.
Cystidia or other sterile hymenial elements absent.
Basidia 15-20 x 5-7 µm, clavate.
Basidiospores 4-6 x 3-4.5 µm, elliptic, smooth and thin-walled.
Chlamydospores present, 5-8 µm in diameter, globose, thick walled, negative in Melzers reagent.
Distribution. Known only from the type locality.
Remarks. This is a remarkable species with the strong change of colour when drying and its velutinate brown pileus, large angular pores and about all by the globose, thick walled chlamydospores**.**

Tyromyces cinereobrunneus Bitew and Ryvarden,

Synopsis Fungorum 18: 81, 2004.
Basidiocarp annual, sessile, single or imbricate, semicircular, broadly attached or dimidiate, up to 6 cm wide, 8 cm long and 1 cm thick at the base, soft when fresh, rigid when dry, taste mild, upper surface first greyish with brown shades, smooth, finely concentrically zonate, finely velutinate adpressed with some scattered glabrous zones, later becoming brown from the base and with radial lines, pore surface white to pale cream, pores thin-walled, angular, 4-5 per mm; tubes up to 4 mm deep, pale ochraceous, context white and homogeneous, brittle, up to 6 mm thick at the base.
Hyphal system monomitic; generative hyphae with clamps, thin- to thick-walled, 2.5-4 µm wide.
Basidiospores 4-4.5 x 2.3-2.6 µm, elliptic.
Substrata. Known only from dead *Podocarpus* sp.
Distribution. Known from Ethiopia and Uganda.

Remarks. This species is somewhat similar to the American species *T. pseudolacteus* as they having almost identical microscopical characters. However, the latter species has a purely white pileus in contrast to the greyish to brown colours seen in *T. cinereobrunneus*.

Tyromyces contractus Olou & Ryvarden,

Synopsis Fung. 44: 11, 2021.
Basidiocarp annual, pileate with widely effused pore surface, 3 x 5 cm wide, soft when fresh, curled with lifted margins when dry, apparently contracting under drying, pileus narrow, up to 5 mm wide, white and glabrous, up to 2 mm thick, pore surface white, pores round 7-9 per mm, hardly visible to the naked eye, tubes white, up to 1 mm deep, context cottony, white, up to 200 µm thick.
Basidiospores 4-5 x 2-2.5 µm, elliptic.
Distribution. Seen only at the type locality in Benin.
Remarks. The species may be recognized by the partly curled basidiocarp when dry, the tiny pores and the elliptic spores.

Tyromyces cystidiatus Ryvarden

Synopsis Fung. 39:51, 2019.
Basidiocarps annual, pileate, effused, pileus 3 cm wide and 5 cm long, 2-3 mm thick at attachment, soft when fresh, fragile when dry, pileus white, dull, azonate, pileus margin sharp, margin in effused part narrow, white and floccose, pore surface whitish to pale cream coloured, pores round, 4-5 per mm, split on vertical part of basidiocarp, tubes concolorous with surface, up to 2 mm deep, subiculum white, dense. 1 mm thick.
Hyphal system monomitic; generative hyphae with clamps, 2-5 µm in diam.
Cystidia hyphal, present in the hymenium, narrowly clavate, 20-28 x 2-4 µm with small encrusted crown.
Basidiospores 4-5 x 3-3.5 µm elliptic.
Distribution. Known only from the type locality in Uganda.
Remarks. The hymenial apically encrusted cystidia are diagnostic for this species.

Tyromyces densiporus Ryvarden,

Synopsis Fung 38:37, 2018.
Basidiocarp annual, dimidiate, 3 cm wide, 2 cm long and 6 mm thick at the base, soft when fresh, rigid and contracting and with curling when dry, upper surface first white with adpressed velutinate tomentum, then becoming dark brown from base with development of resinous thin cuticle and with some radial lines, pore surface white to pale cream, pores thin-walled, angular, 4-5 per mm; tubes up to 2 mm deep, contracted and resinosus dense when dry, context first white becoming brown and dense with age, up to 2 mm thick.
Hyphal system monomitic; generative hyphae with clamps, 2-5 µm wide.
Basidiospores 4-5 x 2-2.5 µm, elliptic to subcylindrical.
Substrata. Known only from dead *Juniperus procera*.
Distribution. Known only from the type locality in Ethiopia.
Remarks. This species may be related to *T. cinereobrunneus* having more or less the same microscopical characteristics, but is separated by the dense basidiocarp with a resinous cuticle from the base and the resinous dense tubes. More collections will demonstrate whether also the host, i.e. *Juniperus procera,* also is unique for the species**.**

Tyromyces dentatus Ryvarden,

Synopsis Fung 38:11, 2018.
Basidiocarps annual, imbricate, individual basidiocarps, 3 cm wide and 8 cm long, up to 3 mm thick at the base, soft when fresh, hard and dense when dry, pileus more or less glabrous, in some zones with a fine adpressed whitish tomentum which apparently wears away rather quickly, sulcate, slightly radially furrowed when dry, pale brown to dark ochraceous, reddish brown towards the base, margin sharp, pore surface semi labyrinthine to irregularly hydnoid, dentate in older parts with flattened walls and in parts deeply split, 0.5-2 mm wide, pore surface whitish when fresh, drying pale brown, tubes whitish towards the base, 4 mm deep, context white and dense, up to 4 mm deep.
Hyphal system monomitic; contextual hyphae hyaline in KOH, thick walled with scattered clamps simulating skeletal hyphae, swelling in KOH to 5 mm with a narrow lumen.
Basidiospores 5-6 x 2-2.5 µm, cylindrical to suballantoid.
Distribution. Known only from the type locality in Ethiopia.
Remarks. This is a remarkable species with its highly irregular semi hydnoid hymenophore with a variation from wavy to labyrinthine to hydnoid pores. The colour change from ochraceous to pale reddish brown from the base is also a distinct feature.

Tyromyces ethiopicus Bitew and Ryvarden.

Synopsis Fung. 18:80, 2004.
Basidiocarp annual, sessile, single or imbricate, semicircular, broadly attached or dimidiate, up to 5 cm wide, 7 cm long and 1 cm thick at the base, soft, watery and sappy when fresh, rigid when dry, taste mild, upper surface white, smooth to slightly rugulose, glabrous, matted with age and then the upper hyphae agglutinate to a very thin brownish cuticle, pore surface white to pale cream, pores thin-walled, angular, 5-6 per mm; tubes up to 6 mm deep, concolorous with pore surface; context white and homogenous, chalky when dry, up to 6 mm thick at the base.
Hyphal system monomitic; generative hyphae with clamps, in the trama thin-walled, 2.5 4 µm wide, in the context more thick-walled.
Basidiospores 3-3.5 x 2-2.3 µm, elliptic.
Substrata. Known only from dead *Podocarpus* sp.
Distribution. Known only from the type locality in Ethiopia.
Remarks. This species is somewhat similar to the American species *T. galactinus* as they have almost identical microscopical characters although the basidiospores in the latter species are slightly smaller and almost subglobose (2.5-3 x 2-2.5 µm). However, *T. galactinus* has a strigose to tomentose upper surface in contrast with the glabrous surface of *T. ethiopicus*.

Tyromyces globosporus Ipulet & Ryvarden,

Synopsis Fung. 20: 83, 2005.
Basidiocarps annual, effused reflexed to sessile, individual pilei up to 2 cm wide and long, 2-3 mm thick at the base, soft when fresh, dense and brittle when dry, pileus glabrous, smooth when fresh, somewhat wrinkled in dry condition, white becoming slightly brownish in parts, pore surface white when fresh, pale ochraceous when dry, pores round, thin-walled, 6-8 per mm, invisible to the naked eye, tubes white, up to 2 mm deep, context white with a thin resinous line close to the tubes, 1-3 mm thick.
Hyphal system monomitic, generative hyphae with clamps, densely agglutinated, 2-4 µm wide.
Basidiospores 2.5-3 x 2.5 µm, globose to subglobose.
Distribution. Uganda, Kanungu, Bwindi Forest National Park.
Remarks. The small globose to subglobose basidiospores are the distinguishing character for this species. Its basidiocarps are small and whitish as in many other species of the genus becoming dense and somewhat discoloured on drying, a common feature for species of the genus.

Tyromyces grandiporus Ryvarden,

Synopsis Fung. 39:54, 2019.
Basidiocarps annual, pileate reflexed, broadly attached, pileus elongated 4 cm long, 1 cm wide, effused part up to 4 cm wide, soft and fleshy when fresh, drying rather hard and brittle, upper surface zonate, older inner part deep reddish brown, wrinkled, glabrous, younger part ochraceous whitish when fresh, becoming darker when dry, margin sharp, pore surface ochraceous, pores angular 1-2 per mm, in places more irregular, tube layer white, 6 mm deep, context white, dense and homogenous, up to 8 mm thick at base, chalky.
Hyphal system monomitic; generative hyphae with clamps, thick walled, moderately branched with large clamps, swelling in 3 % KOH and thick walled also in Melzers solution, 2-6 µm in diam.
Basidiospores 4-5 x 1-1.5 µm, allantoid.
Distribution. Known only from the type locality in Tanzania.
Remarks. The large angular pores make this a distinct species.

Tyromyces kenyensis Ryvarden,

Synopsis Fung 38:31, 2018.
Basidiocarp annual, pileate, sessile to dimidiate, convex, semicircular up to 4 cm wide, 8 cm long and 2 cm thick at the base, soft when fresh, dense when dry, upper surface glabrous, smooth when fresh, radially wrinkled when dry as the basidiocarps contract distinctly by drying, cream becoming darker with a distinct hard cuticle and then dark straw coloured, pore surface cream to pale straw coloured, partly shiny when turned in incident light, pores invisible to the naked eye, angular, 4-5 per mm, a few even larger, tubes white, 8 mm deep, drying fragile, context dense, homogenous, white and 1,2 cm thick at base.
Hyphal system monomitic; generative hyphae with clamps, straight, thin- to distinctly thick walled, especially in the context and with large clamps, 2-6 µm wide, swelling strongly in 3 % KOH.
Basidiospores 3.5-4 x 1.5 -1.7 µm, cylindrical to banana shaped.
Distribution. Known only from the type locality in Kenya.
Remarks. The species reminds one of the boreal *T. chioneus* (Fr.) P. Karst. with its wrinkled glabrous pileus developing a thin cuticle with age and weathering. However, this species has larger spores and branched hyphae.

Tyromyces longisporus Ryvarden,

Synopsis Fung. 39:55, 2019.
Basidiocarps annual, pileate, sessile to dimidiate, small, 1 cm wide and 2 cm long, 5 mm thick at base, soft when fresh, rigid when dry, pileus white, glabrous, slightly shrunken with faint wrinkles when dry, margin sharp, pore surface white, pores angular, 1-3 mm wide and 4 mm deep, context white, dense and homogenous, up to 4 mm thick at base, chalky.
Hyphal system monomitic; generative hyphae with clamps, thick walled, solid to very thick walled both in KOH and Melzers reagent, sinuous with occasional protuberances or knob like outgrowths, clamps large, up to 5 mm wide.
Basidiospores 10-14 x 3-4 µm, cylindrical.
Distribution. Known only from the type locality in Zimbabwe.
Remarks. The large angular pores and the long spores make this a distinct species.

Tyromyces luteus Ryvarden,

Synopsis Fung. 39:55, 2019.
Basidiocarps annual, pileate, sessile to dimidiate, semicircular, 3 cm long, 2 cm wide and, 3 mm thick at base, soft when fresh, rigid when dry, pileus yellow with a pale brown cuticle spreading from the base, glabrous, dull, smooth when fresh, slightly shrunken with faint radially wrinkled when dry, margin sharp, pore surface white to pale cream, pores round, thick walled, 4-5 per mm, tubes concolours with pore surface up to 2 m deep, context white, homogenous, up to 1 mm thick at base.
Hyphal system monomitic; generative hyphae with clamps, thick to thin-walled, 2-5 µm wide.
Basidiospores 2-2.2 x 3-3.5 µm, subglobose.
Distribution. Known only from the type locality in Ethiopia.
Remarks. The yellow colour with a brownish cuticle spreading from base besides the small spores, characterize this species.

Tyromyces microsporus Decock & Ryvarden,

Synopsis Fung. 42:12, 2020.
Basidiocarp annual, pileate, sessile to dimidiate, convex, semicircular up to 4 cm wide, 6 cm long and 3 mm thick at the base, soft when fresh, fragile when dry, upper surface glabrous, smooth, white with faint shades og grey, margin thin, sharp, pore surface white to very pale cream when dry, pores invisible to the naked eye, round 7-8 per mm, a few slightly larger, tubes white, 1 mm deep, context dense, homogenous, white and 2 mm thick at base.
Hyphal system monomitic; generative hyphae with clamps, straight, thin- to distinctly thick walled, especially in the context and with large clamps, 2-6 µm wide, swelling strongly in 3 % KOH.
Basidiospores 3-3.5-4 x 1-1.2 µm, cylindrical.
Distribution. Known only from the type locality in Gabon.
Remarks. The species reminds one of *T. kenyensis* Ryvarden, which, however has larger pores and spores, 4-5 per mm and 3.5-4 x 1.5 -1.7 µm respectively and a much darker pileus.

Tyromyces minitellus Ryvarden,

Synopsis Fung. 41:24, 2020.
Basidiocarps annual, sessile, pileus semicircular, up to 4 cm long, 1 cm wide, up to 6 mm thick, soft when fresh, more fragile when dry, pileus glabrous, white, minutely scrupose, azonate adpressed cottony, in parts with brown tinges where touched in fresh condition, margin sharp, pore surface whitish to pale ochraceous with brownish shades where touched in fresh condition, pores thin-walled, angular and in parts slightly irregular 1-4 per mm, tubes white, up to 1 mm deep, context up to 5 mm thick, homogenous and white.
Hyphal system monomitic, generative hyphae hyaline, thin to slightly thick walled and with clamps, 3-10 µm wide,
Basidiospores 5-6 (7) x 4-5 µm, elliptic.
Distribution. Known only from the type locality in Cameroon.
Remarks. The large angular pores, the whitish colours and the fairly large elliptic spores, characterize this species.

Tyromyces minutoporus Ryvarden,

Synopsis Fung 38:31, 2018.
Basidiocarps annual, pileate, dimidiate to broadly attached, up to 5 cm wide and long, 12 mm thick at base, pileus white when fresh, darkens to deep ochraceous when dry and old, glabrous, azonate, soft when fresh, striking hard and partly shrunken when dry and hen with a dense, but distinct cuticle , pore surface white when fresh, darkens to deep ochraceous when dry, margin sharp and deflexed when dry, pores angular to round 10-12 per mm, invisible to the naked eye, tubes concolorous with pore surface up to 10 mm deep, tube walls semi translucent when dry, context very dense with numerous dark resinous bands with a distinct dark zone above the tubes.

Hyphal system monomitic; generative hyphae with clamps 2-5 µm in diameter, thin-walled in the subhymenium, thick-walled in trama and context and difficult to separate, even in 5 % KOH.
Basidiospores 4-5 x 3.5-4 µm, subglobose.
Distribution. Known only from the type locality in Zimbabwe.
Remarks. This species reminds one about the temperate *Tyromyces fissilis* which in similar fashion shrinks and becomes dense, partly fragile in the tubes when dry. The African species has smaller spores and smaller pores besides becoming very dense with resinous bands in the context.

Tyromyces minutus Ryvarden,

Synopsis Fung. 39:55, 2019.
Basidiocarps annual, pileate, minute with numerous small pilei along an almost vertical substrate, individual basidiocarps soft, 3-7 mm long and 3 mm wide and 2 mm thick, pileus surface cream coloured, loosely floccose, azonate; margin sharp, pore surface cream coloured, pores angular, 1-4 per mm, tubes 1 mm deep, context loose, soft, fragile 1 mm thick at base.
Hyphal system monomitic; generative hyphae, thick-walled, 3-7 µm wide.
Cystidia arising from the subhymenium, up to 40 µm long and 3-8 µm wide with an apical crystal crown, often with sharp irregular crystals.
Basidiospores 4-5 x 3-3.5 µm, elliptic, hyaline, smooth.
Distribution. Known only from Zimbabwe.
Remarks. The minute cream coloured basidiocarps with angular pores and long apically encrusted cystidia, make this distinct in the genus. It is easily overlooked because of its small size.

Tyromyces pelliculosus (Berk.) Cunningh,

New Zeal. Deep. Sci. Ind. Res. 164:124, 1965. - *Polyporus pelliculosus* Berk., Lond. J. Bot. 7:575, 1848.
Basidiocarp annual, solitary, pileate and distinctly tapering which makes it almost semi pendant, applanate to convex with deflexed margin, semi-circular to elongated, up to 6 cm wide, 8 cm long and 2 cm thick at the base, soft when fresh, of light weight and brittle when dry, pileus hirsute to strigose, azonate but with faint radial lines or striae, dark brown in variable shades, apparently becoming darker when the hairs wear away at the base, no cuticle present, margin thin, often lobed, deflexed when dry, pore surface white when fresh, darkening when touched, dries to cork-colour or pale dirty brown, pores angular, thin-walled and variable, mostly 2-5 per mm, but in parts up to 1 mm wide, tubes concolorous, up to 12 mm deep, context white to pale cork-coloured near the tubes, close to the surface pale brown and in the upper 1 mm darker brown without any abrupt colour change, up to 2 cm thick at the base, brittle when dry.
Hyphal system monomitic, generative hyphae with clamps, variable in width, 3-8 µm wide with large clamps, hyaline in the trama and context, pale fuscous and more distinctly thick-walled in the pileus cover.
Basidiospores 4.5- 6 x 3-4 µm, broadly elliptic.
Distribution. Australia and in Africa seen from Rwanda, Malawi and Uganda.
Remarks. The dark brown and strigose pileus and the white pore layer make this an easily identifiable species in the field.

Tyromyces pendens Ipulet & Ryvarden,

Synopsis Fung. 20: 85, 2005.
Basidiocarp annual, solitary, pileate and pendant, semi-circular to elongated, up to 2 cm in diameter and 1 cm thick at the base, soft when fresh, of light weight and brittle when dry, pileus glabrous, smooth, somewhat wrinkled in dry condition, white becoming slightly brownish in parts, pore surface white, pores round, thin-walled, 6-8 per mm, invisible to the naked eye, tubes white, up to 2 mm deep, context white, 1-3 mm thick.
Hyphal system monomitic, generative hyphae with clamps, variable in width, 3-8 µm wide with large clamps.
Basidiospores 4- 4.5 x 2.7-3 µm, broadly elliptic.
Distribution. Know only from the type locality in Uganda.
Remarks. The pendent basidiocarp with the tiny pores and the small elliptic spores make this a distinct species. *Oligoporus cerifluus* (Berk. & M. A. Curtis) Ryvarden & Gilbn has a similar shape, but is connected to coniferous wood with narrow spores (2-2.5 µm wide) and larger pores (3-5 per mm).

Tyromyces rabiensis Decock & Ryvarden Fig. 139.

Synopsis Fung. 44:8, 2021.
Basidiocarps annual, pendant and attached to the substrate by a central conical part of the pileus, pileus up to 4 cm in diameter and about 3 mm thick at the point of attachment, semicircular with slightly irregular rounded lobes. Soft when fresh, hard and partly curled when dry, surface probably white, whitish with ochraceous and pale brownish tones when dry, adpressed velutinate, azonate margin thin and curled when dry, pore surface deep ochraceous, pores

concolorous, thin-walled, wavy and irregular of outline, 1-4 per mm, fragile when dry, up to 2 mm deep, contrasting the whitish context being up 4 mm thick at the point of attachment.
Hyphal system monomitic, generative hyphae with large clamps, hyaline, thin-walled, 3-7 µm wide.
Basidia 8-10 x 4-5 µm tetrasterigmatic.
Basidiospores 3-3.5 x 1.5 µm, cylindrical.
Distribution. Known only from the type locality in Gabon.
Remarks. The large angular pores and it dorsal attachment to the substrate make this distinct species. Macroscopically, by its pendant growth, this species reminds one of *Tyromyces pendens* Ipulet & Ryvarden, described from Uganda, which however, has smaller pores, i.e. 6-8 per mm, besides elliptic spores, i.e. 4-4.5 x 2.7-3 µm.

Fig. 139. *Tyromyces rabiensis*, the holotype, photo C. Decock.

Tyromyces raduloides (Henn.) Ryvarden,

Preliminary Polypore fl. East Africa p. 612, 1980. - *Polyporus raduloides* Henn., Engl. Bot. Jahrb. 17:25, 1892.
Basidiocarp annual, solitary or imbricate, pileate, semicircular to flabelliform, up to 3 cm wide and broad, 2-4 mm thick at the base, soft when fresh, somewhat flexible when dry, pileus white to cream, glabrous, azonate, slightly wrinkled radially when dry, in parts covered with a very thin, smooth pellicle, more rough in other parts, pore surface white to cream or pale ochraceous, pores round to angular, somewhat lacerate with age, 2-4 per mm, larger in old specimens, tubes concolorous with pore surface, up to 2 mm thick.
context white, homogenous, 1-2 mm thick.
Hyphal system monomitic, generative hyphae with clamps, thin to thick-walled with conspicuous clamps, 2-5 µm wide.
Basidiospores 4.5-6 x 2.5-3 µm, cylindrical to oblong elliptic.
Distribution. Tanzania and Malawi.
Remarks. The species may microscopically remind one of *Oligoporus guttulatus*, but is much smaller and has a whitish pileus different from that of *O. guttulatus*, which seems to be restricted to gymnosperms in the Northern Hemisphere. The broad spores and the pileate basidiocarp are diagnostic features of this species.

Tyromyces striatus Ryvarden,

Synopsis Fung. 39:57, 2019.
Basidiocarps annual, pileate, applanate to slightly convex, broadly attached to semicircular and dimidiate, up to 10 cm broad, 3 cm wide, 0.5-2 cm thick, soft and fleshy when fresh, drying rather hard and brittle, upper surface azonate, whitish when fresh, becoming unevenly patchy pale brown to dirty white, strongly veined as if folded to scrupose with pointed hydnoid structures, glabrous, azonate, no cuticle of agglutinated hyphae, pore surface ochraceous,, pores round to angular 3-4 per mm in places more irregular,, tube layer concolorous with pore surface, up to 6 mm thick, context pale ochraceous up to 1.5 cm at base, homogenous, chalky when dry and without structure.
Hyphal system monomitic; generative hyphae with clamps, thin walled, moderately branched with large clamps, swelling in 3 % KOH, 3-5 µm in diam, some conducting hyphae present in trama, dense and dark, up to 10 cm wide.
Basidiospores 4-5 x 2-2.5 µm, elliptic.
Distribution. Known only from the type locality in Tanzania.
Remarks. The veined to strongly folded surface with small hydnoid protuberances on the pileus is a striking character in this species.

Tyromyces widdringtoniae Ryvarden,

Synopsis Fung. 39:57, 2019.
Basidiocarps annual, pileate, pendant, circular with more or less a central point of attachment, up to 6 cm in dimeter, 6 mm thick at centre, pileus white, smooth, glabrous, azonate, slightly brownish around point of attachment, margin sharp, pore surface white to pale ochraceous, pores angular 4-6 per mm, tube layer concolorous,

3 mm deep, context white, dense and homogenous, up to 3 mm thick at base.
Hyphal system monomitic; generative hyphae with clamps, thick walled, moderately branched with large clamps, swelling in 3 % KOH, 3-6 µm, in the context up to 8 µm wide, solid to thick-walled and with scattered large clamps.
Basidiospores 3.5-4 x 2-2.3 µm, subcylindrical.
Substrate. Dead logs of *Widdringtonia whytei*.
Distribution. Known only from the type locality in Malawi.
Remarks. This species is similar to *T. ethiopicus*, which however is a sessile species with larger spores and occurs on a different host.

WOLFIPORIA Ryvarden & Gilbn.,

Mycotaxon 19:141. 1984.
Basidiocarps annual, resupinate; pore surface white to ochraceous, the pores circular to angular, 15 per mm; subiculum white to pale buff, firmfibrous; tube layer concolorous, up to 2 mm thick; hyphal system dimitic; generative hyphae thin to thickwalled, simple septate, some inflated up to 20 um; skeletal hyphae thickwalled, nonseptate; fusoid cystidiols present or absent; basidia clavate, 4sterigmate, simpleseptate at the base; basidiospores ellipsoid to cylindrical, hyaline, negative in Melzer's reagent. Causes a brown cubical rot of hardwoods and conifers.
Type species: *Sclerotium cocos* Schw.
Remarks. *Wolfiporia* is a distinctive genus characterized by the lack of clamps, dimitic hyphal system, greatly inflated hyphae and brown cubical rot. One species in Africa.

Wolfiporia cocos (Schw.) Ryvarden & Gilbn.,

Mycotaxon 19:141. 1984. - *Sclerotium cocos* Schw., Naturf. Ges. Leipzig Schrift. 1:56, 1822. - *Poria cocos* (Schw.) Wolf, J. Elisha Mitchell Sci. Soc. 38:134, 1922.
Basidiocarps annual, originally in rounded patches, these becoming confluent and widely effused; pore surface light ochraceous buff to pinkish buff, with 1-2 pores per mm, the pores angular, variable; margin abrupt, fertile or sterile, often wide, tomentose, cartridge buff; subiculum cream to pale pinkish buff, fibrous to corky, 1-2 mm thick; tube layer pale buff, continuous with subiculum, up to 2 mm thick.
Hyphal system dimitic; generative hyphae thin to thickwalled, simpleseptate, occasionally branched, 314 µm in diam, some in lower subiculum greatly inflated, thickwalled, up to 20 µm in diam; skeletal hyphae thickwalled to almost solid, aseptate, rarely branched, 3-8 µm in diam.
Cystidia lacking, but scarcely projecting, fusoid, thinwalled cystidiols are present, 22-38 x 5-7 µm.
Basidiospores 8-11 x 3-4 µm, cylindrical.
Substrata. Living and dead conifers and hardwoods.
Distribution. Found in conifer plantations in Malawi, also once in Europe, widespread in United States.

WRIGHTOPORIA Pouzar,

Ceská Mykol. 20:173, 1966.
Basidiocarps resupinate to pileate, annual to perennial; pores small to medium, white to cream or grey; hyphal system dimitic; generative hyphae with clamps or simple septa, skeletal hyphae thick-walled to solid, dextrinoid to non-dextrinoid; spores less than 6 µm in largest dimension, globose to cylindrical, smooth to ornamented, weakly to strongly amyloid. On dead wood, both of gymnosperms and angiosperms. Tropical to south temperate distribution.
Type species: *Poria lenta* Overh. & Lowe.
Remarks: The genus belongs in the Hericiaceae and is characterized by its amyloid spores combined with a dimitic hyphal system, in most species the skeletal hyphae have a dextrinoid reaction.

Key to species

1. Pores large, 1–3 per mm, often lacerate **2**
1. Pores small, 4–8 per mm, round to angular **4**

2. Spores 3 x .2 µm, pores about 2 per mm ..... **W. grandipora**
2. Spores larger and pores smaller **3**

3. Basidiocarps white to cream, basidiospores globose to subglobose, 5–6 × 4–5 µm ..... **W. lenta**
3. Basidiocarps cream to pale brown, often with darker patches, basidiospores subglobose to broadly elliptic, 3.5–4.5 ×2.5–3.5(4) µm ..... **W. avellanea**

4. Gloeocystidia present ..... **W. gloeocystidiata**

4. Gloeocystidia absent **5**

5. Basidiocarps pileate **6**
5. Basidiocarps resupinate **7**

6. Spores 4-4.5 x 3-3.5 µm elliptic ..... **W. cinnamomea**
6. Spores 3-3.5 µm in diameter, globose ..... **W. deviata**

7. Generative hyphae with clamps ..... **W. africana**
7. Generative hyphae with simple septa ..... **W. efibulata**

Wrightoporia africana Johan. & Ryvarden,

Trans. Br. Mycol. Soc. 72:196, 1979.
Basidiocarps annual, resupinate, becoming widely effused, up to 15 cm wide and 2 mm thick, easily separable from the substratum, consistency soft, fibrous to tough when dry, margin cream to white, cottony, fimbriate to slightly rhizomorphic, narrow to wide, pore surface whitish cream to ochraceous, dull to slightly shiny when turned in incident light, pores first circular and regular, 5-6 per mm with thinner and more fimbriate edges especially on sloping substrata, tubes non-stratified, continuous with the context which is thin, fibrous, cream to white, with a few rhizomorphs penetrating into the substratum.
Hyphal system trimitic, generative hyphae with clamp-connexions, hyaline and thin-walled, 1.5-2.5(4) µm in diameter, skeletal hyphae dominant throughout, dextrinoid, thick-walled, flexuous, unbranched, swelling to 1.5-4 µm wide in KOH, wall thickness often irregular.
Basidiospores 3-3.5(4) x 2.5-3 µm, sub-globose to broadly elliptic, amyloid.
Distribution African species from Kenya, Tanzania, Cameroon, and Malawi.
Remarks. The species is related to *W. avellanea*, but has smaller pores, often almost invisible to the naked eye and shining when turned in incident light. Further, the spores are on average smaller than those of *W. avellanea*.

Wrightoporia avellanea (Bres.) Pouzar,

Ceská Mycol. 20:173, 1966. - *Poria avellanea* Bres. in v. Höhnel, K. Akad. Wiss. Math. Naturw. Klas. Denk. Schr. 83:14, 1907.
Basidiocarp annual, resupinate, becoming widely effused, up to 12 cm in diameter and 8 mm thick, easily separable from the substrate, margin white to pale fulvous, membranaceous to arachnoid, often with several lobes, consistency soft fibrous-tough when dry; pore surface cream to pale fulvous, often with darker brown patches, dull, pores round to more irregular on near vertical surfaces, 1.5-3 per mm, dissepiments thin to rather thick; tubes up to 8 mm long, concolorous or slightly paler than the pore surface; subiculum fibrous, up to 1 mm thick, concolorous and continuing without change into the dissepiments.
Hyphal system dimitic; generative hyphae clamped, hyaline and thin-walled, 1.5-2.5 µm in diameter; skeletal hyphae dominating in the basidiocarp, thick-walled to solid, hyaline to pale yellow, sometimes weakly branched, 1.5-2(3) µm wide, thick-walled, strongly dextrinoid.
Basidiospores 3.5-4.5 x 2.5-3.5(4) µm, subglobose to broadly elliptic, slightly asperulate, amyloid.
Distribution. Widespread in the tropics, in Africa only found in Tanzania.
Remarks. The species is recognized by the fairly large pores.

Wrightoporia cinnamomea Ryvarden,

Synopsis Fung. 39:71, 2019.
Basidiocarps effused pileate, individual pilei up to 1 cm wide and3 cm long, 1 cm thick at base, upper surface dull, velvety, cinnamon and distinctly sulcate reflecting different stage of growth, pore surface ochraceous, pores invisible to the naked eye, 6-8 per mm, round and slightly angular, tubes concolorous with pore surface, up to 4 mm deep in individual layers, in part with intermittent sterile context which is dense and ochraceous.
Hyphal system dimitic, generative hyphae thinwalled and with clamps, 2-4 µm wide, skeletal hyphae dextrinoid, thick-walled to solid, 2-5 µm wide, hyaline.
Basidiospores 4-4.5 x 3-3.5 µm, elliptic, smooth, hyaline, thinwalled and nonamyloid.
Distribution. Known only from the type locality in Zimbabwe.
Remarks. The cinnamon colour and the dextrinoid skeletal hyphae seemingly indicate that the species belongs in *Wrightoporia* even if the spores are non-amyloid.

Wrightoporia deviata Decock & Ryvarden,

Synopsis Fung. 44:17, 2021.
Basidiocarps annual, semi resupinate to pileate, probably soft when fresh, drying dense and resinous hard, partly bent and irregular as a part of the drying, pileus up to 1 cm wide, wavy, brown, azonate and dull, younger parts along the margin whitish to pale ochraceous, margin wide, white, dull, glabrous almost looking like a corticoid species, pore surface whitish, pores round, invisible to the naked eye, 7-9 per mm, in vertical parts of the basidiocarps slightly irregular and larger, tubes dense, white, up to 3 mm long, subiculum or context whitish, apparently absent in parts.
Hyphal system monomitic, generative hyphae with simple septa, hyaline, wavy and sinuous, thin- to thick-walled, 2-10 µm wide, slightly dextrinoid in Melzers reagent.
Basidiospores 3-3.5 µm in diameter, globose, very finely ornamented, thin-walled and amyloid.
Distribution. Known from only the type locality in São Tomé.
Remarks. The brown, dull to finely velutinate pileus and simple septate hyphae make this a distinct species in the genus,

Wrightoporia efibulata Lindblad & Ryvarden,

Mycotaxon 71:355, 1999.
Basidiocarp resupinate, effused, up to 1 mm thick, easily separable; pore surface white with a rosy tint, becoming slightly buff when dry, margin white, pores round to angular 6-8 per mm, thin-walled, tubes concolorous with pore surface, up to 0.5 mm deep; context thin and white.
Hyphal system dimitic; generative hyphae with simple septa, 3-8 µm wide; skeletal hyphae thick-walled to solid, 4-8 µm wide, non dextrinoid.
Basidiospores 3-4 µm, globose, finely asperulate, amyloid.
Substrata. On hard wood. deciduous wood and palms in subtropical and tropical areas.
Distribution. Zimbabwe, described from Costa Rica.
Remarks. The species is recognized by its wide, consistently simple septate generative hyphae and small, amyloid globose spores.

Wrightoporia gloeocystidiata Johan. & Ryvarden,

Trans. Br. Mycol. Soc. 72:197, 1979.
Basidiocarps perennial, resupinate to semipileate becoming widely effused, up to 15 cm in diameter and 2.5 cm thick, consistency woody, hard and dense when dry, pileus fragmentary or absent, appearing as a black upper portion of the pore surface especially on vertical substrata, glabrous, dull or slightly shining, smooth or weakly sulcate, pore surface pale grey or brown with a whitish tint, pores circular to slightly elongated in radial direction, 6-7 per mm, tubes distinctly stratified, totally up to 2.5 cm long, each stratum up to 1.5 mm long, grey to brownish near the pore surface, context fragmentary or lacking, light rusty brown.
Hyphal system trimitic, generative hyphae with clamp-connexions, hyaline and thin-walled, 1.2-3 µm wide, skeletal hyphae dominant, thick-walled to solid, yellow to pale brown, weakly to heavily dextrinoid, 3-4 µm in diameter.
Gloeocystidia present, thin-walled to slightly thick-walled with granular to oily contents, 5-17 µm in diameter, up to 150 µm long, mostly embedded in the trama but also curving into the hymenium but not projecting beyond it. In dried specimens they are partly collapsed and difficult to tease apart.
Basidiospores 3-4 x 2-2.5 µm, subglobose to broadly ellipsoid, smooth to weakly verrucose, weakly to strongly amyloid.
Distribution. Kenya where it has been recorded from several provinces.
Remarks. The species is recognized by its thick, woody hard basidiocarps, greyish to pale brownish pore surface and gloeocystidia.

Wrightoporia grandipora Decock & Ryvarden,

Synopsis Fung. 42:13, 2020.
Basidiocarps annual, resupinate, becoming widely effused, to 10 cm wide or long and 2 mm thick, easily separable from the substratum, consistency fragile when dry, margin white, up to 4 mm wide, pore surface cream to ochraceous, dull, pores irregular 2 per mm, but some even larger with partly irregular outline, tubes up to 1 mm deep.
Hyphal system, generative hyphae with clamps, but difficult to observe, 2-4 µm in diameter, skeletal hyphae dominant throughout, dextrinoid, thick-walled, flexuous, unbranched, narrow and 1.5-2 µm in Melzer's reagent, swelling to 1.5-4 µm wide in KOH.
Basidiospores 3-x 2 µm, sub-globose, seemingly smooth, amyloid.
Distribution Known only from the type locality in Gabon.

Remarks. The large angular in parts irregular pores and the small amyloid spores are distinct features for this remarkable species.

Wrightoporia lenta (Overh. & Lowe) Pouzar,

Ceská Mycol. 20:173, 1966. - *Poria lenta* Overh. & Lowe, Mycologia 38:210, 1946.
Basidiocarp resupinate, effused, up to 3 mm thick, separable to slightly adnate, tough when dry; pore surface white to cream, margin white, pores round to angular, often slightly sinuous on oblique substrates, on average 2-3 mm, thin-walled, tubes concolorous with pore surface, up to 2 mm deep; context thin and white.
Hyphal system dimitic; generative hyphae with clamps, 1-3 µm wide; skeletal hyphae thick-walled to solid, 1.5-3 µm wide, strongly dextrinoid; gloeopleurous hyphae rare and scattered, irregular and often with blunt side-branches, slightly yellowish in KOH, negative in Melzer's reagent, diameter variable, mostly 3-6 µm, but parts up to 15 µm wide.
Basidiospores 5-6 x 4.5-5.5 µm, globose, finely asperulate, amyloid.
Substrata. On deciduous wood and palms in subtropical and tropical areas.
Distribution. Widespread in Eastern Africa.
Remarks. The species is recognized by its large spores.

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