Neotropical polypores
Part 2

Polyporaceae
Abortiporus-Nigroporus

L. Ryvarden

Synopsis Fungorum 34

Fungiflora

Contents:

Nomenclature:
The following new combinations are proposed:
Datronia taylorii (Murrell) Ryvarden comb .nov., p. 312
Junghuhnia sobria (Berk.) Ryvarden comb .nov., p. 397.

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Papers are accepted by invitation only.

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1. Introduction

This book is a natural follow up of Neotropical polypores, part one, published in 2004. The general outline is as in that book and the pagination continues from that volume. There will be an Index and a list of references in the end of volume 3, planned to be published in 2016.

Species are described in a standardized manner thus making it easy to compare different species and also to find pertinent information about them. Genera and species are placed alphabetically without regard to relationships as this should make the book easier to use.

It is inevitable that mistakes have crept in and that there may omissions. I will of course be grateful to be informed about such cases and to have suggestions on improvements. The author's addresses are given on page 232.

The distribution of species is, in most cases, given in a general way since the knowledge of the polypores in the Neotropical area is still very fragmentary. In some countries there are rather reliable check lists, while most other countries have no lists or survey at all of their mycological biodiversity.

In this mycota I have tried to include all fungi that would naturally be sought in a manual of polypores although I clearly acknowledge that this is a mixed group of families, with different phylogenetic backgrounds. I have included *Lentinus* since it is clear that they belong in Polyporaceae, (see Ryvarden 1991 for details).

In Corticiaceae (s. lato) there are a restricted number of species with a distinctly poroid hymenophore – their Neotropical representatives are included here. However, there are transitions in some genera (such as *Trechispora* and *Sistotrema*) from a smooth to a poroid hymenophore and notes of doubtful cases regarding the development of pores have been added under each species where appropriate.

For detailed illustrated descriptions of Macromorphology and. Micromorphology, see "Introduction" in vol 1.

Taxonomy

As mentioned briefly in the introduction, we have adopted a somewhat conservative approach to delimitation of genera.

DNA sequencing has shown that some genera, previously assumed to be uniform, include species with different phylogenetic backgrounds. Since this book is a manual for identification of species rather than a scientific study I have kept broadly defined genera like *Phellinus, Inonotus* and *Oligoporus*.

Some genera, such as *Ceriporia*, *Ceriporiopsis* and *Diplomitoporus*, based on resupinate basidiocarps have long been accepted as "dumping" grounds for seemingly related species which were originally assigned to, or described in, these genera based on a common set of characters.

Decay characteristics
For a general description of the decay caused by polypores, see Introduction in Vol 1. Since almost all polypores in the Neotropical zone cause white rot, this is not repeated for each genus. Only with the few genera with brown rot, this is specifically mentioned.

Practical advice for collection and determination of polypores, preservation of specimens, disinfection and practical advice for determination: See our homepage under Introduction.

Host range
Since almost all species are collected on unknown hard woods, this is not repeated for each species. Just for the few species with other specific hosts, these are given.

Register and references
These will be given in the end of vol 3, which we hopefully hope to publish in spring 2016.

2. Key to accepted genera

The following key includes all poroid genera registered in the neotropics. The generic concepts with some minor adjustments, are those of Ryvarden 1991.
Poroid genera of agaricales (such as *poromycena* etc.) And genera of Boletales, are not included. As the key is artificial, some genera are keyed out twice or even three times to cover the whole range of variation within the genus.

Before you start using the key, the following should be done:
1. Make two sections of the tubes, preferably vertical, to give you a good overview of the hymenium and its structure. Place one section in Melzer's reagent, the other one in koh if you use a phase contrast microscope, or in any other mounting medium of preference. Observe reactions if any, in Melzer's reagent and see if cystidia are present in the hymenium.
2. Measure basidiospores and observe septation of generative hyphae.
3. Try to elucidate the hyphal system by also taking a small part of the context and squash it as best as you can.

Key to families or groups

1. Spore wall double, endospore ornamented and yellow to brown, exospore smooth and hyaline ..... **Ganodermataceae** see vol 1 (Synopsis fung. Vol. 19)
1. Spore wall simple or double without ornamentation **2**

2. Hymenophore in shape of individual free tubes, but densely packed ..... **Fistulina**
2. Hymenophore different as coherent pores, lamellae or labyrinthine 3

3. Basidiocarp brown, becoming black with koh, generative hyphae with simple septa, acute setae absent or present, cystidia never present ..... **Hymenochaetaceae** see vol 1 (synopsis fung. 19)

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

Condensed Key to polyporaceae and poroid genera of other families

1. Basidiocarp more or less centrally stipitate (all species with numerous pilei from a common base belong here) ..... **Key A**
1. Basidiocarp resupinate to pileate, sometimes dimidiate or 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. Basidiospores ornamented ..... **Key C**
3. Basidiospores smooth **4**

4. Basidiospores, cystidia or hyphae amyloid or dextrinoid ..... **Key D**
4. No amyloid or dextrinoid reaction in basidiospores, 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 red 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 from hymenium or context **8**

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

Key A - Basidiocarps stipitate

1. Basidiospores ornamented **2**
1. Basidiospores smooth **5**

2. Basidiospores dextrinoid ..... **Diachantodes**
2. Basidiospores amyloid or without reaction in Melzers reagent **3**

3. Basidiospores hyaline and amyloid 4
3. Basidiospores pale yellowish brown, non amyloid ..... **Boletopsis**

4. Basidiospores coarsely crested, 5-8 µm in diameter ..... **Bondarzewia**
4. Basidiospores finely asperulate, 4-5 µm in diameter ..... **Amylosporus**

5. Generative hyphae with simple septa (species with both clamps and simple septa Key out here) **6**
5. Generative hyphae with clamps **10**

6. Basidiocarps yellowish brown pores angular or individual as separate tubes 7
6. Basidiocarp differently coloured, pores round, 3-6 per mm, ... 8

7. Pores coherent and angular 1-3 per mm, gloeocystidia projecting above the hymenium ..... **Phaeolus**
7. Pores as individual tubes (lens) gloeocystidia absent ..... **Fistulina**

8. Hyphal system monomitic, species with white rot **9**
8. Hyphal system dimitic, species with brown rot ..... **Laetiporus**

9. Basidiocarp large and with numerous fan shaped pilei from a common base, basidiospores 4.5-6 µm in diameter ..... **Meripilus**
9. Basidiocarp up to 10 cm in diameter with thin and pliable pilei, basidiospores less than 4.5 µm in diameter ..... **Hydnopolyporus**

10. Basidiocarp with many pilei from a common base ..... **Grifola**
10. Basidiocarp with a single pileus or a few fused or lobed **11**

11. Hymenophore lamellate **12**
11. Hymenophore poroid **14**

12. Basidiocarp fleshy, hyphal system monomitic ..... **Pleurotus** (not treated here)
12. Basidiocarp tough, hyphal system dimitic **13**

13. Vegetative hyphae hyaline, context white to cream ..... **Lentinus**
13. Vegetative hyphae and context brown ..... **Gloeophyllum erubescens**

14. Basidiospores with double wall ..... **Polyporoletus**
14. Basidiospores with simple wall 15

15. Hyphal system di- or trimitic, basidiocarps tough when fresh **16**
15. Hyphal system monomitic, basidiocarps normally fleshy and soft when fresh ..... **Abortiporus**

16. Arboriform binding hyphae present, basidiospores cylindrical ..... **Polyporus**
16. Skeletal hyphae present, basidiospores subglobose **17**

17. Skeletal hyphae dextrinoid ..... **Microporellus**
17. Skeletal hyphae non dextrinoid ..... **Flabellophora**

Key B - Basidiocarps sessile to resupinate, hymenophore hydnoid, lamellate, daedaleoid to sinuous.

1. Context dark sepia brown to black **2**
1. Context differently coloured **3**

2. Hymenophore dark sepia brown to whitish farinose, often with a greenish tinge, mostly labyrinthine to hydnoid, dendrohyphidia present, basidiocarps mostly resupinate ..... **Fuscocerrena**
2. Hymenophore black and hydnoid, dendrohyphidia absent, basidiocarps pileate ..... **Nigrohydnum**

3. Context rusty or yellowish brown ..... **Gloeophyllum**
3. Context differently coloured **4**

4. Context wood-coloured to pale umber brown, pileus present ..... **Daedalea**
4. Context white to ochraceous, pileate to resupinate **5**

5. Generative hyphae with simple septa **6**
5. Generative hyphae with clamps 7

6. Basidiocarp white to cream, no change with KOH ..... **Irpex**
6. Basidiocarp cinnamon-yellow, red with KOH ..... **Flavodon**

7. Hymenophore concentrically lamellate ..... **Lamelloporus**
7. Hymenophore different **8**

8. Hymenophore hydnoid 9
8. Hymenophore different 11

9. Basidiocarps perennial and hard, skeletal hyphae bend into hymenium as cystidia ..... **Daedalea**
9. Basidiocarps annual and flexible, no skeletal hyphae bend into the hymenium 10

10. Basidiocarps pileate, pileus dark brown, black line between context and tomentum ..... **Cerrena gilbertsonii**
10. Basidiocarps resupinate to pileate, no black line present in context ..... **Spongipellis pachydon**

11. Basidiocarps resupinate ..... **Schizopora**
11. Basidiocarps pileate 12

12. Pileus hirsute, hymenophore lamellate, sword-like hyphal endings numerous in the hymenium ..... **Trametes** subgenus *Lenzites*
12. Pileus villose to smooth, hymenophore lamellate, daedaleoid to hydnoid, sword-like hyphal endings absent from hymenium **13**

13. Pore surface vivid brownish to violet when fresh, fading to pale brown when old and dry, encrusted cystidia present in hymenium ..... **Trichaptum**
13. Pore surface white to greyish, encrusted cystidia absent from hymenium **14**

14. Pileus hirsute to velutinate and with a thin black zone between tomentum and context **15**
14. Pileus smooth and glabrous, no black zone in context **16**

15. Pileus brown, gloeocystidia present in hymenium ..... **Cerrena cystidiata**
15. Pileus white to ochraceous, gloeocystidia absent ..... **Trametes**

16. Basidiocarp effused-reflexed with slightly sinuous pores, pileus white to ochraceous with reddish cuticle spreading from the base ..... **Earliella**
16. Basidiocarp pileate, usually fanshaped to dimidiate, hymenophore very variable from sinuous, daedaleoid to lamellate, pileus white to ochraceous, no red cuticle from the base ..... **Trametes**

Key C - Basidiocarps sessile to resupinate, hymenophore poroid, basidiospores ornamented.

1. Basidiospores amyloid **2**
1. Basidiospores non-amyloid **4**

2. Basidiocarp green to bluish, resupinate, basidiospores bluish both in Melzer's reagent and KOH ..... **Amaurodon aerginascens**
2. Basidiocarp different, basidiospores negative in KOH, violet to bluish grey in Melzer's reagent..... **3**

3. On wood, skeletal hyphae more or less dextrinoid. ..... **Wrightoporia**
3. On the ground, skeletal hyphae non-dextrinoid ..... **Amylosporus**

4. Basidiospores oblong to ellipsoid, striate, longer than 8 µm..... **Pachykytospora**
4. Basidiospores globose on broadly ellipsoid, shorter than 8 µm **5**

5. Skeletal hyphae dextrinoid..... **Murrilloporus**
5. Skeletal hyphae absent..... **6**

6. Basidiospores asperulate, less than 5 µm in diameter ..... **Trechispora**
6. Basidiospores crested, larger than 5 µm in diameter..... **Lindtneria**

Key D
Basidiocarps sessile to resupinate, hymenophore poroid, basidiospores amyloid or dextrinoid, skeletal hyphae dextrinoid or without reaction in Melzer's reagent.

1. Basidiospores amyloid, hyphae non amyloid **2**
1. Basidiospores and or hyphae dextrinoid **5**

2. Basidiospores smooth, hyphal system monomitic 3
2. Basidiospores very finely ornamented or smooth, vegetative hyphae present **4**

3. Basidiocarps resupinate ..... **Anomoporia**
3. Basidiocarps pileate ..... **Panellus pusillus**

4. Basidiocarp resupinate and on wood, skeletal hyphae dextrinoid ..... **Wrightoporia**
4. Basidiocarp pileate, mostly on the ground, skeletal hyphae non-dextrinoid ..... **Amylosporus**

5. Basidiospores to pale yellow to brown by maturity..... **Abundisporus 6**
5. Basidiospores hyaline **7**

6. Basidiospores thick-walled, longer than 15 µm, basidiocarps resupinate, hyphal pegs abundantly present ..... **Grammothelopsis**
6. Basidiospores thin- to thick-walled, shorter than 15 µm, basidiocarps resupinate to pileate, hyphal pegs rarely present..... **7**

7. Basidiospores usually distinctly thick-walled, truncate to ellipsoid and with a variable dextrinoid reaction ..... **Perenniporia**
7. Basidiospores thin-walled, non- dextrinoid, vegetative hyphae more or less dextrinoid. **8**

8. Dendrohyphidia present, skeletal hyphae dextrinoid, in bundles or evenly distributed, pores very shallow, hymenium also lining the pore bottom ..... **Grammothele**
8. Dendrohyphidia absent, pores normally developed..... 9

9. Skeletal hyphae dextrinoid..... **Dichomitus**
9. Skeletal hyphae absent, arboriform hyphae weakly dextrinoid ..... **Rubroporus**

Key E -Basidiocarps sessile to effused reflexed, hymenophore poroid, basidiospores smooth and without reaction in Melzer's reagent, generative hyphae with simple septa.

1. Basidiocarp sulphurous yellow or purplish black..... **2**
1. Basidiocarp differently coloured..... **4**

2. Basidiocarp sulphurous yellow and soft ..... **Laetiporus**
2. Basidiocarp purplish black **3**

3. Basidiocarps perennial and woody hard, basidiospores ellipsoid..... **Nigrofomes**
3. Basidiocarp annual, soft, basidiospores cylindrical..... **Melanoporella**

4. Cystidia present, either in hymenium and/or trama..... **5**
4. Cystidia absent **6**

5. Basidiocarps pileate to resupinate, pore surface vivid orange red or pinkish fading to reddish brown or beige, ochraceous or greyish black, cystidia clavate, mammillate small, smooth cystidia usually present ..... **Rigidoporus**
5. Pore surface white to pale ochraceous, more or less unchanged when dry, mammillate cystidia absent..... **Oxyporus**

6. Hyphal system dimitic, hyphae often inflated to 20 µm **7**
6. Hyphal system monomitic, hyphae usually less than 8 µm wide..... **8**

7. Skeletal hyphae present, basidiospores oblong ellipsoid..... **Wolfiporia**
7. Binding hyphae present, basidiospores globose ..... **Macrohyporia**

8. Basidiospores allantoid, cylindrical to oblong ellipsoid **9**
8. Basidiospores globose to subglobose **10**

9. Basidiocarp white, cream to beige, or pink ..... **Ceriporia**
9. Basidiocarp reddish to purplish at least when dry ..... **Gloeoporus**

10. Basidiocarp pileate to resupinate, whitish, ochraceous or reddish to beige or greyish blackish, coriaceous to hard when dry, basal hyphae thick-walled, simulating skeletal hyphae **11**
10. Basidiocarp resupinate, white to cream, sometimes changing to reddish or blackish when dried or touched, soft and fragile when dry, basal hyphae thin-walled .... **Physisporinus**

11. Basidiocarp pileate, spatulate, white, becoming black when dry .....**Henningsia**
11. Basidiocarps pileate to resupinate, reddish to ochracous, paling when dry.**Rigidoporus**

Key F - Basidiocarps sessile to effused reflexed, hymenophore poroid, basidiospores smooth and without reaction in Melzer's reagent, generative hyphae with clamps, tubes and context black, deep brown, orange or cinnabar red.

1. Tubes and context orange, brick to cinnabar red **2**
1. Tubes and context brown to purplish black **6**

2. Basidiocarp perennial and often ungulate, tubes and context brick red, basidiospores truncate and thick-walled ..... **Pyrofomes**
2. Basidiocarp annual, substipitate, effused reflexed to resupinate, tubes and context orange to cinnabar red **3**

3. Basidiospores allantoid, less that 1µm wide, usually with black lines in context, basidiocarps resupinate to pileate ..... **Piloporia**
3. Basidiospores cylindrical to ellipsoid, wider than 1 µm, no black lines in context, basidiocarps pileate **4**

4. Basidiocarps fleshy, gelatinous to jelly like when fresh, cystidia embedded in trama .... **Aurantiopileus**
4. Basidiocarps sappy to tough when fresh, cystidia absent 5

5. Basidiocarp sappy, orange to red when fresh, hyphal system monomitic ... **Hapalopilus**
5. Basidiocarp tough, cinnabar red, hyphal system trimitic ..... **Pycnoporus**

6. Basidiocarp resupinate, pore surface bluish to black, pores very shallow, 8-20 per mm, almost invisible, reddish zone in substrate ..... **Porogramme**
6. Basidiocarp pendant, sessile or resupinate, tubes longer than 1 mm deep, pores less than 10 per mm, no red zone in the substrate **7**

7. Basidiocarp small, pendant, rarely above 5 mm wide ..... **Porodisculus**
7. Basidiocarp larger, sessile to resupinate **8**

8. Basidiospores thick-walled and pale yellowish brown ..... **Abundisporus**
8. Basidiospores thin-walled to slightly thick-walled and hyaline **9**

9. Basidiocarp perennial, applanate to ungulate, very hard, smooth with a crust in grey to brown colours, mycelial core present at base of context ..... **Fomes**
9. Basidiocarp annual to biannual, soft to tough, applanate to resupinate, normally no hard crust present on pileus, no mycelial core present in context **10**

10. Pore surface and context dark violet to purplish black. ..... **Nigroporus**
10. Pore surface and context brown **11**

11. Basidiocarp fleshy and sappy when fresh, hyphal system monomitic, although some sklerified clamped hyphae may occur ..... **Hapalopilus**
11. Basidiocarp though to hard when fresh, hyphal system di- to trimitic **12**

12. Basidiocarp soft, flexible and cinnamon brown, basidiospores navicular to boat shaped and with distinct thickened walls ..... **Navisporus**
12. Basidiocarp tough to hard, dark tobacco brown to cinnamon, basidiospores cylindrical and thin-walled..... **13**

13. Context dark umber brown and separated from persistent or transient tomentum by a black zone, which by age may become a thin black cuticle, basidiocarps effused reflexed or pileate binding hyphae usually rare or absent, basidiospores usually shorter than 12 µm ..... **Datronia**

13. Context mostly in shades of rusty to umber brown, tomentum if present, often villose to strigose, not separated from context by black zone, if pileus smooth, then grey to pale brown, binding hyphae common in context, basidiospores longer than12 µm **14**

14. Causing a brown rot, pileus either smooth, tomentose or scrupose- warted pores often irregular ..... **Gloeophyllum**
14. Causing a white rot, pileus consistently villose to velutinate, pores regular round to angular **15**

15. Pileus velutinate or with black, often forked villose hairs, pores large to medium, rarely small ..... **Hexagonia**
15. Pileus velutinate to hirsute in brownish to greyish colours, pores small to medium **Trametes** subgenus ..... **Coriolopsis**

Key G - Basidiocarps sessile to resupinate, hymenophore poroid, basidiospores smooth, generative hyphae with clamps, context and tubes light-coloured, cystidia present in hymenium or trama.

1. Branched brown setigerous cystidia present in hymenium and or on the pileus .... **Echinochaete**
1. Cystidia hyaline and unbranched **2**

2. Hyphal system monomitic, pore surface white to discoloured sordid ochraceous when dry **3**
2. Hyphal system dimitic with skeletal hyphae, pore surface pinkish, cocoa-coloured, yellow to pale brown or violet **4**

3. Cystidia pointed, thin-walled and smooth, basidiospores cylindrical 10-12 µm long, sterigmata tubular up to 10 µm long and 5 µm wide, hyphae strongly twisted. **Ceratoporia**
3. Cystidia clavate to ventricose, apically encrusted and thick-walled, basidiospores cylindrical to allantoid, shorter than 10 µm, sterigmata pointed, rarely above 5 µm long and 1.2 µm wide, hyphae more or less straight ..... **Oligoporus**

4. Pore surface with violet tinges when fresh, fading to brown, grey to almost black, basidiospores cylindrical, longer than 7 µm ..... **Trichaptum**
4. Pore surface, pore surface cocoa-brown, pinkish to yellow, basidiospores shorter than 7 µm **5**

5. Basidiocarps pileate, pileus with distinct yellow colours, cystidia ventricose, causing brown rot, very rare genus ..... **Auriporia**
5. Basidiocarps mostly resupinate, pileus when present whitish to ochraceous or pale yellowish brown, cystidia arising from skeletal hyphae, causing white rot, common genus ..... **Junghuhnia**

Key H - Basidiocarps sessile to resupinate, hymenophore poroid, basidiospores smooth, generative hyphae with clamps, tubes and context light-coloured, cystidia absent from context and trama, hyphal system monomitic

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

2. Pores pale pink to deep reddish, dense and gelatinous, hymenium continuous over the pore-mouths, context white and cottony ..... **Gloeoporus**
2. Pores differently coloured, hymenophore not gelatinous, dissepiments normally sterile, context more or less of same colour as tubes 3

3. Basidiocarp resupinate, causing a white rot 4
3. Basidiocarp resupinate to pileate, causing a brown rot ..... **Oligoporus**

4. Basidiospores subglobose, 5-6 µm in longest dimension ..... **Obba**
4. Basidiospores differently shaped or smaller ..... **Ceriporiopsis**

5. Basidiospores drop-shaped to globose, thick-walled ..... **Spongipellis**
5. Basidiospores differently shaped, thin-walled **6**

6. Tube layer buff, grey to blackish, context white, in one species separated from tubes by a thin dark zone with a white rot ..... **Bjerkandera**
6. Tubes and context more or less of same colour, or tubes at least not grey to almost black and no distinct dense zone between context and tubes **7**

7. Basidiocarps yellow, pores 0.2.-2 mm wide, basidiospores yellow, thick walled .... **Serpula**
7. Basidiocarps differently coloured, pores 2 per mm or smaller, basidiospores hyaline and thin walled 8

8. Basidiocarps effused reflexed, distinctly monomitic without thickened hyphae, causing brown rot ..... **Oligoporus**
8. Basidiocarps distinctly pileate, thickened hyphae present which may interpreted as skeletal, causing white rot ..... **Tyromyces**

Key I - Basidiocarps sessile to resupinate, hymenophore poroid, basidiospores smooth, generative hyphae with clamps, cystidia absent from hymenium and trama, tubes and context light-coloured, hyphal system di- to trimitic

1. Basidiocarps resupinate, pores shallow with hymenium also in the bottoms, dendrohyphidia present, at least in the dissepiments ..... **Grammothele**
1. Basidiocarps pileate to resupinate, pores at least 1 mm deep and without hymenium in the bottoms, dendrohyphidia absent **2**

2. Basidiospores truncate to broadly ellipsoid, thick-walled ..... **Perenniporia**
2. Basidiospores allantoid to ellipsoid, thin-walled **3**

3. Basidiocarp mostly effused reflexed, thin and pliable and with a reddish cuticle spreading from the base, pores often slightly sinuous, at least in parts of the pore surface . ..... **Earliella**
3. Basidiocarp without the combination of a reddish cuticle and a flexible and pliable consistency **4**

4. Pileus covered with an entangled mass of hairs from which oblong conidiospores are developed ..... **Echinopora**
4. Pileus glabrous to hispid and without conidiospores **5**

5. Dendroid/arboriform binding hyphae present, skeletal hyphae absent **6**
5. Dendroid/arboriform binding hyphae absent, skeletal hyphae present, short, branched tortuous binding hyphae present or absent **8**

6. Basidiocarp resupinate to effused reflexed ..... **Dichomitus**
6. Basidiocarp pileate, fan shaped to dimidiate with a contracted base 7

7. Basidiocarps fleshy and red, arboriform hyphae slightly dextrinoid ..... **Rubriporus**
7. Basidiocarps differently coloured and tough, arboriform hyphae non dextrinoid ..... **Polyporus**

8. Basidiocarp pinkish-buff, substrate with a distinct red zone ..... **Tinctoporellus**
8. Basidiocarp white, cream to sordid, unevenly brown, tubes rarely reddish and then context white, no red zone in the substrate **9**

9. Basidiocarp pileate, sessile to dimidiate, woody hard to tough, pileus glabrous, with or without a distinct crust, often spreading from the base in reddish or black colours, or hirsute to tomentose, often with a black line between tomentum and context, all perennial species belong here **10**
9. Basidiocarp resupinate to effused-reflexed or pileate and then with a narrow pileus, pileus glabrous to velutinate, never with a crust or black line under tomentum, all species annual **13**

10. 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 ..... **Tyromyces**
10. Basidiocarp woody hard to tough, pileus glabrous to hirsute, white, yellowish to sordid brown or black to reddish because of cuticle spreading from the base, perennial or annual, but long lived, binding hyphae present, but may be difficult to observe in some species, skeletal hyphae totally dominating in the context **11**

11. Basidiocarp tough to hard, pileus white, greyish, sordid brown or blackish when dry, glabrous to hirsute, in some species with a black line between the tomentum and the context, annual species but long lived in the season, white rot ..... **Trametes**
11. Basidiocarp mostly woody hard to very tough, pileus white, sordid brown to black or reddish, sometimes with a cuticle spreading from the base, glabrous to finely velutinate, tomentum as such absent, perennial or annual, brown or white rot **12**

12. Context mostly pale olivaceous brown, often duplex with a stronger colour in the lower part, pileus ochraceous to pale olivaceous brown, often with a reddish cuticle spreading from the base, causing a white rot ..... **Fomitella supina**
12. Context white to pale woody brown, pileus whitish to sordid, black or reddish when cuticle is present, causing a brown rot ..... **Fomitopsis**

13. Skeletal hyphae in the dissepiments finely encrusted, species with a pale orange pore surface belong here ..... **Skeletocutis**
13. Skeletal hyphae mostly smooth, occasionally with scattered large crystals **14**

14. Skeletal hyphae with a wide lumen, totally dominating, generative hyphae often very difficult to find, basidia longitudinally septate, pore surface often discoloured pale brown when dry ..... **Protomerulius**
14. Skeletal hyphae thick-walled to solid, generative hyphae normally easily observed, basidia not septate, pore surface variable, many common species **15**

15. Causing a brown rot ..... **Antrodia**
15. Causing a white rot **16**

16. Basidiospores ellipsoid, rarely above 4 µm long, basidiocarps often semitranslucent, whitish when fresh, becoming dense and pale straw coloured when dry, basidiocarps pileate to resupinate ..... **Antrodiella**
16. Basidiospores ellipsoid to allantoid, mostly longer than 4 µm long, basidiocarps white to greyish and resupinate 17

17. Skeletal hyphae more or less unchanged in KOH ..... **Diplomitoporus**
17. Skeletal hyphae gelatinized and swollen with irregular outline in KOH.. **Cinereomyces**

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 ellipsoid, 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 thick-walled 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. Pores angular, daedaleoid to irregular, 1-3 per mm ..... **A. biennis**
1. Pores angular to round, 4-10 per mm **2**

2. Basidiospores ellipsoid to subglobose, chlamydospores absent, pores 4-5 per mm .... **A. fractipes**
2. Basidiospores globose, chlamydospores present, pores 8-10 per mm..... **A. chocoensis**

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, margin concolorous; 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 soft-fibrous, light buff, the lower part firm-corky, cream-coloured, 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, thin-walled, rarely branched, 3-5.5 µm in diam; some hyphae with very few clamps and difficult to separate from skeletal hyphae proper, hyphae of lower corky context more variable, some thick-walled, with rare clamps, rarely branched, 2.5-4 µm in diam, some thick-walled often branched, with frequent clamps, 2-3 µm in diam; others thin-walled, much branched, with abundant clamps, 2.5-5 µm in diam; tramal hyphae similar to those of lower context.

Gloeocystidia infrequent to abundant, highly refractive in Melzer's reagent, irregular in shape, broadly clavate to cylindrical with swellings and constrictions, not encrusted, 7.5-8.5 µm in diam, up to 75 µm long.
Basidia 23-35 x 5-6.5 µm, clavate, tetrasterigmatic, with a basal clamp.
Basidiospores 4-6.5 x 3.5-5 µm, broadly ellipsoid to ovoid.
Chlamydospores 7-10 µm in diam, hyaline, smooth, subglobose, present in context.
Substrate. 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. A much distorted form of this species has no apparent orientation of tubes and may appear poroid over its entire surface. This form has been called *Polyporus biennis* var. *distortus* (Schw.) Graff and is often completely anamorphic and filled with chlamydospores.

Abortiporus chocoensis Læssøe & Ryvarden,
Synopsis Fung. 27:38, 2010.
Basidiocarps annual, often fasciculate but may be solitary, laterally stipitate and spatulate with a thin straight margin, occasionally with several small pilei on the upper part of the stipe, 1-4 cm wide, 1-5 mm thick, soft but fairly tough when fresh, brittle when dry; upper surface ochraceous to very pale cinnamon (in living condition cinnamon buff to yellowish brown), soft and finely adpressed velvety, in parts glabrous, appearing glabrous in living condition; stipe concolorous with the pileus surface or slightly darker and more uniform, up to 6 cm long in largest specimen (15-60 x 4-8 mm in living condition), flattened and expanded towards the pileus, below ground branched to support several pilei; pore surface white, pores 10-12 per mm, round, minute and invisible to the naked eye, slightly decurrent onto the stipe and sharply delimited toward the smooth and glabrous stipe; tubes white, about 1-1.5mm long; context in pileus and stipe white and duplex with a hard inner or lower white layer, upper or outer part ochraceous and of a much looser texture. Lacking significant smell in living and dead condition.
Hyphal system monomitic; hyphae 4-7 µm wide with clamps, in the subhymenium and trama thin-walled, in the context and especially the stipe much more thick-walled and reminiscent of skeletal hyphae, but with scattered septa and large clamps.
Cystidia not seen.
Basidia 16-20 x 6-10 µm, broadly clavate, tetrasterigmatic, with a basal clamp.
Basidiospores 4.5-6 µm, globose, smooth, hyaline, slightly thick-walled, negative in Melzer's reagent.
Chlamydospores present, 8-10 µm, globose, thick-walled, negative in Melzer's reagent.
Substrate. On hardwoods or roots from such trees.
Distribution. Known only from the type locality in Ecuador.
Remarks. Close to *Abortiporus fractipes*, but separated by the much smaller pores, and presence of chlamydospores, which to my knowledge have never been seen in *A. fractipes*. The duplex context is a common character for both species and should make it possible to identify them in the field.

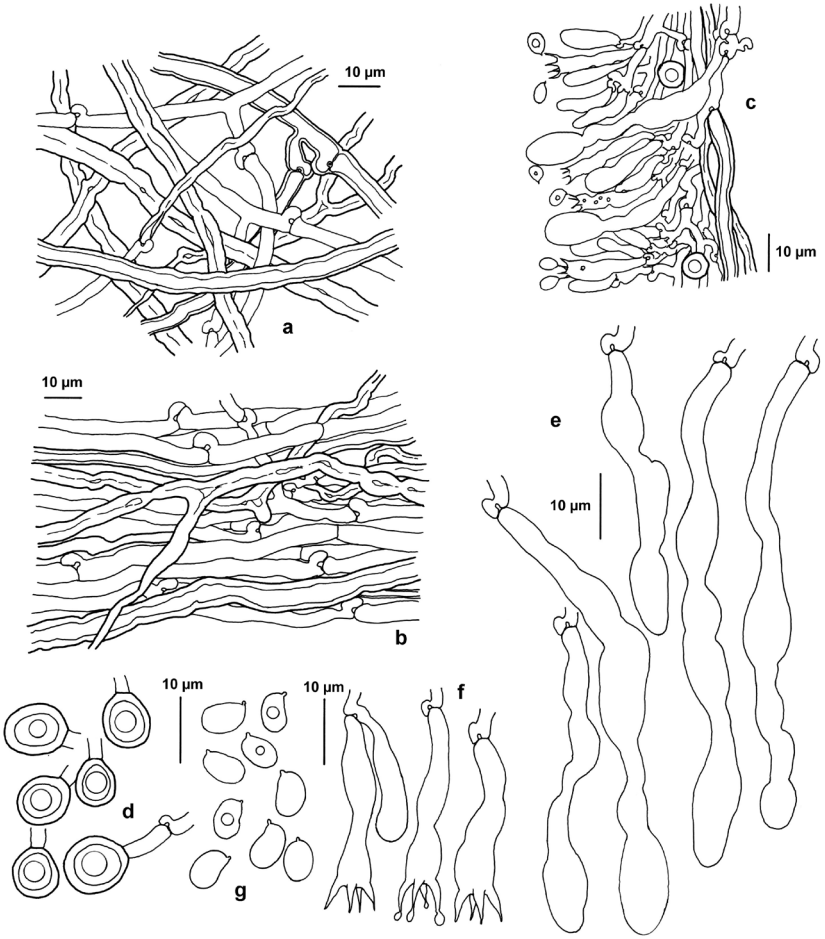

Fig 1. *Abortiporus biennis* (Melo 5721, LISU 170718). a, hyphae from upper context; b, hyphae from lower context; c, section through hymenium; d, chlamydospores; e, gloeocystidia; f, basidia; g, basidiospores. Del. I. Melo.

Abortiporus fractipes (Berk. & M.A. Curtis) Bondartsev,
in Komarova, Notul. Syst. Sect. cryptg. Inst. bot.. Acad. Sci. S.S.S.R. 12: 251, 1959. - *Polyporus fractipes* Berk. & M.A. Curtis, Grevillea 1: 39, 1872.
Basidiocarps highly variable, centrally to laterally stipitate, dimidiate with fan shaped to reniform pilei or almost effused-reflexed, 1-4 cm wide, 1-5 mm thick, soft when fresh, brittle when dry; upper surface white when fresh, with age and drying ochraceous to straw coloured, at first finely tomentose, with age more adpressed and semi glabrous, often somewhat wrinkled, usually azonate; stipe when present white to ochraceous, up to 4 cm long, cylindrical to flattened and expanded towards the pileus; pore surface white to cream, pores angular, 4-5 per mm, often decurrent on the stipe, but sharply delimited; context in pileus and stipe white and duplex with a hard inner or lower layer covered with a much looser layer which may be agglutinated on the surface with age; tube layer concolorous, up to 3 mm thick.
Hyphal system monomitic; generative hyphae with clamps, in the subhymenium and trama thin walled, 3-5 µm in diam, in the context and especially the stipe much more thick-walled and reminiscent of skeletal hyphae, but with scattered clamps, and we interpret these hyphae as sclerified generative hyphae; also in the trama are some hyphae with contorted or lobed apices.
Cystidia 15-25 x 5-6.5 µm, variably present, often difficult to observe, mostly close to the dissepiments, ventricose to cylindrical, thin walled.
Basidia 15-20 x 6-9 µm, broadly clavate, tetrasterigmatic, with a basal clamp.
Basidiospores 4.5-6 x 4-5 µm, broadly ellipsoid or ovoid to subglobose, slightly thick-walled, smooth, hyaline, negative in Melzer's reagent.
Substrate. On dead hardwoods, often from buried wood or roots.
Distribution. A rare species, in the neotropics we have only seen a specimen from Jamaica. Widespread in North America and Europe.
Remarks. The small irregular stipitate basidiocarps with a duplex context and the slightly thick walled spores characterize the species. It must be very rare.

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 tri-dimitic, generative hyphae with clamps, skeletal hyphae yellow to brown, binding hyphae present or absent, cystidia none, spores abundantly present, thin to thick-walled, pale yellow, ellipsoid to truncate and variably dextrinoid.
Type species: *Polyporus fuscopurpureus* Pers.
Remarks. The genus is characterized by a deep brown, slightly purplish colour throughout the basidiocarps, a di- to trimitic hyphal system and presence of very abundant, small yellow basidiospores and a lack of any sterile organs in the hymenium.

Key to species

1. Pores 7-9 per mm, spores 3.8-5 x 2.2-3.2 µm, pileus umber to vinaceous brown..... .....**A. subflexibilis**
1. Pores 3-4 per mm, spores 5-6.5 × 2.5-3.7 µm, pileus pale brown with violet tinges ....**A. violaceus**

Abundisporus subflexibilis (Berk. & M. A. Curtis) Parmasto,
Karstenia 40:134, 2000. - *Polyporus subflexibilis* Berk. & M. A. Curtis, J. Linn. Soc. Bot. 10:311, 1868.
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, 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 um 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, 7-9 per mm, tubes concolorous with the pore surface or darker, often stratified, 1-3 mm in each stratum, totally 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 um wide, skeletal hyphae thick-walled, mostly 3-6 um wide, but in the context some hyphae up to 10 um wide, pale yellow to fuscous brown, straight, but also some hyphae with moderate branching.
Cystidia none.
Basidia 15-20 x 4-6 um tetrasterigmatic.
Basidiospores 3.8-5 x 2.2-3.2 µm, ellipsoid to slightly angular, often with one side flattened pale yellowish, thick-walled and slightly dextrinoid with age.
Distribution Neotropical species specimens have been seen from Brazil, Cuba, Costa Rica, French Guyana and Venezuela.
Remarks. The species may in the field easily be taken for a *Phellinus* species, but in a microscopical examination the clamped generative hyphae and the very abundant, weakly yellowish spores rule out that genus.
The species is macroscopically almost identical with *A. fuscoviolaceus,* which however, is a paleotropical species with shorter spores. Previous reports of this species from the neotropics refer to *A. subflexibilis*.

Abundisporus violaceus (Wakef.) Ryvarden,
Belg. J. Bot. 131: 154, 1999. - *Polystictus violaceus* Wakef., Bull. Misc. Inf., Kew: 1916: 72.
Basidiocarps perennial, pileate, broadly attached, semicircular solitary, 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 the 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.
Cystidia absent.
Basidia not observed**.**
Basidiospores 5-6.5 × 2.5-3.7 µm, abundant, ellipsoid, hyaline to pale yellowish, thick-walled, smooth, non-amyloid,.
Distribution. In America known only from Brazil. Widespread in Central Africa, Originally described from South Africa.
Remarks. The species is characterized by pale ochraceous to violet basidiocarps. The thin-walled, angular pores mostly (2)3-4(5) per mm, are larger than those of *A. subflexibilis.*

Amaurodon Schroet.,

Kryptog. Flora Schlesien 3:461, 1889.
Basidiocarps resupinate, green to bluish, smooth, tuberculate or hydnoid, hyphal system monomitic, generative hyphae with simple septa, bluish in KOH and Melzer's solution, cystidia absent, spores ornamented, rugulose to warted, pale brown. On hard woods. One poroid representative species in tropical America.
Type species: *Sistotrema viride* Alb. & Schwein. = *Amaurodon viridis* (Alb. & Schwein.) Schroet.
Remarks. The genus belongs in Thelephoraceae because of its ornamented spores and presence of thelephoric acid. The species described below is a striking species and must be rather rare since it has not, to my knowledge, been collected after the type collection.

Amaurodon aerginascens (Hjortst. & Ryvarden) Kõljalg & K.H. Larss**.**, Fig. 2
Synopsis Fung. 9:33, 1996. – *Tomentellago aerginascens* Hjortst. & Ryvarden, Mycotaxon 31:40, 1988. .
Basidiocarp annual, resupinate, adnate, soft when fresh, fragile when dry, pore surface bluish green when fresh, fading to more greenish, pores angular, irregular, 0.25-1 mm wide and up to 2 mm deep, context concolorous or somewhat paler, very thin.
Hyphal system monomitic, generative hyphae with simple septa, thin-walled to slightly thick walled, 3-5 µm wide, become bluish in KOH.
Basidia 20-30 x 5-6 µm, tetrasterigmatic, somewhat sinuous to almost stalked.
Cystidia none.
Basidiospores 6-7 x 4.5-5 µm, subglobose to broadly ellipsoid, verrucose, thick walled, hyaline to pale brown in water, bluish in KOH and Melzers reagent.
Distribution. Known only from the type locality in Parque Nacional Tayrona, Magdalena province, Colombia.
Remarks. This is a very striking species because of the bluish green poroid basidiocarps. It cannot be confused with any other species. *A. viridis*, a more common species with almost the same colour, is distinctly hydnoid.

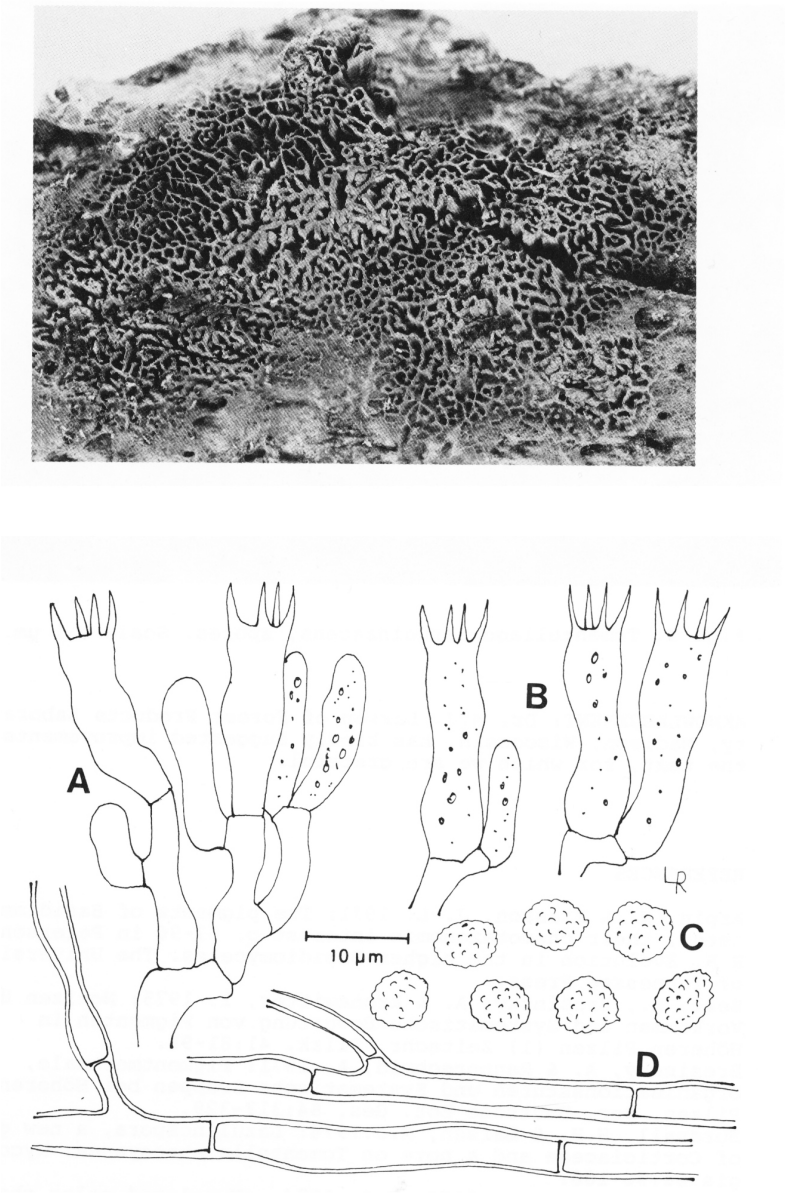

Fig. 2. *Amaurodon aerginascens* Above – picture of the holotype A) part of hymenium B) basidia, C) spores, D) hyphae from the subiculum. From the holotype.

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 ellipsoid, 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. Gloeopleurous hyphae are also quite rare among the stipitate genera. The spores are finely warted and not like those of *Bondarzewia*, which has a coarse reticulate ornamentation. *Bondarzewia* is otherwise the most closely related genus, and both genera belong in the *Hericium* clade. The genus is monotypic.

Amylosporus campbellii (Berk.) Ryvarden,
Norw. J. Bot. 24:217, 1977 - *Polyporus campbellii* Berk. Hook. J. Bot. 6:228, 1854. - *Tyromyces graminicola* Murrill, Tropical polypores p. 21, 1915. - *Polyporus propinquus* Lloyd, Lloyd Mycol. Writ. 7:1109, 1922. - *Scutiger tisdalei* Murrill, Lloydia 6:227, 1943.
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, 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, uneven, slightly undulating with furrows and rounded low protuberances and elongated ridges, margin sharp and partly reflexed, stipe short to almost absent, usually tapering to a root-like 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, 2-4 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 thin-walled 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, thick-walled, 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, mostly 3-5 µm wide.
Gloeopleurous hyphae mostly confined to the context, almost hyaline to yellowish with an oily to granular content, 6-14 µm wide, thin-walled or with distinctly thickened walls,

long segments without septation, simple septate or with large clamps which however can be difficult to find, these hyphae must be interpreted as specialized generative hyphae.
Basidia 14-22 x, 4-6 µm, tetrasterigmatic.
Cystidia none.
Basidiospores 4-5 x 2.5-4 µm, broadly ellipsoid to ovoid, thin-walled, in light microscope appearing smooth or with very fine warts (observe in cotton blue or Melzer's), slightly to strongly amyloid.
Substrate. On the ground in grassland, probably a grass-parasite.
Distribution. Widespread in the subtropics and tropics. In America known from USA, Jamaica, Bermuda, West Indies, Brazil and Venezuela.
Remarks. The whitish to ochraceous basidiocarps growing in grassland, 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 larger irregular pores.

Anomoporia Pouzar.

Ceska Mykol. 20:172, 1966.
Basidiocarps annual, resupinate, loosely attached, soft to brittle, margin with or without rhizomorphs; hymenophore poroid to hydnoid, grey to pale violet, white or yellow; hyphal system monomitic; generative hyphae with clamps; cystidia none; spores ellipsoid, smooth, thin-walled and amyloid. On dead conifers and hardwoods, causing a brown rot.
Type species: *Polyporus bombycinus* Fr.
Remarks. The characters of *Anomoporia* are similar to those of *Amylocorticium* in the Corticiaceae, with the exception of the poroid hymenophore. Both genera have soft, pigmented tissue with a monomitic hyphal system and clamps at the generative hyphae. Species of *Wrightoporia* also have amyloid spores, but this genus has a dimitic hyphal system, mostly with dextrinoid skeletal hyphae.

Key to species:

1. Hymenophore poroid 2
1. Hymenophore first semi poroid, soon hydnoid, no rhizomorphs ..... **A. dumontii**

2. Pores 2-4 per mm, rhizomorphs present ..... **Anomoloma myceliosa**
2. Pores 5-8 per mm, rhizomorphs absent ..... **A. neotropica**

Anomoporia dumontii Hjortst. & Ryvarden,
Mycotaxon 28:554, 1987.
Basidiocarps annual, resupinate, becoming widely effused, up to 2 mm thick, soft to brittle, easily separable; margin white, cottony, hymenophore first semi poroid, but soon split into flattened teeth, 0.5-2 mm long, apically penicillate to fimbriate, cream coloured to pale yellow, subiculum white, soft-fibrous, up to 1 mm thick.

Hyphal system monomitic; generative hyphae with clamps, thin-walled, hyaline, with frequent branching, 2.5-4 µm in diam, in places up to 7 um in diam, in the centre of the aculei, rather dense, otherwise rather loose in consistency.
Cystidia and other sterile hymenial elements absent.
Basidia 12-20 x 4-5 µm, clavate, tetrasterigmatic, with a basal clamp.
Basidiospores 3.5-4 x 3 µm, broadly ellipsoid, hyaline, smooth, thin to slightly thick-walled, amyloid in Melzer's reagent,
Distribution. Known only from the type locality in Venezuela, Bolivar state, Rio Apongao.
Remarks. The combination of a hydnoid to semiporoid hymenophore and lack of rhizomorphs distinguishes *A. dumontii* from *A. myceliosa.*

Anomoloma myceliosa (Peck) Niemelä & K.H. Larsson, Mycotaxon 100:313, 2007. - *Anomoporia myceliosa* (Pk.) Pouzar., - Ceska Mykol. 20:172, 1966. - *Poria myceliosa* Pk., N.Y. State Mus. Bull. 54:952, 1902.
Basidiocarps annual, resupinate, becoming widely effused, up to 2 mm thick, soft to brittle, easily separable; margin wide, white, fimbriate, usually with conspicuous white rhizomorphs; pore surface white to pale cream coloured, pores circular and regular when young, becoming angular and irregular with age, 2-4 per mm, usually with thin dissepiments; subiculum white, soft-fibrous, up to 1 mm thick, sometimes with a more yellowish zone next to the substrate; tube layer concolorous with subiculum, up to 2 mm thick.
Hyphal system monomitic; generative hyphae with clamps, thin-walled, hyaline, with frequent branching, 2.5-4 µm in diam.
Cystidia and other sterile hymenial elements absent.
Basidia 12-20 x 4-5 µm clavate, with a basal clamp, tetrasterigmatic.
Basidiospores 3.5-4.5 x 2.5-3 µm narrowly ellipsoid, hyaline, smooth, weakly amyloid in Melzer's reagent.
Substrate. On rather rotten wood with a white rot.
Distribution. A rare species and may be recorded at higher altitudes in the neotropics, but no specimen from the area has been seen to date.
Remarks. The combination of pores, white rhizomorphs and narrowly ellipsoid, amyloid spores distinguishes *Anomoloma myceliosa* from *A. dumontii. Anomoloma* has white rot, while species of *Anomoporia* have brown rot, otherwise the genera are similar.

Anomoporia neotropica Ryvarden,
Synopsis Fung. 23: 38, 2007.
Basidiocarps resupinate, annual, small to widely effused, up to 1 mm thick, easily separable, soft and brittle, margin usually wide and cottony, first white seemingly being pale brown with age, no rhizomorphs; pore surface white, pores angular, 5-8 per mm, with thin dissepiments; subiculum pale brown; tube layer white, up to 1 mm thick.
Hyphal system monomitic; generative hyphae with clamps, in the subiculum and margin smooth, thin -walled, 2.5-5 µm wide, sparingly branched.
Cystidia and other sterile hymenial elements absent.
Basidia 17-22 x 5.5-7 µm, clavate, tetrasterigmatic, with a basal clamp.

Basidiospores 3.5-4.5 x 3-3.5 µm, broadly ellipsoid to subglobose, thin-walled, smooth, hyaline and amyloid in Melzer's reagent.
Distribution. Known only from the type locality in Venezuela.
Remarks. *A. neotropica* is undoubtedly related to *A. myceliosa* but easily separated by its very small pores, almost invisible to the naked eye. The type has a rather wide margin and partly elongated pores on sloping parts of the basidiocarp. In parts the margin is smooth and brown and with an extremely thin agglutinated cuticle.

Antrodia P. Karst.,

Medd. Soc. Fauna Fl. Fenn. 5:40, 1879.
Basidiocarps annual, more rarely perennial, mostly resupinate, more rarely pileate, light coloured, white, cream to tan-coloured, hyphal system dimitic, generative hyphae thin walled, hyaline and with clamps at the septa, skeletal hyphae thick-walled to solid, hyaline, mostly non-amyloid, rarely with a weak and variable amyloid reaction, spores cylindrical, allantoid to oblong ellipsoid, hyaline, thin-walled, smooth and non-amyloid. All species cause a brown rot.
Type species: *Antrodia serpens* (Fr.) P. Karst.
Remarks: The genus is here emended as in Ryvarden & Melo (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. Little is known about the genus in tropical America.
NB. Species occurring on *Pinus* and other gymnosperms are not included in this description.
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

1. Basidiocarps pileate to effused reflexed **2**
1. Basidiocarps strictly resupinate **3**

2. Basidiocarps whitish pores angular often irregular, 1-3 per mm, basidiospores 9.5-14 µm long ..... **A. albida**
2. Basidiocarps pale brownish to tan, pores angular 3-4 per mm, basidiospores 7-10 µm long ..... **A. malicola**

3. Pore surface pale dirty brown as if soaked with resinous substances, pores 3-5 per mm, often angular in dry basidiocarps, margin without rhizomorphs ..... **A. olreacea**
3. Pore surface whitish, pores 6-7 per mm, usually round also in dry basidiocarps, margin with rhizomorphs ..... **A. porothelioides**

Antrodia albida (Fr.) Donk,
Persoonia 4:339, 1966 - *Daedalea albida* Fr. Syst. Mycol. 1:338, 1821.

Basidiocarps pileate to resupinate, annual, effused to reflexed with narrow pileus usually extended along the wood grain or with small distinct pileate basidiocarps, often imbricate, in subtropical and tropical areas often as large effused basidiocarps, separable when dry, tough and corky, margin in resupinate specimens wide to narrow, white to cream, pileus (when present) up to 2 cm wide, often elongated in effused basidiocarps, white to cream, first finely tomentose, later the hyphae agglutinate making the pileus partly smooth, partly with small irregular tufts of hyphae, especially along the margin, azonate or with narrow, slightly sulcate zones, pore surface white to cream or yellowish in old specimens, pores round to angular, in pileate specimens often split at the margin or almost purely lamellate to semi daedaleoid, in resupinate specimens mostly 2-3(4) per mm, in pileate specimens more variable, 1-3 per mm, tubes up to 15 mm deep in imbricate specimens growing substrates, context up to 3 mm thick, white and
corky.
Hyphal system dimitic, generative hyphae with clamps, richly to moderately branched, 2.5-5 µm, skeletal hyphae dominating in context and surface of pileus, hyaline, thick-walled to solid, 3-6.5 µm in diameter.
Cystidia none, but hyphoid hyphae and cystidiols sometimes present among the basidia, their occurrence is however, variable and of no systematic importance.
Basidia 30-40 x 6-9 µm with a basal clamp.
Basidiospores (8)9.5 -14 x 3.5 - 5(6) µm, cylindrical to oblong ellipsoid
Substrate. On hard wood of many kinds.
Distribution. Very widespread, found in North America and southwards, but its distribution in the Neotropical zone is not known. By all probability, there are several species involved the concept outlined above.
Remarks. When pileate, the slightly glabrous to pale straw- coloured pileus, often elongated, is quite characteristic. The pore surface is normally decurrent and the pores are often slightly irregular and sinuous. The large spores make it easy to recognize the species in microscopic preparations.

Antrodia malicola (Berk. & M. A. Curtis, Donk,
Persoonia 4:340, 1966. - *Trametes malicola* Berk. & M.A. Curtis, Acad. Nat. Sci. Phila. J. II, 3:209, 1856.
Basidiocarps annual to biennial, resupinate to effused-reflexed, more rarely 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 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 pale 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 semi-daedaleoid, up to 3-4 mm long and about 1 mm wide, often with sinuous dissepiments; context pale wood brown, tough-fibrous, 1-2 mm thick; tube layer concolorous or paler, up to 5 mm thick; taste mild.
Hyphal system dimitic; generative hyphae with clamps, hyaline, thin-walled to slightly thick-walled in the context, difficult to observe in the latter, 2-4 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, observed only in the context.
Cystidia or other sterile hymenial elements absent.
Basidia 25-40 x 7-10 µm, clavate, tetrasterigmatic, with a basal clamp.
Basidiospores 7-10 x 2.5-4 µm, cylindrical and usually arcuate close to the apiculus.
Substrate. On dead hardwoods
Distribution. Known from Guadeloupe, but probably with a wider distribution in the neotropics. Widespread in North America, known south to Mexico.
Remarks. The even pale brown colour will separate this species from the other *Antrodia* species treated here. Typically there will be a brown narrow elongated pileus along the upper part of the basidiocarp. *A. albida* differs macroscopically in its paler, cream-coloured to buff basidiocarps.

Antrodia olreacea (R. W. Davidson. & Lombard) Ryvarden,
Prel. Polypore fl. East Africa p. 252, 1980. - *Poria oleracea* Davidson & Lombard, 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 1-3 mm wide, cream to very pale cork-coloured, apparently absent in old specimens, pore surface wood-coloured 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 thin-walled 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 thin-walled 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, cork-coloured 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.
Cystidia none.
Basidia 18-24 x4-7 µm clavate tetrasterigmatic.
Basidiospores 5.5- 7.5 x 2-3 µm, cylindrical to oblong ellipsoid.
Distribution. Widespread in the Southern parts of the United States and probably so also in the Caribbean area, but the occurrence in the American tropics is unknown.
Remarks. The species is usually easy to recognize because of the dirty brown colour and the partly shrunken resinous brittle basidiocarp. In young specimens the colour is less pronounced, than in older basidiocarps which contract during drying.

Antrodia porothelioides (Cke) Ryvarden,
Mycotaxon 31:55, 1988. - *Poria porothelioides* Cke. Grevillea 15:17, 1886.
Basidiocarps annual, resupinate, detachable, up to 3 mm thick, soft when young, tough when dry, margin 1-3 mm wide and with rhizomorphs, pore surface whitish to

wood-coloured, pores 6-7 per mm, angular and thin-walled, tubes concolorous with pore surface up to 2 mm deep subiculum thin, white to wood coloured.
Hyphal system dimitic, generative hyphae hyaline and with clamps, mostly 2-3.5 µm wide, skeletal hyphae thick- walled to almost solid, 1.5-3 µm wide, dominating in the basidiocarp.
Cystidia none.
Basidia clavate, 12-15 x 4-5 µm with 4 sterigmata.
Basidiospores 5.5- 6.5 x 2.5-3 µm, cylindrical to oblong ellipsoid.
Distribution. Known only from the type locality in Venezuela.
Remarks. The species reminds about *A. gossypina* by its rhizomorphs, but this species normally grows on gymnosperms, has larger pores and smaller spores (4-5.5 µm long).

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 semitranslucent 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, ellipsoid 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 comes close to *Junghuhnia* which is characterized by 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, this information is not repeated for each species. All neotropical species do occur on hard woods, thus, this information is not repeated for each species.

Key to Neotropical species of *Antrodiella* (for a synoptic key, see below)

1. Basidiocarp resupinate **2**
1. Basidiocarp pileate **3**

2. Basidiospores 4-5 x 2.5-3 µm, pores angular 4-5 per mm ..... **A. incrustans**
2. Basidiospores 2.5 x 2 µm, pores round 8 per mm, see ..... **Junghuhnia subundata**

3. Pores angular in parts irregular 1-5 per mm, or in parts larger 4
3. Pores more or less regular, 4-8 per mm **8**

4. Basidiospores subglobose to ellipsoid **5**
4. Basidiospores allantoid to cylindrical **6**

5. Spores subglobose, 3-3.5 x 2.5-3 µm ..... **A. angulatoporia**
5. Spores ellipsoid, 3.6-5 x 2-2.5 µm ..... **A. multipileata**

6. Pileus and context straw-coloured ..... **A. luteocontextus**
6. Pileus and context whitish **7**

7. Spores allantoid, 1-1.3 µm wide ..... **A. dentipora**
7. Spores cylindrical, 1.8-2.2 µm wide ..... **A. brasilensis**

8. Basidiospores allantoid to oblong ellipsoid, up to 2 µm wide **9**
8. Basidiospores broadly ellipsoid to subglobose, wider than 2 µm **11**

9. Basidiospores oblong ellipsoid 3-4 x 1.2-2 µm ..... **A. murrillii**
9. Basidiospores allantoid to cylindrical 4-4.5 x 1-1.5 µm **10**

10. Pileus brown to pale chestnut, pores 10-12 per mm, context dominated by almost solid skeletal hyphae ..... **A. versicutis**
10. Pileus ochraceous to pale brown, pores 6-7 per mm, context dominated by wide generative hyphae, only few skeletal hyphae present ..... **A. duracina**

11. Basidiospores 4-5 x 3 µm ..... **A. reflexa**
11. Basidiospores shorter than 4 µm **12**

12. Pileus cream, to straw-coloured to pale brown, context more or less as the tubes or paler, basidiocarps often effused reflexed **13**
12. Pileus brown to purplish black or chestnut, context brown and darker than the tubes, basidiocarp mostly fan shaped with tapering base **14**

13. Pileus smooth, spores ellipsoid ..... **A. semisupina**
13. Pileus tuberculate of agglutinated hairs, spores subglobose ..... **A. tuberculata**

14. Pileus finely tomentose, slowly becoming glabrous, no hymenial cystidia present, context with dark horizontal lines, with age dense and resinous ..... **A. hydrophila**
14. Pileus glabrous, small smooth cystidia arising from bent skeletal hyphae present in the hymenium, no narrow resinous band in context which however by age may become very dense and dark ..... **A. liebmannii**

Synoptic keys to neotropical species

Species sorted according to falling spore size in µm

mollis	4-6 x 2-2.7
brasilense	4.5-5.5 x 1.8-2.2
duracina	4-4.5 x 1-1.3
incrustans	4-5 x 2.5-3
reflexa	4.5-5 x 3-3.2
versicutis	4-4.5 x 1-1.5
multipileata	3.6-5 x 2-2.5
dentipora	3.5-5 x 1-1.3
angulatoporia	3-3.5 x 2.5-3
cinnamomea	3-3.5 x 2.5-3
hydrophila	3-3.5 x 2-2.5
l*uteocontexta*	3-4 x 2-2.5
murrilli	3-4 x 1.5-2
tuberculata	3-3.5 x 2-2.5
liebmannii	2.5-3.5 x 1.5-2.3
semisupina	2.5-3.5 x 2-2.5

Species sorted according to increasing numbers of pores per mm

angulatoporia	1-3 mm wide
luteocontexta	1-2
mollis	1-3
brasiliensis	1-2
dentipora	2-5
multipileata	2-6
incrustans	4-6
reflexa	4-6
semisupina	4-6
cinnamomea	5-6
duracina	6-7
murrillii	6-8
tuberculata	6-8
hydrophila	7-9
liebmannii	8-10
versicutis	10-12

Antrodiella angulatopora Ryvarden,
Mycotaxon 28: 525, 1987.
Basidiocarps pileate, annual, sessile to dimidiate and partly dorsally attached, applanate, thin and pliable when fresh, curled, hard and rigid when dry, up to 3 cm wide and long, 1-3 mm thick, upper surface adpressed velutinate, ochraceous to pale brown and concentrically zoned, margin sharp, pore surface orange yellow when fresh, paling to cream to pale brown, pores angular to partly split, 1-3 mm wide, some pores elongated to

1 x 3 mm and then tubes in parts split and teeth like, 1-2 mm deep, context thin and dense ochraceous and homogenous, 1-2 mm thick.
Hyphal system dimitic; generative hyphae with clamps, hyaline, thin-walled, branched, in the subiculum 2-4 µm wide, in the context thick-walled, 4-12 µm and long segments without clamps, thus, is a matter of opinion whether these hyphae should be interpreted as intercalary skeletal hyphae or as sklerified generative hyphae.
Cystidia absent.
Basidia 10-12 x 5-6 µm, clavate, tetrasterigmatic.
Basidiospores 3-3.5 x 2.5-3 µm, subglobose.
Distribution. Venezuela, Brazil, Colombia.
Remarks. Rajchenberg has placed this species in synonymy with *Ceriporiopsis laetemarginata* (Rick) Rajchenb., as he interprets the hyphal system as monomitic. The types should be compared before a synonymy is accepted.

Antrodiella brasilensis Ryvarden & Meyer,
Synopsis Fung. 15:40, 2002.
Basidiocarps pileate, annual, imbricate, broadly sessile, gregarious, forming rows of up to 10 cm, pileus semicircular, up to 25 mm wide, plane, white azonate, surface dull, smooth and glabrous, margin sharp, pore surface white to cream, pores angular, partly split to sinuous, 1-2 per mm, tubes to 4 mm deep and concolorous with the pore surface, context white and cottony soft, up to 9 mm thick at the base, about 3 mm halfway to the periphery.
Hyphal system dimitic; generative hyphae with clamps, hyaline, thin-walled, branched, in the subiculum 2-3 µm wide, skeletal hyphae thick-walled to solid, hyaline, 2-5 µm.
Cystidia absent.
Basidia 15-20 x 4-5 µm, clavate, tetrasterigmatic.
Basidiospores 4.5-5.5 (6) x 1.8-2.2 µm, allantoid to cylindrical.
Distribution. Known from a few localities in Brazil.
Remarks. This species is characteristic with the small gregarious white basidiocarps, the irregular dentate hymenophore and the allantoid basidiospores. The only other species with an irregular pore surface and allantoid basidiospores are *A. dentipora* Ryvarden & Iturriaga. However this species has smaller pores and narrower basidiospores, i.e. 2-5 per mm and 1-1.3 µm wide respectively.

Antrodiella cinnamomea Iturriaga & Ryvarden,
Synopsis Fung. 27: 78, 2010.
Basidiocarps annual, pileate, up to 1.5 cm wide and long and 4 mm thick at the base, varying from effused reflexed to dimidiate to almost pendant, flexible when fresh, dense and hard when dry, pileus semicircular and bent when dry, whitish, finely pubescent, tomentum up to 250 µm thick, disappearing from the base to expose a dark reddish, glabrous cuticle, pore surface ochraceous, pores round (4)5-6 per mm, tubes to 1 mm deep, concolorous with the pore surface, context up to 2 mm thick at the base, dark cinnamon, contrasting with the tubes and separated from the tomentum of the pileus by a thin black line,

Hyphal system dimitic; generative hyphae 2-4 µm wide in the subiculum, with clamps, hyaline, thin-walled, branched; skeletal hyphae 2-5 µm wide, hyaline, thick-walled to solid.
Cystidia absent.
Basidia 12-15 x 4-5 µm, clavate.
Basidiospores 3-3.5 (4) x 1.5-2.0 µm, sub-cylindrical.
Distribution. Known from the type locality.
Remarks. This species differs from others in the genus mainly by the dark cinnamon, duplex context with a dark line (which ultimately becomes a cuticle) above which there is a thin, adpressed white tomentum.

Antrodiella dentipora Ryvarden & Iturriaga,
Mycologia 95: 1066, 2003.
Basidiocarps pileate, speculate to fan-shaped, up to 3 cm wide and long, 2-5 mm thick, upper surface glabrous, smooth, ochraceous, concentrically zonate with some pale brown zones, margin sharp and wavy, pore surface white to cream, pores angular to irregular, in regular parts 2-5 per mm, closer to the base more irregular and partly split up to 1 mm long in radial direction, tubes with dentate dissepiments, up to 3 mm deep, context thin, dense and white, 1 mm thick.
Hyphal system dimitic; generative hyphae with clamps, hyaline, thin-walled, 3-5 µm wide, skeletal hyphae thick-walled to solid, hyaline, 2-5 µm.
Cystidia absent.
Basidia 10-12 x 4-5 µm, clavate.
Basidiospores 3.5-5 x 1-1.3 µm, allantoid.
Distribution. Known only from the type locality.
Remarks. This species is characteristic with lacerate to dentate irregular pores and allantoid basidiospores.

Antrodiella duracina (Pat.) Lindblad & Ryvarden,
Mycotaxon 71:336, 1999. - *Leptoporus duracinus* Pat., Bull. Soc. Mycol. Fr. 18:174, 1902. - *Coriolus ochrotinctellus* Murrill, N. Am. Fl. 9:22, 1907.
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 dried, no special taste, upper surface glabrous, ochraceous or very pale yellowish brown, usually zonate and often with some irregular basal outgrowths 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 straw-coloured, 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.
Cystidia and other hymenial elements absent.
Basidia clavate, 8-12 x 4-5 µm.

Basidiospores 4-4.5 x 1-1.3 µm, allantoid to cylindrical.
Substrate. On dead hardwoods, the type was found on *Cercopia peltata* in Guadeloupe.
Distribution. Brazil, Colombia, Costa Rica, Guadeloupe, Panama, Puerto Rico, Venezuela.
Remarks. *A. duracin*a is rather similar to *A. versicutis*, but separated by larger pores, a paler pileus, a dominance of generative hyphae in the context and contextual skeletal hyphae with a wide lumen. In *A. versicutis* the pileus is much darker, i.e. dark brown to pale chestnut by age besides smaller pores (8-10 per mm). Further, the skeletal hyphae of this species are also almost solid and dominating in the context in contrast to the hyphal construction of *A. duracina* as outlined above.

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 by age and then darker from deep chest brown to almost black, pore surface ochre to buff, dense and cartilaginous, become hard and denser by drying, 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 ages the whole context may become filled up with dark streaks as the whole context contracts to a dense dark bone hard layer, 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 which in the context and trama are difficult to find, skeletal hyphae densely agglutinated and difficult to separate in the dense context and the trama, 2-4 µm wide.
Cystidia absent.
Basidia 8-14 x 4.5-5 µm, clavate.
Basidiospores 3-3.5 x 2-2.5 µm, ellipsoid, often adaxially flattened, usually difficult to measure properly due to strong movements in most liquids.
Distribution. Neotropical species known from Cuba to Brazil.
Remarks. The small dense basidiocarps with a slight tomentum and partly glabrous dark brown zones and very tiny pores are good field characteristics. In section the dark lines or zones are characteristic. Microscopically the basidiospores of this species are almost identical with those of *Junghuhnia semisupiniformis* which also may be pileate.

Antrodiella incrustans (Cke) Ryvarden,
Mycotaxon 18:344, 1984. - *Poria incrustans* Cke, Grevillea 14:114, 1886. - *Poria distorta* Murrill, Mycologia 12:306, 1920. - *Poria humilis* Murrill, Mycologia 11:232, 1919.
Basidiocarps annual, resupinate, small to widely effused, soft and coriaceous when fresh, hard and somewhat fragile when dry, taste slightly resinous, separable, margin white to ochraceous, normally with white rhizomorphs, pore surface cream to ochraceous or

wood-coloured when dry, pores angular 4-6 per mm, tubes fragile, concolorous, up to 2 mm deep, context white and thin.
Hyphal system dimitic, generative hyphae with clamps, 3-6 µm wide, skeletal hyphae predominant, thick-walled, hyaline, unbranched, up to 7 µm wide in 3% KOH.
Cystidia or other sterile hymenial elements absent.
Basidia clavate 10-14 x 4-6 µm.
Basidiospores ellipsoid, 4-5 x 2.5-3 µm.
Distribution. North American species, in the eastern U.S. from Mass. to Tennessee and Mexico.
Remarks. Macroscopically basidiocarps of *A. incrustans* resemble those of *A. semisupina* which, however has a denser, more cartilaginous consistency, a silky shine when dry, narrower skeletal hyphae, and smaller basidiospores.
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Antrodiella liebmannii (Fr.) Ryvarden,
Prelim. polyp. flora East Afr. p. 1980. - *Polyporus liebmannii* Fr. Nova Acta Reg. Soc. Scient. Upsal. Ser. 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, 1-2 mm thick, applanate when fresh, revolute when dry and the whole basidiocarp often becomes bent under the drying, soft-gelatinous 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 glabrous expanding towards the pileus, up to 1 cm long, 2-4 mm in diameter, pore surface pale tan to pale straw-coloured, 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, now and then with 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 thick-walled and of a 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.
Basidia 5-8 µm long, subglobose to subclavate.
Cystidia like skeletal hyphae present, but may be difficult to find, smooth, rounded to conical, bending into 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 ellipsoid to subglobose, often partly collapsed on one side.
Distribution. Pantropical and widely distributed in the neotropics. 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 ellipsoid to subglobose

basidiospores and the glabrous pileus separates 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 luteocontexta Ryvarden & Meyer,
Synopsis Fung. 15:41, 2002.
Basidiocarps pileate, annual, imbricate, broadly sessile, gregarious, pileus semicircular, up to 20 mm wide and 40 mm long, plane, reddish yellow to orange when fresh, fading to straw-coloured when dry, surface pubescent, azonate to concentrically zonate, pore surface ochraceous, pores round to angular, entire, 1-2 per mm, tubes to 9 mm deep and concolorous with the pore surface, context straw-coloured and yellow when fresh, fading to pale yellow when dry, dense, up to 3 mm thick at the base.
Hyphal system dimitic; generative hyphae with clamps, hyaline, thin-walled, branched, in the subiculum 2-4 µm wide, skeletal hyphae thick-walled to solid, hyaline, 2-5 µm wide.
Cystidia absent.
Basidia 15-18 x 4-5 µm, clavate.
Basidiospores 3-3.5 (4) x 1.4-2.0 µm, cylindrical.
Distribution. Known only from the type locality.
Remarks. This species is characteristic by the yellow basidiocarps, the large round to angular pores, the short cylindrical basidiospores and the yellow context. *A. brasilensis* described above, has dentate, sinuous to split pores, a whitish glabrous pileus, a white context and longer, allantoid basidiospores.

Antrodiella mollis Gibertoni & Ryvarden,
Synopsis Fung. 18: 46, 2004.
Basidiocarps annual, pileate, broadly attached, single, 5 cm wide, 4 cm long and 2.5 cm thick at the base, fleshy when fresh, corky when dry, upper surface ochraceous, velutinate, azonate, pore surface dark ochraceous, pores round to angular, dissepiments thin, 1-3(4) per mm, tubes concolorous with the upper surface, up to 0.5cm deep, context pale straw-coloured, soft, homogeneous, up to 2.0cm thick.
Hyphal system dimitic, generative hyphae hyaline, 2-5 µm wide, slightly gelatinized in KOH, skeletal hyphae hyaline, thick-walled but with a wide lumen, straight or slightly sinous,2-6 µm wide.
Basidia 12-15 x 4-6 µm clavate.
Basidiospores 4-6 x 2-2.7µm, ellipsoid.
Distribution: Known only from the type locality in Brazil.
Remarks: Microscopically the species is rather similar to *A. multipileata*, which, however has a white and glabrous pileus besides a pore surface which darkens considerable under drying, becoming dark brown in parts.

Antrodiella multipileata Log.- Leite, & J.E.Wright,
Mycotaxon 41:167, 1991.
Basidiocarps annual, pileate to effused reflexed and sessile, solitary or imbricate, up to 2 cm wide and 1-2 cm thick at the base, tough when fresh, hard and dense when dry, upper

surface white and glabrous when fresh, drying cream, zonate and slightly wrinkled, pore surface white to light straw-coloured, becoming blackish when touched in fresh condition, pale brown in parts when dry, pores angular to slightly irregular, 2-6 per mm, on decurrent part split and longer, tubes concolorous with the pore surface, up to 1.5 mm thick, context thin, fibrous, dense, concolorous with the pore surface, up to 0.5 mm thick.
Hyphal system dimitic, generative hyphae hyaline and with clamps, in the trama 2-3 µm in diameter, wider in the context, skeletal hyphae straight to sinuous, thick-walled and almost solid, common and dominating in the basidiocarps, 3-5 µm in diameter.
Basidiospores 3.6-5 x 2.2-2.5 (2.9), µm, ellipsoid.
Distribution. Known from the state of Parana in Brazil.
Remarks. Macroscopically this species looks like *A. semisupina* except for the darker pore surface becoming blackish when touched in fresh condition. Microscopically the larger ellipsoid spores separates it from the other pileate species described here.

Antrodiella murrillii (Lloyd) Ryvarden,
Mycotaxon 38:93, 1990. - *Polyporus murrillii* Lloyd, Lloyd Mycol. Writ.5:857, 1919.
Basidiocarps annual, laterally stipitate, pileus semicircular up to 3 cm wide and long and 5 mm thick, dense and hard when dry, upper surface glabrous, tan to leather coloured or pale cinnamon brown, azonate, finely velvety towards the base, stipe or attenuated base 1 cm long and 5 mm in diam, concolorous with the pileus, pore surface ochre becoming pale brown with drying, pores round, 6-8 per mm, invisible to the naked eye; tubes concolorous, darker than the context, context ochraceous to cream, distinctly duplex without dark or black zones, lower part up to 2 mm dense, upper part of a looser consistency, 1.5 mm thick.
Hyphal system dimitic; generative hyphae with clamps, hyaline, thin- to distinctly thick-walled, 2-5 µm wide, skeletal hyphae thick-walled to solid, 3-5 µm wide.
Cystidia absent.
Basidia not seen.
Basidiospores 3-4 x 1.5-2 µm, sub cylindrical to oblong ellipsoid.
Distribution. Known only from Belize and Costa Rica, but has probably a wider distribution in the Caribbean and Central American area.
Remarks. The semistipitate basidiocarp and the oblong ellipsoid basidiospores characterize this species compared with the other ones described in this manual. *Flaviporus subhydrophilus* (Speg.) Rajchenb. & Wright. is rather similar and ultimately it may be that the two species are synonyms. The latter species was described from Argentine. A modern and detailed description is given in Mycologia 79:259, 1987.

Antrodiella reflexa Nunez & Ryvarden,
Mycotaxon 71:362, 1999.
Basidiocarps annual, pileate, effused reflexed with numerous small pilei on a confluent pore surface, individual pilei up to 1 x 1 cm and about 8-10 mm thick at the base, tough when fresh, hard and resinous, upper surface smooth, azonate, glabrous and pale tan coloured becomes darker and denser by age and seemingly developing a thin cuticle from the base, pore surface white to light straw-coloured or ochraceous, becoming dark when bruised when touched in fresh condition, pores angular, 4-6 per mm when fresh, more

angular and partly larger when dry, especially on oblique parts of the pore-surface, tubes slightly darker than the context, up to 6 mm deep and concolorous with the pore surface, context pale tan to cream, up to 4 mm thick.
Hyphal system dimitic, generative hyphae hyaline and with clamps, 2-3 µm in diameter, skeletal hyphae straight to sinuous, thick-walled and almost solid, common and dominating in the basidiocarps, 3-5 µm in diameter.
Basidiospores 4.5-5 x 3 µm, ellipsoid.
Distribution. Known from Puerto Rico and Venezuela.
Remarks. Macroscopically this species looks like *A. semisupina* except for the darker pore surface becoming blackish when touched in fresh condition.

Antrodiella semisupina (Berk. & M. A. Curtis) Ryvarden,
Prelim. polyp. flora East Africa p. 261, 1980. - *Polyporus semisupinus* Berk & M. A. Curtis Grevillea 1:50, 1872.
Basidiocarps annual, pileate to resupinate, usually small, when pileate often imbricate with many narrow pilei, often fused laterally over an effused pore surface, up to 5 mm thick at the base, and 3 cm wide, resupinate specimens rarely above 4 mm thick, tough when fresh, hard and resinous, often slightly translucent when dry, subiculum white to cream, up to 2 mm thick, margin narrow and white, pileus smooth and glabrous, white to cream or with narrow, darker concentric zones, margin sharp and undulating, mostly reflexed in dry basidiocarps, context white to cream, 1-2 mm thick, hard and brittle, pore surface white to light straw-coloured or ochraceous, pore small, isodiametric 4-6 (7) per mm when fresh, more angular and partly larger when dry, especially on oblique parts of the pore-surface.
Hyphal system dimitic-trimitic, generative hyphae hyaline and with clamps, 1.5-3 µm in diameter, skeletal hyphae straight to sinuous, thick-walled and almost solid, common and dominating in the basidiocarps, 2-5 µm in diameter, branched skeletal hyphae rarely present, and only seen in pileate specimens, irregular and twisted with short branches, hyaline and thick-walled.
Basidiospores 2.5-3.5 (4) x 2-2.5 µm, ellipsoid,
Distribution. Apparently an American species, reports from Europe and other continents should be treated with caution, see Miettinen et al. (2007).
Remarks. The species is recognized by its pileate basidiocarps and the small, oblong ellipsoid basidiospores.

Antrodiella tuberculata Ryvarden & Guzmán,
Mycotaxon 78: 246, 2001.
Basidiocarps pileate, annual, sessile to dimidiate, imbricate, tough when fresh, curled, hard and rigid when dry, up to 4 cm wide by 10 cm long and 8 mm thick at base, upper surface tuberculate and wrinkled with tuft of agglutinated hairs spreading from the base, becoming glabrous towards the margin, concentrically zonate, ochraceous to pale straw coloured, a few narrow zones pale brown, margin sharp, pore surface ochraceous, pores tiny and invisible to the naked eye, 6-8 per mm, tubes up to 4 mm deep, isabelline and

distinctly darker than the context, the latter cream, dense 2-4 mm thick, strong smell of cinnamon when fresh.
Hyphal system dimitic; generative hyphae with clamp connections, dominating in the context, hyaline, thin- to thick-walled, 2-8 µm wide, those of the context with often thick walls and large conspicuous clamp connections, skeletal hyphae rare, thick-walled to solid, hyaline, 4-8 µm wide.
Cystidia absent, but numerous smooth cystidiols present in the hymenium, probably representing aborted basidia, 12-15 µm long.
Basidia 12-15 x 3-4 µm, clavate.
Basidiospores 3-3.5 x 2-2.5 µm, subglobose.
Distribution. Known only from the type locality.
Remarks. This species is characteristic by its densely tuberculate pileus and the small subglobose basidiospores. The hyphal system is somewhat deviating as generative hyphae dominate in the context. There are long segments of these hyphae without clamps and isolated and they may easily be taken for skeletal hyphae. *Antrodiella semisupina* is macroscopically similar, but has distinctly ellipsoid basidiospores and the context is dominated by skeletal hyphae.

Antrodiella versicutis (Berk. & M. A. Curtis) Gilbn. & Ryvarden, North Am. Polypores p. 158, 1986. - *Polyporus versicutis* Berk. & M. A. Curtis, J. Linn. Soc. Bot. 10:308, 1868.
Basidiocarps pileate, annual, sessile to dimidiate and fan shaped or semicircular, up to 8 cm long, 6 cm wide, 5 mm thick, tough when fresh, hard and brittle when dried, no special taste, upper surface glabrous, first ochraceous or very pale yellowish brown soon the upper hyphae agglutinate to a reddish-brown thin cuticle spreading from the base, smooth or with narrow sulcate zones, in dry condition matted and often the whole basidiocarp bent as if contracted, margin sharp and usually bent down in dried specimens, pore surface ochraceous to straw-coloured, pores 10-12 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, paler than tubes, dense and with a very thin cuticle on top in old specimens, up to 2 mm thick at the base.
Hyphal system dimitic, skeletal hyphae dominating in the whole basidiocarp, dense and almost solid, hyaline 3-5 µm wide, a few branched observed, generative hyphae in the context thin to slightly thick-walled, straight, sparingly branched and with widely scattered clamps, 2-5 µm wide.
Cystidia and other hymenial elements absent.
Basidia 8-12 x 4-5 µm, clavate.
Basidiospores 4-4.5 x 1-1.5 µm, allantoid to cylindrical.
Distribution. American species, widespread from southern United States to Brazil, but exact distribution unknown due to confusion with *A. duracina.*
Remarks. *A. versicuti*s is similar to *A. duracina* having almost the same allantoid basidiospores, but separated by having a much darker pileus. Further the contextual construction is different as in *A. duracina* generative hyphae are dominating with few skeletal hyphae, while the opposite is the case in *A. versicutis*. Further, this species has much smaller pores (8-10 per mm) than in *A. duracina* (6-8 per mm).

Atraporiella Ryvarden,

Synopsis Fung. 23:38, 2007.
Basidiocarps resupinate, whitish when fresh becoming almost black by drying, hyphal system monomitic with clamped generative hyphae, basidiospores ellipsoid and non-amyloid. Monotypic genus.
Remarks. The striking colour change from white to deep brown or black characterizes this genus which may be related to *Bjerkandera*, a genus including only distinctly pileate species.

Atraporiella neotropica Ryvarden, op cit.
Basidiocarps resupinate, annual, small, up to 2 x 3 cm in largest specimen, up to 10 mm thick, easily separable, soft and slightly waxy when fresh, brittle and contracting when drying and then disc like with raised loosened margin, resinous brittle when dry, pore surface whitish when fresh and actively growing, very rapidly stained dark brown to black when touched, pale ochraceous when dry except for stained parts, pores angular, 5-6 per mm, with thin dissepiments; tubes dark brown to black with an agglutinated or fused structure, up to 10 mm deep, subiculum thin to almost invisible, pale brown and cottony.
Hyphal system monomitic; generative hyphae with clamps, pale brown, thin -walled, 3-6 µm wide, richly branched.
Cystidia and other sterile hymenial elements absent.
Basidia 12-18 x 5.-6 µm, clavate, tetrasterigmatic, with a basal clamp.
Basidiospores 3-3.5 x 1.2-1.4 µm, ellipsoid, thin-walled, smooth, hyaline and without reaction in Melzer's reagent.
Substrate. On a rotten log of hard wood tree.
Distribution. Known only from the type locality in Belize.
Remarks. The white pore surface becoming brown to black when touched contrasting the deep brown to black and soft tubes should make this species distinct in the field. *Nigroporus* is characterized by being deep blackish violet (reflected in the epithet of the type species *N. vinosus*) besides having a distinct dimitic hyphal system. So far all species known or described in that genus have sessile to effused reflexed basidiocarps. Thus, the two genera should be easily separated in the field as well.

Aurantiopileus Ginns, D. L. Lindner & T. J. Baroni,

N. Amer. Fung. 5:4, 2010.
Basidiocarps orange , relatively small, fleshy to gelatinous when fresh, pores irregular, hyphal system monomitic with clamped generative hyphae, context and trama with thin walled cystidia embedded in the gelatinous trama, basidiospores small and broadly ellipsoid (4-6 x 2.8-4.6 µm) and non-amyloid. Causes a white rot. One species in America.
Type species: *Aurantiopileus mayanensis* Ginns, D. L. Lindner & T. J. Baroni.
Remarks. The dark orange gelatinous and soft basidiocarps may remind one of a *Phlebia* species, but the cystidia and the pores make the genus distinct.

Aurantiopileus mayanensis Ginns, D. L. Lindner & T. J. Baroni, Op.cit.
Basidiocarps orange when fresh, soft, jelly like, deeper orange over margin, effused-reflexed or substipitate, 20-60 mm broad, circular when substipitate or dimidiate when lacking a stipe, single or imbricate, confluent and fused in larger basidiocarps, pileus deep orange, glabrous, rugulose, whitish near attachment, slightly zonate, when dry white to pale brown, radially striate, striae fine, slightly glossy pore surface orange; pores round or angular, 2-4 per mm, shallow and up to 1 mm deep or appearing somewhat rugulose-pitted or fluted, dissepiments fimbriate to dentate, context orange- watery, gelatinous when fresh, drying hard and cartilaginous and then with pale brown, radiating striate, 1.0-2.5 mm thick.
Hyphal system monomitic, generative hyphae hyaline, 3-5 µm diameter with clamp connections, tramal and context hyphae with gelatinous walls that merge into structure less mucilage and the hyphae appear to be embedded in a gelatinous matrix.
Gloeopleurous hyphae scattered in trama and context, 3-6 µm wide, contents homogeneous, pale yellow in KOH, sparingly branched.
Cystidia 35-100 x 5-15 µm confined to tramal core, embedded, typically in vertically oriented fascicles, clavate, narrowly clavate or fusoid, thin walled, smooth, some with a thick, gelatinous coating, contents homogeneous, slightly refractive in KOH.
Basidia 18-26 x 6-7 µm, clavate with four sterigmata, each 5 µm long.
Basidiospores (4.6-) 5.0-6.0 x 3.6-4.5 µm, ellipsoid to broadly ellipsoid, smooth, thin walled, hyaline, negative in Melzer's reagent, mostly with a single large oil drop.
Distribution. Known only from the type locality in Belize.
Remarks. The genus is characterized by a fleshy to gelatinous deep orange texture, slightly irregular pores, a gelatinous context and trama and cystidia embedded in the trama.
Superficially it may remind one of some *Phlebia* species, such as *P. tomentosa*, which however is paler and have a white tomentose pileus and a folded, merulioid hymenophore

Auriporia Ryvarden,

Norw. J. Bot. 20:3, 1973.
Basidiocarps resupinate to pileate, annual; pore surface yellow to white; hyphal system mono- to dimitic; generative hyphae with scattered clamps; skeletal hyphae, when present, few, mostly confined to the context; cystidia ventricose, thick-walled, apically encrusted; spores cylindrical to ellipsoid, smooth, thin-walled, negative in Melzer's reagent. On both hardwoods and conifers, causing a brown rot. Widespread genus, with four species, one in North America, one in Europe, one in Asia and one in South America.
Type species: *Poria aurea* Peck.
Remarks. The genus is related to *Amylocystis* which mainly is separated by having amyloid cystidia.

Auriporia brasilica Coelho,
Mycologia 97:263, 2005.
Basidiocarp annual, resupinate to reflexed, up to 32 x 22 mm, with some small pilei originating from effused parts, up to 14 x 9 x 6 mm, cartilaginous to almost fleshy in consistency, soft and flexible; pileus yellow-ochre to brownish-yellow when present, darkening from the base to the margin, voluminous; margin paler than pileus, pore surface golden-yellow with whitish hues pores round to somewhat daedaleoid, 0.5-1 (-2) mm, tubes up to 3 mm thick, concolorous with the pore surface context ochre to brownish-ochre, somewhat darker than the pileus surface when fresh, similar when dried.
Hyphal system dimitic, generative hyphae with clamps, hyaline, thin to moderately thick-walled, sometimes branched, 2-4.0 μm in diam, in context and trama, skeletal hyphae, pale yellow, sinuous, thick-walled, sometimes solid, 2-4.0 in diam, slightly wider in the context.
Gloeopleurous-hyphae present, mostly in the context, tortuous, 2-5.2 μm in diam.
Basidia 12-20 x 3.2 - 4.4 μm, clavate, tetrasterigmatic.
Basidiospores 3.2 - 4.2 x 1.6 -2 μm, subcylindrical, hyaline, thin-walled, negative in Melzer's reagent.
Cystidia 28-50 x 6-10 μm, thick-walled, fusiform, slightly ventricose, with an apical incrustation that dissolves in KOH after some minutes.
Substrate. On decayed branch of *Luehea divaricata* (Malvaceae).
Distribution. Known only from the type locality in Brazil.
Remarks. The yellow basidiocarp, the dimitic hyphal system and the encrusted hymenial cystidia are diagnostic characters for this species.

Bjerkandera P. Karst.,

Medd. Soc. Fauna Fl. Fenn. 5:38, 1879.
Basidiocarps annual, effused, resupinate to pileate, pileus light coloured, azonate, finely velutinate to pubescent, pore surface blackish to brown, distinctly delimited towards a white to pale cream context, hyphal system monomitic, delicately thin-walled hyphae in the hymenium, more thick-walled to almost solid in the context and pileus, clamps small to large and conspicuous, cystidia none, spores oblong ellipsoid, hyaline, smooth, thin-walled and non-amyloid.
Type species: *Bjerkandera adusta* (Fr.) P. Karst.
Remarks. The genus is a satellite genus to *Tyromyces* by its monomitic hyphal system with clamped hyaline generative hyphae. However, the coloured pore layer, distinctly separated from the context, makes the genus characteristic.

Key to species

l. Pore surface and tubes buff to isabelline (ochre); context thick, with a brown zone at the base of the tubes and darker than the latter..... **B. fumosa**
l. Pore surface and tubes dark smoky grey to blackish; context thin, with a grey to black zone at the base of the tubes, concolorous with the latter..... **B. adusta**

Bjerkandera adusta (Fr.) P. Karst.,
Medd. Soc. Fauna Fl. Fenn. 5:38, 1879 - *Polyporus adustus* Fr. Syst. Mycol. 1:363, 1821.
Basidiocarps annual, effused resupinate to pileate, often with imbricate, narrow elongated pilei, or reflexed from the upper edge of an otherwise resupinate basidiocarp, pilei up to 4 cm wide usually thin and deflexed when dry, up to 8 mm thick at the base, many pilei may be fused together to more compound basidiocarps, soft and pliable when fresh, hard and brittle when dry, taste slightly bitter, pileus white to cream, later more greyish to blackish, especially along the margin (as if burned), azonate to weakly concentrically zonate, first finely velutinate, later the hyphae agglutinate and the surface becomes smooth to finely verrucose, context white and fibrous, distinctly thicker than tubes, up to 6 mm thick at the base, often with thin black lines reflecting different periods of active growth, pore surface grey to black, pores round to angular, 4-6 per mm, more rarely irregular and larger, tubes grey to black, up to 2 mm deep, separated towards the light context by a very thin black zone of same colour as the tubes.
Hyphal system monomitic with clamped, hyaline generative hyphae, on the surface of the pileus and in the context thick-walled to almost solid with small to large conspicuous clamps, moderately branched, 3-8 µm in diameter, in the hymenium delicately thin-walled and frequently branched 2-4 µm in diameter.
Basidia 22-25 x 5-6 µm, clavate, with four sterigmata.
Basidiospores 4-5.5 x 2.5-3 µm, oblong ellipsoid to almost cylindrical, thin-walled, smooth, hyaline and non- amyloid.
Distribution. A cosmopolitan species and recorded from numerous countries on all continents.
Remarks. The blackish tube-layer contrasting the whitish to pale context makes the species usually easy to recognize. However, frequently the species is resupinate or only with a weakly developed pileus, more or less dirty whitish. In such cases a section is necessary to reveal the darker coloured tubes. In doubtful cases the wide and thick-walled hyphae with large clamps in the subiculum or context should be diagnostic.

Bjerkandera fumosa (Pers.: Fr.) P. Karst.,
Meddeland. Soc. Fauna Fl. Fenn. 5: 38, 1879 - *Polyporus fumosus* Pers.: Fr., Syst. Mycol. l: 367, 1821. - *Boletus fumosus* Pers., Syn. Meth. Fungorum, p. 530, 1801.
Basidiocarps effused-reflexed or sessile, pilei solitary or imbricate, dimidiate, often laterally fused, up to 5 x 10 x 2 cm; upper surface buff to wood-coloured, tomentose to glabrous, azonate, smooth, margin concolorous; pore surface buff to isabelline, the pores cupulate near the margin, circular to angular, 2-5 per mm, with thick, entire dissepiments that become thin; context buff, azonate, soft-fibrous, up to l.5 cm thick; tube layer pale smoky grey, up to 4 mm thick, separated from the context by a thin, dark layer; odour of fresh basidiocarps sometimes anise-like often disagreeable.
Hyphal system monomitic; contextual hyphae hyaline in KOH, thin- to moderately thick-walled, often branched, with abundant clamps, 3-7 µm in diam; tramal hyphae hyaline in KOH, thin-walled, often branched, with abundant clamps, 2.5-3.5 µm in diam.
Cystidia or other sterile hymenial elements lacking.
Basidia 20-22 x 5-7 µm, clavate, tetrasterigmatic, with a basal clamp.

Basidiospores 5.5-7 x 2.5-3.5 µm, short cylindrical, straight, hyaline, smooth, negative in Melzer's reagent.
Distribution. Noted in the Brazilian checklist, locality unknown. Common world wide in the temperate to subtropical zone.
Remarks. The pore surface of *B. fumosa* is usually much paler than that of *B. adusta*, and the colour more buff to brownish than grey to almost black as in *B. adusta*. In addition, basidiocarps of *B. adusta* are usually quite thin, odourless, and the layer at the base is concolorous with the tubes, while it is darker than the tubes in *B. fumosa*.

Boletopsis Fayod,

Malpighia 3: 72, 1889.
Basidiocarps stipitate, annual, fleshy, grey to pale sordid brown, darker when bruised; pileus smooth to finely scaly; stipe central to lateral; hyphal system monomitic; generative hyphae hyaline, delicately thin-walled with clamps, of highly variable diameter; spores irregular and angular, hyaline to very pale brownish, negative in Melzer's reagent; on the ground and ectomycorhizzal with both hard woods and coniferous hosts.
Type species: *Polyporus leucomelas* (Pers.) Pers.
Remarks. Because of the angular and tinted spores and the presence of thelephoric acid in the basidiocarps, the genus belongs in the Thelephoraceae which is defined by these characters.

Boletopsis grisea (Peck) Bondartsev & Singer, Fig. 3
Ann. Mycol. 39: 47, 1941. - *Polyporus griseus* Peck, Annual Rep. New York State Mus. 26: 68, 1874.
Basidiocarps annual, centrally or more rarely eccentrically stipitate, 5-13 (-17) cm in diam, at first hemispherical, later plane to centrally depressed; upper surface smooth, glabrous, azonate, greyish white to more grey-brown, later slightly squamulose to cracked, often with radial white to greenish slits; pore surface at first white, becoming pinkish brown when bruised, sordid white to grey when dry, pores round to angular, 3-4 per mm, when old more radially elongated and 2-3 per mm; stipe cylindrical to bulbous, 2-6 cm long, 1-2 cm in diam, colour as on upper surface; context homogeneous, but easily split radially, 1-3 cm thick, at first white, becoming pale lilac grey, all parts of basidiocarps black with KOH.
Hyphal system monomitic; generative hyphae with clamps, hyaline, usually 4-9 µm in diam, sometimes swollen to 12 µm next to clamps; gloeoplerous hyphae rather common, especially in and under the upper cortex, yellow in Melzer's reagent and KOH, 4-10 (-17) µm in diam; tramal hyphae more dense and parallel and narrow, usually 2-3.5 µm in diam.
Cystidia and other sterile hymenial elements absent.
Basidia 14-30 x 6-8 µm, clavate, tetrasterigmatic with a basal clamp.
Basidiospores 5-6 (-6.5) x 4-5 µm, angular to tuberculate, hyaline (pale yellowish brown in mass), thin-walled, negative in Melzer's reagent.
Substrata. Terrestrial in pine forests,
Distribution. Widespread in the temperate zone. In Central America we have only seen it in Costa Rica (see Mata and Ryvarden (2007).

Remarks. The species is recognized by its pale brown to greyish stipitate basidiocarps and microscopically by its angular spores.

Bondarzewia Singer,

Rev. Mycol. 5:4, 1940.
Basidiocarps annual, fleshy, stipitate, often fused to compound units, pileus light coloured, hyphal system dimitic with skeletal and simple septate generative hyphae, spores warted to asperulate and distinctly amyloid, on dead wood.
Type species: *Bondarzewia montana* (Quel.) Sing.
Remarks. The genus is easy to recognize by its strongly amyloid and crested spores unlike any other polypore treated in this book. It belongs in the so called *Russula* clade where all genera include species with amyloid spores and gloeocystidia.

Bondarzewia berkeleyii (Fr.) Bond. & Singer,
Ann. Mycol. 39:47, 1941. - *Polyporus berkeleyii* Fr., Nova Symb. p. 56, 1851.
Basidiocarps annual, stipitate with several to few pilei, mostly fused to a compound basidiocarp with imbricate and partly overlapping flabelliform to tongue-like pilei, up to

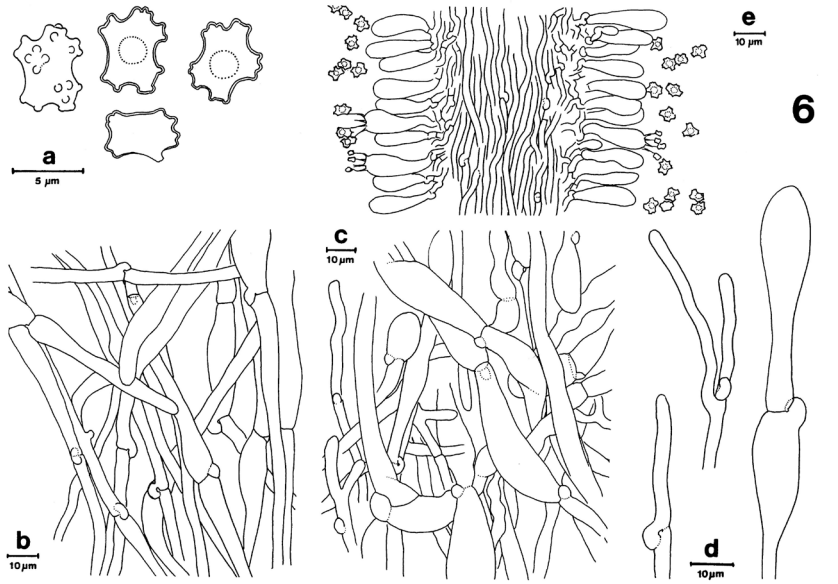

Fig. 3. *Boletopsis grisea* a) spores b) hyphae from pileus tomentum c-d) hyphae from tomentum on stipe e) section through trama and hymenium. Del. T. Niemelä.

50 cm in diameter, single pilei up to 15 cm long and 8 cm wide, margin thin and slightly undulating, fleshy when fresh, dries brittle to hard often with a certain degree of shrinking, taste bitter, when dry with a pleasant sweetish scent, pileus first ochraceous, then tan to light yellowish brown, darker when dry, usually con centrally zoned, finely velutinate to almost smooth, context fleshy, up to 3 cm thick, white to ochraceous, thicker than the tubes, quite hard in dry specimens, stipe short and irregular, up to 7 cm high, cylindrical to irregular in section, up to 6 cm, white to ochraceous and partly covered with decurrent pores pore surface whitish, cream to straw coloured when dry, pores angular, thin-walled and with incised to finely dented mouths, 1-2 per mm, more irregular on the stipe, tubes concolorous with the pore surface, up to 10 mm deep, separable from the context when fresh.
Hyphal system dimitic, generative hyphae thin-walled, hyaline, sinuous and often partly collapsed, simple septate, a few may be filled by refractive content (phase contrast) simulating vascular hyphae, diameter from 2-6 um, skeletal hyphae thick-walled to almost solid (most frequent in con text and trama) mostly sinuous and unbranched, a few with short rounded protuberances, 2-7 µm in diameter.
Basidia 30-55 x 10-12 µm with a simple septum at the base.
Cystidia none.
Basidiospores globose, 5-7.5 µm in diameter, ornamented with low ridges, strongly amyloid.
Substrate. On the ground from buried wood or roots, more rarely on the stumps, both in conifer and deciduous forests.
Distribution. In North America known from Eastern States, probably occurring also in Mexico and other Central American countries. Known from Europe, North America, Japan, and Sri Lanka.
Remarks: The strongly ornamented and crested amyloid spores are diagnostic for this species.

Ceratoporia Ryvarden & de Meijer,

Synopsis Fung. 15:44, 2002.
Basidiocarps resupinate, white, pores fairly large, about 2 per mm, tubular basidia up to 40 µm long with 4 large sterigmata, hyphal system monomitic, generative hyphae with clamps, cystidia present, basidiospores cylindrical, thin walled, smooth and hyaline, negative in Melzers reagent.
Type species: *Ceratoporia perplexa* Ryvarden & de Meijer.
Remarks. This is unique genus and species because of its tubular basidia with long uneven sterigmata, reminding strongly of those seen in many *Ceratobasidium* sp.

Ceratoporia perplexa Ryvarden & de Meijer, Fig. 4
Op.cit.
Basidiocarps annual, resupinate, pore surface white to cream, pores thin-walled, round to angular, about 2 per mm; tubes up to 1 mm deep, context white, very thin.
Hyphal system monomitic; generative hyphae with clamps, walls thin or up to 0.7 µm thick, strongly twisted in parts, especially close to the clamps, 2-3 µm wide.

Basidia clavate, with a clamp at the base, but without septa, 25-45 x 6-10 µm with 4 large cylindrical sterigmata, often of different length, up 10 µm long and 5 µm wide.
Dendrohyphidia present in the hymenium, individual branches to 2 µm wide.
Cystidia present, rare, smooth, thin-walled and pointed, up to 30 µm long.
Basidiospores 10-12 x 4-6 µm, cylindrical, smooth, thin-walled, and without reaction in Melzer's reagent.
Distribution. Known only from the type locality at Colombo, Parana in Brazil.
Remarks. This is a very remarkable genus and species and seemingly it is the first poroid genus in *Ceratobasidiales*, an order known for resupinate smooth, corticoid genera (see Roberts 1999).

The reasons for assuming that the genus belongs in *Ceratobasidiales*, are of course the remarkable basidia with the large tubular sterigmata and the strongly twisted hyphae, a feature not seen in genera belonging in the *Polyporaceae.*

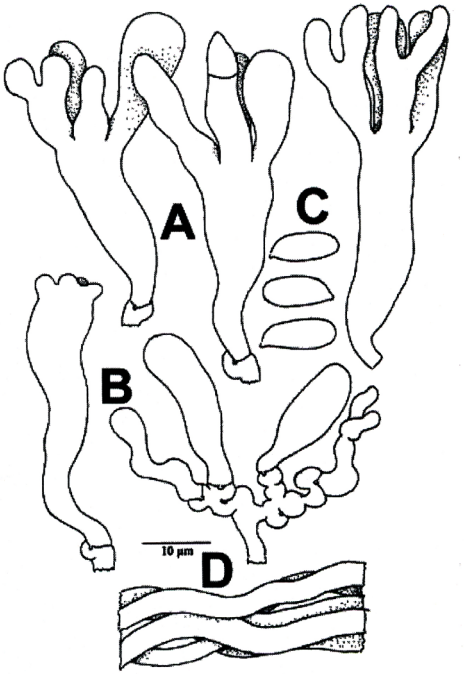

Fig. 4. *Ceratoporia perplexa* A) basidia, B) unripe basidia, C) spores, d) hyphae from subiculum. From the holotype. Del. P. Roberts.

Ceriporia Donk,

Med. Bot. Mus. Univ. Utrecht 9:170, 1933.

Basidiocarps annual, resupinate, pore surface white, tan or cinnamon, dirty greenish to purple, pores medium 2-6 mm, hyphal system monomitic, generative hyphae simple septate, cystidia none, spores cylindrical to allantoid, oblong ellipsoid or subglobose, hyaline, thin-walled, smooth and non-amyloid, mostly on hard wood, rarely on conifers.

Type species: *Ceriporia viridans* (Berk. & Broome) Donk

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 clamped generative hyphae. The genus is probably polyphyletic and must for the time being been looked upon as a pragmatic tool for determination of species with the characters listed above.

NB. Since neither spores nor hyphae react in Melzer´s reagent, this information is not repeated for each species. All spores are hyaline, smooth and thin walled and this is neither repeated for each species.

Key to Neotropical species of *Ceriporia*

NB Colours refer to dried basidiocarps

1. Cystidia present in the hymenium 2
1. Cystidia absent from the hymenium 3

2. Basidiospores globose, basidiocarps blackish .....**C. meruloidea**
2. Basidiospores allantoid, basidiocarps whitish .....**C. cystidiata**

3. Basidiocarps purplish or deep orange.....4
3. Basidiocarps white, yellow, ochraceous to pale brown.....5

4. Basidiocarps purplish pores 3-4 per mm.....**C. purpurea**
4 Basidiocarps deep orange to reddish brown, pores 7-9 per mm.....**C. spissa**

5. Basidiospores, 7-9 µm long.....6
5. Basidiospores shorter.....7

6. Basidiospores allantoid, basidiocarp white.....**C. reticulata**
6. Basidiospores oblong ellipsoid to subcylindrical, basidiocarp pale citric yellow .....**C. citrina**

7. Basidiospores allantoid to cylindrical.....8
7. Basidiospores subcylindrical, ellipsoid to subglobose.....10

8. Basidiospores allantoid, 4-6 µm long, pores thin-walled, 3-5 per mm.....**C. viridans**

8. Basidiospores cylindrical 4-4.5 µm long, pores thick-walled, 2-3 per mm.....9

9. Pore surface warm yellow, spores 2 µm wide..... **C. aurea**
9. Pore-surface unevenly whitish brown, spores 1.5. µm wide.....**C. albobrunnea**

10. Basidiospores subcylindrical to oblong ellipsoid.....11
10. Basidiospores subglobose.....**C. xylostromatoides**

11. Pore surface evenly brown when dry.....12
11. Pore surface white, yellow, cream to pale tan or buff when dry.....13

12. Pores 6-8 per mm, round.....**C. ferruginicincta**
12. Pores 1-3 per mm, angular.....**C. amazonica**

13. Pores 6-8 per mm, basidiospores 3-3.5 x 1.5-2 µm.....14
13. Pores and basidiospores larger.....15

14. Basal hyphae strongly encrusted.....**C. incrustata**
14. Basal hyphae more or less smooth.....**C. microspora**

15. Pores round, 2-5 per mm, basidiospores 2-2.5 µm wide.....**C. alachuana**
15. Pores angular to hexagonal, 1-2 per mm, basidiospores 2.5-3 µm wide.....16

16. Pore surface straw coloured, pores angular to irregular, up to 3 mm deep.....
.....**C. straminea**
16. Pore surface cream coloured, pores angular to hexagonal, up to 0.5 mm deep.....
..... **C. dentipora**

Synoptic keys to Neotropical *Ceriporia* species

Key to species according to falling size in µm of basidiospores

reticulata	7-9 x 2-3.5
citrina	7-8 x 3.2-3.5 citric yellow
dentipora	5-6 x 2.7-3
meruloidea	5-6 in diam. - black
purpurea	5-6 x 2-2.5 – purplish
ochracea	5-6 x 2.5-3
straminea	4.5-5.5 x 2.5-3 – straw yellow
*alachuan*a	4-5 x 2-2.5
albobrunnea	4-4.5 x 1.5
angulata	4-4.5 x 1.7-2
aurea	4-5 x x 2 -yellow
cystidiata	4-4.5 x 1

spissa	4-6 x 1.5-2 - vivid orange
subspissa	4-4.5 x 2
viridans	4-6 x 1.5- 2
xylostromatioides	4-6 x 3.5-4
ferruginicincta	3.5-5 x 2-3
incrustata	3-3.5 x 1.8-2
micropora	3-3.5 x 1.5-2

Key to species according to falling pore size (pores per mm)

dentipora	1-2
meruloidea	1-2
citrina	1-3
straminea	1-3
albobrunnea	2-3
angulata	2-3
aurea	2-3
ochracea	2-3
virdidans	3-5
reticulata	3-4
purpurea	3-4
xylostromatioides	3-4
aluchuana	3-5
subspissa	4-5
ferruginocincta	6-8
incrustata	6-8
cystidiata	6-8
microspora	6-8
spissa	7-9

Ceriporia alachuana (Murr.) Hallenb.,
Iran. J. Pl. Path. 15:1, 1979. - *Poria alachuana* Murrill, Bull. Torrey Bot. Club 65:659, 1938.
Basidiocarps annual, resupinate; pore surface cream coloured to tan, the pores angular, 3-5 per mm, with thin, entire, minutely fimbriate dissepiments, at first cupulate, sterile margin often conspicuous, soft-floccose, paler than the pore surface; subiculum thin, up to 400 µm thick, soft, cream coloured; tube layer up to 2.5 mm thick, tramal tissue concolorous and continuous with subiculum, tubes drying brittle but easily sectioned.
Hyphal system monomitic; contextual hyphae thin- to firm-walled, simple-septate, with moderate branching, often in right angles, 2.5-6 (7) µm in diam; tramal hyphae similar.
Cystidia or other sterile hymenial elements lacking.
Basidia 12-19 x .5-5.5 µm, clavate, tetrasterigmatic.
Basidiospores , 4-5 x 2-2.5 µm, cylindrical to slightly oblong ellipsoid.
Distribution. A rare species known from Southern United States and some places in the Caribbean.

Remarks. Macroscopically *Ceriporia alachuana* looks like a small tan specimen of *C. reticulata,* which however are whiter colour and has much larger spores. Tan to pale cinnamon specimens of *C. viridans*, can be recognized by longer and more slender spores (4-6 x 1.5-2 µm).

Ceriporia albobrunnea Ryvarden & Iturriaga,
Mycologia 95:1067, 2003.
Basidiocarps annual, resupinate, brittle when dry, 10 x 4 cm long and wide, up to 2 mm thick, pore surface unevenly whitish brown, with patches where touched or bruised when fresh, pores thick-walled, round to angular, slightly irregular, 2-3 per mm with dissepiments up to 250 µm thick, tube layer pale ochraceous, up to 1 mm deep, subiculum up to 250 µm thick, cottony, white.
Hyphal system monomitic, generative hyphae hyaline, thin- to slightly thick-walled, simple-septate, with sparse branching, 3.-5 µm in diam.
Cystidia absent.
Basidia 12-14 x 3.5-4.5 µm clavate, tetrasterigmatic.
Basidiospores 4-4.5 x 1.5 µm, cylindrical.
Distribution. Known only from the type locality in Venezuela.
Remarks. The species is characterized by its pale whitish to brown surface with large pores besides the cylindrical basidiospores.

Ceriporia angulata Gomes-Silva, Ryvarden & Gibertoni,
Mycologia 104:881, 2012.
Basidiocarps annual, resupinate, adnate, up to 1 mm thick, membranous to slightly firm when dried; *margin* wide, white and cottony, subiculum white and cottony, up to about 500 µm thick in the centre of the basidiocarps, pore surface ochraceous, pores angular, 2–3 per mm, dissepiments entire to lacerate, thin; tubes concolorous with the hymenial surface, up to 1 mm deep, context concolourous with the pore surface, homogeneous, fibrous, very thin.
Hyphal system monomitic, generative hyphae simple–septate, hyaline to pale yellow, 2.5–4.5 µm wide, thin-walled in the subhymenium, thick-walled in the deep trama and context, in the dissepiments and margin, pointed appearance at hyphal ends with distinct scattered crystals, almost looking like projecting cystidia;
Cystidia absent.
Basidia 12-16 × 4-5 µm, clavate.
Basidiospores 4-4.5 × 1.7–2.2 µm, oblong ellipsoid.
Distribution: Known from the state of Amazonas, Brazil.
Remarks. The species is characterized by its angular rather shallow pores, a white subiculum and margin, as well as the encrusted hyphae. It is macroscopically similar to *C. alachuana*, but differs by having distinctly angular pores (cf. round pores, 3–5 per mm, in *C. alachuana*). Microscopically, these species differ by the types of hyphae (smooth in *C. alachuana* and encrusted in *C. angulata*). *Ceriporia incrustata*, another similar species, differs in the pore size (6–8 per mm, cf. 2–3 per mm in *C. angulata*), smaller basidiospores (3–3.5 × 1.8–2 µm and 4–4.5 × 1.7–2.2 µm, respectively), and

strongly encrusted hyphae in the trama and context (encrusted hyphae in the margin and dissepiments only in *C. angulata*).

Ceriporia aurea Ryvarden,
Synopsis Fung. 32:58, 2014.
Basidiocarps annual, resupinate, effused, in the holotype about 10 x 4 cm, up to 1 mm thick, fragile when dry, margin white and cobwebby, not present all around the poroid surface, the latter warm yellow, pores round to sinuous as the type specimen was growing on a sloping substrate, 2-3 per mm; tube layer up to 400 µm deep, subiculum white and of loose cobwebby structure, very thin.
Hyphal system monomitic; generative hyphae richly branched, often at right angles, 2-7 µm wide in the trama, up to 10 µm wide and more thick-walled in the subiculum and margin.
Cystidia and other sterile hymenial elements absent.
Basidia 12-15 x 4-6 µm, clavate, tetrasterigmatic.
Basidiospores 4-5 x 2 µm, cylindrical to allantoid.
Distribution. Known only from the type locality, but probably widespread in the Amazonian and adjacent areas.
Remarks. The species is undoubtedly related to C. *viridans* (Berk. & Br.) Donk, which has whitish to pinkish colours often with a greenish tint when dry, besides smaller pores, 3-5 per mm.

Ceriporia citrina M. Mata & Ryvarden,
Synopsis Fung. 27:60, 2010.
Basidiocarp resupinate, pore surface citric yellow when fresh, fading slightly when dry, pores slightly angular with entire
dissepiments, 1-3 per mm, tubes concolorous, up to 1 mm deep, context almost invisible, white
and about 200 µm thick in the centre of the basidiocarp.
Hyphal system monomitic; hyphae 3-6 µm wide in the subiculum, 2-5 µm wide in the trama,
with simple septa, thin walled, hyaline.
Cystidia absent.
Basidia 15-20 x 4-6 µm, tetrasterigmatic.
Basidiospores 7-8 x 3.2 -3.5 µm, oblong-ellipsoid to subcylindrical, hyaline, thin-walled, and with
an oil drop.
Substrata. On dead hard wood and dead basidiocarps of a *Trametes* spp., probably *T. byrsina*.
Distribution. Known only from Costa Rica.
Remarks. The species is characterised by the citric yellow basidiocarp with angular pores and ellipsoid to cylindrical
basidiospores.

Ceriporia cystidiata Ryvarden & Iturriaga,
Mycologia 95:1067, 2003.
Basidiocarps annual, resupinate, brittle when dry, 1 mm thick, pore surface white to pale cream, pores thin-walled, round to angular, slightly irregular, 6-8 per mm, tube layer concolorous, up to 1 mm deep, subiculum very thin, cottony, white.
Hyphal system monomitic, generative hyphae hyaline, thin- to slightly thick-walled, simple-septate, with sparse branching, often in right angles, 3-8 µm in diam.
Cystidia present in the hymenium, tubular, thin walled, with a slight apical encrustation, up to 90 µm long, 5-12 µm wide.
Basidia 10-12 x 3.5-4.5 µm, clavate.
Basidiospores 4-4.5 x 1 µm, allantoid.
Distribution. Known only from the type locality.
Remarks. The species is separated by the large tubular and slightly encrusted cystidia. The basidiocarps are thin and easily overlooked.

Ceriporia dentipora Ryvarden,
Synopsis 27: 39, 2010.
Basidiocarps annual, resupinate; pore surface cream, the pores angular to hexagonal, 1-2 per mm with strongly dentate pore walls which are up to 0.5. mm high, subiculum thin, up to 200 µm thick, soft, cream.
Hyphal system monomitic; hyphae thin-walled, with moderate branching, often in right angles, 2.5-6 (7) µm in diam., clamps absent.
Cystidia or other sterile hymenial elements lacking.
Basidia 10-12 x 5-6 µm, clavate, tetrasterigmatic.
Basidiospores 5-6 x 2.7-3 µm, cylindrical to slightly oblong ellipsoid.
Distribution. Known only from the type locality in Ecuador.
Remarks. The strongly angular and very shallow pores with dentate pore walls characterize this species. The spores are longer than those of *C. alachuana*, which has spores 4-5 µm long and smaller pores, 3-5 per mm. The colour of the two species is however rather similar.

Ceriporia ferruginicincta (Murrill.) Ryvarden ,
Prelim. polyp.flora East Africa p. 270, 1980. - *Poria ferruginicincta Murrill* Torrey Bot. Club. Bull 65:660, 1938.
Basidiocarp 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, dense and resinous of 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.
Cystidia none.

Basidiospores 3.5-5 x 2-3 µm, oblong ellipsoid to sub cylindrical.
Distribution. In the United States known from Florida besides Puerto Rico.
Remarks. The species is characterized by thin, semitranslucent, and very small pores. When dry, the basidiocarps give an impression of being parchment-like. It may be confused with *C. viridans*, but the spores are distinctly oblong ellipsoid and not cylindrical. Further *C. viridans* has a much softer consistency and is without a resinous taste.

Ceriporia incrustata M. Mata & Ryvarden**,**
Synopsis Fung. 27: 64, 2010.
Basidiocarps annual, resupinate, adnate, up to 1.5 mm thick, margin narrow and white, pore surface
ochraceous pores round, 6-8 per mm and invisible to the naked eye, tubes concolorous, up to 1 mm deep,
context almost invisible, white and about 400 µm thick in centre of basidiocarp.
Hyphal system monomitic; hyphae 3-5 µm wide, with simple septa, in the in the subhymenium thin-walled
and hyaline, but in the deep trama and context thick-walled and, in parts, heavily encrusted and then
with the appearance of deeply embedded, encrusted cystidia.
Cystidia absent.
Basidia 10-14 x 4-5 µm, clavate.
Basidiospores 3-3.5 x 1.8-2 µm, ellipsoid.
Distribution. Known only from the type locality.
Remarks. The species is characterised by the resupinate ochraceous basidiocarp with tiny pores and strongly encrusted hyphae in the trama and context.

Ceriporia merulioidea Ryvarden,
Synopsis Fung. 27:40, 2010.
Basidiocarps annual, resupinate and meruloid on the substrate, brittle when dry,1 mm thick, pore surface white to pale cream when fresh, drying black to dirty whitish, pores thin-walled, angular, shallow,1-2 per mm, tube layer concolorous, up to 1 mm deep, subiculum very thin, cottony, white.
Hyphal system monomitic; generative hyphae 3-10 µm wide, hyaline, thin to slightly thick-walled, simple-septate, with sparse branching,
Cystidia 5-12 µm wide, up to 110 µm long, present in the hymenium, tubular, thin walled and apically encrusted.
Basidia 10-12 x 3.5-4.5 µm, clavate, tetrasterigmatic.
Basidiospores 5-6 µm, globose.
Distribution. Known only from the type locality.
Remarks. Characterised by (in dried condition!) the black basidiocarps with large tubular, apically encrusted cystidia and globose spores.

Ceriporia microspora I. Lindblad & Ryvarden,
Mycotaxon 71:337, 1999.

Basidiocarps annual to perennial, resupinate, brittle when dry, 1-2 mm thick. Margin narrow and sterile, diffuse, white, pore surface white to buff, pores thin-walled, round to angular, slightly irregular, 6-8 per mm, tube layer concolorous, up to 2 mm deep, subiculum very thin, cottony, white.
Hyphal system monomitic, generative hyphae hyaline, thin- to slightly thick-walled, simple-septate, with sparse branching, 3.5-6 µm in diam.
Cystidia and other sterile hymenial elements absent.
Basidia 9-12 x 3.5-4.5 µm, clavate, tetrasterigmatic.
Basidiospores 3-3.5 x 1.5-2 µm, ellipsoid.
Distribution. Known only from the type locality.
Remark. The small spores are characteristic for this species.

Ceriporia ochracea Ryvarden,
Synopsis 32: 79, 2014. – *Ceriporia dentipora* Mata & Ryvarden 2010, non Ryvarden 2010.
Basidiocarps annual, resupinate, adnate, up to 1 mm thick, margin narrow and pale yellow, pore surface
ochraceous pores irregular, angular, in parts also split in front, 2-3 per mm, tubes concolorous, up to 1 mm deep, context almost invisible, white and about 200 µm thick in centre of basidiocarp.
Hyphal system monomitic; hyphae 3-6 µm wide, with simple septa, thin-walled, hyaline.
Cystidia absent.
Basidia 12-18 x 5-7 µm, tetrasterigmatic.
Basidiospores 5-6 x 2.5-3 µm, oblong-ellipsoid to cylindrical.
Distribution. Known only from the type locality.
Remarks. Characterised by the ochraceous basidiocarp with irregular pores and cylindrical basidiospores.

Ceriporia purpurea (Fr.) Donk, Fig. 5
Konn. Nederl. Akad. Wetensch. Amst. Proc. Ser. C. 7 No. 1:28, 1971. - *Polyporus purpureus* Fr. Syst. Mycol. 1:379, 1821.
Basidiocarps annual, resupinate to effused-reflexed 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 3-4 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; subicular hyphae hyaline in KOH, simple-septate, thin- to moderately thick-walled, with frequent branching, 1-6 µm in diam, some lightly encrusted; tramal hyphae similar.
Hyphoid sterile elements present on edges of tubes or folds, cylindrical, 3-6 µm in diam and projecting up to 50 µm, occasionally septate.
Basidia 14-20 x 4-6 µm, clavate, tetrasterigmatic.
Basidiospores 5-6 x 2-2.5 µm, allantoid.
Distribution. A cosmopolitan species, but rare in the Neotropical zone.

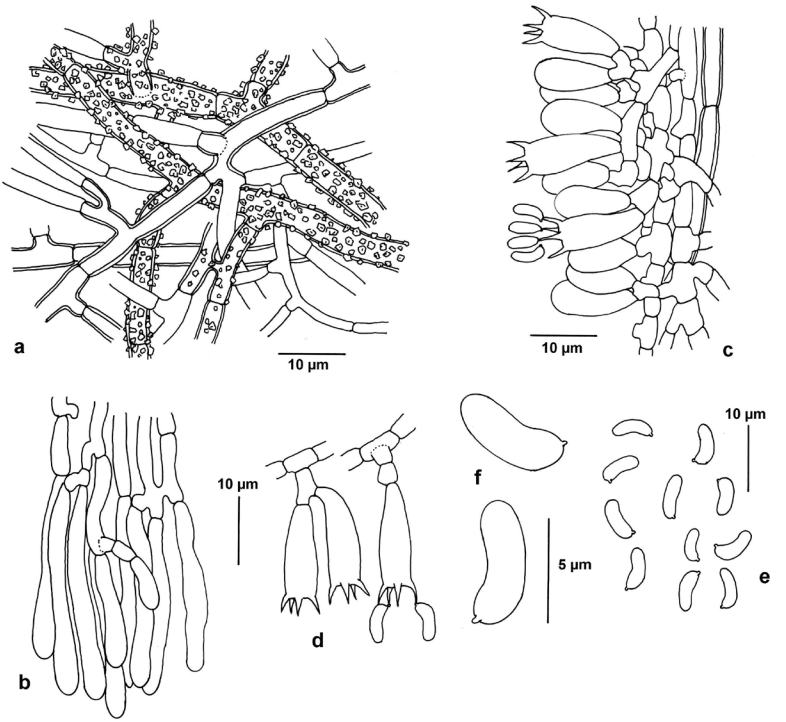

Fig. 5. *Ceriporia purpurea* (Ex Polyp. Exsicc. Cechosl. 183, LISU 210826). a) hyphae from subiculum; b) hyphae from dissepiments edge; c) section through hymenium; d) basidia; e) f) basidiospores. Del. I. Melo.

Remarks. The species is recognized by its purplish basidiocarp with fairly large allantoid spores.

Ceriporia reticulata (Hoffm.:Fr.) Domanski,
Acta. Soc. Bot. Pol. 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 3-4 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 thin-walled, often branched at right angles, simple-septate, loosely interwoven, 3-7 µm in diam; tramal hyphae similar.
Cystidia and other sterile hymenial elements lacking.

Basidia 15-20 x 5-7 µm, clavate.
Basidiospores 7-9.5 x 2-3.5 µm, allantoid.
Substrata. On dead hardwoods of many genera, occasionally on dead polypores.
Distribution. Probably cosmopolitan, but distribution in the neotropics unknown.
Remarks. The pores of *C. reticulata* have a distinctive net-like or reticulate appearance in the field. The relatively large, allantoid spores are another diagnostic character for this species.

Ceriporia spissa (Schw.:Fr.) Rajchenb.,
Mycotaxon 17:276, 1983. - *Polyporus spissus* Schw.:Fr., Elench. Fung. p. 111. 1828.
Basidiocarps annual, becoming widely effused; pore surface bright orange when fresh, darkening to reddish brown on drying, pores 7-9 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, thin-walled, simple-septate, with frequent branching, 2-3.5 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 thick-walled.
Cystidia and other sterile hymenial elements lacking.
Basidia 12-24 x 5-6 µm clavate, some appearing refractive in KOH.
Basidiospores 4-6 x 1.5-2 µm, allantoid.
Substrata. In South America on hardwoods, in North America also on conifers.
Distribution. From United States and southwards to southern Brazil, but rare.
Remarks. *Ceriporia spissa* is one of the most beautiful polypores and its bright orange basidiocarps are very distinctive in the field.

Ceriporia straminea Ryvarden**,**
Synopsis Fung. 32:58, 2014.
Basidiocarps annual, resupinate; 2 x 4 cm in the holotype, pore surface straw coloured, pores angular to partly irregular 1-3 per mm, dentate and deeply split, up to 3 mm deep, drying brittle, subiculum thin, up to 200 µm thick, soft, white and of loose cottony consistency**.**
Hyphal system monomitic; generative hyphae simple septate, thin walled, 3-5 µm in diam.
Cystidia or other sterile hymenial elements lacking.
Basidia 12-15 x 5-6 µm with four sterigmata and a simple septum at the base.
Basidiospores 4.5-5.5 x 2.5-2.8 µm, ellipsoid.
Distribution. Known only from the type locality.
Remarks. The straw coloured basidiocarp with the strongly split and dentate pore surface besides the ellipsoid spores, should make it rather easy to recognize.

Ceriporia subspissa Aime & Ryvarden,
Synopsis Fung. 23:19, 2007.

Basidiocarps annual, resupinate, brittle and difficult to remove from the substratum, 1 mm thick, pore surface deep reddish brown, pores thin-walled, round to angular, elongated on sloping substrate, 4–5 per mm, tube layer concolorous, up to 1 mm deep, subiculum very thin, deep reddish brown.
Hyphal system monomitic, generative hyphae hyaline, thin- to slightly thick-walled, lacking clamp connections, 3–5 µm in diam., with sparse branching.
Cystidia up to 50 µm long x 5–10 µm wide, ventricose with pointed apex, smooth and thin walled.
Basidia 12–15 x 5–6 µm, clavate, tetrasterigmatic.
Basidiospores 4–4.5 x 2 µm, ellipsoid.
Distribution. Known only from the type locality
Remarks. The species is undoubtedly related to *C. cystidiata* Ryvarden & Iturr., described from Venezuela. However, it is ochraceous, has allantoid spores and slightly encrusted cystidia. The basidiocarps of *C. subspissa* are very thin and easily overlooked due to its dark cryptic colour.

Ceriporia viridans (Berk. & Broome) Donk,
Med. Bot. Mus. Univ. Utrecht 9:171, 1933. - *Polyporus viridans* Berk. & Broome, Ann. Mag. Nat. Hist. 3,7:379, 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, 3-5 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 thick-walled in the subiculum and margin.
Cystidia and other sterile hymenial elements absent.
Basidia 12-15 x 4-6 µm, clavate.
Basidiospores 4-6 x 1.5-2 µm cylindrical to allantoid.
Substrata. Many different genera of hardwoods and basidiocarps of old polypores, mostly on rather rotten wood.
Distribution. Widespread and probably cosmopolitan.
Remarks. The species is recognized by its narrow spores.

Ceriporia xylostromatoides (Berk.) Ryvarden,
Prelim. polyp. flora East Africa p. 276, 1980. - *Polyporus xylostromatoides* Berk., Lond. J. Bot. 2:637, 1843.
Basidiocarp resupinate, annual, widely-effused, up to 3 mm thick, rather loose to more coriaceous, taste none. margin white, finely byssoid, wide to narrow, pore surface white to cream when fresh, drying pale tan to pale straw-coloured, pores round to entire and then 3-4 (5) per mm, with age frequently slightly dentate, incised and irregular and then 1-2 per mm measured from dissepiment to dissepiment but deeper in the tubes it is easy to observe that smaller pores have been split, in this stage the hymenophore reminds of that 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.
Basidia clavate, up to 15 µm long, tetrasterigmatic.
Basidiospores 4-5 (6) x 3.5-4.5 (5) µm, subglobose to broadly ellipsoid.
Distribution. Widely distributed in the tropical and subtropical zones.
Remarks. The species may be recognized by its subglobose spores.

Ceriporiopsis Domanski,

Acta Soc. Bot. Pol. 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; basidiospores smooth, thin-walled, hyaline, negative in Melzer's reagent except for one species. On dead wood, causing a white rot. Cosmopolitan genus.
Type species: *Poria gilvescens* Bres.
Remarks. The genus is a counterpart to Ceriporia, being separated by having clamped generative hyphae. Both genera are pragmatic groups and include certainly species with different phylogenetic background. It will take years with reliable DNA sequencing before the internal relationships between their monomitic resupinate species are clarified. For the time being genera are kept as defined here as a convenient tool for naming specimens.

Key to Neotropical species of *Ceriporiopsis*

1. Pores 6-8 per mm 2
1. Pores larger 8

2. Basidiospores cylindrical to allantoid 3
2. Basidiospores ellipsoid to subglobose 4

3. Basidiospores allantoid 3.5-5 x 1-1.2 µm ..... **C. loweii**
3. Basidiospores cylindrical 3 - 3.5 x 1.5-1.7 µm ..... **C. lagerheimii**

4. Spores subglobose 5-6 x 4.5-5 µm, pore surface cinnamon ..... **C. cinnamomea**
4. Spores smaller, pore surface differently coloured 5

5. Pore surface deep brown to vinaceous 6
5. Pore surface whitish to yellowish 7

6. Pore surface deep vinaceous, becoming black by drying, cystidia absent ..... **C. vinosa**
6. Pore surface deep brown, hyaline cystidia present in hymenium ..... **C. obscura**

7. Basidiospores subcylindrical 3.5-4.5 x 2-2.5 µm ..... **C. jensenii**
7. Basidiospores ellipsoid, 3-3.5 x 2-3 µm ..... **C. flavilutea**

8. Basidiospores subcylindrical, 8-10 x 3-4.5 µm ..... **C. cerrusata**
8. Basidiospores shorter, variously shaped 9

9. Pores irregular, up to 3 per mm becoming daedaleoid to sinuous 10
9. Pores more or less angular to round and smaller 11

10. Basidiospores 3-4 µm long, pores irpicoid to daedaleoid, 1-2 per mm .....
..... **C. laetemarginata**
10. Basidiospores 4-5 µm long, pores round to angular, in parts split 2-3 per mm .....
..... **C. balaenae**

11. Basidiospores subglobose 12
11. Basidiospores ellipsoid to cylindrical 13

12. Basidiospores 2.5-3.5 x 2-2.5 µm ..... **C. mucida**
12. Basidiospores 5-6 x 4-5 µm see ..... **Obba rivulosa**

13. Smooth, tubular cystidia present, basidiospores cylindrical, 5-6 x 2.5-3.5 µm .....
..... **C. cystidiata**
13. Cystidia absent, basidiospores ellipsoid, 3.5-4.5 x 2.5-3 µm..... 14

14. Basidiospores slightly amyloid, pore surface white ..... **C. myceliosa**
14. Basidiospores non amyloid, pore surface ochraceous to pale brown 15

15. Pore surface brown (reminding of a *Phellinus* spp.)..... **C. umbrinescens**
15. Pore surface pale ochraceous ..... **C. costaricensis**

Ceriporiopsis balaenae Niemelä,
Natural. Can. 112:449, 1985.
Basidiocarps resupinate, annual, rarely more than 5 cm in longest dimension, 1-3 mm thick, soft when fresh, brittle and fragile when dry,, margin narrow to lacking, white, pore surface cream coloured, drying yellow to honey or pale straw coloured, pores thin-walled, angular, 2-3 per mm, in age becoming split and irregular, up to 1 mm wide, on sloping substrates pores split forming semi-sinuous to partly labyrinthine pores; tubes to 3 mm deep, concolorous with the pore surface, subiculum white and very thin.
Hyphal system monomitic, all hyphae thin-walled, smooth and with clamps, 2-4 µm wide, weakly amyloid (heating recommended).
Cystidia or other sterile elements absent.
Basidia 14-18 x 4-6 µm, clavate with four sterigmata.
Basidiospores 4-5 x 2.5-3.5 µm, ellipsoid.
Distribution. Puerto Rico. Originally described from Hudson Bay in Canada, but the tropical specimens have been compared with original material and confirmed by Niemelä to be conspecific.

Remarks. The irregular pores becoming split and dentate characterize this species. It is undoubtedly close to *C. latemarginata*, which however has larger and more irregular pores and slightly smaller basidiospores, i.e. up to 4 µm long.

Ceriporiopsis cerrusata (Bres.) Ryvarden,
Mycotaxon 33:305, 1988. - *Poria cerrusata* Bres., Stud. Trentini 2:57, 1926.
Basidiocarps annual, resupinate, fragile, pore surface white, pores angular with entire dissepiment, 2-3 per mm; tubes concolorous, up to 2 mm deep, context white, cottony about 1 mm deep.
Hyphal system monomitic; generative hyphae with clamps, hyaline, thin- to distinctly thick-walled, 3-7.5 µm wide,
Cystidia absent.
Basidia 22-28 x 4-6 µm, clavate with 4 sterigmata.
Basidiospores 8-10 x 3-4.5 µm, subcylindrical.
Distribution. Known only from the type locality at Sao Leopoldo, Southern Brazil. but do certainly have a wider distribution..
Remarks. The angular pores and the large subcylindrical basidiospores characterize this species.

Ceriporiopsis cinnamomea Gibertoni & Ryvarden,
In sched.
Basidiocarps resupinate, annual, up to 6 cm in longest dimension, 1-3 mm thick, soft when fresh, brittle and fragile and resinous when dry, margin narrow to lacking, white, pore surface cinnamon, pores round, hardly visible to the naked eye, 6-8 per mm, tubes to 2.5 mm deep, concolorous with the pore surface, subiculum white, up to 150 µm thick, strongly contrasting the cinnamon resinous tube layer.
Hyphal system monomitic, generative hyphae thin- to thick-walled, in 3% KOH, distinctly thick walled in Melzer's reagent, smooth and with clamps which can be difficult to find, 2-4 µm wide,
Cystidia or other sterile elements absent.
Basidia 14-18 x 4-6 µm, clavate with four sterigmata.
Basidiospores 5-6 x 4.5-5 µm, subglobose.
Distribution. Known only from the type locality.
Remarks. The pale uniform cinnamon coloured pore surface and the subglobose spores characterize this 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.
Cystidia absent.
Basidia 10-15 x 4-5 µm, tetrasterigmatic.
Basidiospores 4-5 x 2.5-2.8 µm, ellipsoid, thin-walled, hyaline and with an oil drop,
Distribution. Known only from the type locality.
Remarks. The species is characterised by the ochraceous basidiocarp with angular pores and ellipsoid basidiospores.

Ceriporiopsis cystidiata Loguercio-Leite, Gonçalves & Ryvarden,
Mycotaxon 79: 286, 2001.
Basidiocarps annual, resupinate, fragile, margin whitish to pale tan when dry, pale brown, narrow, pore surface yellow when dry , pores angular, , with thin, entire dissepiments, 2-3 per mm; tubes concolorous with the pore surface, subiculum whitish, almost absent.
Hyphal system monomitic; subicular generative hyphae hyaline, thin- to slightly thick-walled, often branched, with abundant clamps, 2-3 µm in diam.
Cystidia present in the hymenium, smooth, clavate to slightly irregular, rounded or with a papillae 10-15 x 4-8 µm, occasionally with a few apical crystals.
Basidia 15-18 x 4-5 µm, clavate tetrasterigmatic.
Basidiospores 5-6 (7) x 2.5-3.5 µm, cylindrical.
Distribution. Known only from the type locality.
Remarks. The species is the only one it the genus from American with smooth hymenial cystidia, thus, it should be easy to recognize microscopically. However, *C. hydnoidea* has yellowish gloeocystidia, clearly different from the cystidia described above.

Ceriporiopsis flavilutea (Murrill) Ryvarden,
Mycotaxon 22:185, 1985. - *Poria flavilutea* Murrill, Mycologia 13:176, 1921.
Basidiocarps annual, resupinate, adnate, up to 2 mm deep, margin white with some scattered rhizomorphs, pore surface yellow in the type, probably paler when fresh, pores angular with entire dissepiment, 6-8 per mm with some more irregular; tubes concolorous, up to 1 mm deep, context white, cottony about 1 mm deep.
Hyphal system monomitic; generative hyphae with clamps, hyaline, thin- to distinctly thick-walled, 2-4 µm wide,
Cystidia absent.
Basidia not seen.
Basidiospores 3-3.5 x 2-3 µm, oblong ellipsoid.
Distribution. Known only from the type locality in Puerto Rico, but do certainly have a wider distribution.
Remarks. The small, thin-walled angular pores and the small basidiospores characterize this species. It is clearly related to *C. mucida,* but separated by much smaller pores.

Ceriporiopsis hydnoidea Ryvarden & Iturriaga,
Synopsis. Fung. 18: 70, 2004.
Basidiocarps resupinate, annual, up to 12 cm in longest dimension, 1-3 mm thick, soft when fresh, brittle and fragile when dry, margin narrow to lacking, white, pore surface white, pores thin-walled, first angular, 2-3 per mm but soon splitting into hydnoid

processes and up to 3 mm between the split parts, tubes to 8 mm deep, concolorous with the pore surface, subiculum white and thin.
Hyphal system monomitic, all hyphae thin-walled, smooth and with clamps, 2-5 µm wide.
Gloeocystidia present, arising deep in the trama and bend into the hymenium but not projecting above it, yellowish oily content as grains and small drops, no reaction in Meltzer's reagent, 4-8 µm wide and up to 120 µm long.
Basidia clavate with four sterigmata, 14-18 x 4-6 µm.
Basidiospores 5-7 x 2.5-3 µm, ellipsoid.
Distribution. Known only from the type locality.
Remarks. The irregular pores becoming split and hydnoid, the yellow gloeocystidia and the ellipsoid to almost navicular basidiospores characterize this species. From the slightly similar *C. cystidiata*, it is separated by the spores (cylindrical in *C. cystidiata*) and the yellow, long gloeopleurous cystidia (small, hymenial and hyaline in *C. cystidiata*).

Ceriporiopsis jensii Læssøe & Ryvarden,
Synopsis Fung. 26: 43, 2010.
Basidiocarps annual, resupinate, adnate, up to 1 mm thick, margin narrow and white, pore surface yellowish to cinnamon when fresh, olivaceous brown and shrunken with a dense agglutinated structure when dry, pores slightly angular with entire dissepiments, 6-8 per mm, pore surface in parts split, due to shrinking of the basidiocarps during drying, tubes concolorous, up to 0.8 mm deep, context almost invisible, agglutinated and pale brown, with a distinct and strong smell of passion fruit when fresh.
Hyphal system monomitic; hyphae 2-5 µm wide, with clamps, hyaline, thin- to distinctly thick-walled, agglutinated and difficult to separate in microscopical preparations, in the dissepiments partly with a fine encrustation and some with a slightly lobed apex.
Cystidia absent.
Basidia 15-20 x 4-7 µm, clavate**,** tetrasterigmatic.
Basidiospores 3.5-4.5 x 2-2.5 µm, subcylindrical and with an oil drop.
Distribution. Known only from the type locality, but probably with a wider distribution in the Amazon basin.
Remarks. The species is characterised by the dense basidiocarp which changes colour during drying, small, thin-walled angular pores, the small subcylindrical basidiospores and the smell of passion fruit when fresh.

Ceriporiopsis lagerheimii Læssøe & Ryvarden,
Synopsis Fung. 27:44, 2010.
Basidiocarps annual, resupinate, up to 2 mm thick, margin thin and lacking cords, pore surface white to cream-coloured, when fresh with some bluish hues in places, pores round to angular with irregular dissepiments, 5-7 (8) per mm; tubes concolorous, up to 2 mm deep, context white, very thin and almost invisible. Smell pleasant.
Hyphal system monomitic; generative hyphae 3-5 µm wide, with clamps, hyaline, thin- to distinctly thick-walled,
Cystidia absent.
Basidia not seen

Basidiospores 3-3.5 x 1.5-1.7 µm, cylindrical.
Distribution. Known only from the type locality.
Remarks. Characterised by the small angular pores and the small cylindrical spores.

Ceriporiopsis latemarginata (Rick.) Rajchenb.,
Nord. J. Bot. 7:554, 1987 - *Daedalea latemarginata* Rick, Iheringia Bot. 7:263, 1960. - *Antrodiella angulatoporia* Ryvarden, Mycotaxon 28:525, 1987**.**
Basidiocarps annual, resupinate, orbicular, when mature with slightly reflexed margin, in the type 7 x 6 x 0.2 cm, pileus when present first white, drying straw coloured, sometimes with narrow dark concentric lines, probably reflecting different growth periods, basidiocarps contracting during drying, loosely attached to the substratum, pore surface white, becoming straw to pale cinnamon when dry, pores irregular, first slightly merulioid, later round, irpicoid to daedaleoid, 1-2 per mm in regular parts, up to 2 mm deep, context white, cottony about 2 mm deep.
Hyphal system monomitic; generative hyphae with clamps, hyaline, thin- to distinctly thick-walled, 2.5-12 µm wide with long segments without clamps, easily interpreted as skeletal hyphae,
Cystidia absent.
Basidia 15-16 x 4-6 µm, clavate with 4 sterigmata.
Basidiospores 3.5-4 x 2.5-3 µm, subglobose to broadly ellipsoid.
Distribution. Known from Brazil, Argentine and Venezuela.
Remarks. The angular irregular pores and the subglobose basidiospores characterize this species.

Ceriporiopsis loweii Rajchenb.,
Nord. J. Bot. 7:564, 1987.
Basidiocarps annual, resupinate, reviving, adnate, up to 2 mm thick, pore surface white to cream-coloured, pores round to angular with irregular dissepiments, 6-8 per mm; tubes concolorous, up to 2 mm deep, context white, almost invisible.
Hyphal system monomitic; generative hyphae with clamps, hyaline, thin- to distinctly thick-walled, 1.5-3 µm wide, some with a bulbous apex, up to 6 µm in diam, in parts also with short lateral branches or protuberances which apically are covered with rosette-like crystals on hyphae in the pore walls and the dissepiments.
Cystidia absent, but some pointed smooth cystidiols are present among the basidia, a few even with scattered lateral branches.
Basidia 7-9 x 4 µm, clavate with 4 sterigmata.
Basidiospores 3.5-5 x 1-1.2 µm, allantoid.
Distribution. Known only from the type locality at Sao Leopoldo, Southern Brazil. but do certainly have a wider distribution..
Remarks. The small angular pores, the apically encrusted hyphal ends and the tiny allantoid basidiospores characterize this species.

Ceriporiopsis mucida (Pers.: Fr.) Gilbn. & Ryvarden,
Mycotaxon 22:364, 1985. - *Polyporus mucidus* Pers:Fr., Syst. Mycol. 1:382, 1821.

Basidiocarp annual, resupinate, effused, separable, soft when fresh, friable when dry, up to 3 mm thick; margin wide to narrow, with or without rhizomorphs, white to pale cream; pore surface cream to pale chrome yellow or straw-coloured, pores angular, in parts slightly sinuous and irregular, 3-5 per mm when regular, dissepiments thin; subiculum white and thin, about 1 mm thick; tube layer concolorous with subiculum, up to 1.5 mm thick.
Hyphal system monomitic; generative hyphae with clamps, smooth or with small crystals, especially in the margin and the subiculum, 2.5-4 µm in diam.
Cystidia and other sterile hymenial elements absent.
Basidia 13-16 x 4-6 µm, clavate, tetrasterigmatic.
Basidiospores 2.5-3.5 (-4) x 2-2.5 µm, broadly ellipsoid to subglobose.
Distribution. In the neotropics only recorded from Venezuela, Circumpolar in the Northern hemisphere.
Remarks. The soft, often rhizomorphic basidiocarp with a yellowish colour makes it possible to recognize this species in the field. Microscopically, the small subglobose basidiospores and the monomitic hyphal system will be diagnostic.

Ceriporiopsis obscura Ryvarden,
Micologia 2000 (Trento): 480, 2000.
Basidiocarps annual, resupinate, dense and resinous when dry, 1-6 mm thick, margin narrow and diffuse, pore surface dark brown, probably lighter when fresh, pores thin-walled, angular, slightly irregular, 4-5 per mm, tube layer concolorous, up to 5 mm deep, subiculum 1-2 mm, deep orange brown and dense.
Hyphal system monomitic, generative hyphae with clamps hyaline, thin- to slightly thick-walled, simple-septate, with sparse branching, negative in Melzer's reagent, 3.5-6 µm in diam. strongly embedded in resinous substances and difficult to separate properly.
Cystidia 25-40 x 4-10 µm present in the hymenium, hyaline, thin-walled, clavate to slightly torulose with median constrictions.
Basidia 12-15 x 4-6 µm clavate.
Basidiospores 4.5-5 x 2.5-3.5 µm ellipsoid, hyaline, thin-walled, smooth, negative in Melzer`s reagent,.
Distribution. Known only from the type locality in Costa Rica.
Remarks. The species reminds superficially about a *Hapalopilus* species with its deeply coloured basidiocarp and dark orange subiculum, but no part of the basidiocarp reacts with KOH like all *Hapalopilus* species do. *C. obscura* is separated from other species in the genus by its deeply coloured basidiocarps and above all by the numerous hyaline hymenial cystidia. From *C. vinosa* it is separated by presence of cystidia.

Ceriporiopsis umbrinescens (Murrill) Ryvarden,
Mycotaxon 23:188, 1985. - *Poria umbrinescens* Murrill, Mycologia 12:83, 1920.
Basidiocarp annual, resupinate, effused, adnate, soft when fresh, friable when dry, up to 2 mm thick; margin narrow, pale cream; pore surface pale woody brown to pale brown (reminding about a *Phellinus* sp in the field), pores angular, in parts slightly sinuous and irregular on vertical substrates, 3-4 per mm when regular, dissepiments thin, tubes concolorous, up to 5 mm deep, subiculum pale brown, soft to fibrous, about 1 mm thick.

Hyphal system monomitic; generative hyphae with large clamps, thin- to thick-walled, smooth or with small crystals, especially in the margin and the subiculum, 3-4 µm in diam.
Cystidia and other sterile hymenial elements absent.
Basidia 12-16 x 4-6 µm, clavate.
Basidiospores 4.5-5.5 x 2-3 µm, oblong ellipsoid.
Substrata. The type was found on a dead palm and it may be that the species is restricted to this type of substrate.
Distribution. Known only from the type locality in Jamaica.
Remarks. The evenly brown basidiocarp with moderately large pores and the ellipsoid basidiospores and possibly the substrate, characterize this species.

Ceriporiopsis vinosa Ryvarden,
Synopsis Fung. 18: 62, 2004.
Basidiocarps annual, resupinate, soft when fresh, brittle when dry, up to 7 mm thick, pore surface vinaceous when fresh, deep purplish bay to almost black when dry, pores thin-walled, angular, 3-5 per mm, tube layer dense and resinous, concolorous to pore surface, up to 5 mm deep, subiculum cinnamon and strikingly paler and less resinous than the tubes, about 1-2 mm thick, no colour change with KOH.
Hyphal system monomitic, generative hyphae hyaline, thin- walled and with clamps, preparations difficult to make and much oily resinous matter are present among the hyphae, negative in Meltzer's reagent, 3.-6 mm in diam.
Cystidia absent.
Basidia 12-14 x 3.5-4.5 mm, clavate.
Basidiospores , 4-4.5 x 2-2.5 mm, ellipsoid.
Distribution. Known only from the type locality.
Remarks. Collections of this species are difficult to examine in dry condition because of the resinous contents, and hyphal structures are most easily seen in preparations from the subiculum. It is very distinct with is beautiful colour and should be easy to recognize in the field.

Cerrena S.F. Gray,

Nat. Arr. Brit. Plants 1: 649, 1821.
Basidiocarps annual, sessile, effused-reflexed, or resupinate; upper surface hispid to hirsute, zonate; pores large and daedaleoid or becoming irpiciform; context duplex; hyphal system trimitic; generative hyphae with clamps; cystidia none; basidia clavate, tetrasterigmatic; basidiospores cylindrical-ellipsoid, negative in Melzer's reagent. Causes a white rot of dead hardwoods. Widespread, genus with two species in the neotropics.
Type species: *Daedalea unicolor* Bull.: Fr. = *Cerrena unicolor* (Bull.:Fr.) Murrill.
Remarks: The genus is undoubtedly closely related to *Trametes* where similar basidiocarps are found in species like *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. *Cerrena* has a bipolar mating system and has distinctly sclerified generative hyphae. This type of hyphae is unknown in *Trametes* which further

has a tetrapolar mating system. 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, it has priority and a merging of the two genera will necessitate a large number of transfers.

Key to species

1. Pores daedaleoid, gloeocystidia present .....**C. cystidiata**
1. Hymenophore almost hydnoid, gloeocystidia absent .....**C. gilbertsonii**

Cerrena cystidiata Rajchenb. & Meijer,
Mycotaxon 38:178, 1990.
Basidiocarps annual, sessile, spatulate to dimidiate , often imbricate or fused laterally to more compound basidiocarps, individual pilei 2-6 cm in diameter, 2-9 cm long and up to 3 mm thick at base, tomentose, zonate with intermittent narrow almost glabrous zones, dark buff to dark brown; pore surface pale to dark brown, the pores daedaleoid t base more irregular and split and dentate and with an irregular configuration, 2-3 per mm measured tangentially, context duplex, lower part cream coloured, separated from the dark tomentum by a thin dark zone; tube layer continuous and concolorous with lower context, up to 3 mm thick.
Hyphal system dimitic; generative hyphae thin-walled, with clamps, 2-4.5 µm in diam; thin-walled in the trama and context, distinctly thick walled in the upper tomentum, skeletal hyphae thick-walled, hyaline to slightly yellowish, especially in the upper tomentum, 2.5-5 µm in diam;
Gloeocystidia 30-40 x 5-7 µm, present both in the dissepiments and the hymenium, clavate, projecting up to 10 µm above the basidia.
Basidia 18-20 x 5-6 µm, clavate, tetrasterigmatic, with a basal clamp.
Basidiospores 5-6 x 3.2-4 µm, ellipsoid, hyaline, smooth, negative in Melzer's reagent,
Substrata. Known only from *Sebastiana commersonia*, but will certainly be found also on other hardwoods.
Distribution. Known only from the type locality in Parana in Brazil.
Remarks. The brownish tomentose, zoned pileus, the irregular hymenophore and the black line between context proper and the tomentum, should make the species easy to recognize in the field. In the type locality it occurred very abundantly on a few trees.

Cerrena gilbertsonii Ryvarden,
Synopsis Fung. 30:45, 2012.
Basidiocarps annual, dimidiate up to 2 x 2 cm and about 2.5 mm thick, flexible, pileus dark brown, densely tomentose in numerous zones, in a few places exposing a back and glabrous cuticle, hymenophore densely hydnoid, pale grey with a silvery tone, individual teeth white, round to slightly flattened, apically rounded or incised, up to 1.2 mm long, context white, slightly fibrous in radial direction and about 250 µm thick and above which there is a about 50 µm thick black line and about which there is the brown tomentum 100-200 µm thick.

Hyphal system trimitic; generative hyphae thin-walled, with clamps, 2-4 µm in diam; skeletal hyphae thick-walled, nonseptate, 3-5 µm in diam; binding hyphae rare, thick-walled to solid sparingly branched, 2-4 µm in diam
Cystidia or other sterile hymenial elements not seen.
Basidia 15-18 x 4-5 µm, clavate, tetrasterigmatic and with a basal clamp.
Basidiospores 5-6 x 3-3.5 µm, cylindrical-ellipsoid, hyaline, smooth, negative in Melzer's reagent,
Distribution. Known from the type locality in Sonora province in Mexico and Martinique.
Remarks. *Cerrena gilbertsonii* is characterized by its densely hydnoid hymenophore, thin flexible basidiocarps with a dense dark brown tomentum. The holotype is deposited in the Arizona (ARIZ) herbarium. This information was omitted in the original description.

Cinereomyces Jülich,

Bibl. Mycol. 85:396, 1981.
Basidiocarps resupinate, adnate, effused, annual, pore surface whitish to distinct greyish, hyphal system dimitic, generative hyphae with clamps, skeletal hyphae dissolving in KOH, weakly amyloid, cystidia absent, basidia with 4 sterigmata, basidiospores cylindrical to suballantoid, thin walled, smooth, non-amyloid. Causing white rot both in hardwoods and coniferous wood. One species in South America.
Type species: *Polyporus lindbladii* Fr.
Remarks. The species have the same hyphal system as seen in *Diplomitoporus*, but in this genus the skeletal hyphae do not dissolve in KOH nor are they weakly amyloid. DNA studies have shown it is not related to *Diplomitoporus* in spite of their similarity.

Cinereomyces dilutabilis (Loguercio-Leite & J. E. Wright) Miettinen, Mycotaxon 121:345, 2012 - *Diplomitoporus dilutabilis* Loguercio-Leite & J. E. Wright, Mycotaxon 68:48, 1998.
Basidiocarps annual, resupinate, effused reflexed, tough when fresh, hard and cracking when dry, up to 2 mm thick, upper surface white to pale yellow, glabrous, pore surface white to cream, pores thin-walled, angular to sinuous on sloping substrate, 4-6 per mm on horizontal parts, tubes concolorous, to 1.5 mm deep, context white and thin, 0.2-0.5 mm thick.
Hyphal system trimitic, generative hyphae with clamps, predominant in the basidiocarp, narrow, thin-walled 2-2.5 µm wide, skeletal hyphae 2-6 µm wide, slightly amyloid, most easily seen in masses, dissolving 3% KOH, binding hyphae present as outgrowths from the skeletal hyphae and with the same reactions, 1.0-2.0 µm wide.
Basidia clavate, 12-15 x 5-6 µm.
Basidiospores 4.5-5.5 x 2.5-30 µm, cylindrical to slightly allantoid, IKI-.
Distribution. Known from Brazil.
Remarks. *D. dilutabilis* is characterized by a pileus (when present) a trimitic hyphal system with dissolving skeletal hyphae.

CORIOLOPSIS Murrill,
Bull. Torrey Bot. Club 32: 358, 1905.
Type species: *Polyporus occidentalis* Klotzsch. a taxonomic synonym of *Polyporus polyzonus* Pers.
Remarks. The taxonomic position of this genus is disputed and the borderline between the genera of the trimitic polypores is intricate as few characters are available for their delimitation. Welit et al. (2012) have shown that *P. polyzonus* falls inside *Trametes* as defined in this manual, thus, we treat *Coriolopsis* as a taxonomic synonym of *Trametes*. See this genus for a discussion on its circumscription.

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-ellipsoid 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. The genus included previously all species with a daedaleoid to labyrinthine hymenophore. As more microscopical, chemical and other characters have become available; most species have been transferred to other genera. Today the main separating character towards *Trametes* and other trimitic genera is only the brown rot.

Key to species

1. Hymenial surface more or less hydnoid **2**
1. Hymenial surface poroid **3**

2. Pileus rusty brown to dark brown, finely adpressed velutinate ..... **D. hydnoidea**
2. Pileus surface first white to ochraceous buff with a pink tint ..... **D. stereoides**

3. Hymenophore poroid, pileus yellowish brown, velutinate ..... **D. aethalodes**
3. Hymenophore generally irregular with poroid parts, pileus glabrous, pale brown to ochraceus **4**

4. Basidiospores 7.5-10 µm long ..... **D. ryvardenica**
4. Basidiospores shorter 5

5. Hymenophore primarily poroid; rarely labyrinthine, pileus with violet spots or zones **D. neotropica** .....
5. Hymenophore primarily labyrinthine to daedaleoid, pore surface cork coloured **D. quercina**

NB: As all species have thin walled, smooth, hyaline and non-amyloid spores, this information is not repeated for each species.

Daedalea aethalodes (Mont.) Rajchenb.,
Can. J. Bot. 64:2130, 1986. - *Trametes aethalodes* Mont. Ann. Sci. Nat. Ser. 4, 5:370, 1857. - *Trametes argyropotamica* Speg. Ann. Mus. Nacional Buenos Aires 6:172, 1898. - *Trametes argentica* Speg. Ibid. p. 173. - *Chaetoporus melleofulvus* Romell, Kung. Sv. Vetenskp. Handl. Vol. 26, ser. 3 no. 16, 1901.
Basidiocarps annual, broadly sessile to dimidiate, imbricate, applanate, up to 12 cm wide, 7 cm broad and 2.5 cm thick, strongly attached to the substrate, corky, tough to woody, pileus azonate, velutinate and soft to touch, smooth or slightly sulcate to scrupose, old parts occasionally glabrous, yellowish brown to cinnamon or even darker with age from the base, margin thin, pore surface creamish white when fresh and actively growing, becoming chestnut yellow or pale umber when bruised or dried, pores circular to angular 1-3 per mm, tubes concolorous with upper surface or slightly paler, up to 8 mm deep, context up to 2 cm thick, concolorous with the upper surface.
Hyphal system trimitic; generative hyphae of three kinds, thin-walled, hyaline, with clamps, 2-5 µm in diam; and it is the most common of the types, seen throughout the basidiocarp, further those 4-5 um wide and irregularly thickened walls, and finally sklerified hyphae which can end in branched apex looking like a binding hyphae, only present in the dissepiments, binding hyphae tortuous with short branches, thick-walled to solid, light golden yellow; skeletal hyphae dominating, thick-walled to solid, hyaline to pale brown, 3-7 µm in diam.
Cystidia none, but skeletal hyphae bend into the hymenium with cystidia-like, rounded and thick-walled apices, pointed at the apex, strikingly similar to true hymenial cystidia unless followed into the vertical trama where they originate, short hyphae or cystidia originating in the subhymenium may also occur, arising from a clamp.
Basidia clavate, 13-24 x 4-6 µm, 4-sterigmate, with a basal clamp.
Basidiospores 6-8 x 2.5-3 µm, cylindrical, difficult to find in most specimens as the periods of sporulation seem to be short and the basidia collapse rapidly on drying.
Substrata. Dead hardwoods, noted on *Piptadenia macrocarpa.*
Distribution. Central Argentina in to Paraguay and southern Brazil, usually in subxerophytic areas or localities.
Remarks. *D. aethalodes* is usually easy to recognize because of the even deep yellowish brown colour, the velutinate azonate pileus and the characteristic tramal cystidia which penetrate the hymenium.

Daedalea hydnoidea I. Lindblad & Ryvarden,
Mycotaxon 71:339, 1999.

Basidiocarps annual to perennial, pileate, broadly, narrowly attached to almost pendant, single or imbricate, semicircular and almost triquetrous in section, up to 4 cm broad, 3 cm wide and 1 cm thick near the base, consistency rubbery when fresh, coriaceous to hard when dry, pileus surface rusty brown to dark brown, finely adpressed velutinate, slightly concentrically zoned, with age becoming glabrous, margin acute, even or lobed, lower surface whitish to cork coloured, hydnoid with round to slightly flattened teeth, up to 7 mm long, 1-2 teeth per mm, context cork coloured up to 3 mm thick at the base and with a very thin brown zone towards the upper surface of the pileus, but no cuticle present.
Hyphal system trimitic, generative hyphae hyaline, clamped and thin- to thick-walled, strongly branched in the subhymenium, 2-3 µm wide, skeletal hyphae thick-walled to solid, hyaline to pale brown, 3-8 µm in diameter, binding hyphae tortuous, hyaline, up to 3 µm wide, the upper brown adpressed tomentum of brown skeletal hyphae, 3-5 µm wide with a rounded apex.
Cystidia present as skeletocystidia bending into the hymenium, pointed, smooth and hyaline, up to 8 µm wide apically and of indeterminate length.
Basidia 12-15 x 4-5 µm, clavate, with 4 sterigmata.
Basidiospores 6-7 x 2-2.5 µm, cylindrical, only observed on the pileus among skeletal hyphae.
Distribution. Known only from the type locality.
Remarks. The rusty brown adpressed velutinate to glabrous upper surface and the densely hydnoid hymenophore make this a very distinct species. From above the basidiocarps look exactly like those of *Gloeophyllum striatum* (Fr.) Murrill, which however has a poroid hymenophore.

Daedalea neotropica D. L. Lindner, Ryvarden & T. J. Baroni, North Amer. Fung. 6:6, 2011. Fig. 6
Basidiocarps perennial, single or with a several pilei fused laterally, broadly sessile to dimidiate, semicircular, up to 15 cm wide, 12 cm broad and 3 cm thick, strongly attached to the substrate, corky to woody and hard; upper surface of pileus flat to slightly convex, often with a slightly raised base, glabrous and finely tuberculate, inner parts black with a thin cuticle spreading from the base, further towards to margin light to deep violaceus becoming paler and finally ochraceous towards the margin which has narrow sulcate zones, the violaceus colour fades over years in the herbarium, best retained close to the black basal zones or outgrowths, acute margin ochraceous; pore surface flat to oblique, especially close to the substrate, ochraceous, hymenophore mostly poroid, in parts irregular and daedaleoid, but usually including not more than 3 to 5 pores, in regular parts about 3 pores per mm, pores surface violaceous from the base fading towards the margin to ochraceous or cork-coloured shades, tubes up to 2 cm deep, with distinct zones, concolorous with pore surface, context up to 1.5 cm thick, ochraceous to tobacco brown, with indistinct annual zones; but with narrow black lines towards the top due to embedding of previous areas with black cuticle.
Hyphal system trimitic; generative hyphae thin-walled, hyaline, with clamps, 2-4 mm 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 mm in diam.

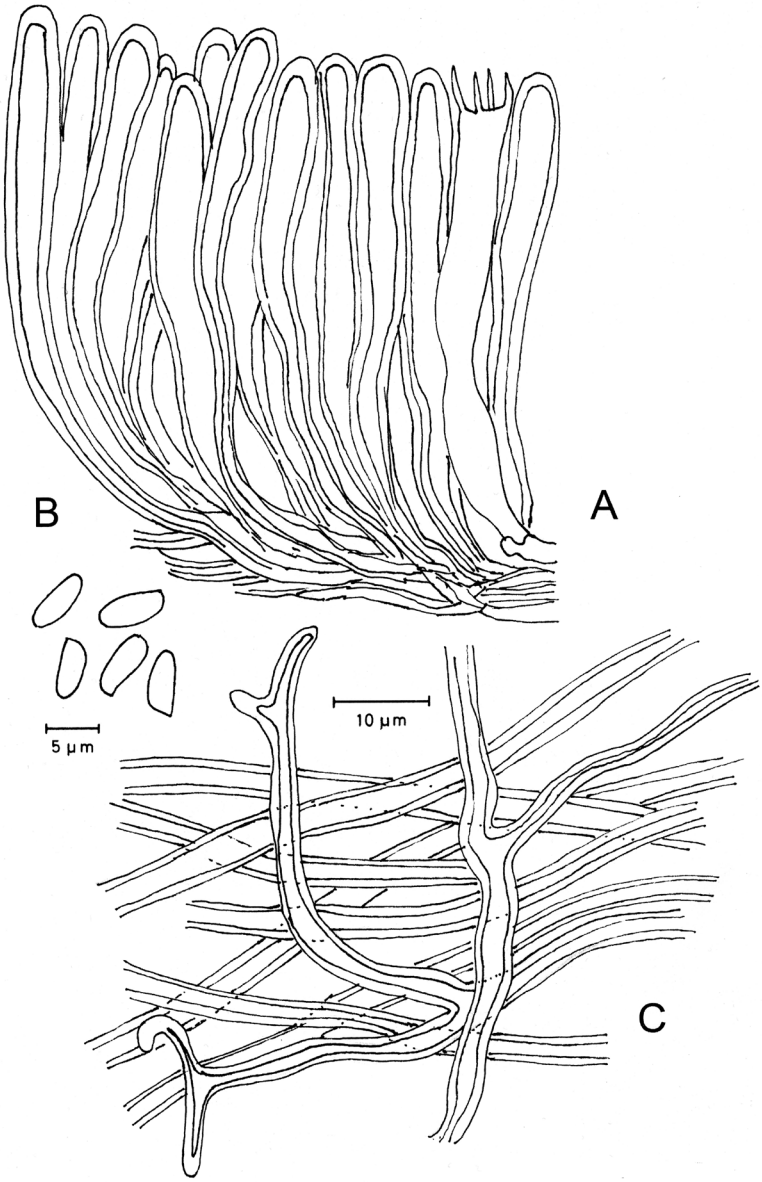

Fig. 6. *Daedalea neotropica* A) catahymenium with a palisade of skeletal hyphae, B) basidiospores, C) hyphae from the context. From the holotype.

Cystidia none, but skeletal hyphae bend into the hymenium and in places form a catahymenium with cystidia-like, rounded and thick-walled apices, often with a fine granular incrustation.
Basidia few observed.
Basidiospores 5- 5.5 x 2-3 µm, cylindrical, hyaline, thin-walled, smooth, negative in Melzer's reagent, only few were observed.
Substrate. Only recorded on *Quercus* spp. (*Q. courtesies*, *Q. humboldtii*, *Q. insignis* or *Q. skinneri*), stump and dead fallen logs.
Distribution. Probably widespread in Central America wherever oak is growing.
Remarks. *Daedalea neotropica* will be easy to recognize by the violaceous colouration that occurs in irregular patches on the pileus and pore surfaces, a rather exceptional colour among polypores.

Daedalea ryvardenica Drechsler-Santos & Robledo,
Kurtziana 37:66, 2012.
Basidiocarps annual, effused reflexed to pileate, thin, 3.0-9.0 long, 2.5-5.0 cm wide and 3 to 1.5 cm thick, flexible and coriaceous, semicircular to flabelliform, sometimes in clusters or as imbricate structures and den up to 28 cm wide; upper surface vinaceous, cork coloured or pale brown, glabrous, slightly concentrically zonate and radially scrupose; margin thinning out and curved; context homogenous, whitish to vinaceous buff , up to 0.7 cm thick, angular pores at the base more irregular towards the margin with daedaleoid, semi-labyrinthine to lamellae-like parts, dissepiments lacerate with age and in parts almost irpicoid, 1-3/mm; hymenial surface purplish chestnut to vinaceous buff, tubes up to 0.8 cm deep.
Hyphal system dimitic, generative hyphae with clamps; hyaline and thin-walled hyphae restricted to the sub-hymenium, 2-3 µm diam.; otherwise pale yellowish to hyaline, thick-walled with irregular thickened walls with a sinuous and undulating lumen, 4-6 µm diam. skeletal hyphae dominating, generally with 1-3 short branches, usually with a capillary lumen or almost solid, 3-6 µm wide, from the trama they bend the hymenium as cystidia like hymenial thick walled cystidia.
Cystidia absent, but abundant skeletal hyphae present among the basidia.
Basidia 15-23 x 5-8 µm, clavate.
Basidiospores 7.5-11.0 x 2.5-3.5 µm ellipsoid.
Distribution: Inner dry parts of Brazil.
Remarks. The species has the largest spores known in the genus. Macroscopically the partly poroid hymenophore is characteristic.

Daedalea quercina L.:Fr.,
Syst. Mycol. 1:333, 1821. - *Agaricus quercinus* L. Spec. Plant. p. 1176, 1753. - *Daedalea quercina* (L.) Pers. Syn. Meth. Fung. p. 500, 1801.
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; upper surface of pileus flat to slightly convex, often with a slightly raised base, smooth to finely velutinate, in some specimens with tufts of raised hyphae or scattered nodule or warts, the base rougher or more scrupose

than the margin which is usually smooth; margin ochraceous, inner parts deeper brownish to greyish in old specimens, sometimes with pads or smaller areas with fresh outgrowth of light ochraceous mycelium, acute; pore surface flat to oblique, especially close to the substrate, ochraceous, hymenophore irregular, along the margin elongated-poroid, in the inner parts with sinuous pores or daedaleoid to labyrinthine or almost lamellate, on oblique parts the pores are deeply split in front, mostly 1-4 mm wide measured tangentially, walls 1-3 mm thick; context up to 1 cm thick, ochraceous to tobacco brown, with indistinct annual zones; tubes up to 4 cm long, light ochraceous on the inner tube walls while the trama is distinctly darker.
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 vertical trama where they originate.
Basidia 20-27 x 6-7.5 µm, very difficult to find even if fresh specimens are examined, occur singly between the projecting skeletal hyphae, clavate, 4-sterigmate, with a basal clamp.
Basidiospores 5.5-6 x 2.5-3.5 µm, cylindrical, difficult to find in most specimens as the periods of sporulation seem to be short and the basidia collapse rapidly on drying.
Substrata. Most common on *Quercus,* rarely on other hosts.
Distribution. Follows *Quercus* species everywhere and will normally be found where the host is growing. In America known south to Colombia.
Remarks. *D. quercina* is usually easy to recognize because of the even pale cork or wood colour, the very hard basidiocarps, and the irregular daedaleoid hymenophore.

Daedalea stereoides Fr.,
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, with or without a slightly decurrent pore layer, surface first white to ochraceous buff with a pink tint, finely adpressed tomentose to velutinate and concentrically zoned, with age becoming glabrous, margin acute, even or lobed, 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 near the attachment.
Hyphal system trimitic, generative hyphae hyaline, clamped and thin- to thick-walled, strongly branched near the hymenium, 2-3 um wide, skeletal hyphae thick-walled to solid, hyaline,3-8 um in diameter, binding hyphae moderately branched, hyaline, up to

6 um wide, tapering towards the ends, both types of vegetative hyphae project into the hymenium as cylindrical organs often with scattered small crystals.
Cystidia proper absent, but both binding hyphae and predominantly the skeletal hyphae bend into the hymenium as cystidial organs, smooth to finely encrusted, most conspicuous in collapsed hymenia.
Basidia clavate, 15-20 x 5-7 µm with four sterigmata.
Basidiospores 4.5-5.5(6) x 2- 2.5 µm, broadly ellipsoid.
Distribution. Apparently pantropical, but not common, the type was collected in 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. However, the dentate, sinuous to hydnoid hymenophore at once excludes this species.

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-fibrous; hyphal system trimitic; generative hyphae with clamp connections; skeletal hyphae hyaline to pale brown; hyphae on dissepiment edges dendritically branched in some species; sterile cystidiols present or absent; basidia clavate, 4-sterigmate; 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 related to *Trametes* subgenus *Coriolopsis* by is separated by a much darker context and generally larger spores. However, the generic separation in the complex around *Hexagonia, Trametes* and *Datronia* is difficult since in principle it is only the colour of the skeletal hyphae that separates them.

Key to Species

1. Pores 1-2 mm wide **2**
1. Pores smaller **3**

2. Spores 10-12 x 3-4 µm ..... **D. mollis**
2. Spores 14-16 x 6-8 µm ..... **D. decipiens**

3. Pores 7-8 per mm, almost invisible to the naked eye **4**
3. Pores 2-5 per mm 5

4. Pileus brown, hirsute to villose, becoming scrupose with tufts of hairs or warts, ... **D. taylorii**
4. Pileus glabrous and brown with a bay cuticle spreading from the base ..... **D. glabra**

5. Upper surface soon glabrous and black, basidiocarps small, rarely above 1 cm wide..... ..... **D. scutellata**
5. Upper surface tomentose to velutinate eventually becoming glabrous in narrow zones, basidiocarps usually wider than 1 cm **6**

6. Spores 2-3 µm wide, tomentose to hirsute, with age becoming glabrous and black in narrow zones ..... **D. caperata**
6. Spores 2.5-4 µm wide, upper surface persistently velutinate to glabrous..... **7**

7. Pores 2-3 per mm ..... **D. brunneoleuca**
7. Pores 4-5 per mm ..... **D. stereoides**

NB. Since the spores for all species are hyaline, smooth, thin walled and negative in Melzers reagent, this information is not repeated for each species.

Datronia brunneoleuca (Berk.) Ryvarden,
Mycotaxon 31:51, 1988. - *Polyporus brunneoleucus* Berk. Lond. J. Bot. 5:4, 1846.
Basidiocarp annual or reviving once, pileate reflexed and widely effused to almost resupinate, pileus up to 2 cm wide and 2-4 cm long, frequently lobed and fused laterally to imbricate or elongated rows, 1-2 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, when the basidiocarp is separated from the substrate, the pileus will usually be paler than the parts next to the substrate, margin very thin and wavy, pore surface ochraceous to pale brown, pores round to angular, mostly 2-3 per mm and rather shallow, up to 1-1.5 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, in old specimens with a narrow agglutinated zone towards the pileus.
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 golden-yellow, almost solid, 2-4.5 µm wide.
Basidia not seen.
Basidiospores 8.5-12 x 2.5-4 µm cylindrical.
Distribution. Pantropical species. Distribution in America uncertain, but specimens have been collected in Venezuela.
Remarks. The species is easy to recognize because of the thin, narrow and flexible pileus, usually with a conspicuously decurrent pore layer and because of the rather large and shallow pores. Microscopically the skeletal hyphae are unique in the genus as they are dextrinoid, most easily seen in sections of the pale trama.

Datronia caperata (Berk.) Ryvarden,
Mycotaxon 23:172, 1985. - *Polyporus caperatus* Berk. Ann. Mag. Nat: Hist. Ser. 1, vol. 3:391, 1839.
Basidiocarp annual, sessile, applanate, dimidiate with contracted base, elongated reflexed with decurrent pores, conchate to flabelliform in distinctly pileate forms, 1-9 cm wide, up to 15 cm long in laterally connate or fused specimens, 1-4 (7) mm thick, mostly flexible, in thicker and older specimens more coriaceous and hard, pileus with numerous, narrow concentric zones and frequently when dry also with radial striae or streaks, 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, when finely tomentose the pileus is dull, colour very variable, in tomentose specimens from whitish brown (cafe au lait), ochraceous to cinnamon to deep umber-brown, 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 chocolate-brown, pores variable, medium to small, round to angular, 3-5 per mm, more rarely smaller, on sloping substrate some pores sinuate and elongated and in parts split, tubes beige to cinnamon brown, indistinctly stratified, up to 2 mm deep, context first duplex with upper soft tomentum, about 1 mm thick, lower context denser, fibrous and silky when cut, cocoa-brown, black when touched with KOH, with age the upper tomentum wears away and the context becomes more or less homogenous, sometimes with a thin black crust in old specimens.
Hyphal system trimitic, generative hyphae thin-walled, hyaline and with clamps, 1-2 µm wide, skeletal hyphae dominating in basidiocarp, and tomentum is almost exclusively composed of such hyphae, golden-brown, thick-walled 2.5-5 µm wide, binding hyphae thick-walled 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 America.
Remarks. The species is variable as to 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 they are angular and larger. Some weathered specimens may become almost whitish both on pileus and pore surface. A section will then immediately reveal the dark brown context.

Datronia decipiens (Bres.) Ryvarden,
Mycotaxon 33:308, 1988. - *Trametes decipiens* Bres. Ann. Mycol. 18:40, 1920.
Basidiocarp annual, pileate, effused reflexed, pileus up to 2 cm wide and 2-4 cm long, 1-2 mm thick and flexible and separable from the substrate, dark brown, becoming black in glabrous zones, tomentose, mostly adpressed and concentrically sulcate, pore surface dark brown, pores angular about 1 mm wide, and tubes up to 3 mm deep, concolorous, context duplex, the upper pale brown and intergrading with the tomentum and separated from the lower dark brown part by a black zone.
Hyphal system dimitic, generative hyphae with clamps, 2-4 µm wide, contextual skeletal hyphae yellowish to pale brown, thick- walled 3-7 µm wide, tramal skeletal hyphae similar, but narrower, 2-3 µm wide.

Basidia not seen.
Basidiospores 14-16 x 6-8 µm, oblong ellipsoid to subcylindrical.
Distribution. A rare species, known only from two localities in Brazil.
Remarks. The species is easy to recognize because of the large pores and spores.

Datronia glabra Ryvarden,
Mycotaxon 28:527, 1987.
Basidiocarp annual, sessile, applanate, dimidiate with contracted base, conchate to flabelliform, 3 cm wide, up to 6 cm long, 4 mm thick, mostly flexible, pileus glabrous, with narrow concentric and sulcate zones, upper surface pale brown to cork-coloured becoming bay from the base in an irregular fashion with some spots and streaks preceding the more coherent areas, pores surface white when fresh becoming ochraceous, cinnamon brown, pores round, 7-8 per mm, tubes first ochraceous later cinnamon brown, up to 2 mm deep, context homogenous, dark brown with a thin dark cuticle developing from the base up to 2 mm thick.
Hyphal system trimitic, generative hyphae thin-walled, hyaline and with clamps, 2-5 µm wide, skeletal hyphae golden-brown, thick-walled, slightly dextrinoid, 3-6 µm wide, binding hyphae thick-walled, moderately branched, strongly dextrinoid, 2-4 µm wide.
Basidia not seen.
Basidiospores 7-9 x 2-3 µm cylindrical.
Distribution. Known only from the type locality in Venezuela, Amazonian, Rio Negro.
Remarks. The species reminds one about *D. caperata* by it small pores, the dark context and almost identical microstructure. However, the glabrous surface will easily separate it from the consistently tomentose to hirsute specimens of *D. caperata*.

Datronia mollis (Sommerf.:Fr.) Donk , Fig. 7
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; contextual generative hyphae hyaline, thin-walled, with clamps, 2.5-4 µm in diam; contextual skeletal hyphae thick-walled, those in lower context pale greenish-brown in KOH, those in upper dark layer darker brown in KOH, 2.5-4 µm in diam; contextual binding hyphae thick-walled, non-septate, much branched 2-3 µm in diam; tramal hyphae similar to those in lower context.
Dendrohyphidia present on dissepiment edges, branched and contorted, 1.5-3 µm in diam.
Cystidiols fusoid, thin-walled, imbedded or slightly projecting, 25-30 x 4-5 µm, with a basal clamp; hyphal pegs present.
Basidia 25-30 x 5-6.5 µm, clavate with a narrow base, tetrasterigmatic.

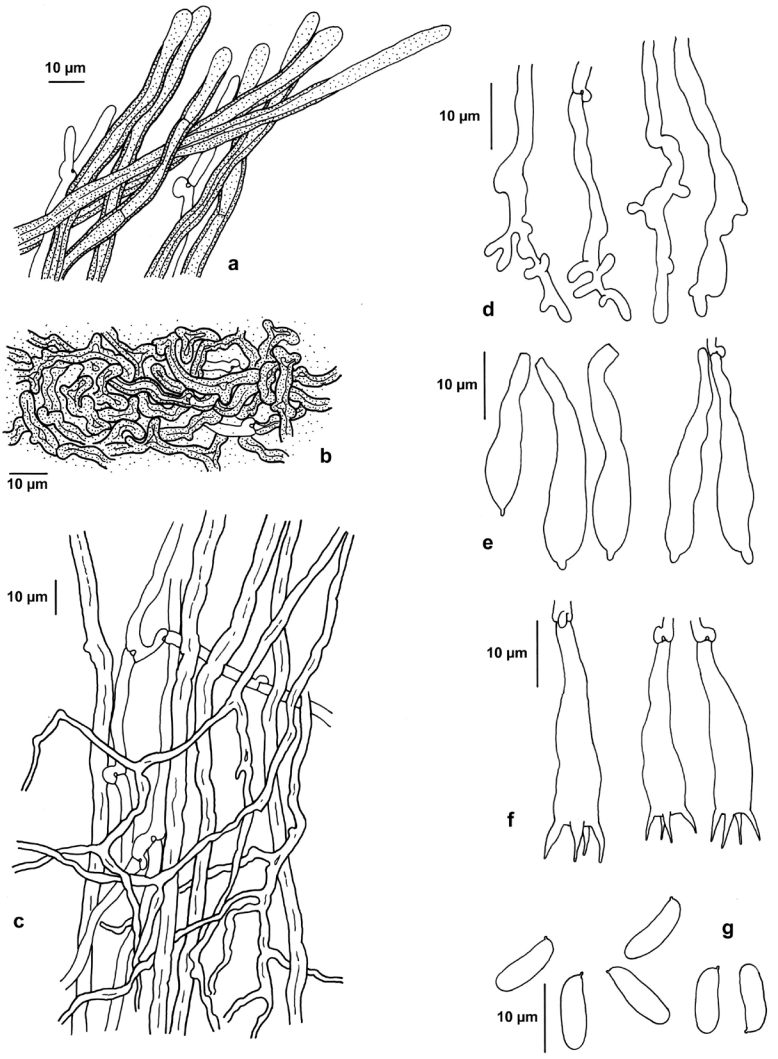

Fig.7. *Datronia mollis* a) hyphae from upper surface, b) hyphae from dark zone, c) hyphae from context, d) dendrohyphidia from edges for dissepiments, e) cystidiols, f) basidia, g) spores. Del. I. Melo.

Basidiospores 10-12 x 3-4 µm, cylindrical.
Distribution. Cosmopolitan species, recorded from all continents.
Remarks. The large irregular pores and the black layer separating the upper tomentum from the lower context are distinctive field characters for *D. mollis.*

Datronia nigrocinerea (Murrill) Ryvarden,
Mycotaxon 23:172, 1985. - *Coriolopsis nigrocinerea* Murrill, North Am Flora 9:77, 1908.
Basidiocarp annual, pileate, sessile, dimidiate, flabelliform to reniform, pileus up to 6 cm long, 3 cm wide and 2-4 mm thick at the base, coriaceous and flexible to corky, pileus dark brown, tomentose to velutinate in narrow concentric, partly glabrous, partly velutinate zones, margin thin, flat to undulating, pore surface pale brown in fertile specimens,, dark cinnamon when dry, pores angular to round, on average 3-4 per mm, tubes concolorous with pore surface or sienna brown, dark cinnamon, to 4 mm deep, context dense up to 2 mm thick and in section with a thin black cuticle towards the tomentum.
Hyphal system trimitic, generative hyphae with clamps, thin-walled and hyaline, slightly to strongly branched, 2.- 3.5 µm wide, skeletal hyphae dominating, thick-walled with a distinct lumen, hyaline to yellow, 3-6 µm wide, binding hyphae more sparingly present, hyaline to slightly yellowish, with short branches, 3-5 µm in diameter. The context is dominated by slightly thick-walled skeletal hyphae up to 8 µm wide, but also a number of short-branched binding hyphae present, in the tomentum the skeletal hyphae are more thick-walled and agglutinated.
Basidia not seen
Basidiospores 9-13 x 3-4.5 µm, cylindrical.
Distribution. Known only from the type locality in Cuba.
Remarks. *D. nigrocinerea* is above all characterized by the large spores. Macroscopically it reminds one slightly about a large poroid form of *D. caperata*.

Datronia scutellata (Schw.) Gilbn. & Ryvarden,
Mycotaxon 22:364, 1985. - *Polyporus scutellatus* Schw., Trans. Am. Phil. Soc. II, 4:157, 1832.
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 1-3 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, but much more branched.
Cystidia none, fusoid cystidiols present, 20-28 x 5-6 µm.
Basidia broadly clavate, 4-sterigmate, 20-30 x 7-10 µm.

Basidiospores 8-12 x 3-4.5 µm, cylindrical.
Distribution. Cosmopolitan species and widespread in the tropical zone.
Remarks. The species is relatively easy to recognize by the small basidiocarp, the black glabrous pileus and the pale pore surface. The other *Datronia* species are mostly separated by much thinner and flexible basidiocarps and a persistently velutinate to tomentose pileus.

Datronia stereoides (Fr.:Fr.) Ryvarden,
Flora over Kjuker, p. 42, 1968. - *Polyporus stereoides* Fr.:Fr., Syst. Mycol. 1:369, 1821. - Observ. Mycol. 2:258, 1818.
Basidiocarps annual, resupinate to discoid with lifted margin or effused-reflexed, pileus up to 1 cm wide and shelf-like elongated, rarely dimidiate with a contracted base; upper surface of pileus brown, usually azonate, tomentose to radially strigose; pore surface pale pinkish-buff, the pores circular to hexagonal, regular, 4-5 per mm, dissepiments thick, entire, appearing granulose under a 30X lens; context thin, duplex, up to 2 mm thick, lower portion pale brown, firm-fibrous, separated from dark upper tomentum by a thin black layer; tube layer concolorous and continuous with lower context, up to 1 mm thick.
Hyphal system trimitic; contextual generative hyphae thin-walled, hyaline, with clamps, 2-2.5 µm in diam; contextual skeletal hyphae thick-walled, 2-4 µm in diam, with occasional branching, those in lower context pale greenish brown in KOH, those in dark upper layer dark brown in KOH; contextual binding hyphae thick-walled, non-septate, hyaline to pale greenish brown (in KOH) with frequent branching, 2-3.5 µm in diam; tramal hyphae similar to those in lower context.
Dendrohyphidia much branched and contorted, abundant on dissepiment edges, 1.5-2 µm in diam.
Cystidia none; but a few fusoid cystidiols may occur.
Basidia 25-40 x 7-8.5 µm, clavate with a narrow base.
B**asidiospores** 8-12 x 3.5-4.5 µm, cylindrical.
Distribution. A rare, but widely distributed species, but not often collected.
Remarks. The granulose nature of the dissepiments is evidently due to abundant dendrohyphidia. This character, together with the brown tomentum separated from the paler lower context by a black layer, and the small, regular pores, distinguishes *D. stereoides* in the field.

Datronia taylorii (Murrill.) Ryvarden, nov. comb. Index Fung. 551746
Basionym *Coriolopsis taylorii* Murrill, North Am Flora 9:76, 1908.
Basidiocarp annual, pileate, sessile, dimidiate, flabelliform to reniform, pileus up to 7 cm long, 4 cm wide and 1 cm thick at the base, coriaceous and flexible to corky, pileus pale brown to dark cinnamon, glabrous to hispid with scrupose tufts of hyphae, finely radially folded, probably so by drying, slightly concentrically zonate margin thin, flat to undulating, pore surface pale brown in fertile specimens,, dark cinnamon when dry, pores round, small almost invisible to the naked eye, 7-8 per mm, tubes concolorous with pore surface to 4 mm deep, context homogenous, cinnamon, paler than the tubes, dense up to 5 mm thick and without a black cuticle towards the tomentum.

Hyphal system trimitic, generative hyphae with clamps, thin-walled and hyaline, slightly to strongly branched, 2-3.5 µm wide, skeletal hyphae dominating, thick-walled with a distinct lumen, hyaline to yellow, 3-6 µm wide, binding hyphae more sparingly present, hyaline to slightly yellowish, with short branches, 3-5 µm in diameter. The context is dominated by slightly thick-walled skeletal hyphae up to 8 µm wide, but also a number of short-branched binding hyphae present, in the tomentum the skeletal hyphae are more thick-walled and agglutinated.
Basidia not seen
Basidiospores 6-8.5 x 2.5-3 µm, cylindrical.
Distribution. Known from the type locality in Cuba besides Puerto Rico, but probably widespread and confused with *D. caperata*.
Remarks. *D. taylorii* is above all characterized by the cylindrical spores, shorter than those of *D. caperata* which it otherwise is rather similar to.
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Diachanthodes Singer,

Lloydia 8:141, 1945.
Basidiocarps stipitate, partly infundibuliform with circular pileus, surface tomentose to strigose, whitish to dirty- brown, pore surface wood-coloured, darkening with age, tubes ochraceous when fresh, pale-brown 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 thick-walled to solid, weakly dextrinoid, cystidia clavate, slightly thick-walled, spores broadly ellipsoid, ornamented and dextrinoid. On the ground. Pantropical.
Type species: *Diachanthodes novo-guineensis* (Henn.) Fidalgo.
Remarks. The genus seems to be rather isolated in the family, the closest relative is probably *Bondarzewia* which, however, has simple septate generative hyphae, no cystidia and amyloid spores. However, in both genera there are ornamented spores, the hyphal system is the same and they both grow on the ground.

Key to species

1. Pileus strigose-tomentose, stipe glabrous, context duplex, often with a black zone between upper and lower part, pore decurrent, ochraceous, clamps of thick-walled hyphae often enlarged and double ..... **D. novo-guineensis**
1. Pileus glabrous except for a villose centre, and with brownish zones, stipe scabrous to villose, orange ochraceous, tubes not decurrent, context homogenous, and clamps not enlarged or double ..... **D. fluminensis**

Diachanthodes fluminensis Corner,
Beiheft Nova Hedwigia 96:24, 1989.
Basidiocarps centrally stipitate, circular, pileus flat or with a slight central depression and a thin deflexed margin, up to 8 cm in diameter and 1 cm thick, sappy and fleshy when fresh, partly shrunken when dry and then dense and brittle, pileus glabrous except for tufts of erected hyphae in the centre, surface ochraceous to dirty brown when dry,

stipe more or less circular, stout and up 6 mm in diameter when fresh, up to 3 cm high, orange ochraceous, scrupose to weakly strigose with tufts of erect hyphae, some elder parts unevenly warted, pore surface whitish to pale ochraceous, pores thin-walled, 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 dirty-brown and agglutinated and fragile, up to 6 mm deep, context homogenous up to 5 mm thick.
Hyphal system dimitic, generative hyphae with clamps, in the trama thin-walled, collapsed and agglutinated in dry basidiocarps, up to 5 µm wide, in the context partly thin- walled and wide, up to 8 µm, some hyphae with strongly thickened walls to almost solid and with single clamps, then thin- walled hyphae goes abruptly over in thick-walled sections and few intermediate hyphae were observed in the type, the thick-walled hyphae non-dextrinoid, skeletal hyphae very few in the lower context, very abundant in the upper loose tomentum, 3-8 µm wide, very thick-walled, straight and weakly dextrinoid.
Cystidia absent.
Basidia not seen.
Basidiospores 6.5- 8 x 5.5-7 µm broadly ellipsoid, slightly thick-walled, ornamented with angular small plates, distinctly dextrinoid, and spore print creamish.
Conidiospores absent.
Substrate. On the ground from buried roots.
Distribution. Known only from the type locality in State of Rio in Brazil.
Remarks. This species is close to the following and it may be that we are confronted with a young and immature specimen. More collections are desirable to see whether the characteristics of the singly type specimen are reliable so the species can be fully accepted.

Diachanthodes novo-guineensis (Henn.) Fidalgo,
Rickia 1:149, 1962. - *Polyporus novo-guineensis* 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 erected hyphae, surface uneven and weakly undulating, ochraceous when fresh, unevenly dirty brown when dry, hyphae more flattened along the margin and here more pubescent, 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 tufts of erect hyphae, some elder parts unevenly warted, pore surface ochraceous when fresh, dirty-brown when dry, pores thin-walled, 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 dirty-brown and agglutinated and fragile, up to 8 mm deep, context distinctly duplex, lower part white when fresh, pale ochraceous dry and distinctly contrasting the dirty-brown 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, in other parts no dense zone but still rather distinctly separated, the upper part somewhat more brown than the context proper.
Hyphal system dimitic, generative hyphae with clamps, in the trama thin-walled, collapsed and agglutinated in dry basidiocarps, up to 5 µm wide, in the context partly thin- walled and wide, up to 8 µm, some hyphae with strongly thickened walls to almost solid and with very large prominent clamps, frequently double at the septa, the clamps with a diameter up to 15 µm (measured in Melzer's), then thin- walled hyphae goes abruptly over in thick-walled sections and few intermediate hyphae were observed in the type, the thick-walled hyphae non-dextrinoid, skeletal hyphae very few in the lower context, very abundant in the upper loose tomentum, 3-8 µm wide, very thick-walled, straight and weakly dextrinoid.
Cystidia 15-20 x 5-8.5 µm variable in occurrence, in some specimens rather abundant, in other specimens very difficult to find, clavate to ventricose with a somewhat rounded to obtuse apex, smooth and slightly thick-walled.
Basidia not seen.
Basidiospores 5- 7.5 x 5-6 µm, broadly ellipsoid, slightly thick-walled, ornamented with angular small plates, distinctly dextrinoid, spore print creamish.
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 serious on *Coffea* spp.
Distribution. A rare species, but pantropical and reported from USA, Brazil and many countries in Africa, Asia and Australia.
Remarks. The stipitate tomentose to strigose basidiocarps, the duplex context, the ornamented and dextrinoid spores and the dextrinoid skeletal hyphae make this a very distinct species.

Dichomitus D. A. Reid,

Rev. Biol. 5:149, 1965. - .*Megasporoporia* Ryvarden & Wright, Mycotaxon 16:173, 1982. Basidiocarps annual to perennial, resupinate to pileate, pileus and pore surface white to cream or light straw- coloured, pores small to medium-size, hyphal system dimitic, generative hyphae with clamps, binding hyphae hyaline and arboriform or dendroid with long tapering branches, cystidia none, spores hyaline, smooth, thin-walled and non-amyloid, cylindrical to oblong ellipsoid. .On dead wood, both of gymnosperms and angiosperms
Type species: *Dichomitus squalens* (P. Karst.) D. A. Reid.
Remarks. The genus is undoubtedly related to *Polyporus* s. str. sharing the same type of hyphal system and basidiospores. However, some species have dextrinoid skeletal hyphae, a character not seen in *Polyporus*. Further, species of the latter genus is usually centrally to laterally stipitate, while those of *Dichomitus* are resupinate to rarely effused reflexed.

Key species

1. Skeletal hyphae non-dextrinoid 2
1. Skeletal hyphae dextrinoid 4

2. Spores 8-10 x 3-3.2 µm ..... **D. pendulus**
2. Spores longer than 10 µm 3

3. Basidiospores 20-27 x 7-10 µm ..... **D. grandisporus**
3. Basidiospores 15-18 x 6 - 8 µm ..... **D. anoectoporus**

4. Pores 1-3 mm wide with a variable number of hyphal pegs..... 5
4. Pores 2-5 per mm, lacking hyphal pegs 8

5. Basidiospores 16-26 µm long 6
5. Basidiospores shorter 7

6. Basidiospores 20-26 x 6-9 µm, basidiocarps cream coloured ..... **D. mexicana**
6. Basidiospores 17-21 x 4-7 µm, basidiocarps ashy grey to greyish brown .....
..... **D. hexagonoides**

7. Basidiocarp white to cream when fresh, basidiospores 10-14 µm long, hyphal pegs numerous ..... **D. setulosus**
7. Basidiocarp ochraceous when fresh, basidiospores 7-12 µm long, hyphal pegs few.....
..... **D. ochraceous**

8. Basidiospores cylindrical to allantoid 8-10 µm long 9
8. Basidiospores ellipsoid to subcylindrical, longer than 10 µm 10

9. Spores 2.5-3 µm wide, pore surface white becoming ochraceous ..... **D. cylindrosporus**
9. Spores 3.5-4.5 µm wide, pore surface snuff brown to deep brown ..... **D. brunneus**

10. Spores 9-12 x 4.5-5.5 µm 11
10. Spores 12-16 x 5-7 µm 12

11. Pores 4-5 per mm ..... **D. ecuadoriensis**
11. Pores about 2 per mm ..... **D. amazonicus**

12. Basidiocarps perennial, up to 1.3 cm thick, cork coloured ..... **D. perennis**
12. Basidiocarps annual, up to 3 mm thick, white to pale straw coloured... **D. cavernulosus**

NB Since the basidiospores of all species are hyaline, thin walled, smooth and negative in Melzer's reagent, these characteristics are not repeated for each species. The same goes for lack of cystidia and basidia that all are tetrasterigmatic with a basal clamp.

Dichomitus amazonicus Gomes-Silva, Ryvarden & Gibertoni,
Mycol. Progress, 11: 883, 2012.
Basidiocarps annual, resupinate, effused, adnate, up to 500 µm thick; margin narrow and white, hymenial surface pale ochraceous, pores angular to hexagonal, about 2 per mm, dissepiments thin; no hyphal pegs, context concolorous with the pore surface, homogeneous, very thin; tubes concolorous with pore surface, about 200 µm deep, subiculum thin, pale cream.
Hyphal system dimitic, generative hyphae with clamp connections, hyaline, thin to thick–walled, richly branched in the subiculum, 2–5 µm wide, skeleto–binding hyphae present, sparingly branched, solid, hyaline, 2–6 µm wide, strongly dextrinoid in Melzer´s reagent.
Basidia not seen.
Basidiospores (9–) 10–12 × 3.5–4 µm, ellipsoid to subcylindrical.
Distribution*:* Known only from the type locality in the state of Amazonas, Brazil.
Remarks This species is characterized by the resupinate, ochraceous, basidiocarps, angular to hexagonal pores (2 per mm) and ellipsoid to subcylindrical basidiospores (9–12 × 3.5–4 µm). *D. cavernulosus* is macroscopically similar, but differs in the larger cylindrical basidiospores (12–15 × 5–7 µm, ellipsoid to subcylindrical, 9–12 × 3.5–4 µm in *D. amazonicus*). *D. cylindrosporus*, another similar species, differs in having smaller basidiospores (8–10 × 2.5–3 µm).

Dichomitus anoectoporus (Berk. & M. A. Curtis) Ryvarden,
Mycotaxon 20:331, 1984. - *Polyporus anoectoporus* Berk. & M. A. Curtis. Bot. J. Linn. Soc. 10:318, 1868.
Basidiocarps annual, resupinate, effused, separable, up to 2 mm thick, margin narrow and white, pore surface white when fresh becoming tan to discoloured wood-coloured when old and dry, .pores angular 1-2 per mm, dissepiments thin, tubes rigid and brittle, up to 3 mm deep, subiculum thin, pale pinkish brown to isabelline, firm.
Hyphal system dimitic; generative hyphae with clamps, hyaline , thin- to thick-walled, richly branched in the subiculum 2-5 .µm wide, .skeleto-binding hyphae present, sparingly branched, solid, hyaline 2-6 µm wide, negative in Melzer´s reagent.
Basidia 20-30 x 6-8 um, clavate, 4-sterigmata, with a basal clamp.
Basidiospores 15-18 x 6-8 µm, oblong ellipsoid to ellipsoid.
Distribution. Known only from the West-Indies.
Remarks. The large spores and pores besides the distribution make this a distinct species.

Dichomitus brunneus Drechsler-Santos & Ryvarden n. sp. to be published.
Basidiocarps resupinate, annual, coriaceous to hard when dried, up to 1 mm thick; margin buff to clay buff, pore surface becoming snuff brown to cigar brown in age, pores angular and shallow, 4 (5) per mm, less than 0.5 mm deep, dissepiments finely fimbriate, context straw to buff, up to 0,5 mm thick.
Hyphal system dimitic; generative hyphae with clamps, thin-walled and 2-3 µm wide; skeletal hyphae common, thick-walled to solid, unbranched, 2-3 µm wide, strongly dextrinoid.
Basidia 15-20 x 5-7 µm, clavate, 4 sterigmata, with a basal clamp.
Basidiospores 9-10 (11) x 3.5-4.5 µm, cylindrical to allantoid.

Distribution. Common in the type locality and up to now only known from semi-arid region of Northeast Brazil.
Remarks. The thin basidiocarps and colour of pore surface, the apiculate and long spores and the strongly dextrinoid reaction of the skeletal hyphae make this species easy to recognize. The deep brown colour of basidiocarps and the wider spores distinguish it from *D. cylindrosporus*.

Dichomitus cavernulosus (Berk.) Masuka & Ryvarden, Fig. 8
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, thin-walled and 2-4 µm wide; skeletal hyphae common, thick-walled to solid, unbranched and flexuous, 2-4 µm wide, strongly dextrinoid; binding hyphae strongly branched, solid, dextrinoid, mostly confined to the context.
Basidia 25-35 x 5-8 um, clavate.
Dendrohyphidia present, but difficult to find in old and dry specimens, delicately thin-walled and variably branched in the upper part, most common along the dissepiments, up to 25 µm long from the clamp at the base.
Basidiospores (10)12-16 x 5-7 µm, cylindrical.
Distribution. Known from Florida in United States to Argentine. Also known from Africa.
Remarks. The large spores and the dextrinoid reaction of the vegetative hyphae make this species easy to recognize.

Dichomitus costaricensis Ryvarden,
Synopsis. Fung. 30: 33, 2013.
Basidiocarps annual, effused reflexed, pileus up to 1 cm long, 0.5 cm wide and 4 mm thick at base, effused resupinate lower part of the basidiocarps, up to 2 cm wide, upper surface brown in variable shades becoming black from the base, glabrous and sulcate in distinct zones, some of them black and very thin, margin sharp, pore surface ochraceous to cork coloured, pores round, 6-8 per mm, split on the vertical parts of the basidiocarps, tubes concolorous with pore surface, up to 3 mm long , context ochraceous and up to 1 mm thick.
Hyphal system dimitic; generative hyphae with clamps, hyaline, thin walled, 2-4 µm in diam; skeletal hyphae 2-4 µm sparingly arboriform and easily broken in microscopical preparations, solid, hyaline and without reaction in Melzer's reagent.
Basidia 15-20 x 6-7 µm, clavate, tetrasterigmatic and with a basal clamp.
Basidiospores 7-8 x 3-3.2 µm, cylindrical.
Distribution. Known only from the type locality.

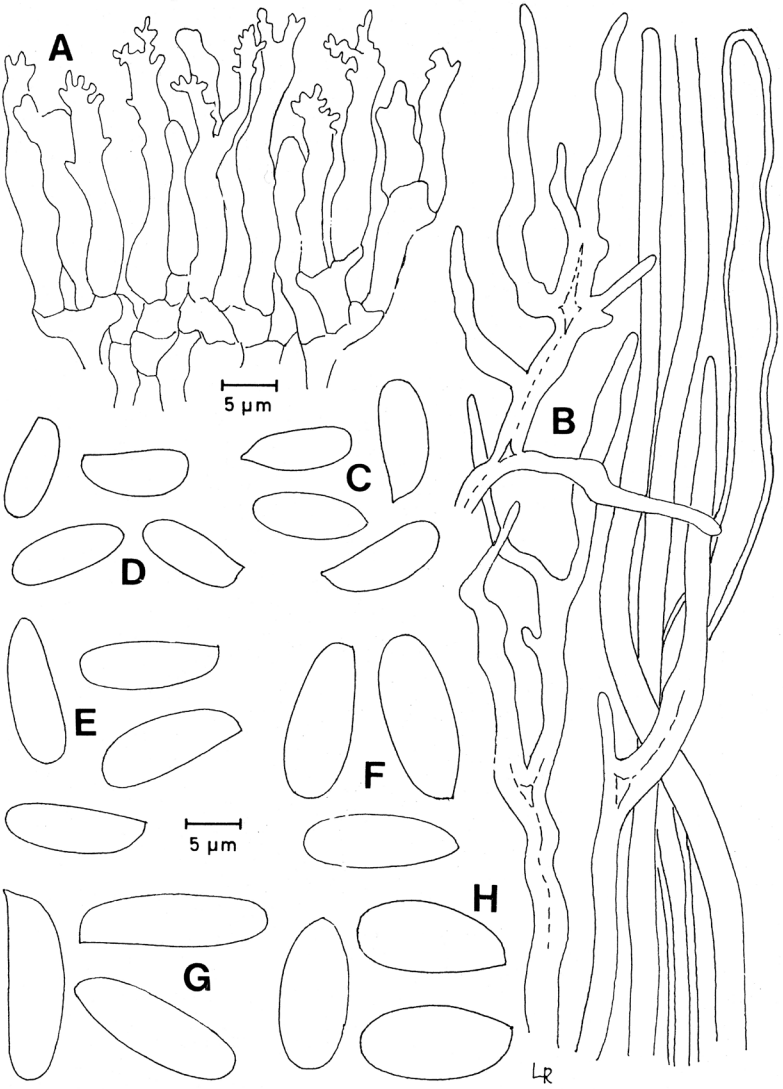

Fig. 8. *Dichomitus cavernulosus*, A) Dendrohyphidia from the dissepiments, B) vegetative hyphae from context, C) basidiospores, from the holotype, D-H spores, D) from Type of *Poria linearis*, E) from Ecuador, F) from Sierra leone, G) from Keyna, H) from Type of *Poria delicatula* Henn. Del. L. Ryvarden

Remarks. Undoubtedly the species is similar to *D. pendulus* which however has longer spores and an orbicular to discoid basidiocarp reminding one of a large *Aleurodiscus* species.

Dichomitus cylindrosporus Ryvarden,
Synopsis Fung. 23: 40, 2007.
Basidiocarps annual, resupinate, effused, separable, up to 2 mm thick, margin narrow, pale brown to ochraceous, pore surface white when fresh becoming pale brown to greyish when dry, pores angular 3-4 per mm, in parts elongated to sinuous, especially on sloping substrates, dissepiments thin, tubes rigid and brittle, up to 1 mm deep, pale ochraceous, contrasting the pore surface, subiculum thin, pale pinkish brown to isabelline, up to 1 mm thick.
Hyphal system dimitic; generative hyphae with clamps, hyaline , thin- to thick-walled, richly branched in the subiculum 2-4 µm wide, arboriform skeletal hyphae present, sparingly branched, solid, hyaline 2-4 µm wide, dextrinoid in Melzer's reagent.
Basidia 20-25 x 5-7 µm, clavate.
Basidiospores 8-10 x 2.5-3 µm, cylindrical.
Distribution. Known from Belize and Brazil.
Remarks. The narrow cylindrical basidiospores distinguish it from other species in the genus, which in general have wider and longer spores.

Dichomitus ecuadoriensis Ryvarden,
Synopsis Fung. 27: 46, 2010.
Basidiocarps annual, resupinate and cushion like, up to 7 x 2 cm long and wide and 3 mm thick in the centre, margin narrow and black, pore surface dark tan to ochraceous, pores round, about 4-5 per mm, with thick walls, tubes paler than pore surface, up to 3 mm deep and, in the thickest specimen, with a thinner zone above a thicker one (reflecting seasonal growth), context whitish to pale ochraceous, thin to almost invisible,
Hyphal system dimitic; generative hyphae 2-3 µm wide, with clamps, hyaline, thin- to thick-walled, richly branched in the subiculum; skeletal hyphae 2-3 µm wide, strongly dextrinoid in Melzer's reagent.
Basidia not seen.
Basidiospores 10-11 x 5-5.5 µm, cylindrical to oblong-ellipsoid.
Distribution. Known only from the type locality.
Remarks. The species is characterised by the cushion-like, resupinate basidiocarps with a narrow black line along the margin which should make it possible to recognize the species in the field. Microscopically, the oblong-cylindrical spores make this distinct species.

Dichomitus grandisporus Aime & Ryvarden,
Synopsis Fung.23:24, 2007.
Basidiocarps annual, resupinate, effused, adnate, up to 3 mm thick, .pore surface mottled yellow when fresh, pale straw-coloured when old and dry, margin narrow, white when fresh becoming ochraceous, pores angular, regularly hexagonal, 3–4 per mm, dissepiments thin, tubes rigid, up to 2 mm deep, subiculum thin, ochraceous, to about 1 mm thick. Smell fragrant, coconut and honeysuckle.

Hyphal system dimitic, generative hyphae with clamps, hyaline, thin- to thick-walled, richly branched in the subiculum 2–4 µm wide; skeletal hyphae arboriform, sparingly branched, solid, hyaline 2–4 µm wide, negative in Melzer's reagent.
Cystidia absent.
Basidia 30–45 x 10–14 µm, clavate, 4-sterigmate, with a basal clamp, only a few observed.
Basidiospores 20–27 x 7–10 µm, oblong-ellipsoid to subcylindrical, thick walled.
Distribution. Known only from the type locality.
Remarks. The extraordinarily large and thick-walled spores make this a distinct species.

Dichomitus hexagonoides (Speg.) Wright & Rajchenb.,
Mycotaxon 16:176, 1982. - *Poria hexagonoides* Speg., Ann. Mus. Nac. Buenos Aires 6:170, 1898.
Basidiocarps annual, resupinate, effused, adnate up to 10 cm long and 4 cm wide, margin 2 mm wide and cream, pore surface ashy white with a tint of lavender when fresh, light greyish brown when dry, pores angular, honey combed, 0.5-1 mm wide, tubes up to 2.5 mm deep, light brown, context concolorous with tubes, hyphal pegs absent.
Hyphal system dimitic, generative hyphae with clamp connections, hyaline, thin to thick–walled, richly branched in the subiculum, 2–3,5µm wide, arboriform skeletal hyphae present, sparingly branched, solid, in parts as very long, up to 500 µm unbranched segments acting as true skeletal hyphae, hyaline, 2–7 µm wide, strongly dextrinoid in Melzer´s reagent. Crystals are richly present in the trama and among the hymenial elements.
Cystidia absent.
Basidia 35-40 x 8-10 µm, clavate.
Basidiospores 16.5-22 x 5-7 µm, cylindrical to slightly allantoid.
Substrate*:* On dead *Prosopsis nigra* and other unidentified hard wood trees in xerophytic vegetation.
Distribution*:* Northern Argentine (Chaco region).
Remarks This species is characterized by the large pores and spores, slightly smaller than those of *D. mexicanus*, but the ashy grey colour will separate it from the cream coloured basidiocarps of *D. mexicanus*.

Dichomitus mexicanus (Ryvarden), Ryvarden, Fig. 9
Synopsis Fung. 23:4, 2007. - *Megasporoporia mexicana* Ryvarden, Mycotaxon 16: 178, 1982.
Basidiocarps annual, resupinate, effused, adnate, in the type 20 cm long, 10 cm wide and 1 cm thick, margin narrow and white, hymenial surface white pale to pale cream, pores angular to round, about 2 -3 mm in diameter, context concolorous with the pore surface, homogeneous, very thin; tubes up to 1 cm deep and concolorous with pore surface and with a few scattered hyphal pegs in the outer parts, subiculum thin, pale cream.
Hyphal system dimitic, generative hyphae with clamp connections, hyaline, thin to thick–walled, richly branched in the subiculum, 2–5 µm wide, arboriform skeletal hyphae present, sparingly branched, solid, in parts as very long, up to 500 µm unbranched

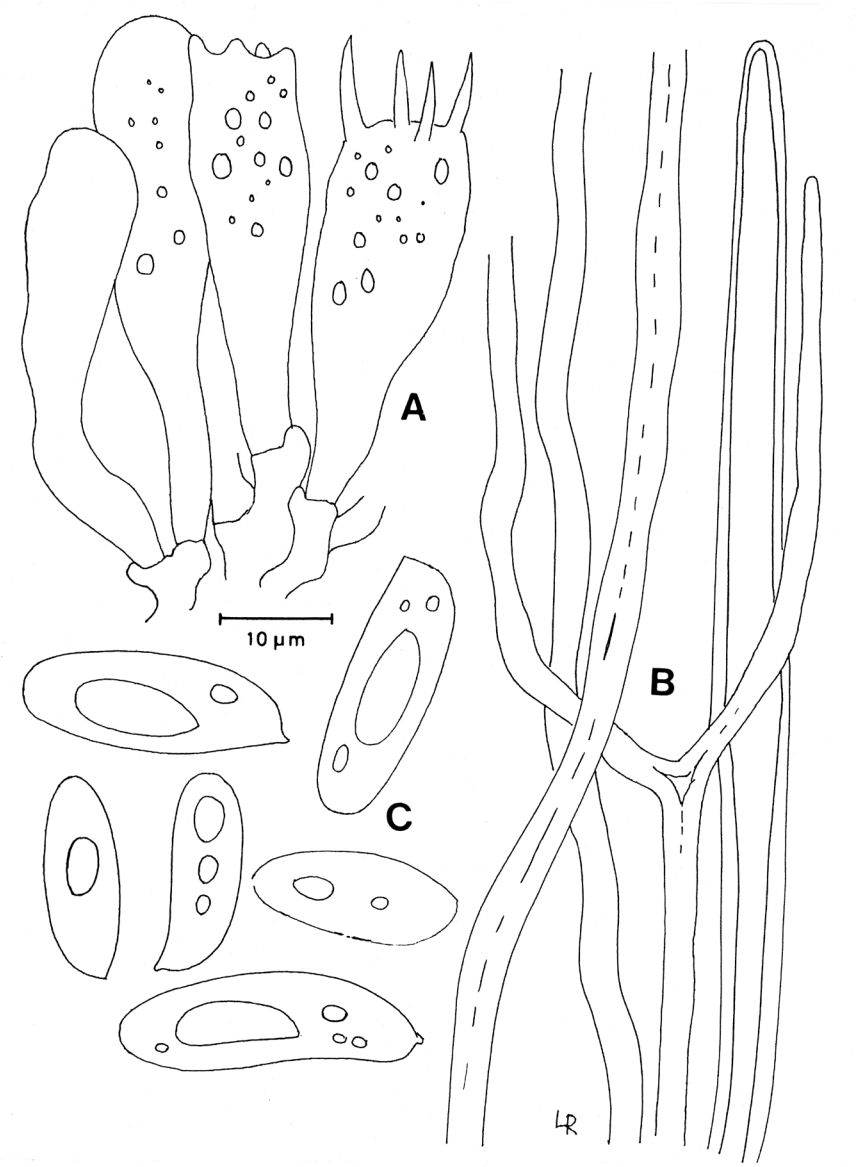

Fig. 9. *Dichomitus mexicanus* A) basidia, B) hyphae from the context, C) basidiospores. From the holotype.

segments acting as true skeletal hyphae, hyaline, 2–7 µm wide, strongly dextrinoid in Melzer´s reagent.
Basidia 35-45 x 10-13 µm, clavate.
Basidiospores 20-26 x 6-9 µm, cylindrical to allantoid.
Distribution*:* Known only from the type locality in the state of Vera Cruz in Mexico.
Remarks This species is characterized by the resupinate, ochraceous, basidiocarps, large pores and large cylindrical spores.

Dichomitus ochraceus Drechsler-Santos & Ryvarden in sched. To be published.
Basidiocarps resupinate, annual, coriaceous, up to 1.5 mm thick; margin narrow, straw to buff; pore surface concolorous becoming ochraceous in age, pores angular, 1-2 per mm, up to 1,5 mm deep, tubes walls with few hyphal pegs, context ochraceous, almost absent, less than 0.5 mm thick.
Hyphal system dimitic; generative hyphae with clamps, thin-walled and 2-3 µm wide; skeletal hyphae common, thick-walled to solid, unbranched, .2-3 µm wide, dextrinoid.
Basidia 15-25 x 7-10 µm clavate.
Basidiospores 7-14 x 4-5 µm, cylindrical.
Distribution. Common in the type locality and up to now only known from semi-arid region of Northeast Brazil.
Remarks. The combination of an ochraceous basidiocarp with large pores, the cylindrical spores, few hyphal pegs and the dextrinoid reaction of the skeletal hyphae make this species easy to recognize.

Dichomitus pendulus Læssøe & Ryvarden,
Synopsis Fung. 27:48, 2010.
Basidiocarps annual, pendant with a central point of attachment, round to oblong, up to 8 mm in diameter, upper surface glabrous, inner parts black and then brown to ochraceous, pore surface tan to ochraceous, pores round 6-7 per mm with thick walls, tubes concolorous 1-1.5 mm deep, context up to 250 µm thick, with an upper, very thin, black line exposed on the inner parts of the pileus
Hyphal system dimitic; generative hyphae 2-3 µm wide, with clamps, hyaline, thin- to thick-walled, richly branched in the subiculum; skeleto-binding hyphae present, 2-3 µm wide, hyaline, solid, sparingly branched, negative in Melzer's reagent.
Cystidia absent.
Basidia 15 x 7-8 µm, clavate.
Basidiospores 8-10 x 3-3.2 µm, cylindrical.
Distribution. Known only from the type locality, where it was noted as very common by the collector.
Remarks. The species is characterised by the small pendant basidiocarps, recalling an *Aleurodiscus* species with reflexed margin, which makes this a species easily detected by a generalist collector rather than a devoted polypore expert!

Dichomitus perennis Ryvarden,
Synopsis Fung. 23:40, 2007.

Basidiocarps resupinate, perennial, adnate, hard, up to 12 mm thick; margin narrow, ochraceous, pore surface pale grey to ochraceous, pores angular to round, 2-3 per mm, up to 12 mm deep, cork coloured and distinctly stratified with up to 4 distinct zones (seasonal growth?), context almost absent, only present as a narrow cork-coloured line in depressions in the substrate.
Hyphal system dimitic; generative hyphae with clamps, thin-walled and 2-4 µm wide; skeletal hyphae common, thick-walled to solid, unbranched and flexuous, or with an occasional apical dichotomous branching, 2-5 µm wide, strongly dextrinoid.
Basidia 25-30 x 5-8 um, clavate.
Basidiospores, (10)12-16 x 5-7 µm, cylindrical.
Distribution. Known only from the type locality.
Remarks. The large massive basidiocarp should make this species easy to recognize in the field. *D. anoectoporus* has an almost white pore surface, while that of *D. perennis* is cork coloured to ochraceous becoming greyish to deep ochraceous when dry and old.

Dichomitus setulosus (Henn.) Masuka & Ryvarden,
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.
Basidia 18-30 x 7- 10 µm, clavate, often with oily inclusions.
Basidiospores 10-14 x 4-6 µm, cylindrical.
Distribution. From south-eastern part of United States to Northern Argentine. Widespread in the tropical zone.
Remarks. The species can be identified in the field with a lens because of the conspicuous hyphal pegs. Dendrohyphidia have not been found in this species.

Diplomitoporus Domanski,

Acta Soc. Bot. Pol. 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, non-amyloid to weakly amyloid, not dissolving or gelatinized in KOH, 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 similar to *Antrodia* which however has a brown rot. The borderline towards *Antrodiella* is vague as both genera include species with the same

hyphal system, type of spores and type of rot. However, the spores of *Antrodiella* species are in most species small and ellipsoid and the basidiocarps are usually dense and cartilaginous.
Poria lenis P. Karst., which previously was placed in *Diplomitoporus*, has been transferred to *Sidera* because of the small lunate spores and the scattered crystals on the hyphae in the dissepiments. For dimitic resupinate species where the skeletal hyphae dissolve in KOH, see *Cinereomyces dilutabilis*

NB Since the spores for all species in the genus are hyaline, thin walled, smooth and negative in Melzers reagent, this information is not repeated for each species.

Key species

1. Dendrohyphidia present in hymenium and along the dissepiments ..... **D. hondurensis**
1. Dendrohyphidia absent 2

2. Basidiospores ellipsoid to subglobose 3
2. Basidiospores allantoid, cylindrical to navicular 7

3. Spores subglobose 4-5 x 3.5-4.5 µm ..... **D. globisporus**
3. Spores ellipsoid 4

4. Basidiospores 5.5-7 um long, 2-3 pores per mm ..... **D. overholtsii**
4. Basidiospores and pores smaller 5

5. Pore surface straw-coloured, pores 4-5 per mm ..... **D. stramineus**
5. Pore surface white to cream, pores 6-8 per mm, ... 6

6. Basidiospores 4-5 x 2-2.7 µm ..... **D. costaricensis**
6. Basidiospores 4-5 x (2.5)3-3.5 (4) µm ..... **D. intermedius**

7. Basidiospores 1.2-1.5 µm wide 8
7. Basidiospores wider 9

8. Pores angular, 2-3 per mm, basidiospores allantoid with two small oil drops .... **D. allantosporus**
8. Pores round, 4-8 per mm, basidiospores cylindrical to navicular without oil drops 9

9. Spores navicular, 2-2.5 µm wide ..... **D. navisporus**
9. Spores cylindrical, 1.2-2.0 µm wide **10**

10. Pores 2-3 per mm ..... **D. incisus**
10. Pores 4-6 per mm ..... **D. venezuelicus**

Diplomitoporus allantosporus Ryvarden & Iturriaga,
Mycologia 95:1067, 2003.

Basidiocarps annual, resupinate, adnate, up to 1 mm thick, margin narrow, white, pore surface pale ochraceous to cream coloured, pores thin-walled, angular 2-3 per mm, tubes concolorous, up to 1 mm deep, context up to 150 um, white and almost absent in places.
Hyphal system dimitic, generative hyphae with large conspicuous clamps, wide, thin- to slightly thick-walled 3-5 µm wide, skeletal hyphae thick-walled to solid, 4-5 um wide and non-amyloid.
Basidia clavate, 10-12 x 3-5 µm with 4 sterigmata
Basidiospores 5-6 x 1.2-1.5 µm, allantoid and in most cases with two small oil drops.
Distribution. Known from Venezuela and Brazil.
Remarks. This species is distinct because of the wide generative hyphae with large clamps and the allantoid basidiospores with two small oil drops.

Diplomitoporus costaricensis I. Lindblad & Ryvarden,
Mycotaxon 71:341, 1999.
Basidiocarps perennial, resupinate, up to 3 mm thick, brittle to tough when dry, margin narrow, white to cream, pore surface white to cream, pores entire, round, regular, 6-8 per mm, tube layer concolorous with pores, zonate, each layer up to 1 mm thick, separated by thin layer of subiculum, subiculum 0.05 mm thick.
Hyphal system dimitic, generative hyphae hyaline, with clamps, ca 2 µm wide, skeletal hyphae predominant, solid to thick-walled, hyaline, negative in Melzer's reagent, 1.5-3 µm in diam, unbranched.
Basidia not seen.
Basidiospores 4-4.5 x 2 µm, ellipsoid.
Distribution. Known from Costa Rica and Venezuela.
Remarks. The species is recognized by its small spores and pores. *D. overholtsii* (Pilat) Gilbn. & Ryvarden which is also known from the Central America has larger basidiospores, 5.5-7 x 3.5-5 µm. *Cineromyces*. *dilutabilis* Loguercio-Leite & Wright from Brazil is similar, but has a trimitic hyphal system, skeletal hyphae that is gelatinized in KOH and allantoid basidiospores.
Diplomitoporus globisporus Ryvarden,
Mycol. Progress 13: 314, 2014.
Basidiocarps annual, resupinate, adnate, up to 6 mm thick and slightly pulvinate with a sloping whitish, margin, up to 2 mm sterile, pore surface whitish cream, pale to dark ochraceous; pores round to angular, with thickened dissepiments, elongated in sloping parts, (5–) 6–7 per mm, tubes concolorous with the pore surface, up to 5 mm deep context dense, whitish cream to very pale wood coloured, up to 1.5 mm thick.
Hyphal system dimitic; generative hyphae with clamps, hyaline, thin-walled, smooth, 3–5 µm in diam.; skeletal hyphae hyaline, thick-walled to solid, straight to slightly sinuous, 4–6 µm in diam., dominating, in the hymenium and subhymenium with a rounded apex and a distinct lumen.
Basidia difficult to observe, subclavate to subglobose, hyaline, thin-walled, 12–15 × 4–7.5 µm, with four sterigmata.
Hyphidia inconstantly present in the hymenium, hyaline, smooth and thin-walled, with single or dendroid apex, often enlarged at the base, 12–31 × 2–3 µm.

Basidiospores (3.5–) 4–5 × 3.5–4.5 µm, globose to subglobose, thin to slightly thick-walled.
Substrate. Dead hardwood.
Distribution. Venezuela and the State of São Paulo, Brazil
Remarks. *Diplomitoporus globisporus* is characterized by its round to angular pores with thickened dissepiments, globose to subglobose, slightly thick-walled basidiospores, skeletal hyphae with rounded apex in the hymenium and subhymeniun, and presence of hyphidia.
This species is macroscopically similar to *D. stramineus* and *D. intermedius*, with slight differences in the pore shape and size. However, *D. globospora* is very distinct microscopically due to basidiospore shape, skeletal hyphae with rounded apex, and presence of hyphidia.
D. microsporus Iturr. & Ryvarden also have globose basidiospores. However, in this species they are smaller, distinctly thin-walled and absorbing phloxine, turning reddish; while in *D. globisporus* they are thin to slightly thick-walled, and do not absorb phloxine

Diplomitoporus hondurensis (Murrill) Ryvarden, Fig. 10
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 fewer apical protuberances.
Basidia 10-15 x 5-6 µm with basal clamps and 4 sterigmata, in the type also observed with 2 sterigmata.
Basidiospores 5-8 x 3-3.5 µm, oblong ellipsoid to cylindrical.
Distribution. Puerto Rico, French Guyana and Honduras (type locality), but has certainly a wider distribution in Central and South America.
Remarks. The species is microscopically separated by the dendrohyphidia and larger basidiospores from *D. incisus* which macroscopically is rather similar except that its pores are irregularly incised.

Diplomitoporus incisus Ryvarden,
Mycotaxon74:122, 2000. - *Diplomitoporus marianoi-rochae* G. Coelho, Fungal Planet 26, 2008
Basidiocarps annual, resupinate, effused, tough when fresh, brittle when dry, adnate, up to 2 mm thick, margin narrow, white, pore surface white, pores thin-walled, angular to sinuous on sloping substrate, 2-3 per mm on horizontal parts, up to 1 mm wide when split, tubes concolorous, to 2 mm deep, context white and very thin to almost absent.

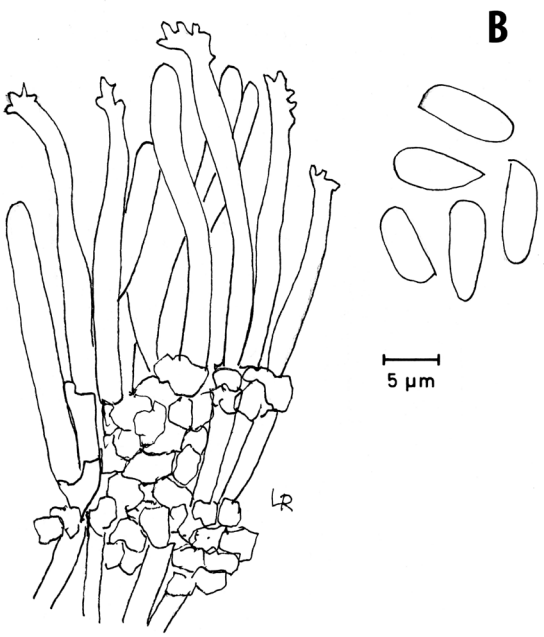

Fig. 10. *Diplomitoporus hondurensis* A) part of hymenium with dendrohyphidia, B) spores. From the holotype.

Hyphal system dimitic, generative hyphae with clamps, predominant in the basidiocarp, wide to narrow, thin-walled 2-5 µm wide, freely branched, skeletal hyphae rare in trama, 2-4 µm wide, thick-walled and non-amyloid.
Basidia clavate, 12-15-20 x 5-6 µm.
Basidiospores 5.5-7 x 2.5-2.8 µm, cylindrical.
Distribution. Known only from Puerto Rico and Brazil.
Remarks. *D. incisus* is characterized by a persistently pure white pore surface and irregular angular to sinuous pores. The basidiospores are similar to those of *D. brunneus*, but slightly longer, thus with a slightly more slender appearance in the microscope.

Diplomitoporus intermedius Baltazar &, Ryvarden,
Mycol. Progress 13:215, 2014.
Basidiocarps annual, resupinate, up to 12 × 6 cm e 2.5 mm thick, fibrous, slightly soft when fresh, tough when dry, pore surface white to cream when fresh, cream to ochraceous when dry, pores angular, elongated in sloping parts, 5–8 per mm, margin fertile to sterile up to 3.5 mm, concolorous with pore surface to brownish, tubes concolorous with the pore surface, waxy, dull to shiny, up to 2.5 mm deep context fibrous to cottony, waxy in some parts, homogeneous, concolorous with the pore surface, up to 0.5 mm thick.

Hyphal system dimitic; generative hyphae with clamps, hyaline, thin to slightly thick-walled, smooth, branched and sinuous, 2–3(–4) µm in diam., abundant in the context, not found in the trama; skeletal hyphae hyaline, straight and sinuous, unbranched, thick-walled to solid, 3–5.5 µm in diam.
Basidia 12–18 × 4–5 µm, clavate.
Cystidia absent; cystidiols subclavate to fusoid, hyaline, thin-walled and smooth.
Basidiospores 4–5 × 3–4 µm, ellipsoid to broadly ellipsoid, thin to slightly thick-walled.
Distribution. Known from Brazil.
Remarks. This species is recognized by its fibrous basidiocarps, dimitic hyphal system, ellipsoid to broadly ellipsoid basidiospores and negative reaction in Melzer's reagent in all structures. *Diplomitoporus costaricensis* I. Lindblad & Ryvarden and *D. insularis* are similar macro- and microscopically to *D. intermedius*, but they have different basidiospores — ellipsoid to slightly oblong-ellipsoid, 4–5 × 2–2.75 µm in *D. costaricensis*; and globose in *D. insularis*.

The basidiospore size of *D. stramineus* is similar to those of *D. intermedius*; however, the former has thinner basidiocarps (up to 1.5 mm thick), smaller pores [4–5(–6) per mm] and oblong-ellipsoid to ellipsoid, slightly curved, 5–6 × 2–3 µm basidiospores [ellipsoid, 4.5–5 × 2.7–3 µm in the original description (Ryvarden and Iturriaga 2003)]. *Diplomitoporus venezuelicus* differs from *D. intermedius* by the thinner basidiocarps and cylindrical basidiospores.

Diplomitoporus microsporus Iturr. & Ryvarden,
Synopsis Fung. 27:81, 2010.
Basidiocarps annual, resupinate, adnate, up to 0.6 mm thick, pore surface pale to dark ochraceous, pores round and thick-walled, 6-8 per mm, invisible to the naked eye, in the type slightly incised since collected on a sloping substrate, tubes concolorous, up to 0.5 mm deep, context dense, white to very pale wood-coloured, about 100 µm thick.
Hyphal system dimitic; generative hyphae 3-5 µm wide, with clamps; skeletal hyphae 4-6 µm wide, dominating in context, thick-walled to solid, straight to slightly sinuous, non-amyloid.
Cystidia 6-10 µm wide x up to 50 µm long, present in the context, thick-walled with a bulbous apex, hyaline, smooth and non-amyloid.
Basidia 8-12 x 5-6 µm, broadly clavate, with 4 sterigmata.
Basidiospores 2.5-3 µm wide, globose to slightly subglobose.
Distribution. Known only from the type locality.
Remarks. The species is characterized by the tiny globose basidiospores and bulbous, smooth, thick-walled cystidia in the context. They may however be interpreted as skeletal hyphae with obtuse apex.

Diplomitoporus navisporus GIbertoni & Ryvarden,
Synopsis Fung. 18: 49, 2004.
Basidiocarps perennial, resupinate, up to 0.5cm thick, tough when dry, margin narrow, up to 0.1cm wide, pale ochraceous, pore surface ochraceous, pores round, 6-7/mm, dissepiments thin, tubes concolorous with the subiculum, up to 5 mm thick, subiculum very thin, up to 100 µm thick.

Hyphal system trimitic, generative hyphae hyaline, clamped and thin-walled, 2.7-4.5 µm; skeletal hyphae hyaline, thick-walled, 1.8-4.5 µm; binding hyphae hyaline, solid, 1.8-2.7µm.
Cystidiols fusoid, hyaline, 10.0-12.0 x 2.7-3.6 µm.
Basidia clavate, 10.0-11.0 x 3.6-4.5 µm.
Basidiospores 4.5-5.4 x 2.0-2.5 µm, navicular to pipshaped.
Distribution: Known only from the type locality.
Remarks: This species differs from the other species in the genus by its distinct navicular spores.

Diplomitoporus overholtsii (Pilat) Gilb. & Ryvarden,
Mycotaxon 22:364, 1985. - *Poria overholtsii* Pilat, Stud. Bot. Cech. 3:2, 1940.
Basidiocarps annual, resupinate, effused, soft when fresh, brittle when dry, separable, up to 3 mm thick, margin narrow to wide, white, felty or with rhizomorphs, pore surface pale cream, slightly darker when dry, pores thin-walled, angular 2-3 (4) per mm, tubes concolorous, brittle, context white and soft, about 1 mm thick.
Hyphal system dimitic, generative hyphae with clamps, predominant in the tubes, wide to narrow, thin-walled 2-5 µm wide, freely branched, skeletal hyphae very rare in trama, slightly more frequent in context, narrow, 1.5-2 µm wide, thick-walled and non-amyloid, in a few cases branched in the outer parts and thus resembling binding hyphae, but most skeletal hyphae unbranched and straight.
Cystidia none, fusoid cystidiols present, 20-30 x 6-7 µm.
Basidia 15-20 x 5-7 µm, clavate.
Basidiospores 5.5-7 x 3.5-5 µm, ellipsoid, some spores with small oily inclusions.
Distribution. North America throughout eastern hardwood forests and it is included here as it may be expected to occur also at higher altitudes in the Neotropical zone.
Remarks. The species is characterized by its fairly large ellipsoid spores, larger than in all other species included here.

Diplomitoporus stramineus Ryvarden & Iturriaga,
Mycologia 95:1069, 2003.
Basidiocarps annual, resupinate, adnate, up to 1 mm thick, margin narrow, white, pore surface straw-coloured, pores thin-walled, angular 4-5 per mm, tubes concolorous, up to 0.7 mm deep, context almost absent, up to 100 um thick, straw-coloured.
Hyphal system dimitic, generative hyphae with clamps, narrow, thin-walled 2-3 µm wide, skeletal hyphae dominating 4-5 µm wide, thick-walled and non-amyloid.
Cystidia none.
Basidia 11-13 x 3-4 µm, clavate.
Basidiospores 4.5-5 x 2.7-3 µm, ellipsoid.
Substrata. Dead hardwoods.
Distribution. Known from Costa Rica, Ecuador and Venezuela.
Remarks. This species is distinct by its evenly straw coloured basidiocarps and the wide, ellipsoid basidiospores.

Diplomitoporus taquarae G. Coelho,
Fungal Planet 25, 2008.
Basidiocarps annual, first resupinate, soon reflexed at the margins, somewhat discoid and umbonate, up to 12.5 × 12.5 mm, 2 mm thick, cartilaginous when fresh, papery upon drying, light in weight, lower side pale brown to yellow, slightly zonate, pore surface white to very pale brown, pores round to angular mostly 4–5 per mm, occasionally larger, pore layer up to 1 mm thick, non-stratified, hyphal pegs scattered on the tube walls, context concolorous with the pore surface slightly darker next to the substrate, very thin, up to 0.25 mm thick, homogeneous.
Hyphal system dimitic. generative hyphae with clamps, 4-5 x 2–3.2 µm wide, skeletal hyphae hyaline to whitish-opaque, thick-walled, with a wide lumen to solid, abundant, 2.4–3.2 µm diam.
Basidia 9.6–12 × 3.6–4.4 µm, clavate, tetrasterigmatic.
Basidiospores 4–6.5 x 1.2–2 µm, mostly allantoid, rarely cylindrical.
Substrate. Known from decayed culms of *Bambusa tuldoides* Munro.
Remarks. *D. taquarae* is characterised by white to pale yellow basidiocarps. *D. allantosporus* Ryvarden & Iturr has similar spores, but have larger pores (2–3/mm). *D. venezuelicus* Ryvarden & Iturr. Is also similar but differs in smaller pores (6–8/mm), and cylindrical basidiospores (4–4.5 × 1.2–1.5 µm).
Distribution: Known only from the type locality in the State of Rio Grande do Sul, Brazil.
Remarks. The discoid habitat and the cylindrical spores should be sufficient to separate this species.

Diplomitoporus venezuelicus Ryvarden & Iturriaga,
Mycologia 95:1069, 2003.
Basidiocarps annual, resupinate, adnate, up to 1 mm thick, margin narrow, white, pore surface first white, soon straw-coloured and then pale brown by drying pores thin-walled, round to angular 6-7 per mm, tubes concolorous, up to 0.5 mm deep, context almost absent, white.
Hyphal system dimitic, generative hyphae with clamps, narrow, thin-walled 2-3 µm wide, skeletal hyphae dominating 2-3 µm wide, thick-walled and non-amyloid.
Cystidia none.
Basidia 8-10 x 3-4 µm, clavate.
Basidiospores 4-4.5 x 1.2-1.5 µm, cylindrical.
Substrata. Dead hardwoods.
Distribution. Known only from Venezuela.
Remarks. This species is similar to *D. costaricensis* which however has wider ellipsoid basidiospores.

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 American tropical genus.

Type species: *Earliella cubensis* Murr. (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.

Earliella scabrosa (Pers.) Gilbn. & Ryvarden,

Mycotaxon 22:364, 1985. - *Polyporus scabrosus* Pers. in Gaudich., Voy. aut. Monde, p. 172, 1827. - *Polyporus corrugatus* Pers. op cit. - *Earliella cubensis* Murr. 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 where 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.

Cystidia none.

Basidia 15-22 µm long, clavate with 4-sterigmate.

Basidiospores 7-10.5 x 3-4 µm, cylindrical to oblong ellipsoid.

Distribution. Widespread in American subtropical and tropical areas, and very common, especially in exposed localities since it apparently can endure dry conditions fairly well for long periods.

Remarks. Normally 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. *E. scabrosa* is similar to *Fomitella supina*, which differs in its purplish brown to smoky grey pore surface, dark brown context and tube layer besides much smaller pores.

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, context 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 wood 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. Only one species in America.

Echinochaete brachyporus (Mont.) Ryvarden, Fig. 11

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, thinning out towards the margin. consistency 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 except the area near the stipe where the tomentum persists, towards the stipe the surface may sometimes be reticulated with a system of raised vein like ribs, stipe usually short and stout, solid, up to 1 cm long and broad, often darker than the pileus, upper part finely tomentose, on the lower side partly covered with pores or radiate ribs, 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, in old specimens almost lamellate except near the margin where entire pores are present, dissepiments thin, 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, contextual hyphae dextrinoid while the tomentum consists of thick-walled to almost solid hyphae, up to 5 µm in diameter with yellow walls, some of them have a few lateral spines and also a few simple septa.

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.

Basidia 18-32 x 4-6 µm, clavate**.**

Basidiospores 9.5-13 x 3.5-5.5 um, cylindrical, hyaline, smooth and thin-walled, non-amyloid.

Distribution. Pantropical and widespread in the neotropics.

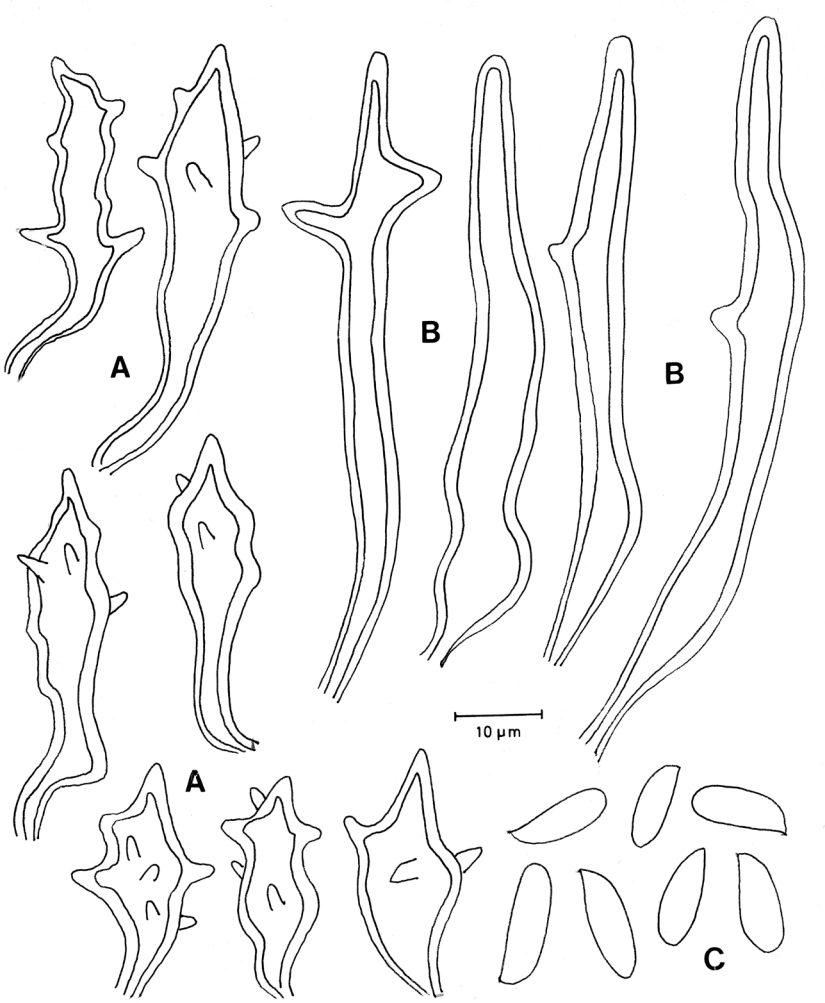

Fig. 11. *Echinochaete brachyporus* A) setal organs from the hymenium, B) setal organs from the pileus, C) basidiospores. From the lectotype.

Remarks. The colour change from whitish pale pink to discoloured reddish brown is striking when fresh basidiocarps are found. The dark brown setoid elements are unique and make a microscopical identification rather easy.

Echinoporia Ryvarden,

Prelim. Polyp. Fl. East Afr. p.325, 1980.

Basidiocarps resupinate to pileate, white to cream, upper part or along the margin covered with hydnoid organs, either singly or as villose to hispid tufts, pore surface white to cream, pores angular, tubes concolorous with pore surface, context thin and white, hyphal system dimitic, generative hyphae with clamps, skeletal hyphae present, hyaline, thick-walled to solid, cystidia present, smooth or with an encrusted apex, basidiospores globose to broadly ellipsoid, ovoid to ellipsoid conidia abundant, produced from generative hyphal ends in the hydnoid processes on the pileus or along the margin. Causes a white rot in hard wood, tropical genus with one Asian and two American species.

Type species: *Echinoporia hydnophora* (Berk. & Br.) Ryvarden.

Remarks. The genus is highly characteristic with distinct hydnoid processes or strigose hairs composed more or less of generative hyphae from which oblong conidia are developed. This initial stage is often found without a poroid basidiocarp. The cystidia are of variable shape and of erratic occurrence. The basidiospores are often difficult to observe.

Key to species

1. Pileus velutinate with some agglutinated hairs, spores 5.5-6.3 x 3.8-4.5 µm...**E. inermis**
1. Pileus hirsute to strigose, spores 4-5 x 3-3.5 µm ..... **E. aculeifera**

Echinoporia aculeifera (Berk. & M. A. Curtis) Ryvarden, Fig. 12

Mycotaxon 19:330, 1984. - *Trametes aculeifera* Berk. & M. A. Curtis., J. Linn. Soc. Bot. 10:319, 1868.

Basidiocarps annual, resupinate, or semi-resupinate to pileate, nodulose. 1-2 cm wide, up to 5 cm long in fused specimens, 1-4 mm thick, soft when fresh, flexible and tough when dry, upper surface white to ochraceous or pale yellowish orange to -brown, radially fimbriate or crested and normally densely covered with hairs or hydnoid processes, often in entangled masses, 1-3 mm long, margin commonly deeply incised in narrow fimbriate lobes covered with projecting hairs, in a preliminary stage the whole basidiocarp primordium may be covered by these processes, pore surface white to cork-coloured, pores irregular, angular and 2-3 per mm, along the margin often developed without a context as the fimbriate lobes start to grow vertically and develop into irregular, sinuous to angular poroid structures, tubes up to 3 mm deep, context white to pale ochraceous, 1-2 mm thick.

Hyphal system dimitic, generative hyphae of even width, thin to slightly thick-walled, resembling *Hyphodontia* hyphae 2-4.5 µm wide, predominant in the hydnoid hairs, skeletal hyphae present, thick-walled, hyaline and unbranched, 3-5 µm wide, common in the context and trama.

Cystidia or bulbous to oblong hyphal endings present, but scattered and only in the dissepiments, arising from generative hyphae, up to 25 µm long and 5-7 µm wide, smooth or with a crystal crown, their occurrence is erratic and they are often difficult to find.

Basidia 12-15 x 5-6 µm, clavate, rapidly collapsing.

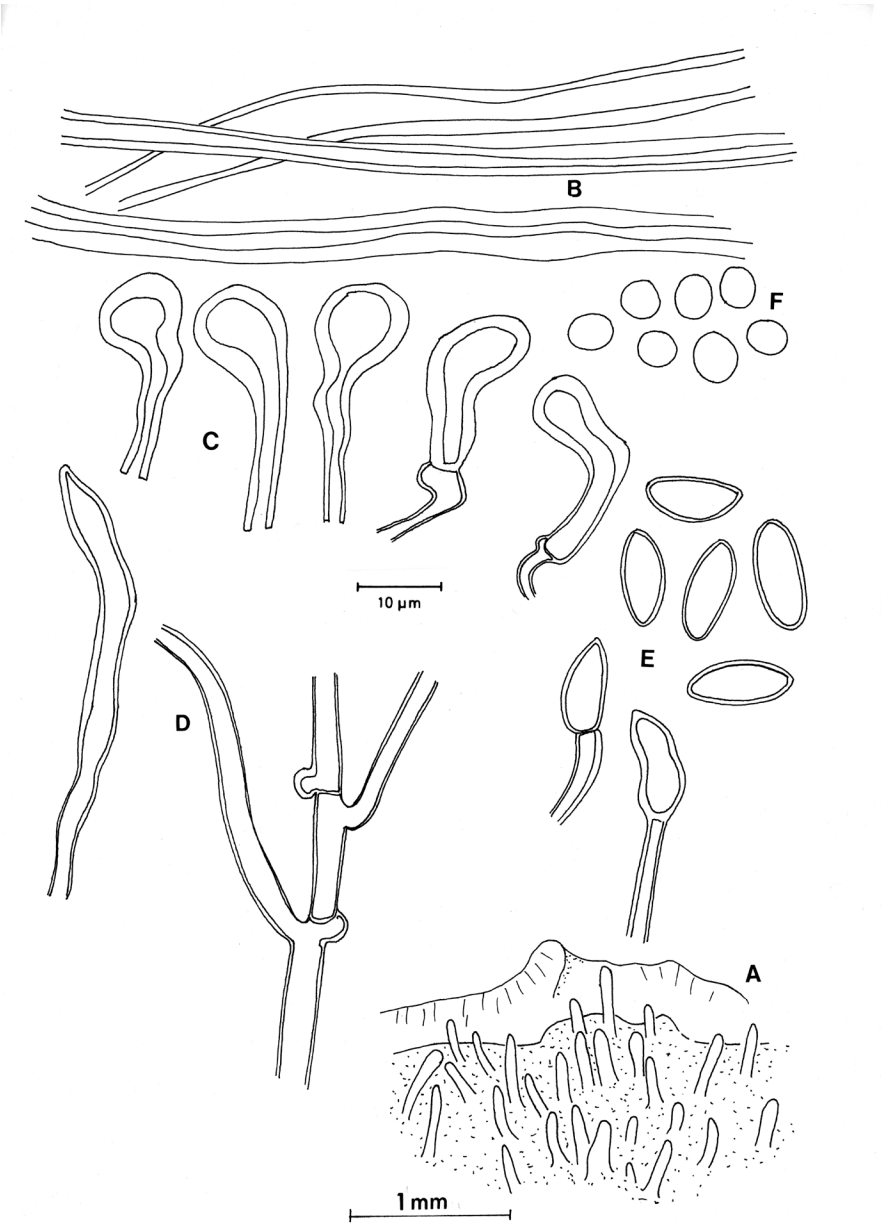

Fig. 12. *Echinoporia aculeifera* A) hydnoid structures from the pileus B) skeletal hyphae from context, C) cystidia like organs, D) generative hyphae, E) conidia, F) basidiospores. From the lectotype.

Basidiospores 4-5 x 3-3.5 µm, broadly ellipsoid to almost subglobose, hyaline, thin-walled, negative in Melzers reagent.
Conidia 12-15 x 4-6 µm, arise from generative hyphae in the hairs on the pileus or along the margin, oblong with a pointed end, slightly thick-walled, often with a small lateral "hook" from the clamp by which the spore was attached to the apical end of a generative hypha.
Distribution. In tropical America from Brazil to Florida, which is the only state in United States from which it is known. Described from Cuba.
Remarks. In the field rather easily recognized because of the dense pileus cover of long white to ochraceous hairs or hydnoid processes and the white and irregular pores. Microscopically the conidia are diagnostic and no other polypore in the region is known with such spores. They are very common in the pileus cover.

Echinoporia inermis G. Coelho,
Fungal Planet 23, 2008.
Basidiocarps annual, initially nodulose, then resupinate with slightly reflexed to effuse-reflexed borders, up to 30 × 18 × 5 mm, membranaceous to almost cartilaginous when fresh, papery and firm upon drying, light in weight, pileus, up to 5 mm wide, velutinate or with some agglutinated hyphae similar to hairs or scales, white, becoming pale brown to yellow, pore surface concolorous to the pileus, pores round to usually polygonal, dissepiments velutinate, entire, tube layer concolorous to the pileus, up to 3.5 mm thick, non-stratified, context concolorous
with the pileus, up to 1.5 mm, homogeneous.
Hyphal system dimitic, generative hyphae with clamps, hyaline, thin- to slightly thick-walled, with a wide lumen, smooth, often branched, 2.6–5. µm wide, skeletal hyphae hyaline, thick-walled, with a narrow lumen, usually regular to somewhat tortuous in outline, 2.6–5.2 µm wide.
Basidia 10.4–16 × 4.4–5.6 µm, clavate, four sterigmata.
Basidiospores 4.8–5.6 × 3.6–4.2 µm, subglobose, broadly-ellipsoid, slightly thick-walled, smooth, hyaline.
Cystidia 12–30 × 4.8–6.4 µm, ventricose, smooth**,** sometimes elongated and constricted, thin- to slightly thick walled.
Arthroconidia produced from thin-walled hyphal ends at the dissepiments, around the pore mouths, hyaline, ellipsoid to almost fusoid, with a remnant clamp connection at one end and rounded, obtuse to slightly truncate at the other end, smooth, thick-walled, 8–14 × 4–7 µm.
Substrate. On decayed wood of *Senna macranthera*.
Distribution. Known only from the type locality in Southern Brazil.
Remarks. The velutinate to almost glabrous pileus separate this species from *E. aculeifera* with it's the strigose to hirsute pileus.

Fistulina Fr.,

Syst. Mycol. 1:396. 1821.
Basidiocarps annual, sessile to laterally stipitate, pileus surface reddish to brown, scurfy to tomentose, context reddish and fleshy with a red sap or white to ochraceous and firm-fibrous, tubes separate but closely packed, 4-6 per mm, hyphal system monomitic, clamps present or absent, cystidia absent in hymenium, trichocysts present or absent, basidia clavate, 4-sterigmate, basidiospores ovoid, hyaline, IKI-. Causing a brown rot in dead hardwoods. Cosmopolitan genus with two species in America.
Type species*: Fistulina hepatica* Schaeff.: Fr.
Remarks. The hymenophore of densely packed individual tubes make the genus unique. It is not a true polypore, and is often placed in Cyphellaceae due to the peculiar hymenophore.

Key to species:

1. Basidiocarps up to 20 cm wide, sessile or with a short lateral stipe; pilear surface and context reddish; context with blood-red sap ..... **F. hepatica**
1. Basidiocarps up to 7.5 cm wide, laterally stipitate, often with an elongated, radicating stipe up to 10 cm long; pilear surface wood-brown; context white to pale buff..**F. radicata**

Fistulina hepatica Schaeff.: Fr.
Syst. Mycol. 1:396. 1821.
Basidiocarps annual, pileate, sessile or with a short lateral stipe, single or several from a branched base or stipe, pilei dimidiate to reniform, up to 20 cm in diam and 6 cm thick, at first soft and fleshy and readily exuding a reddish blood-like sap when squeezed or bruised, eventually more fibrous and tough in older specimens; pilear surface pinkish brown to more reddish or purplish brown, finely hispid to scurfy with hyphae aggregating in crowded papillate tufts, these wearing away to expose a relatively smooth, slimy, reddish to pale purplish brown cuticle with minute darker
scales or radially striate, 901); margin rounded to rather acute, concolorous; pore surface white at first, bruising darker on handling and becoming dull brown with age and drying, the individual tubes crowded, about 4-6 per mm; context reddish, fleshy and juicy when fresh, with a blood-like exudate where cut or broken, mottled or irregularly zonate with alternating pale and darker areas, in older specimens or on drying becoming soft-fibrous, pale wood-brown, up to 5 cm thick; tube layer consisting of individual, crowded, but easily separable tubes, white to pale buff, bruising dark reddish-brown, drying pale brown, tube layer up to 1 cm thick; stipe lateral, scurfy with papillate tufts, these merging with tubes on the decurrent tube layer, reddish at first, darkening to blackish-brown on the basal portion, up to 5 cm long and 3 cm wide or on some sub-sessile specimens simply a broad, tapering base up to 8 cm wide.
Hyphal system monomitic; contextual generative hyphae thin-walled, with simple septa and clamps, rarely branched, mostly 4-10 µm in diam, but with inflated portions up to 20 µm in diam; gloeoplerous hyphae also present in context; tramal hyphae hyaline,

thin-walled, agglutinated and difficult to separate in sections from dried specimens, with rare branching, simple-septate, 2-5 µm in diam.
Cystidia absent from hymenium, but cylindrical, thin-walled cystidial elements present on dissepiment edges, 6-7 µm in diam and up to 60 µm long.
Basidia 15-20 x 5-7 µm, clavate, 4-sterigmate, with a basal clamp.
Basidiospores 3.5-4.5 x 2.5-3 µm, ovoid to tear-shaped, hyaline, smooth, thin-walled, negative in Melzer's reagent,.
Substrata. Generally on *Quercus, Castanea*, or *Castanopsis* but occurring also on other hardwood genera.
Distribution. Eastern United States from from New York to the Gulf Coast and seems to follow the oaks (*Quercus* spp.) into Central America. Circumglobal in temperate hardwood forest ecosystems.
Remarks. *Fistulina hepatica* is commonly called the beef steak fungus because of the reddish, fleshy context and blood-red sap. The red sap makes this species unique. Contrary to old folk lore, the fungus tastes acid with a slippery feel in the mouth. .

Fistulina radicata Schw.,
Schr. Nat. Geo. Leipzig 1:100, 1822. - *Fistulina pallida* Berk. & Ravenel, Grevillea 1:71, 1872.
Basidiocarps annual, laterally stipitate with a long radicating stipe up to 10 cm long, pileus dimidiate to reniform or irregularly lobed, up to 7.5 cm wide and 1.25 cm thick, pileus surface pale yellowish brown, azonate, densely tomentose to coarsely farinaceous under a lens, margin acute, entire to deeply incised and lobed, pore surface white to cream coloured at first, becoming pinkish buff to ochraceous with age or drying, tubes 5-7 per mm, closely packed to less dense in some areas, white at first, drying pinkish buff, up to 3 mm long, not decurrent on the stipe and tube layer with an abrupt margin at the apex of the stipe, context white when fresh, drying pale buff, tough, fibrous and firm, hard and rigid on dried specimens, up to 7 mm thick, stipe lateral, up to 8 cm long, radicating and partially imbedded, brown, concolorous with the pileus surface and densely tomentose on the upper portion, whitish on the lower part, simple or branched, up to 1 cm wide at the apex.
Hyphal system monomitic, contextual generative hyphae thin-walled, hyaline, simple-septate, rarely branched, 4-12 µm in diameter, tramal hyphae similar, with parallel arrangement and difficult to separate in sections from dried specimens, with rare branching, 4-6 µm in diameter, trichocysts hyphae on pileus surface hyaline, with abundant, short, dichotomously branched projections, fragmenting into short pieces in slides for microscopic study, 2-7 µm in diameter.
Cystidia or other sterile hymenial elements absent.
Basidia 11-14 x 4.5-5 µm, broadly clavate, 4-sterigmate.
Basidiospores 3-4 x 2-3 µm, broadly ellipsoid to ovoid, smooth, hyaline and IKI-..
Substrata. Known only on dead trees and stump, sometimes fruiting from buried roots and appearing terrestrial.
Distribution. Known from southern North America to Brazil.
R**emarks**. The laterally stipitate basidiocarp sepaatethis species form the sessile and tough like *F. hepatica* which is almost always growing on *Quercus*.

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 tear-drop shaped, hyaline, thin-walled, IKI-. Causing white rot in dead hardwoods. Pantropical genus.
Type species: *Polyporus superpositus* (Berk.) Cunningh.
Remarks. *Flabellophora* is most closely related to *Microporellus* in this manual, but is separated by non-dextrinoid skeletal hyphae and lack of cystidia. However, the borderline between these genera is vague and the present system must be considered as preliminary. 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.
NB. Since all basidiospores are hyaline, thin walled and negative in Melzers solution, this information is not repeated for each species.

Key species

1. Pileus with hispid ochraceous tomentum spreading from the base and with a reddish brown glabrous margin ..... **F. fasciculata**
1. Pileus glabrous or with fine adpressed tomentum, white, ochraceous sometimes with darker zones 2

2. Basidiocarps large, up to 15 cm in diameter, pilei numerous, spores up to 3 mm long .... **F. ochracea**
2. Basidiocarps smaller, rarely above 6 cm wide, pilei either single or superimposed, basidiospores longer than 3 mm 3

3. Pilei superimposed, basidiospores 3-4 x 2-3 mm ..... **F. parva**
3. Pilei single, basidiospores 4-5 x 3-4 mm ..... **F. obovatus**

Flabellophora fasciculata Ryvarden & Iturriaga,
Mycologia 95: 1069, 2003.
Basidiocarps annual, in a large cluster consisting of numerous smaller or larger laterally stipitate, spatulate pilei, the whole cluster about 14 cm in diameter, individual pilei up 7 cm wide along the margin, 4 mm thick at the base, tough when fresh, dense and strongly curled when dry, pileus covered with a short hispid ochraceous tomentum from the base becoming thinner towards the margin and outer half part of pileus completely smooth and glabrous, strongly zonate and reddish brown, pore surface white when fresh, cream when dry, pores round, tiny and invisible to the naked eye, 8-10 per mm, tubes dense, decurrent

on stipe, up to 2 mm deep, context pale cream, up to 1 mm thick and with several dense, dark resinous lines.
Stipe lateral, up to 10 cm long and 8 mm in diameter, and covered with the same short hispid hairs as on the basal part of the pileus, ochraceous, in the lower part covered with soil and debris, in section duplex, outer part ochraceous, inner part, 2-3 mm in diameter, dark reddish brown and extremely dense and hard.
Hyphal system monomitic; generative hyphae with clamps, in the subhymenium, 2-4 mm and thin-walled, in the trama and the context wider and slightly thick-walled and with scattered large clamps, up to 8 mm wide, the hispid tomentum of almost solid hyphae with some scattered clamps, non-dextrinoid.
Cystidia and other sterile hymenial elements absent.
Basidia12-15 x 3-4 mm, clavate with 4 sterigmata.
Basidiospores 3.5-4.5 x 3-3.5 mm, subglobose.
Substrata. From buried roots in a virgin forest.
Distribution. Known only from the type locality.
Remarks. This is a conspicuous species by its large clustered basidiocarps arising from buried roots, its reddish brown pileus with a basal tomentum, the very tiny pores and the resinous lines in the context besides the dense central core of the stipe.
The hyphal system is complex as there are long segments on the thick-walled hyphae of the context and the tomentum separated by clamps. I interpret the system as monomitic with sclerified generative hyphae, but the long segments may also be interpreted as intercalary skeletal hyphae.

Flabellophora ochracea Corner,
Beiheft Nova Hedwigia 86:41, 1987.
Basidiocarps annual, growing in groups or clusters, with spatulate or flabelliform pilei from a common stipe 10-25 x 10-35 mm, the whole basidiocarp up to 8 cm high and 15 cm wide, pilei up to 7 cm in radius, adpressed velutinate to finely tomentose, nearly smooth along the margin, ochraceous drying pale yellowish, nearly white towards the centre,, faintly zoned, margin thin, acute, entire becoming undulate when dry, becoming darker when bruised or as dry, stipe short, white and velutinate, pore surface white, cream to pale straw-coloured, pores angular, thin-walled, 6-8 per mm; tubes up to 3 mm deep, context, up to 12 mm thick at the base, cheesy, brittle and hygrophanus, pale ochraceous with darker zones.
Hyphal system dimitic; generative hyphae with clamps, 2.5-4.5 µm in diameter; skeletal hyphae, up to 14 µm wide in places with 2 µm thick walls, in places intercalary, but in the stem of the unlimited type, oleiferous hyphae up to 8 µm wide scattered in the context and dissepiments.
Cystidia and other sterile hymenial elements absent.
Basidia not observed.
Basidiospores 2.5-3 x 2-2.5 µm, ellipsoid to subglobose, hyaline and thin-walled, negative in Melzers reagent.
Distribution. In America only known from Manaus in Brazil.

Remarks. The densely pileate basidiocarp with minute pores and consistency as in *Laetiporus sulphureus* should be diagnostic in the field. The macroscopical characters and the small spores make this a distinct species.

Flabellophora obovata (Jungh.) Corner**,**
Beih. Nova Hedwigia 86: 36, 1987. - *Polyporus obovatus* Jungh., Verh. Batav. Genootsch. 17:65, 1838. - *Flabellophora variabilis* Corner, Beih. Nova Hedwigia 86:51, 1987.
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 to trumpet-shaped, sometimes pendent, 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, often also somewhat radially striate, 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, with age somewhat wrinkled or scrupose by warts and agglutinated tufts of hyphae, 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, context with only generative hyphae, these thin to distinctly thick-walled, the latter easily mistaken for skeletal hyphae, however, a search along the hyphae will reveal large clamps, these thick-walled hyphae with a distinct lumen, 2.5-4.5 µm in diameter; tramal generative hyphae more thin-walled and more densely agglutinated, mixed with very thick-walled to solid skeletal hyphae, 3-6 µm wide.
Cystidia and other sterile hymenial elements absent.
Basidia 18-20 x 6-8 µm, clavate, with 4 sterigmata and a clamp at the base.
Basidiospores 3.5-5 x 2-4.0 µm, ellipsoid.
Distribution. Widespread in the tropical zone.
Remarks. The flabelliform basidiocarp, normally narrowly zonate in ochraceous to grey colours, and the minute pores are good field-characters. Sessile specimens may be confused with *Antrodiella* species, but the wide hyphae in the context will then be diagnostic.
To me *F. variabilis* Corner is so similar that I for the time being treat it as a synonym. The spores are indicated to be slightly larger than cited here, but more than one collection is needed to verify whether this is within the normal variation seen in *F. obovata*.

Flabellophora parva Corner,
Beiheft Nova Hedwigia 86:42, 1987.
Basidiocarps annual, single, stipitate, first with a single pileus, flabelliform to spatulate, up to 3.5 cm in radius, later with 1-2 smaller pilei further down on the stipe, upper surface glabrous to subpruinose when dry, white to ochraceous, margin thin, acute, entire becoming undulate when dry, stipe short, white and strigose to hispid with hyphal tufts, 2-3 cm x 2-4 mm, pore surface white, cream to pale straw-coloured, pores angular,

thin-walled, 6-8 per mm; tubes up to 3 mm deep, context, up to 2 mm thick at the base, fibrillose, white to pale ochraceous and without zones.
Hyphal system dimitic; generative hyphae with clamps, 2.5-4.5 µm in diameter; in the context wide and with scattered large clamps, skeletal hyphae, up to 4 -7 µm wide apparently often intercalary. The hairs on the stipe and basal part of the pileus look like pilo- or caulocystidia being wide and with a thin-walled apex.
Cystidia and other sterile hymenial elements absent.
Basidia 8-11 x 5-6 µm with 4 sterigmata and basal clamp.
Basidiospores 3-4 x 2.5-3 µm, ellipsoid.
Distribution. Known from Peru, Venezuela, Ecuador, Costa Rica and Belize.
Remarks. The superimposed pileate basidiocarp with minute pores and a strigose to hirsute stipe should be diagnostic in the field. However, it may be confused with *F. obovata* which normally has a single pileus, but sometimes branched in the lower part of the stem, becoming imbricate. The larger spores of the latter species are in such cases diagnostic.

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, 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 ellipsoid, 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. It must be regarded as a tropical counterpart to the temperate-boreal genus *Irpex* s. str.

Flavodon flavus (Kl.) Ryvarden, Fig. 13
Norw. J. Bot. 20:3, 1973. - *Irpex flavus* Kl. Linnaea 8:488, 1833. - *Irpex flavus* Jungh., Verhand. Batav. Genootsch. 17:46, 1839
Basidiocarps annual, 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 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,

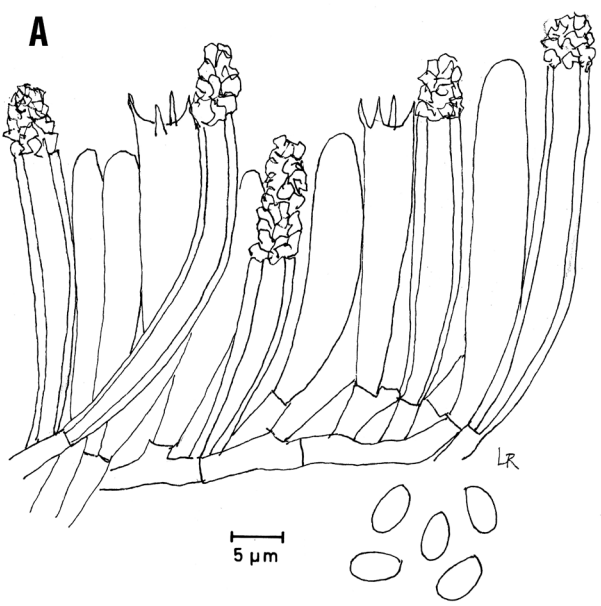

Fig. 13. *Flavodon flavus* A) hymenial cystidia and encrusted skeletal hyphae in the hymenium. From the lectotype.

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 µm, broadly ellipsoid, smooth, hyaline, thin-walled and non-amyloid.
Distribution. A pantropical species, in the neotropics scattered from Florida to Brazil.
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.

Fomes (Fr.) Fr.,

Summa Veg. Scand. 2:319, 1847.
Basidiocarps perennial, sessile, ungulate, pileus surface gray to blackish with a hard smooth crust, pore surface pale brown, pores small, regular, tube layers brown, stratified,

context pale brown, tough-fibrous, hyphal system trimitic. generative hyphae with clamps, binding and skeletal hyphae with pale brownish pigment in KOH, sclerids present, cystidiols fusoid, imbedded or projecting slightly, basidia clavate, 4-sterigmate, with a basal clamp, basidiospores cylindrical, large, hyaline, smooth, negative in Melzer's reagent. Causes a white rot of living or dead hardwoods. Two species out of which one is temperate and boreal, while the other one is American and subtropical to tropical.
Type species: *Fomes fomentarius* (Fr.) Kickx.
Remarks. In the field the type species is easily taken for small specimens of *G. australe* sharing the same perennial basidiocarps with a greyish brown to blackish upper surface. However, section through the basidiocarp will reveal the mottled mycelial core so typical for the genus *Fomes* and completely unknown in *Ganoderma.* Microscopically the ornamented spores of the latter, will immediately eliminated any specimen of *Fomes*.

Fomes fasciatus (Sw.:Fr.) Cke.,
Grevillea 14:21, 1885. - *Polyporus fasciatus* Sw.:Fr., Syst. Mycol. 1:373, 1821.
Basidiocarps perennial, sessile, ungulate to applanate, up to 10x18x10 cm, upper surface at first light brown, minutely tomentose, faintly zonate, soon becoming hard and crustose, glabrous, gray to dark brown or black, concentrically sulcate, zonate to completely black and azonate, pore surface light brown, darkening with age, the pores circular, 4-5 per mm, with thick, entire dissepiments, context lustrous golden brown on cut surfaces, distinctly to faintly zonate, fibrous, with a dark, hard, crustose upper layer up to 1 mm thick, sharply differentiated from fibrous context, a central core of granular, mottled tissue developing near substrate, tube layers indistinctly stratified, sometimes separated by a thin layer of context, tubes paler within.
Hyphal system trimitic, contextual generative hyphae with clamps, thin-walled, 2.5-4 µm in diam, difficult to find in mature specimens, contextual skeletal hyphae thick-walled, nonseptate, pale yellowish brown in KOH, with rare branching, 3-8 µm in diam, binding hyphae thick-walled, much branched, hyaline to pale yellowish brown in KOH, 1.5-4 µm in diam, irregularly shaped sclerids abundant in core tissue, thick-walled, golden to reddish brown in KOH, tramal hyphae similar except for sclerids.
Cystidioles 20-25 x 6.5-8 µm, fusoid, thin-walled and with a basal clamp.
Basidia 19-22 x 8-10 µm, broadly clavate, 4-sterigmate, with a basal clamp.
Basidiospores 12-14 x 4-4.5 µm, cylindrical, hyaline, smooth, negative in Melzer's reagent.
Distribution. American species from south-eastern U.S. and Arizona to Northern Argentine.
Remarks. Basidiocarps of *F. fasciatus* vary greatly from applanate to ungulate and generally have a convex pore surface and as stated above, can easily be mistaken for *Ganoderma australe* in the field, which however lacks the characteristic mycelial core of *F. fasciatus* and has totally different spores.

Fomitella Murrill,

Bull. Torrey Bot. Club 32:365, 1905.
Basidiocarps annual or perennial, sessile or effused-reflexed, pilei dimidiate, applanate, upper surface becoming crustose or reddish and laccate, pore surface purplish brown to smoky, the pores circular, 5-7 per mm, context pale brown, zonate, hyphal system trimitic, generative hyphae with clamps, cystidia lacking, basidiospores cylindrical, negative in Melzer's reagent, causing a white rot of dead hardwoods. Monotypic American genus.
Type species: *Polyporus supinus* Swartz: Fr.
Remarks. The genus comes close to *Trametes* with its trimitic hyphal system, but is easily separated by its perennial basidiocarp, grey pore surface and reddish cuticle spreading from the base.

Fomitella supina (Swartz: Fr.) Murrill,
Bull. Torrey Bot. Club 32:365, 1905. - *Boletus supinus* Swartz, Flora Ind. Occid. III, p. 1926, 1806. - *Polyporus supinus* Swartz: Fr., Syst. Mycol. 1:376, 1821.
Basidiocarps annual or perennial, sessile or effused-reflexed, single or imbricate, dimidiate, or occasionally circular on the top of logs, applanate, up to 15 x 7 x 4 cm, upper surface highly variable, pale ochraceous, minutely tomentose, azonate, smooth in early stages of development, often with a basal portion or most of pilear surface becoming darker and eventually reddish-brown to black and crustose or laccate, in other specimens weathering to almost white and becoming rough, frequently greenish from algae in older specimens, pore surface purplish brown to cinereous or smoky, the pores circular, 5-7 per mm, with thick, entire dissepiments, context ochraceous to pale brown, zonate, firm-fibrous, up to 2 cm thick, in laccate specimens with a hard, horny dark layer at the surface, in some perennial specimens new tube layers are separated from older ones by a layer of context tissue, tube layers becoming indistinctly stratified with older tubes filled with mycelium, purplish tan on younger specimens, distinct from context, single layers up to 5 mm thick.
Hyphal system trimitic, contextual generative hyphae thin-walled, with clamps, rarely branched, hyaline, 2.5-3.5 µm in diam, difficult to find in mature specimens, contextual skeletal hyphae thick-walled, nonseptate, hyaline, rarely branched, 4-9 µm in diam, contextual binding hyphae thick-walled, nonseptate, much branched, hyaline, 1.5-4 µm in diam, tramal hyphae similar but skeletal hyphae more narrow, up to 5 µm in diam.
Cystidia or other sterile hymenial elements lacking.
Basidia 15-17 x 6-8 µm, clavate, 4-sterigmate, with a basal clamp.
Basidiospores 7-9 x 3-3.5 µm, cylindrical, hyaline, smooth, negative in Melzer's reagent,
Substrata. Dead wood of numerous genera of hardwoods.
Distribution. From south-eastern U.S., and southward to Brazil.
Remarks. *Fomitella supina* is morphologically like species of *Fomitopsis* but has a white rot. It is also similar to *Earliella scabrosa*, see remarks under that species.

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, both in living or dead conifers and hardwoods.

Type species *Fomitopsis pinicola* (Swartz: Fr.) Karst.

Remarks. *Fomitopsis* includes species with a perennial or rarely annual basidiocarps 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. *Daedalea* is a brown rotting genus where the species in general have larger and in parts irregular pores and a distinct catahymenium of a type not seen in *Fomitopsis.*

NB. Since the spores of all species in the genus are hyaline, thin walled, smooth and negative in Melzer's reagent, and all basidia are tetrasterigmatic with a basal clamp, this information is not repeated for each species.

Key to species

1. Pore surface, context and tubes rose-pink to pinkish brown or deep brown. 2
1. Pore surface, context, and tubes white to ochraceous or wood-coloured, not pinkish ... 8

2. Basidiomata deep brown in all parts ..... **F. scalaris**
2. Basidiomata with shades of pink, at least in the context 3

3. Basidiocarps massive, woody hard, upper surface pinkish grey to almost black with age and then radially cracked ..... **F. dochmia**
3. Basidiocarps thinner and easily broken, upper surface greyish pink to pinkish brown, velutinate or with scrupose veins not radially cracked and no crust 4

4. Upper surface velutinate soft, pale pink to ochraceous pink, pores 5-7 per mm..... 5
4. Upper surface warted, veined or fibrillose, pinkish brown, pores larger 6

5, Spores ellipsoid, 3-4 x 1.8-2 µm, pore surface and context white .....**F. roseoalba**
5. Spores subcylindrical, 5-6.5 x 2-3 µm, pore surface pale pinkish brown context.. **F. feei**

6. Spores cylindrical, basidiomata minute, up to 10 mm in diameter .....**F. minuta**
6. Spores ellipsoid, basidiomata usually 2 to 10 cm in longest dimension 7

7. Pores 1–2 mm wide ..... **F. cupreorosea**
7. Pores 2–4 per mm ..... **F. lilacinogilva**

8. Basidiospores broadly ellipsoid, usually on oak or chestnut ..... **F. spraguei**
8. Basidiospores cylindrical to allantoid, on various substrates 9

9. Pores 6-8 per mm ..... **F. nivosa**
9. Pores larger (the *F. lignea* complex) 10

10. Basidiospores allantoid to cylindrical 11
10. Basidiospores cylindrical to slightly fusiform, 2 -3 µm wide..... 12

11. Spores 6-8 µm long ..... **F. durescens**
11. Spores 5-6 µm long ..... **F. lignea**

12. Basidia large, 25-37 µm long, cystidiols absent ..... **F. palustris**
12. Basidia smaller, 12-20 µm long, cystidiols present ..... **F. meliae**

Fomitopsis cupreo-rosea (Berk.) Carranza & Gilbertson,
Mycotaxon 25:476, 1986. - *Polyporus cupreoroseus* Berk., Hooker J. Bot. 8:233, 1856.
Basidiocarps annual, occasionally reviving, solitary to imbricate, dimidiate to conchate, mostly applanate, often with a basal resupinate part, 5-15 x 2- 10 x 0.3-2.5 cm, corky to woody hard when dry, pileus pinkish brown, greyish brown to pink, first velvety, then fibrillose becoming glabrous when old, slightly sulcate and radiate striate and zoned, old specimens often warted to slightly scrupose at the base, margin sharp to round, entire, pore surface pinkish, rose to pale pinkish-brown, pores angular to daedaleoid and sinuous with age, 1-2 mm wide, tubes as pore surface or paler, up to 8 mm deep, faintly zonate, context dense, felty-fibrous, pinkish-brown to lilac, reddish-brown to almost black in KOH, probably cherry red in fresh specimens, up to 5 mm thick.
Hyphal system trimitic, generative hyphae with clamps, 2.5-3.0 µm wide, skeletal hyphae thick-walled with a pale reddish-brown wall and a wide lumen, 3.5-7.0 µm wide, binding hyphae rather thin, but solid and sparingly branched.
Basidia 12-19 x 4-7 µm, clavate.
Basidiospores 5-7 x 2.5-3.2 µm, ellipsoid.
Basidiocarps. From Mexico and the Caribbean Islands to Northern Argentine.
Remarks. The species is closely related to *F. lilacinogilva* which has similar colours, but has prominent radial ridges with agglutinated hyphae on the pileus besides smaller pores, ie. 2-4 per mm and longer spores.

Fomitopsis dochmia (Berk. & Br.) Ryvarden,
Norw. J. Bot. 19:231, 1972. - *Polyporus dochmius* Berk. & Br. 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 and with a distinct crust, glabrous, smooth to shallowly sulcate, in old specimens radially cracked, margin acute, narrowly sterile below, pore surface rose coloured to cream or wood-coloured brown with age, the pores circular

to angular, regular, 5-7 per mm, with entire dissepiments, tube concolorous, tube layers single or indistinctly stratified, up to 7 mm thick, trama concolorous with context, tubes whitish within context rose brown, tough fibrous to corky, azonate, up to 3 cm thick
Hyphal system trimitic, contextual generative hyphae thin-walled, with clamps, hyaline, 2.5-4 µm in diam, difficult to find in mature specimens, contextual skeletal hyphae thick-walled, hyaline to pale brownish, nonseptate, with rare branching, 2-7 µm in diam, binding hyphae thick-walled, nonseptate, hyaline, branched, 1.5-3 µm in diam, tramal hyphae similar.
Cystidia or other sterile hymenial elements absent.
Basidia 12-19 x 4-5 µm, clavate, narrowed at the base.
Basidiospores 6-7.5 x 2.5-3 µm, short cylindrical to oblong.
Distribution. Throughout subtropical and tropical America north to Cuba, South East Asia and Australia.
Remarks. This species can easily be recognized by its massive basidiocarps with a grey to black crust, usually distinctly cracked radially.

Fomitopsis durescens (Lowe) Gilbn. & Ryvarden,
North Am Polypores 1:271, 1986. - *Polyporus durescens* Lowe, Mycotaxon 2:65, 1975.
Basidiocarps annual, sessile, pilei single or imbricate, up to 13 x 6 x 6 cm; pileus surface cream coloured to pale buff, drying tan, glabrous to minutely tomentose at the margin, smooth to slightly rough, pore surface white to cream coloured, ochraceous on drying, the pores circular to angular, 4-5 per mm, with thick, entire dissepiments, context white to ivory, tough fibrous-corky when fresh, drying very hard and rigid, azonate, up to 4.5 cm thick, tube layer concolorous or slightly darker than context, drying hard and rigid, up to 5 mm thick.
Hyphal system trimitic, contextual generative hyphae with clamps, thin-walled, nonseptate, hyaline, with rare branching, 2.5-5.5 µm in diam, contextual skeletal hyphae thick-walled, hyaline, nonseptate, with rare branching, 2.5-5.5 µm in diam, contextual binding hyphae thick-walled, hyaline, nonseptate, much branched, 2-4 µm in diam, tramal hyphae similar.
Cystidia absent, fusoid cystidiols present, thin-walled, 14-16 x 5-6 µm.
Basidia 15-17 x 5-6 µm, clavate.
Basidiospores 6-8 x 1.5-2.5 µm, narrowly cylindrical, slightly curved.
Distribution. East United States and into the Caribbean.
Remarks. Similar to *F. palustri*s but differing in the narrowly cylindrical, slightly curved basidiospores.

Fomitopsis feei (Fr.) Kreisel,
Univ. Habana ser. 4, Cienc. Biol. 16:83, 1971. - *Polyporus feei* Fr., Linnaea 5:518, 1830.
Basidiocarps annual or perennial, sessile, solitary or in imbricate clusters, dimidiate, up to 15 x 10 1 cm, pileus surface pale rose brown on young specimens and at the margin on older ones, becoming pale wood brown or darkening to blackish brown, glabrous, smooth to shallowly sulcate, margin acute, narrowly sterile below, pore surface rose coloured to rose brown with age, the pores circular to angular, regular, 5-6 per mm, with entire dissepiments, context rose brown, tough fibrous to corky, azonate, up to 7 mm thick, tube

layers single or indistinctly stratified, up to 3 mm thick, trama concolorous with context, tubes whitish within.
Hyphal system trimitic, contextual generative hyphae thin-walled, with clamps, hyaline, 2.5-3.5 µm in diam, difficult to find in mature specimens, contextual skeletal hyphae thick-walled, hyaline to pale brownish, nonseptate, with rare branching, 2-5 µm in diam, binding hyphae thick-walled, nonseptate, hyaline, branched, 1.5-3 µm in diam, tramal hyphae similar.
Cystidia or other sterile hymenial elements absent.
Basidia 16-21 x 5-7.5 µm, clavate, narrowed at the base, 4-sterigmate, with a basal clamp.
Basidiospores 5-6.5 x 2-3 µm, short cylindrical to oblong.
Distribution. Throughout American subtropical and tropical regions north to Florida.
Remarks. The pinkish colour and the tiny pores characterize *F. feei.*

Fomitopsis lignea (Berk.) Ryvarden,
Norw. J. Bot. 19:143, 1972 - *Polyporus ligneus* Berk., Ann. Nat. Hist. 3:387, 1839.
Basidiocarps perennial, broadly sessile, solitary, up to 10 cm long, 10 cm wide and 4 cm thick at the base, woody hard, pileus glabrous, smooth to slightly sulcate, smooth to irregularly tuberculate or warted, grey to whitish brown, finally almost black from the base, in section with a distinct black zone in older specimens, pore surface wood to cork coloured, pores round (3) 4-6 per mm, tubes concolorous with pore surface up to 6 mm deep, context woody hard, azonate to indistinctly stratified, ochraceous to wood coloured.
Hyphal system trimitic, generative hyphae thin-walled, with clamps, hyaline, 2-6 µm in diam, difficult to find in mature specimens, skeletal hyphae thick-walled, hyaline, with rare branching, 2-5 µm in diam, binding hyphae thick-walled, nonseptate, hyaline, branched, 1.5-3 µm in diam, tramal hyphae similar.
Cystidia or other sterile hymenial elements absent.
Basidia not seen.
Basidiospores 5-6 x 1.5-2 µm, cylindrical and slightly bent at apiculus.
Distribution. Caribbean area, specimens seen from St. Vincent (type locality), Costa Rica, Belize and Jamaica.
Remarks. The species is characterized by woody hard, hoof shaped basidiocarps in ochraceous to pale uneven brown colours with a black zone from base in older specimens, and pores of medium size. Spores are very difficult to find in dry specimens.
The species is placed in *Fomitopsis* due to its perennial state although it may that it belongs in the *Trametes* clade and the type of rot is unknown, and thus, DNA sequencing will finally decide its generic position.

Fomitopsis lilacinogilva (Berk.) Wright & Deschamp.,
Rev. Invest. Agropec. Buenos Aires, Rep. Argentina, Series V, Patologia Vegetal, 12, no 3:143, 1972. - *Polyporus lilacino-gilvus* Berk. Ann. Nat. Hist. 3:324, 1839.
Basidiocarps annual, occasionally reviving, solitary to imbricate, dimidiate to conchate, mostly applanate, rarely semi-ungulate, corky to woody hard when dry, pileus straw-coloured, grey, tan to bay, conspicuously radially striate to ridged, ridges up to 3 mm high and sharp with tufts of agglutinated hyphae, usually with sulcate zones, margin

sharp to round, entire, pore surface pinkish, rose to pale pinkish-brown, pores round to somewhat angular, 2-4 per mm, tubes as pore surface or paler, up to 8 mm deep, faintly zonate, context dense, felty-fibrous, pinkish-brown to lilac, reddish-brown in KOH, probably cherry red in fresh specimens, up to 5 mm thick.
Hyphal system trimitic, generative hyphae with clamps, 2.5-3.0 µm wide, skeletal hyphae thick-walled with a pale reddish-brown wall and a wide lumen, 3.5-7.0 µm wide, binding hyphae probably present as rather thin, but solid kinked hyphae, sparingly branched.
Basidiospores 8-11 x 3-4 µm, ellipsoid.
Distribution. Known only from southern part of South America.
Remarks. The species is related to *F. cupreo-rosea* which has shorter spores, larger pores and an almost smooth pileus in pinkish shades.

Fomitopsis meliae (Underw.) Gilbn. & Ryvarden,
North Am. Polypores 1:273, 1986. - *Polyporus meliae* Underw., Torrey Bot. Club Bull. 24:85, 1897.
Basidiocarps annual or biennial, sessile, pilei single to imbricate, up to 5 x 10 x 3 cm, dimidiate, pileus surface ivory to tan or cinereous, glabrous to minutely tomentose or scrupose, azonate, pore surface ochraceous, the pores circular to angular, with thick to thin, entire dissepiments, 5-7 per mm, context pale buff, azonate, drying tough-corky, up to 2.5 cm thick, tube layers single or indistinctly stratified, concolorous with context, up to 5 mm thick.
Hyphal system trimitic, contextual generative hyphae thin-walled, with clamps, 2-3 µm in diam, contextual skeletal hyphae, thick-walled, hyaline, nonseptate, with rare branching, 2-8 µm in diam, contextual binding hyphae thick-walled, hyaline, nonseptate, much branched, 2-4 µm in diam, tramal hyphae similar.
Cystidia absent, fusoid cystidiols present, thin-walled, not projecting, 15-23 x 4-5 µm.
Basidia 13-21 x 5-6 µm, clavate.
Basidiospores 6-8 x 2.5-3 µm, cylindrical, slightly fusiform, tapering towards the apex.
Substrata. Mainly on hardwoods but occasionally on conifers.
Distribution. South-eastern and east central U.S. and probably into the Caribbean and Central America.
Remarks. *Fomitopsis meliae* is similar to *F. palustris* in both basidiocarp and cultural morphology, but separated by spore morphology.

Fomitopsis minuta Aime & Ryvarden,
Synopsis Fung. 23:26, 2007.
Basidiocarps annual, pendant, more or less circular, up to 10 mm high, 4–8 mm in diameter, pileus glabrous, smooth, azonate or with a few indistinct darker zones, pinkish brown, pore surface pinkish at first becoming pale brown, pores round, 2–3 per, tubes concolorous with pore surface up to 5 mm deep, context pale pinkish brown, 2 mm thick at the margin up to 7 mm thick from point of attachment to tubes.
Hyphal system trimitic, generative hyphae mostly thin and hyaline 2.5–4.0 µm wide, some up to 10 µm wide, these thick-walled and with a few scattered large clamps; skeletal hyphae straight to slightly flexuous, thick-walled with a slight reddish-brown wall and a

wide lumen, 3.5–7.0 µm wide; binding hyphae present in the context, few and sparingly branched, solid, hyaline 2–4 µm wide.
Cystidia not observed.
Basidia clavate, 10–12 x 6–7 µm with four sterigmata.
Basidiospores 4 x 1 µm, cylindrical.
Distribution. Known only from the type locality in Guyana.
Remarks. The species belongs clearly to the group of *Fomitopsis* species with pinkish colours such as *F. cupreorosea* and *F. lilacinogilva*, both of which, however, have ellipsoid basidiospores and relatively large basidiocarps.

Fomitopsis nivosa (Berk.) Gilbn. & Ryvarden,
North Am Polypores 1:275, 1986. - *Polyporus nivosus* Berk. Hook. J. Bot. 1:196, 1856.
Basidiocarps annual to biennial, sessile, dimidiate, single to imbricate, rarely effused reflexed, tough when fresh, woody when dry, taste mild, 15 x 7 x 6 cm. upper surface glabrous, smooth to rough or slightly wrinkled, azonate, at first white, soon sordid brown, often unevenly, in old specimens with a resinous dark cuticle spreading from the base, cream to pale sordid brown or tan, pores round to angular, 6-8 per mm, pore surface often glancing, tubes up to 10 mm deep, concolorous with pore surface, context white to cream, dense and hard, slightly fibrous, paler than the tubes, up to 2 cm thick at the base.
Hyphal system trimitic, generative hyphae with clamps, 2.5-4 µm wide, skeletal hyphae hyaline, thick-walled to solid, 2-5 µm wide, binding hyphae observed only in the context, branched, often twisted and irregular, solid, 2-4 µm wide, gloeoplerous hyphae occasionally present in tubes, yellowish, thin-walled and septation difficult to observe.
Cystidia absent, fusoid cystidiols present, thin walled, not projecting, 15-20 x 4-5 µm.
Basidia 14-27 x 5-6 µm, clavate.
Basidiospores 6-9 x 2-3 µm, cylindrical to fusiform, thin-walled and frequently collapsed, but mostly abundantly present.
Distribution. Tropical and subtropical America and north to the Gulf Coast Region.
Remarks. Basidiocarps of *F. nivosus* are generally white, like those of *Tyromyces,* but are microscopically easily separated by the trimitic hyphal system. The upper surface is initially white, but soon becomes soiled and darkens from the base. The pores are very tiny, barely visible to the naked eye. Spores are, in contrast to many other *Fomitopsis* species, abundantly present, but often collapsed and difficult to observe at once. It comes close to *F. palustris* and *F. meliae*, but both have larger pores and a more coloured upper surface.

Fomitopsis palustris (Berk. & t M.A. Curtis) Gilbn. & Ryvarden,
Mycotaxon 21:364, 1985 - *Polyporus palustris* Berk. & M.A. Curtis, Grevillea 1:51, 1871.
Basidiocarp annual or persisting, sessile to effused-reflexed, dimidiate, single or in imbricate clusters, individual pilei applanate to triquetrous, up to 10 x 5 x 3 cm, upper surface white to cream coloured, becoming pale buff on age or drying, smooth to faintly zonate and shallowly sulcate, minutely tomentose to glabrous, margin concolorous, pore surface white to cream coloured , pale buff on age or drying, the pores circular to angular, mostly 2-4 per mm, but some up to 1 mm wide, the dissepiments thin, entire to lacerate,

context cream coloured , azonate, firm-fibrous to corky, up to 2 cm thick, tube layer concolorous with context, up to 1 cm thick, fresh basidiocarps malodorous like garbage.
Hyphal system dimitic, contextual generative hyphae thin- to thick-walled, hyaline, with clamps, rarely branched, 2.5-4 µm in diam, contextual skeletal hyphae thick-walled, hyaline, nonseptate, with rare branching, 3-6 µm in diam, tramal hyphae similar.
Cystidia and other sterile hymenial elements absent.
Basidia 24-28 x 6-7 µm, clavate.
Basidiospores 6.5-8 x 2.5-3 µm, cylindrical, often slightly curved at basal end.
Substrata. Dead wood of hardwood and conifers. Most common on *Pinus,* but also known from *Persea* and *Ligustrum.*
Distribution. South-eastern U.S., in tropical America we have only seen a specimen from Costa Rica.
Remarks *Fomitopsis palustris* is macroscopically similar to *F. durescens, F. nivosus,* and *F. meliae* .Microscopically it can be distinguished from these three species by its larger basidia and larger, cylindrical spores. *F. durescens* has narrow, allantoid spores while *F. nivosus* and *F. meliae* have spores that tend to be fusiform, tapering to the apical end.

Fomitopsis roseoalba Soares, Ryvarden and Gibertoni, n. sp in sched.
Basidicarps annual, pileate, resupinate to effused-reflexed, when resupinate, up to 32 cm long, 11 cm wide, 0.3 cm thick at centre, pileus, when present, 0.2 –7 cm wide, 5 cm long, 0.3 cm thick at base, upper surface white to pink when fresh, becoming cream to greyish when dry, slightly velutinate, margin narrow in resupinate specimens, obtuse in pileate specimens, pore surface white to cream when fresh and ochraceous when dry, pores circular to angular 4–6/mm, dissepiment thin and entire, tubes concolorous, up to 3 mm deep context white to cream.
Hyphal system trimitic, generative hyphae with clamps, thin-walled, 2.5–3.0 µm in diam.; skeletal hyphae dominant, thick-walled, hyaline, 3.75–5 µm in diam.; binding hyphae thick-walled, hyaline, 1.5–2.0 µm in diam.
Cystidia absent.
Basidia 10–12 × 5–7 µm, clavate with four sterigmata.
Basidiospores 3–4 × 1.8–2.0 µm, ellipsoid to subcylindrical .
Substrate. On unknown dead hardwood and on *Licania* sp., *Manilkara huberi* (Ducke) Chevalier, *Pouteria* sp., *Protium* sp., and *Vismia* sp.
Distribution: This species is only known from the Brazilian Amazonia in the states of Amapá and Pará, and frequent in the areas where it was collected.
Remarks. This species is easily recognized by the white to pink, pileate to effuse-reflexed basidiomata. Of the neotropical species, *F. nivosa* has similar whitish colour and morphology (pileate, and sometimes effused-reflexed), but is separated by having cylindrical basidiospores (6–9 × 2–3 µm) and smaller pores (6–8/mm).

Fomitopsis scalaris (Berk.) Ryvarden,
Mycotaxon 20:355, 1984. - *Polyporus scalaris* Berk. Hooker J. Bot. 8:199, 1856.
Basidiocarps annual or perennial, sessile, solitary dimidiate, up to 5 x 5 x 1 cm, woody hard, pileus surface dark brown, sulcate and zonate, glabrous, to finely velutinate, margin acute, narrowly sterile below, pore surface deep brown, pores circular, almost invisible to

the naked eye, 6-8 per mm, tube concolorous, tube layers stratified, up to 1.5 mm in each layer, context, deep brown, tough fibrous to corky, azonate, up to 2 mm cm thick
Hyphal system dimitic, generative hyphae thin-walled, with clamps, hyaline, 2.5-4 µm in diam, difficult to find in the type, skeletal hyphae thick-walled, hyaline to brownish, nonseptate, 2-7 µm in diam.
Cystidia or other sterile hymenial elements absent.
Basidia and **Basidiospores** not seen.
Distribution Known only from the type in Amazon.
Remarks. This species is placed in *Fomitopsis* with doubt since no spores are known and the type of rot is also unknown. However, with its perennial basidiocarp it is better placed here than in any other genus until fresh collections have been made to verify its status. See also *Nigroporus*.

Fomitopsis spraguei (Berk. & M.A. Curtis) Gilbn. & Ryvarden,
Mycotaxon 21:364, 1985. - *Polyporus spraguei* Berk. & M. A. Curtis, Grevillea 1:50, 1872.
Basidiocarps annual, sessile to effused-reflexed, pilei solitary or imbricate, dimidiate, applanate, up to 7.5 x 9 x 4 cm, upper surface ivory white to ochraceous, azonate, appressed-strigose to glabrous, smooth or rugose, margin concolorous, rounded to acute, sterile or fertile below, pore surface cream coloured to buff or pale brown, smooth, the pores circular to angular, 3-6 per mm, with thick, entire dissepiments that may become thin and slightly lacerate, context white to ochraceous, azonate, tough-corky, up to 3.5 cm thick, tube layer concolorous and continuous with the context, up to 5 mm thick, taste slightly acidic.
Hyphal system trimitic, contextual generative hyphae thin-walled, rarely branched, with clamps, 2.5-5 µm in diam, contextual skeletal hyphae hyaline, rarely branched, nonseptate, 3.5-5 µm in diam, contextual binding hyphae thick-walled, hyaline, much branched, nonseptate, 2.2-3.5 µm in diam, tramal hyphae similar.
Cystidiols fusoid, thin-walled, not projecting, 18-22 x 4-7 µm, with a basal clamp.
Basidia 22-28 x 7-8 µm, clavate.
Basidiospores 5.5-7 x 4-5 µm, ovoid to broadly ellipsoid.
Substrata. Living trees and dead wood of numerous hardwood genera, particularly common on *Quercus* and *Castanea.*
Distribution. Hardwood forests in the eastern and central U.S, occurrence in tropical America not known.
Remarks. *Fomitopsis spraguei* is characterized by a tough, annual, but persistent basidiocarps, trimitic hyphal system, and ovoid to broadly ellipsoid spores.

Fuscocerrena Ryvarden,

Trans. Br. Mycol. Soc. 79:279, 1982.
Basidiocarps effused-reflexed to resupinate, upper surface dark brown and finely tomentose, hymenophore poroid, semidaedaleoid to hydnoid, often greenish-white and farinose when fresh, later dark brown, hyphal system dimitic, generative hyphae with clamps, skeletal hyphae unbranched and light brown, dendrohyphidia present in

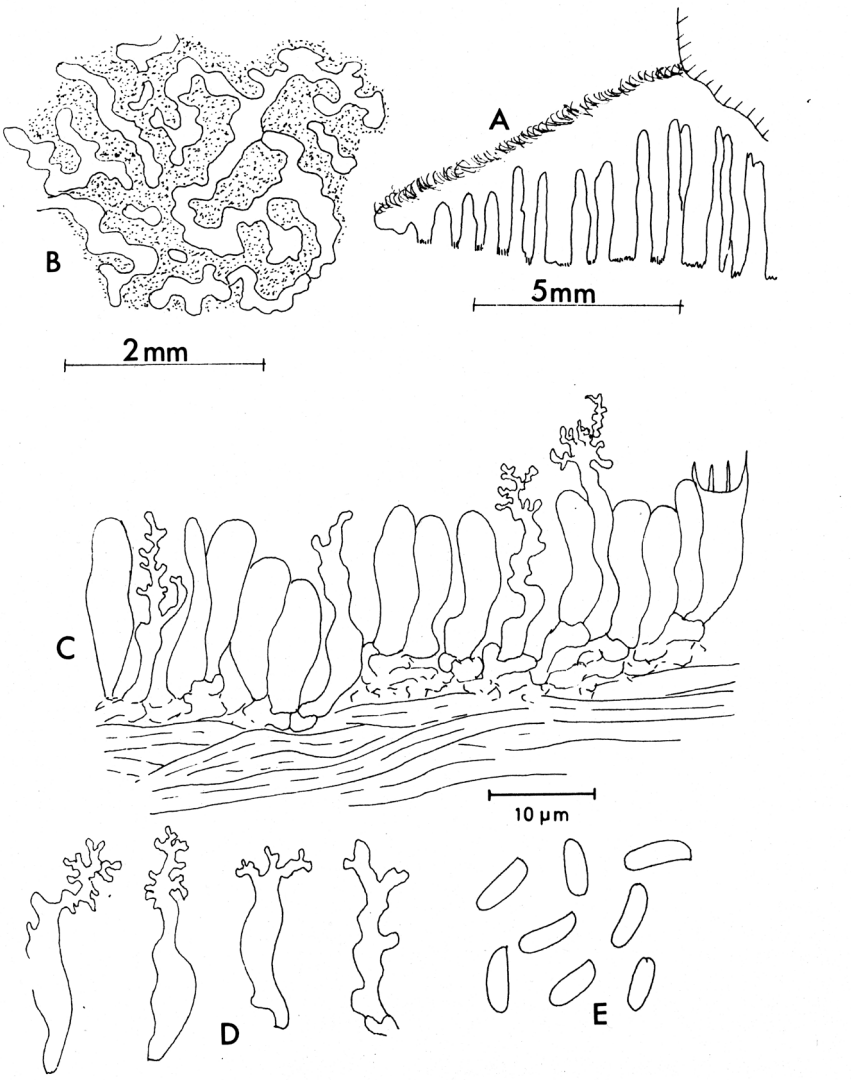

Fig. 14. *Fuscocerrena portoricensis*, A) section of basidiocarp, B) pore surface, C) hymenium with basidia and dendrohyphidia, D) dendrohyphidia, E) basidiospores. Ryvarden 14253, Venezuela.

the hymenium and occasionally along the dissepiments, cystidia none, spores hyaline, cylindrical, thin-walled, smooth and non-amyloid. Monotypic American genus.
Type species: *Fuscocerrena portoricensis* (Fr.) Ryvarden.
Remarks. The presence of dendrohyphidia, the dark basidiocarp with a dimitic hyphal system and cylindrical thin-walled non-amyloid spores point towards *Datronia* as the closest relative. However, the variable greenish-white and farinose layer along the tubes is unknown in that genus which further has distinctly duplex basidiocarps with a dark layer between the tomentum and the context proper.

Fuscocerrena portoricensis (Fr.) Ryvarden, Fig. 14
Trans. Br. Mycol. Soc. 79:280, 1982. - *Polyporus portoricensis* Fr., Elench. Fung. 1:115, 1828. For synonyms, see Ryvarden op.cit.
Basidiocarps annual to perennial, effused resupinate to reflexed and pileate, tough and coriaceous, adnate, up to 1 cm wide, 1-5 cm long, often laterally fused, 1-2 mm thick, upper surface umber to dark vinaceous brown, tomentose, sulcate and zonate, margin dark brown, finely velutinate, sharply delimited towards the substrate, pore surface dark brown to greenish white, irregular, at first poroid and angular, pores 1-2 per mm, later the pores split and the hymenophore becomes daedaleoid, sinuous to hydnoid with flattened teeth, often slightly incised, actively growing specimens with greenish-white tube walls with a brown tint while the dissepiments remain brown due to projecting skeletal hyphae, tube walls in old specimens dark brown as the whitish, fine grainy layer disintegrates and the brown colour emerges, context and trama dark brown, the former up to 1 mm thick.
Hyphal system dimitic, generative hyphae with clamps, hyaline to faintly yellow, 2-4 µm wide, skeletal hyphae dominating in the basidiocarps, dark brown to yellow, thick-walled to solid, 2-5 µm wide, mostly straight, but occasionally with a single branch, rarely distinctly branched in the apical end, looking like arboriform skeletal hyphae, occasionally with intercalary and apical swellings with a diameter of up to 18 µm, reminding slightly about chlamydospores, but no septa observed at these swellings.
Cystidia none.
Dendrohyphidia present in the hymenium and not seen in the dissepiments, finely apically branched, up to 20 µm long from the basal clamp from which they originate.
Basidia 8-12 x 4-5 µm, clavate with 4 sterigmata, lining both the bottom and side of the pores.
Basidiospores 5-7 x 2-2.5 µm cylindrical and hyaline.
Distribution. American species from the upper Mississippi valley to southern Brazil, but seemingly rare, but may be overlooked by its dark colour.
Remarks. When fresh, the greenish white hymenium on an otherwise dark basidiocarp makes this to a distinct species. However, when old and dry, the dark brown to almost blackish colours dominate and it may easily be overlooked.

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 and basidiocarp of all investigated species contain trametine or closely related chemical compounds.

Type species: *Gloeophyllum sepiarium* (Fr.) P. Karst.

Remarks. The generic concept used here is based on the colour of the basidiocarps, the hyphal system, the cylindrical, hyaline and non-amyloid spores, the presence of trametine and a brown rot. The majority of species are connected to coniferous wood in the temperate and boreal zones.

Key to species

Species growing predominantly on coniferous wood are not included, for these see Ryvarden & Melo “Poroid fungi of Europe”.

1. Basidiocarp stipitate ..... **G. erubescens**
1. Basidiocarp sessile to resupinate **2**

2. Hymenophore poroid or with only a few elongated to sinuous pores **3**
2. Hymenophore lamellate to daedaleoid, occasionally mixed with poroid areas ..... **G. striatum**

3. Basidiocarp tough, pileate effused reflexed, yellowish brown, pores slightly irregular, elongated, sinuous, on dead wood ..... **G. trabeum**
3. Basidiocarps soft, resupinate to slightly effused, on charred wood ..... **G. carbonarium**

Gloeophyllum carbonarium (Berk. & M.A. Curtis) Ryvarden, Mycotaxon 20: 334, 1984. - *Hexagonia carbonaria* Berk. & M.A. Curtis, Grevillea 1: 68, 1872.

Basidiocarps annual, resupinate to effused-reflexed or nodulose, rarely sessile and dimidiate on fire scars on standing trees, easily separated from the substratum, soft and flexible, becoming widely effused, up to 5 mm thick, when pileate, pileus up to 1 cm deep, typically developed along the upper edge of effused basidiocarps which may cover large areas on the underside of charred logs, pileus surface tomentose to velutinate, umber brown, faintly zonate; margin rounded; pore surface greyish brown to dark umber brown, the pores angular, often appearing hexagonal, 1-2 per mm, dissepiments thin, minutely

tomentose; context up to 2 mm thick, usually thinner, soft-fibrous, azonate, dark brown; tube layer up to 5 mm thick, tubes whitish within, tramal tissue dark brown.
Hyphal system dimitic; contextual generative hyphae with clamps, hyaline, thin-walled, 2-4 µm in diam; contextual skeletal hyphae predominant, thick-walled, nonseptate, yellowish to rusty brown, with rare branching, 2-4 µm in diam; tramal hyphae similar.
Cystidia or other sterile hymenial elements absent.
Basidia 30-38 x 5-6.5 µm, narrowly clavate, tetrasterigmatic, with a basal clamp.
Basidiospores 7-10.5 x 2.5-3.5 µm, cylindrical to suballantoid.
Substrate. On charred wood, usually coniferous.
Distribution. Rare but widespread in United States and probably south to areas where *Pinus* grows, but exact distribution is unknown.
Remarks. Easily recognised in the field by the umber brown colour, soft consistency, relatively large hexagonal pores, and occurrence on charred wood.

Gloeophyllum erubescens (Berk.) Popoff,
Mycotaxon 87:105, 2003. - *Daedalea erubescens* Berk., Ann. Mag. Nat. Hist. ser. 1, vol 4:292, 1840. - *Stiptophyllum erubescens* (Berk.) Ryvarden
Basidiocarps annual, tough, more or less centrally or more rarely laterally stipitate, single or in clusters and then often fused with adjacent basidiocarps, pileus circular or flabelliform, dark to reddish brown, up to 20 cm in diam, 0.5-2.5 cm thick in centre, first finely tomentose to velutinate, becoming glabrous and slightly sulcate in concentric zones, margin acute, undulate or lobate, stipe concolorous with pileus, usually with widened base, velutinous becoming glabrous, 3-10 cm long, 0.3-1 cm in diam, hymenial surface pale to dark brown, usually lamellate, more rarely irpicoid and slightly labyrinthine, decurrent on the stipe, 7-13 per cm at the margin, singly lamellae up to 2 cm deep, trama and context dark brown,, the latter up to 1 cm thick, tough to woody hard.
Hyphal system trimitic, generative hyphae with clamps, hyaline to pale yellow, 2-5 µm in diam, skeletal hyphae yellow to pale brown, thick walled to solid, 3-6 µm in diam, binding hyphae abundant, richly branched, pale brown, 2-4.5 µm in diam, conducting hyphae present
Cystidia not seen.
Basidia 16-24 x 4-6 µm, clavate with four sterigmata.
Basidiospores 9-11 x 3-4.5 µm, cylindrical, hyaline.
Distribution. South American species known from Argentine, Brazil, Bolivia, Peru, Colombia and Venezuela, most common in the Amazonian basin rain forest.
Remarks. The species is easy to recognize by the large, dark brown, stipitate and lamellate basidiocarps, quite unlike any other species present in the region. *Lentinus* is a macroscopically similar genus, but all species in that genus are light coloured and produces a white rot.

Gloeophyllum striatum (Swartz: Fr.) Murrill, Fig. 15
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,

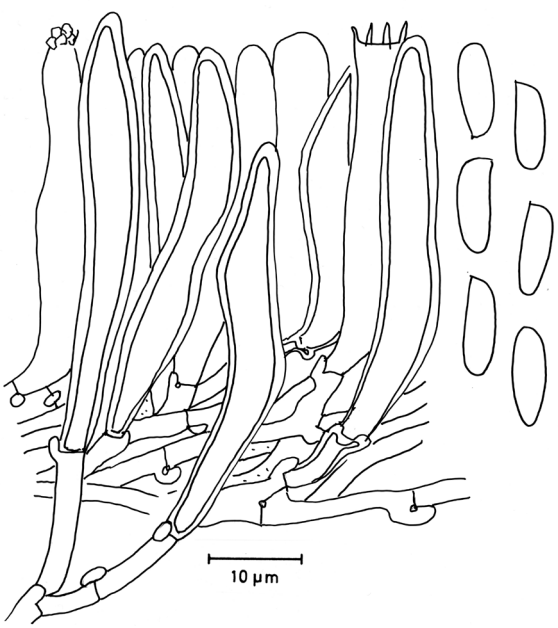

Fig. 15. *Gloeophyllum striatum*, A) hymenium with cystidia, B) basidiospores, from the lectotype.

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, but a fingernail will easily scratch this upper greyish thin cuticle, margin papery thin and usually bent downwards, often split in lobes or weakly undulating, hymenophore dark brown to greyish brown with age, lamellate with thin lamellae 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.

Basidia narrowly clavate, 4-sterigmate, 30-48 µm, with a basal clamp.

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).

Basidiospores 6-10 x 2.5-3.5 µm, oblong ellipsoid to cylindrical.
Substrata. Most common on hard woods, very rarely on coniferous wood.
Distribution. In America from Florida and Arizona and south to Argentine. Pantropical.
Remarks. *G. striatum* is easy to recognize because of the dark brown partly velutinate upper surface and the lamellate lower side. It often grows on exposed poles, boards etc. since it is resistant to drought and tolerates high temperatures.

Gloeophyllum trabeum (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, wider in the context than in the subhymenium, skeletal hyphae dominating in the basidiocarp, golden brown, thick-walled, straight and without side branches, up to 6 µm wide, in the older parts of the context also a very few branched, thick-walled golden yellow hyphae which may represent poorly developed binding 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.
Basidia 20-25 x 6-7 µm, clavate, 4-sterigmate, with basal clamp.
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 wood, especially in structural timbers. *G. trabeum* is one of the most important causes of decay in houses and other structures in America.
Distribution. Widespread in America from southern Canada in the east to the tropics. Cosmopolitan species.
Remarks. Basidiocarps of *G. trabeum* are easy to recognize because of their dense lamellae or small pores, by far the smallest in the genus. The upper surface is also usually smooth and softer than in the other species treated here.

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, thin-walled, 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 pore-edges, a common feature in *Phlebia, Byssomerulius* and similar fungi with a meruloid hymenophore.

Key to species

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

2. Cystidia absent from the hymenium **3**
2. Cystidia present in the hymenium **4**

3. Spores 7-9 x 2-2.5 µm ..... **G. longisporus**
3. Spores 3.5-5 x 0.7-1 µm ..... **G. thelephoroides**

4. Spores allantoid to cylindrical 1x 4 µm, on hard woods ..... **G. cystidiatus**
4. Spores allantoid, 3.6-4.8 x 1.2.-1.6 mm, on bamboo ..... **G. guerreroanus**

Gloeoporus cystidiatus Ryvarden, Fig. 16

Mycotaxon 28:528, 1987.

Basidiocarps annual, resupinate to pileate, often as effused-reflexed, soft when fresh, resinous hard when dry, pilei 1-5 mm wide and 5 cm long and 2 mm thick at the base, upper surface white and finely tomentose in indistinct zones, margin sharp and undulating, pore surface purplish, margin white, strongly with contrasting the dark pore surface, pores round to angular, 4-6 per mm, often not more than a reticulate pattern, up to 1 mm deep, hymenium developed over the dissepiments tube layer gelatinous, 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, very thin, cottony to loose.

Hyphal system monomitic; generative hyphae in the context distinct and thick-walled with large clamps, up to 6 µm wide, moderately branched, in the tubes and the resinous zone above the tubes strongly agglutinated, thin-walled and mostly collapsed in dry specimens, up to 3.5 µm in diameter.

Cystidia 25-30 x 5-7 µm, hyphoid, clavate, thin-walled and smooth, abundantly present in the hymenium.
Basidia 14-20 x 3-4 µm, clavate, 4-sterigmate, with a basal clamp.
Basidiospores 4 x 1 µm, allantoid to cylindrical.
Distribution. Known only from the type locality in the Amazon in Brazil, but is probably widespread in the Amazonian basin.
Remarks. This species is easy to recognize because of numerous cystidia in the hymenium.

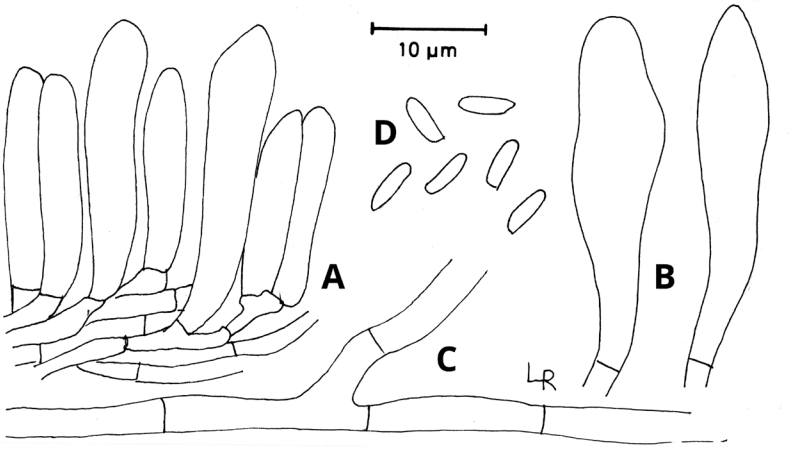

Fig. 16. *Gloeoporus cystidiatus* A) hymenium with cystidia, B) cystidia, C) hyphae from the subiculum, D) basidiospores. From the holotype.

Gloeoporus dichrous (Fr.) Bres.,
Ann. Mycol. 14:230, 1916. - *Polyporus dichrous* Fr., Syst. Mycol. 1:364, 1821.
Basidiocarps annual, resupinate to pileate, often as effused-reflexed, mostly imbricate with several small shelf-like, 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, with concentric zones 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, 4-6 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 tubes 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 thick-walled with large clamps, up to 6 µm wide, moderately branched, in the tubes and the resinous zone above the tubes strongly agglutinated, thin-walled and mostly collapsed in dry specimens, up to 3.5 µm in diameter.
Cystidia and other sterile hymenial elements absent.
Basidia 14-20 x 3-4 µm, clavate.
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 its clamps on the generative hyphae. In fresh condition the gelatinous to rubbery pore layer is rather characteristic and may be peeled off the fungus with a finger nail.

Gloeoporus guerreroanus G. Coelho, R.M.B. Silveira & Rajchenb., Mycologia 98: 821, 2007.
Basidiocarps annual, entirely resupinate, completely adhered to the substrate, up to 1 mm thick, jelly like to membranaceous in consistency, firmer and papery when dry, pores salmon, pink, greyish pink, slightly dark purplish to pale vinaceous, slightly shinning; pores shallow, round to elliptical, dissepiments velutinate, hymenium covering the dissepiments; margin whitish to pinkish, contrasting with the pores, fibrous, up to 1 mm in width, tubes
concolorous with the pore surface, up to 1 mm thick, context thin, whitish to pinkish white, similar to the margin, but paler than the tubes, homogeneous, with generative hyphae not very tightly intertwined.
Hyphal system monomitic, generative hyphae simple-septate, hyaline, thin-walled, 2.0-4.5 mm in diam., sometimes slightly ampulliform or enlarged; in the context usually thick-walled and lumen narrower than in the trama, some hyphae are incrusted with amorphous material in the context; contextual and tramal hyphae may be enlarged or modified by the presence of terminal or intercalary spherical enlargements, 10-24 mm in diameter, amorphous, crystalline bodies are also present in the context, being somewhat spherical, dark rusty brown and spread along the pore mouths.
Basidia 10.4-25 x 4-6) mm, clavate, tetrasterigmatic.
Basidiospores 3.6-4.8 x 1.2.-1.6 mm, allantoid.
Cystidiols 9.6-20 x 2.8-3.6 mm, small, centrally ventricose, with a narrower apex, variably rounded to slightly mucronate, hyaline, thin-walled.
Cystidia 16-40 x 4-7 mm, clavate to almost capitate, hyaline, thin-walled.
Substrate: Growing on fallen bamboo.
Remarks: The species is characterized by its cystidia and the substrate. *Gloeoporus cystidiatus* Ryvarden also has a purplish hymenophore on a resupinate to effused-reflexed narrow pileus, pores 4-6/mm, clavate cystidia, 25-30 x 5-7 µm, and simple-

septate hyphae. It differs from *G. guerreroanus* by its small cylindrical to suballantoid basidiospores and large, clavate cystidia, 25-30 x 5-7 µm.

Gloeoporus longisporus M. Mata & Ryvarden,
Synopsis Fung. 27:67, 2010.
Basidiocarp pileate, sessile, dimidiate with a contracted base, semicircular, up to 2 cm wide, 1.5 mm thick at the base tapering towards a sharp margin, soft when fresh, dense and fragile when dry, upper surface glabrous, smooth, deep blackish brown, pore surface pale cream, pores round to slightly angular, (4) 5-6 per mm, tubes up to 250 µm deep, probably tough when fresh, dense and cartilaginous when dry and limited towards to context by a dense zone, context white and cottony, up to 1.2 mm thick at the base.
Hyphal system monomitic; all hyphae without clamp connections, in the tubes 3-5 µm wide, in the context up to 10 µm wide.
Cystidia absent.
Basidia 18-24 x 4-6 µm, clavate.
Basidiospores 7-9 x 2-2.5 µm, allantoid.
Distribution. Known only from the type locality in Costa Rica.
Remarks. The large spores separates it from all other the species in the genus.

Gloeoporus thelephoroides (Hooker) G.H. Cunn.
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 2-4 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, wood-coloured to light yellow, later more pale yellowish-brown, in older specimens the tomentum often becomes radiately striate, margin acute and very thin, often curled and frequently lobed, pore surface light ochraceous to pinkish in young specimens, resinous pinkish brown in very old ones, pores round in fresh specimens, angular and thin-walled 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 wood-coloured, 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, septa often difficult to find in some segments of the most thick-walled ones, tramal hyphae thin-walled and 2-4 µm wide, frequently branched and often slightly yellowish.
Cystidia and other sterile hymenial elements absent.
Basidia 12-15 x 4-5 µm.
Basidiospores 3.5-5 x 0.7-1 µm, cylindrical to allantoid.
Distribution. Pantropical species and widespread in the neotropics.
Remarks. This species is usually easy to recognize because of the gelatinous hymenophore with a pinkish colour that darkens by age. Very young specimens are almost

whitish and only with a slight reticulate net of shallow pores. Dark specimens may be separated from *G. dichrous* by the simple septate hyphae.

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, bluish-grey to almost black with age or time pale brownish pinkish to pale umber brown as the skeletal hyphae becomes coloured, in some species the skeletal hyphae are agglutinated as bundles and then the pore surface becomes dotted with darker spots on an otherwise lighter surface, 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 thick-walled 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, both in the hymenium and in the dissepiments and the sterile tube walls, spores ellipsoid to cylindrical, thin -walled, smooth and non-amyloid. On hard woods and monocotyledons. Tropical genus.

Type species: *Grammothele lineata* Berk. & M. A. Curtis.

Remarks. The genus is similar and related to *Porogramme* which is separated by being monomitic.

Key to species

1. Pore surface bluish to black, on monocotyledons, spores 7-11 µm long 2
1. Pore surface cream to pale umber brown, spores shorter than 7 µm **3**

2. Pores 7-9 per mm or less, spores 7-9 x 2.5-3.5 µm ..... **G. fuligo**
2. Pores (3) 4-5 per mm, spores 8.4-11 x 6-7.5 µm ..... **G. bolivianus**

3. Pore surface whitish silvery to pink, spores cylindrical ..... **G. subargentea**
3. Pore surface white to greyish, spores ellipsoid 4

4. Pores tiny, 8-10 per mm, skeletal hyphae not in bundles ..... **G. venezuelica**
4. Pores irregular 2-4 per mm, skeletal hyphae often agglutinated in bundles **5**

5. Pore surface white with numerous hyphal pegs along the dissepiments ..... **G. lacticolor**
5. Pore surface grey to isabelline, hyphal pegs few or absent along the dissepiments **6**

6. Pore surface almost hydnoid, pores 2-4 per mm, bundles of skeletal hyphae almost smooth, spores subcylindrical 4-6 x 1.5-2.5 µm ..... **G. lineata**

6. Pore surface slightly irregular, 5-6 per mm, bundles of skeletal hyphae strongly encrusted simulating large metuloid cystidia, spores ellipsoid, 5-6 x 2.5-3 µm ....**G. brasilense**

Grammothele bolivianus Karasiński,
Nova Hedwigia 101:104, 2015.
Basidiocarps annual, resupinate, closely adnate, inseparable, at first as small, circular or irregular patches, becoming confluent with age in linear areas up to 10 × 2.5 cm, up to 250 µm thick. Pore surface gray, bluish gray to light reddish gray, margin white, 2–6 mm wide, pores shallow, up to 200 µm thick, dissepiments entirely covered with white pruina. (3–)4–5 per 1 mm, angular, often pentagonal or hexagonal, trama and subiculum brownish, bottom of pores white, taste mild.
Hyphal system trimitic, generative hyphae with clamps, 1.5–2.5 µm wide. skeletal hyphae 1.5–3.5 µm wide, thick-walled with narrow lumen to almost solid, yellowish, yellow brown to brown in KOH, dextrinoid, dominant in subiculum and trama of tubes; binding hyphae abundant at sterile margin and often present in subhymenium, and also in substrate under basidiocarps, delicate, frequently branched, especially at right angles, up to 1.5 µm wide without reaction in Melzer's reagent.
Dendrohyphidia present and easy to observe in young hymenia, in old basidiocarps present almost only on the dissepiment edges and not numerous, up to 45 µm long, sparsely branched at apex, thin-walled, with a stalk up to 3 µm wide, hyaline and with basal clamp.
Basidia 22–33 × 8–10 µm, clavate to subcylindrical, sometimes with a slight median constriction, tetrasterigmatic, hymenium present only at the bottom of the tubes.
Basidiospores 8.4–11 x 6–7.5 µm, broadly ellipsoidal to ovate, slightly tapering towards a distinct apiculus, thin-walled, smooth, hyaline, no reaction in Melzer´s reagent.
Substrate. On dead, still attached frond midrib of a spiny palm**.**
Distribution. Known only from type locality in Bolivia**.**
Remarks. This species is separated from the similar *G. fuligo*, also frequently occurring on palms, by larger pores and spores.

Grammothele brasilensis Ryvarden,
Synopsis Fung. 33:38, 2015.
Basidiocarps resupinate widely effused, strongly adnate, hard and brittle, margin narrow and white, pore surface dark grey, pores round and entire with a few exceptions, 5-6 per mm, dissepiments with white irregular crystals (lens), tubes shallow, up to 200 µm deep, tube walls greyish under a lens, hymenium restricted to the bases of the tubes, context white, very thin to invisible.
Hyphal system dimitic, generative hyphae hyaline and with clamps, 2-4 µm wide, clamps difficult to observe due to numerous crystals and agglutinated hyphae, skeletal hyphae present as brown bundles of strongly agglutinated hyphae, these bundles easily seen in microscopical sections as pointed bodies scattered through the section, in many cases covered with crystals and thus simulating very large metuloide cystidia dextrinoid in Melzer's reagent, 3-6 µm in diameter.
Dendrohyphidia not seen, but their presences should be looked for in the dissepiments.

Cystidia none, but sterile hyphal ends occur in the hymenium, simulating narrow and cylindrical cystidiols.
Basidia 15-17 x 4-6 µm, clavate, tetrasterigmatic.
Basidiospores 5-6 x 2.5-3 µm cylindrical, hyaline, thin-walled, smooth and non-amyloid.
Distribution. Known only from the type locality.
Remarks. The even grey colour and the entire and regular round pores, make this to a distinct species.

Grammothele fuligo (Berk. & Broome) Ryvarden, Fig. 17
Trans. Br. Mycol. Soc. 73:15, 1979. - *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, thin-walled 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 tube-walls, thick-walled 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.
Cystidia none, but sterile hyphal ends often occur in the hymenium, simulating narrow and cylindrical cystidia.
Basidia clavate, 20-25 x 4-7 µm, tetrasterigmatic with large curved sterigmata, up to 6 µm long.
Basidiospores 7-9 x 2.5-3.5 µm, cylindrical to slightly allantoid, hyaline, thin-walled, smooth and non-amyloid.
Substrata. Restricted to monocotyledons and especially common on palms, but also registered on bamboo.
Distribution. Pantropical species and quite common when the right habitats are examined, such as old palm leaves etc.
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 hardwood.

Grammothele lacticolor Ryvarden,
Synopsis Fung. 33:40, 2015.
Basidiocarps resupinate, effused, strongly adnate, hard and brittle, margin narrow and white, pore surface pure white, pores slightly irregular, some pores sinuous and split to plates, other more or less round, 3-4 per mm, densely covered with white hyphal pegs,

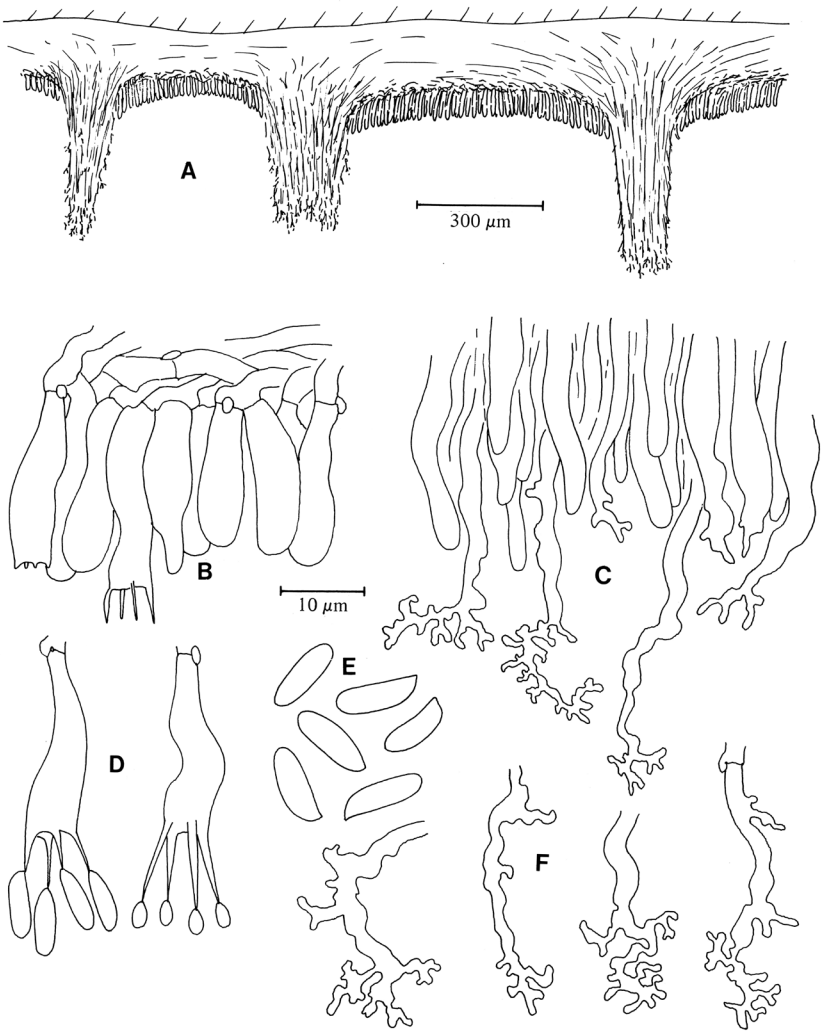

Fig. 17. *Grammothele fuligo*, A) section of basidiocarp, B) part of hymenium, C) sterile hymenium with dendrohyphidia, D) basidia, F) dendrohyphidia. Ryvarden 10713.

especially along the dissepiments, tubes white, up to 2 mm deep, context very thin, white, substrate with distinct reddish line or zones.
Hyphal system dimitic, generative hyphae hyaline and with clamps, 2-5 µm wide, skeletal hyphae present as hyaline, pointed bundles of strongly agglutinated hyphae in the trama ending in the dissepiments, up to 100 µm long, weakly dextrinoid.
Dendrohyphidia numerous along the dissepiments, up to 40 µm long.
Cystidia none, although a superficial examination take the agglutinated bundles of skeletal hyphae as cystidia.
Basidia 15-20 x 5-6 µm, clavate, tetrasterigmatic.
Basidiospores 3-4 x 2-2.5 µm ellipsoid, hyaline, thin-walled, smooth and non-amyloid.
Distribution. Puerto Rica and Costa Rica.
Remarks. The pure white colour, the numerous white hyphal pegs covering the dissepiments and the small spores characterize this species. *G. lineata* has usually a more distinct hydnoid hymenophore with black dots of bundles consisting of skeletal hyphae, besides becomes often distinctly greyish by age and its spores are longer.

Grammothele lineata Berk. & M. A. Curtis, Fig. 18
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 thin-walled and with clamps, 1.5-2.5 µm wide, skeletal hyphae thick-walled 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 branched at the top, difficult to find in old specimens, 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.
Basidia 12-18 µm long clavate and tetrasterigmatic.
Basidiospores 4.5-6 x 1.5-2.5 µm, ellipsoid, hyaline, thin-walled and non-amyloid.
Distribution. Described form Cuba and has a wide distribution in the Caribbean area. Previously the name was used for almost all dimitic specimens with a *Grammothele*- like appearance. Thus, names cited in the literature should be treated with caution.
Remarks. The partly hydnoid surface with dots of numerous dark bundles of skeletal hyphae is distinct in this species.

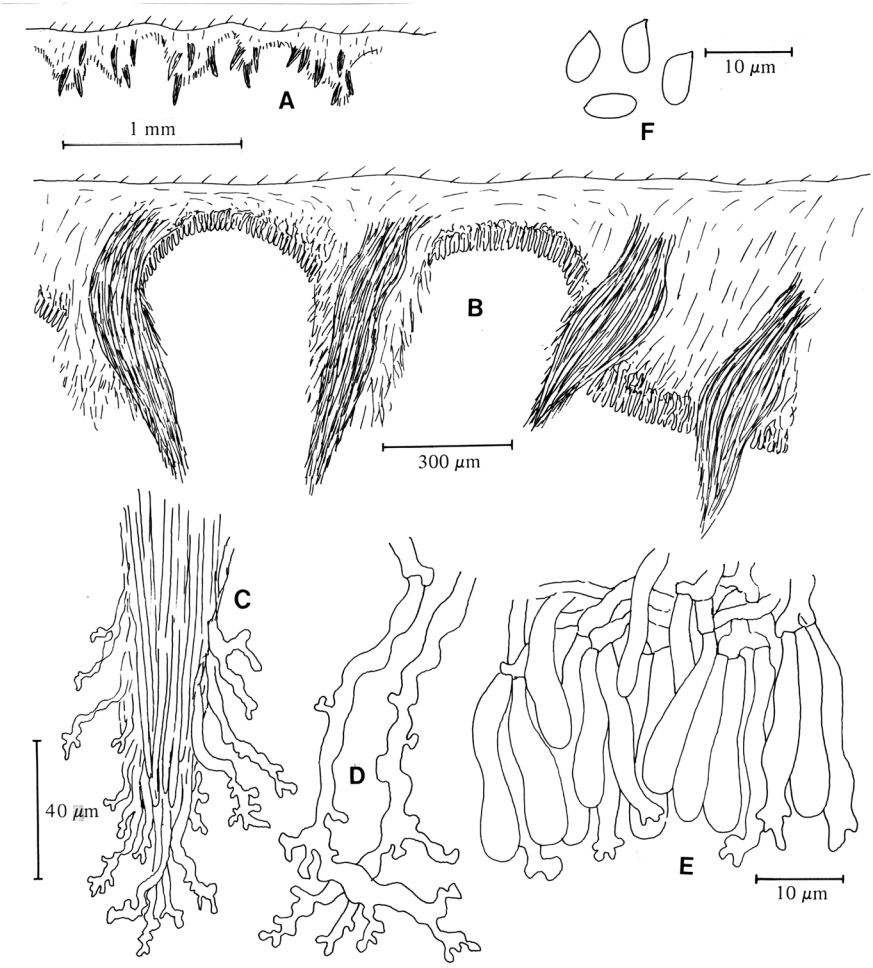

Fig. 18. *Grammothele lineata*, A) section of basidiocarp, B) section of basidiocarps showing position of bundles of skeletal hyphae, C) from the dissepiments, D) dendrohyphidia, E) part of hymenium, F) basidiospores. A-E, from the lectotype, F from Burdsall 9797, Costa Rica.

Grammothele subargentea (Speg.) Rachjenb.,
Mycotaxon 17:280, 1973. - *Poria subargentea* Speg. Rev. Arg. Hist. Nat. 1:104, 1891. - *Poria pavonia* Bres., Hedwigia 35:282, 1896.
Basidiocarps resupinate widely effused, strongly adnate, hard and brittle, margin wide to narrow, pale violet, pore surface very pale whitish violet to pale buff, pores angular,

thin-walled and entire, 8-16 per mm, tubes shallow, up to 400 µm deep, variable from specimen to specimen, tube walls whitish under a lens, hymenium restricted to the bases of the tubes, context dark brown and very thin.
Hyphal system dimitic, generative hyphae hyaline and with clamps, 2-4 µm wide, skeletal hyphae dominating in context and sterile tube-walls, thick-walled to solid, olivaceous light brown in KOH, dextrinoid in Melzer's reagent, 3-6 µm in diameter.
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.
Basidia clavate, 20-25 x 4-7 µm with four large curved sterigmata, up to 6 µm long.
Basidiospores 5.2-8.3 x 2.6-3.1 µm cylindrical, hyaline, thin-walled, smooth and non-amyloid.
Distribution. From Costa Rica to Argentina, but not common.
Remarks. The species is usually easy to recognize in the field because of the silvery whitish to pale pinkish pore surface. In a few specimens there is a very thin reddish line in the substrate.

Grammothele venezuelica Ryvarden,
Synopsis Fung. 33:42, 2015.
Basidiocarps resupinate widely effused, strongly adnate, hard and brittle, up to 250 mm thick, margin narrow to almost lacking, pale isabelline, pore surface, grey to deep isabelline reflecting he colour of the pore bottoms, pores angular, thin-walled and entire, 8-10 per mm and with a white edge (lens), tubes shallow, up to 100 µm deep, hymenial surface at bottom grey, context whitish almost invisible in parts, distinct red zones in the substrate.
Hyphal system dimitic, generative hyphae hyaline and with clamps, 2-4 µm wide, skeletal hyphae dominating in context and sterile tube-walls, thick-walled to solid and strongly encrusted in agglutinated structures, hyaline and without reaction in Melzer's reagent, 3-6 µm in diameter.
Dendrohyphidia present but not common along the pore edges, arising from generative hyphae, moderately to strongly branched towards the apices.
Cystidia none, but sterile hyphal ends strongly encrusted are present along the dissepiments and in places they simulate narrow and cylindrical cystidia.
Basidia clavate, 20-25 x 4-7 µm, tetrasterigmatic.
Basidiospores 3-3.5 x 5-5.5 µm, ellipsoid, hyaline, thin-walled, smooth and non-amyloid.
Distribution. Known only from the type locality in Venezuela.
Remarks. The strongly encrusted non dextrinoid skeletal hyphae characterize this species. It may remind one of *Porogramme albocincta* which also grows on hard wood and develop a distinct red zone in the substrate. However, this species has an almost black basidiocarp and a monomitic hyphal structure.

Grammothelopsis Jülich,

Bibl. Mycologica 85: 400, 1982.
Basidiocarps resupinate, adnate, shallowly poroid with hymenium restricted the inner bottom of the pores, hymenial system dimitic, generative hyphae with clamps or simple septa, 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, illustrated next page (Fig 19).
Remarks. The genus is characterized by the shallow pores, reminding as such about *Grammothele*, but separated from the latter by far larger and thick walled spores.

Key to species

1. Basidiospores non-dextrinoid **2**
1. Basidiospores dextrinoid **3**

2. Generative hyphae simple septate, hyphae of dissepiments encrusted ..... **G. incrustata**
2. Generative hyphae with clamps, hyphae of dissepiments smooth ..... **G. neotropica**

3. Basidiospores 11-15 µm long ..... **G. bambusicola**
3. Basidiospores longer than 15 µm ..... **G. puiggarii**

Grammothelopsis bambusicola Ryvarden & de Meijer,
Synopsis Fung. 15: 53, 2002.
Basidiocarp resupinate, effused, adnate, up to 40 mm long, 20 mm wide and 1 mm thick, pore surface white to pale cream, margin white, 1 mm wide, pores angular and regular, 4 per mm, tubes up to 0.7 mm deep, context 300 µm thick, white and cottony.
Hyphal system dimitic, generative hyphae hyaline and with clamps, 2-3 µm wide, skeletal hyphae thick-walled to solid, straight to slightly sinuous, mostly unbranched, but in the pore mouths distinctly arboriform and may easily be interpreted as binding hyphae, strongly dextrinoid, especially in the pore mouths.
Dendrohyphidia not seen.
Basidia mostly collapsed, up to 45 µm long and 10-15 µm wide, with four sterigmata.
Basidiospores 11-15 x 8-10 µm, broadly ellipsoid, thick-walled and strongly dextrinoid, slightly swelling in KOH and then with wall-thickness up to 2 µm.
Substrata and distribution. Known only from an unidentified, dead bamboo species in Brazil, Paraná, Colombo.
Remarks. The species reminds one of *G. puiggarii* from Brazil, but this species has larger, dentate and irregular pores (about 1 per mm) and larger basidiospores (17-20 x 10-12 µm). *G. incrustata* from Guadeloupe has large cylindrical basidiospores and strongly encrusted hyphae in the pore mouths as well as simple-septate generative hyphae.

Grammothelopsis incrustata A. David & Rajchenb.,
Mycotaxon 22: 299, 1985.

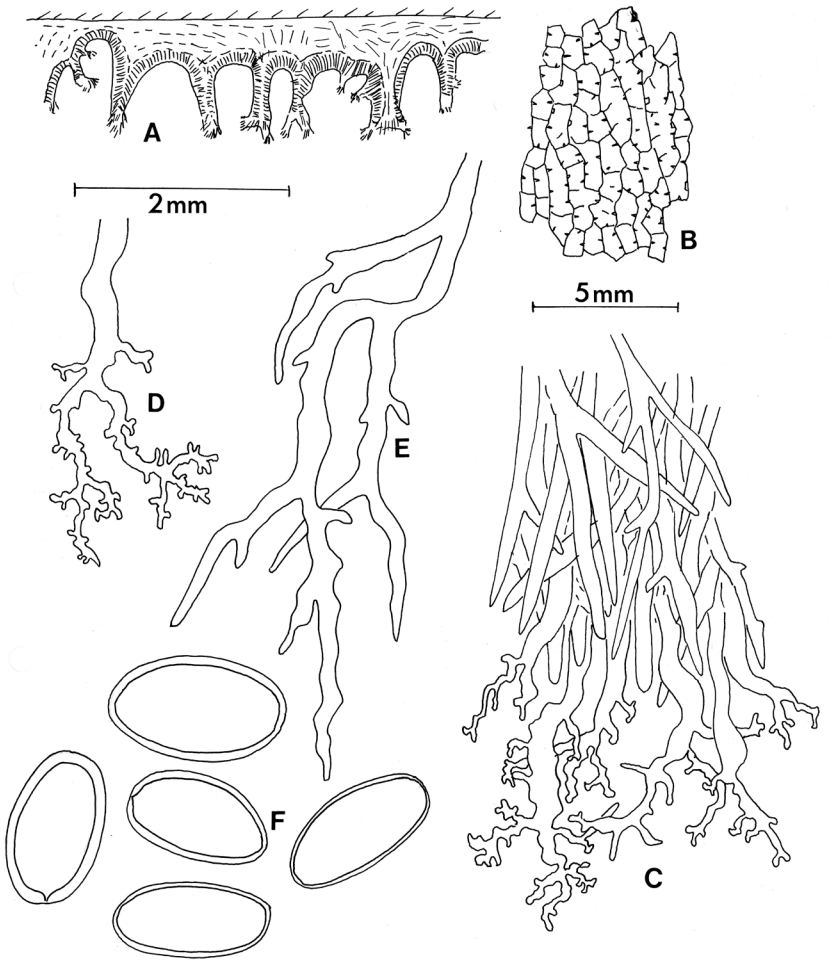

Fig. 19. *Grammothelopsis macrospora* A) section of basidiocarp, B) pore surface with hyphal pegs, C) dendrohyphidia from the dissepiments, D) dendrohyphidium from the hymenium E) binding hypha, F) sores. From the holotype.

Basidiocarp resupinate, effused, more or less circular in the type collection, up to 40 mm in diameter, pore surface ochraceous, margin white and slightly cottony, pores circular 3-4 per mm, pore mouth covered with a whitish to yellow pruina, tubes concolorous with pore surface, up to 0.7 mm deep, trama thin and resinous, context very thin and white.
Hyphal system dimitic, generative hyphae hyaline and simple-septate, 2-3 µm wide, skeletal hyphae arboriform, thick-walled to solid and sinuous, 2-4 µm wide, non-dextrinoid. The pruina along the pore mouths consists of generative hyphae covered with numerous small rod-like crystals.
Dendrohyphidia not seen.
Basidia not seen.
Basidiospores 16-22 x 6-8 µm, cylindrical to ellipsoid, thick-walled and non-dextrinoid, some spores slightly truncate and with a distinct germ pore.
Distribution. Only known from the type locality.
Remarks. The species is unique in the genus in having simple-septate, encrusted generative hyphae and large, non-dextrinoid spores

Grammothelopsis neotropica Robledo & Ryvarden**,**
Synopsis Fung. 23:10, 2007.
Basidiocarp resupinate, effused, adnate, up to 110 mm long, 10 mm wide and 1 mm thick, pore surface ochraceous, margin white, 1 mm wide, pores angular and regular, 4 per mm, tubes up to 0.7 mm deep, context 300 µm thick, white and cottony.
Hyphal system dimitic, generative hyphae hyaline and with clamps, 2-3 µm wide, skeletal hyphae 2-3 µm wide, thick-walled to solid, straight to slightly sinuous, mostly unbranched, but in the pore mouths distinctly arboriform and may easily be interpreted as binding hyphae, without reaction in Melzer's reagent.
Dendrohyphidia not seen.
Basidia mostly collapsed, up to 42 µm long and 10-15 µm wide, with four sterigmata.
Basidiospores 18-20 x 7-8 µm, broadly ellipsoid, thick-walled and without reaction in Melzer's reagent, slightly truncate, wall-thickness up to 2 µm, with a distinct germ pore.
Distribution and substrate. Known only from an unidentified hardwood log at the type locality.
Remarks. The species is recognized by its large, broadly ellipsoid, non-dextrinoid, thick-walled basidiospores, clamped generative hyphae and angular and regular pores (4 per mm). It is similar to *G. puiggarii,* but the latter species has larger pores (1-2 per mm) and wider basidiospores (10-12 µm wide) which are strongly dextrinoid. *G. incrustata* also has non-dextrinoid basidiospores, but encrusted generative hyphae with simple septa. Macroscopically *G. neotropica* is similar to *G. bambusicola,* but the latter has smaller basidiospores (11-15 x 8-10 µm) which are strongly dextrinoid.

Grammothelopsis puiggarii (Speg.) Rajchenb. & J.E. Wright,
Mycologia 79: 253, 1987. – *Hymenogramme puiggarii* Speg., Bol. Acad. Nac. Cien. Córdoba 23: 412, 1919.
Basidiocarp resupinate, effused, adnate, up to 40 mm long, 20 mm wide and 1 mm thick, pore surface ochraceous, margin white, 1 mm wide, pores angular and regular, 1-2 per mm, tubes up to 6 mm deep, context 300 µm thick, white and cottony.

Hyphal system dimitic, generative hyphae hyaline and with clamps, 2-3 µm wide, skeletal hyphae thick-walled to solid, straight to slightly sinuous, mostly unbranched, but in the pore mouths distinctly arboriform and may easily be interpreted as binding hyphae, strongly dextrinoid, especially in the pore mouths.
Dendrohyphidia not seen.
Basidia mostly collapsed, up to 35 µm long and 10-12 µm wide, with four sterigmata.
Basidiospores 17-20 x 10-12 µm, broadly ellipsoid, thick-walled and strongly dextrinoid.
Substrate and distribution. Brazil, São Paulo, the type locality and where a second collection was also made.
Remarks. The species is recognized by its large, angular pores (1-2 per mm), large, dextrinoid, thick-walled basidiospores and dextrinoid skeletal hyphae.

Grifola S. F. Gray,

Nat. Arr. Brit. Plants 1: 643, 1821.
Basidiocarps annual, stipitate; stipe simple or branched to give rise to large numbers of fan-shaped pilei; upper surface grey to brownish, finely tomentose to glabrous; pore surface white to cream coloured, the pores angular, 2-4 per mm; context white to pale buff; tubes decurrent on stipe; hyphal system dimitic; generative hyphae with clamps; cystidia lacking; basidiospores ovoid to ellipsoid; causing a white rot and butt rot of hardwoods and conifers.
Type species: *Polyporus frondosus* Dicks.: Fr.
Remarks. The genus is characterized by the large compound basidiocarps developing on the ground at the base of trees or stumps. It may be related to *Meripilus*, which however has simple-septate generative hyphae and sclerified generative hyphae instead of skeletal hyphae proper. One neotropical species.

Grifola amazonica Ryvarden,
Synopsis Fung. 18:64, 2004.
Basidiocarps annual, stipitate, compound, entire structure up to 8 cm wide, stipe much branched from a thin base, dark brown, up to 1 cm long and 6 mm in diameter, giving rise to restricted numbers of imbricate, fan-shaped or flabelliform and often confluent pilei up to 4 cm wide and 3 mm thick; upper surface evenly brown, glabrous and smooth, pore surface pale greyish brown, probably lighter in fresh condition, pores angular, 3-4 per mm, with thin, lacerate dissepiments, tubes concolorous, 2 mm deep, context ochraceous about 1 mm thick in individual pilei, thicker at base and in main branches of the stipe.
Hyphal system dimitic; generative hyphae hyaline, thin-walled, with clamps, rarely branched, 4-10 µm in diam; skeletal hyphae moderately thick-walled, with infrequent dichotomous branching, 4-8 µm wide.
Cystidia absent.
Basidia 12-15 x 5-7 µm, clavate, 4-sterigmate and with a basal clamp.
Basidiospores 4-4.5 x 3-3.5 µm, ovoid to ellipsoid, hyaline, smooth, negative in Meltzer's reagent,
Distribution. Known only from the type locality in Brazil.

Remarks. Basidiocarps of this species look like a dwarf imitation of the temperate circumpolar *G. frondosa*, but easily separated by much smaller basidiocarps and basidiospores.

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 deciduous and coniferous wood.
Type species: *Hapalopilus nidulans* (Fr.) Karst.
Remarks. The genus is characterized by a reddish colour reaction with KOH and seems to be a natural group, cfr. Hack & Ryvarden 2000. The boreal and temperate species growing on coniferous hosts have now been transferred to *Erastia* Niemelä & Kinnunen.

Key to species:

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

2. Spores up to 4.5 µm long 3
2. Spores longer than 4.5 µm long 4

3. Spores cylindrical 3.5-4.5 µm long ..... **H. albo-citrinus**
3. Spores subglobose to ellipsoid 2-3 x 2.5-4 µm. ..... **H. tropicus**

4. Basidiocarps with rhizomorphs, thick-walled to almost solid hyphae present .... **H. phlebiaeformis**
4. Rhizomorphs absent, hyphae thin- to thick-walled ..... **H. mutans**

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, trama in microscopical preparation faintly cherry red when mounted in KOH, contextual hyphae as in the trama.
Cystidia none.
Basidia 10-15 x 4-6 µm, clavate, densely arranged.
Basidiospores 3-4.5 x 1.5 µm, cylindrical.
Substrata. On hard wood.
Distribution. Tropical species, known from and Puerto Rico, Dominican Republic and Cuba. Sri Lanka (type locality) and Africa.
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. *Ceriporia spissa* has a similar colour when fresh (although usually more brightly orange), but is microscopically easily separated by simple septate hyphae and allantoid spores.

Hapalopilus mutans (Pk.) Gilbn. & Ryvarden,
North American polypores 1: 337, 1986. - *Polyporus mutans* Pk. N.Y. State Mus. Ann Rept. 43:39, 1880.
Basidiocarps annual to biennial, resupinate, widely effused, up to 5 mm thick, soft and fleshy when fresh, drying resinous rigid with some shrinking and then often loosening from the substrate along the margin, margin narrow cream to pale reddish, pore surface yellow to orange reddish becoming reddish when touched or treated with KOH, with drying dark reddish orange to bay or chestnut in parts, pores round and entire 4-5 per mm, by drying becoming partly agglutinated and in parts exuding some glistening substances, tubes concolorous with pore surface, but mostly reddish bay, tube walls as if soaked with some resinous cartilaginous substance partly bleeding on to the tube walls as small pearls (lens), tubes up to 5 mm deep, in some specimens stratified and with a dark bay, cartilaginous dense zone between each tube layer, context reddish bay, up 1 mm thick, very hard.
Hyphal system monomitic, generative hyphae with clamps, hyphal walls slightly thickened and hyphae not collapsed but difficult to tease apart because the structure is filled with reddish brown exudate and crystalline matter in irregular structures, sometimes also the hyphae appear to be filled with these substances and thus look almost solid in preparations, however, clamps can be observed also on such hyphae, width variable from 2-6 µm, hyphae of the cartilaginous context or interzonal layer very difficult to observe and breaking into pieces when mounted in KOH.
Cystidia none.
Basidia 14-22 x 4-6 µm, clavate, 4-sterigmate.
Basidiospores 4.5-6 x 3-3.5 µm, ellipsoid, the young ones apparently subglobose, becoming distinctly oblong ellipsoid and more narrow with maturity.
Substrata. Dead hardwoods, in North America preferably on *Castanea* spp.

Distribution. North American species, its presences in tropical America is unknown, but may occur, and thus included here
Remarks. The resupinate basidiocarps and the ellipsoid spores characterize the species.

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, but usually smaller, up to 4 cm thick at the base, soft and watery when fresh, light and somewhat brittle when dry, all parts of the basidiocarp light violet to purplish with KOH, upper surface cinnamon to ochraceous, first finely tomentose to scrupose with small adpressed tufts of hyphae, soon completely smooth, azonate or with a few broad, weakly sulcate zones, the inner ones usually smoother than the distal ones, margin acute and entire, pore surface ochraceous to cinnamon brown, usually with a distinct sterile edge towards the substrate and margin, pores thin-walled and angular, 2-4 per mm, the pore surface often with a few larger cracks in larger basidiocarps, 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 and quite brittle, up to 4 cm deep 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, in the trama and hymenium more straight and narrow, up to 6 µm wide.
Cystidia none fusoid cystidiols present, 18-22 x 4-5 µm with a basal clamp.
Basidia 18-22 x 5- 6.5 µm, clavate, 4-sterigmate, with basal clamp.
Basidiospores 3.5-5 x 2-2.5 (3)µm, ellipsoid to cylindrical.
Distribution. Scattered in Central America, otherwise circumglobal in the temperate zone.
Remarks. The species is usually easy to recognize by its cinnamon sappy basidiocarp with a vivid violet reaction with KOH.

Hapalopilus phlebiaeformis (Cke.) Ryvarden,
Mycotaxon 28:528, 1987. - *Poria phlebiaeformis* Cke, Grevillea 15:24, 1886.
Basidiocarps annual, resupinate, effused, up to 2 mm thick, soft and fleshy when fresh, drying resinous rigid with some shrinking and then often loosening from the substrate along the margin, margin narrow cream to pale reddish, fimbriate and in places with rhizomorphs, pore surface yellow to orange reddish becoming reddish when touched or treated with KOH, drying dark reddish orange to bay or chestnut in parts, pores round and entire 5-6 per mm, by drying becoming partly agglutinated, tubes concolorous with pore surface, but mostly reddish bay, tube walls as if soaked with some resinous cartilaginous substance, up to 2 mm deep, context first whitish, soon reddish bay, up 1 mm thick,.
Hyphal system monomitic, generative hyphae with clamps, thin- to distinctly thick-walled, some hyphae looking like skeletal hyphae, but with a few scattered clamps, hyphae not collapsed but difficult to tease apart because the structure is filled with reddish brown exudate and crystalline matter in irregular structures, 1.5-4 um wide.

Cystidia none.
Basidia 10-14 x 4-6 µm, clavate, 4-sterigmate.
Basidiospores 4.5-6 x 3-3.5 µm, oblong ellipsoid, hyaline and thin-walled, IKI-.
Distribution. Tropical species, known from Venezuela.
Remarks. This species comes close to *H. mutans*, but is separated by having rhizomorphs and very thick-walled to solid hyphae. The spores of the two species are identical and ultimately, when the variation is better known, it may be that *H. phlebiaeformis* has to be relegated as a synonym of *H. mutans*.

Hapalopilus tropicus I.Lindblad & Ryvarden,
Mycotaxon 71:342, 1999.
Basidiocarps annual, resupinate, up to 4 mm thick, soft to though when fresh, hard and resinous when dry, margin up to 1.5 mm wide, sterile, orange when fresh, brick coloured when dry, pore surface orange when fresh, darkening to red when touched, drying darker from brick to dark- or brown vinaceous, no reaction with KOH, pores entire, round, thin-walled, regular, 6-8 per mm; tube layer up to 2 mm thick, concolorous with pores when fresh, brown vinaceous to black when dry, azonate, subiculum moderately thick, orange to brick coloured.
Hyphal system monomitic, generative hyphae hyaline to brown, with clamps, thin-walled, negative in Melzer's reagent, 2-3 µm wide, the structure is filled with resinous material that appears as bubbles in Melzer's reagent.
Cystidia and other sterile hymenial elements lacking.
Basidia clavate, 4-sterigmate, 9-12 x 4-5 µm, clamped at the base.
Basidiospores subglobose to broadly ellipsoid, many with oil drops, 2-3 x 2.5-4 µm.
Substrate. On dead hardwoods.
Habitat. Collected in tropical wet forest.
Distribution. Known only from the type locality in Costa Rica.
Remarks. In the field this new species is similar to *Ceriporia spissa* in showing a colour-change from orange when fresh to vinaceous when dry. However, *C. spissa* has simple septate hyphae and allantoid basidiospores, and thus is grossly different microscopically.

Henningsia Møller,

Bot. Centralbl. 72:231, 1897.
Basidiocarps flabelliform to spatulate, laterally stipitate to almost sessile and dimidiate, flexible when fresh, rigid and fragile when dry, first light coloured, drying deep brown to black, hymenophore first smooth, then poroid, , brightly yellowish becoming black, bruised when fresh, 3-10 per mm, hyphal system monomitic, generative hyphae with simple septa, rather wide, gloeopleurous hyphae present, pale brown with oil drops, basidiospores subglobose to ellipsoid, smooth, slightly thick-walled without reaction in Melzer´s reagent. White rot in dead hardwoods.
Type species. *Henningsia geminella* Møller = *H. brasiliensis* (Speg.) Speg.
Remarks. The genus is striking in the colour change with the ultimate black and slightly shrunken basidiocarps, often curled in dry condition. The black colour in dry condition,

the simple septate hyphae and the numerous gloeopleurous hyphae set it apart from other Neotropical genera with black basidiocarps.

Key to species

1. Spores ellipsoid to navicular ..... **H. ater**
1, Spores globose to subglobose 2

2. Spores 3.5-4 x 3-3.5 µm ..... **H. brasiliensis**
2. Spores 6-7 x 4.5-5 µm ..... **H. macrospora**

Henningsia ater Ryvarden,
Synopsis Fung. 32: 57, 2014.
Basidiocarps annual, sessile, semicircular, 2-4 cm wide and long and 1. cm thick at the base, probably fleshy when fresh, shrinking considerable by drying , pileus sulcate probably because of shrinking during drying, black with scattered tufts of brown tomentum consisting of brown erect hyphae, being probably lighter or more even covered with tomentum when fresh and young, colour of pore surface unknown when fresh, black when dry, pores angular, thin walled, 3-5 per mm, tubes concolorous, up to 3 mm deep without a black line towards he context, the snuff brown and homogenous, rather dense, up to 1 cm thick at the base.
Hyphal system monomitic; generative hyphae with simple septa, hyaline, thin-walled, 3-8 um wide.
Gloeoplerous hyphae present both in trama and in context, golden yellow, 4-8 µm wide in, slightly darker in Melzer's reagent.
Cystidia absent.
Basidia 16–20 x 4-7 µm, clavate, 4-sterigmate.
Basidiospores 7-9 x 3-4 µm, cylindrical to slightly navicular, smooth and thin walled and negative in Melzer's reagent.
Substrata. Dead hard wood tree.
Distribution. Known only from the type locality in Puenta Arenas in Costa Rica.
Remarks. The blackish basidiocarp when dry the simple septate hyphae mixed with numerous gloeoplerous hyphae and the large cylindrical to navicular spores make this a distinctive species

Henningsia brasiliensis (Speg.) Speg.
Bol. Acad. Nac. Cien. Cordoba 23:411, 1919. - *Polyporus brasiliensis* Speg. op. cit. 11:436, 1889. - *Henningsia geminella* Møller, Bot. Centralbl. 72:231, 1897.
Basidiocarps annual, caespitose, often imbricate, laterally stipitate or even dimidiate with a contracted base and then flabelliform to spathulate, 6 cm wide, 12 cm long and 2 mm thick, fleshy when fresh, margin entire, pileus orange yellow to bright reddish brown when fresh, becoming darker to bay or black when dry, smooth but wrinkled in dry condition, and glossy waxy to finely pubescent, pore surface bright yellow when fresh bruising black, becoming brown when dry, pores angular, thin walled, 7-10 per mm, tubes concolorous, easily separated from the context in fresh condition, 1-2 mm thick, context

chestnut brown to grey, up to 1 mm thick, waxy when fresh, brittle when dry and with a black dense cuticle at least ate the base.
Hyphal system monomitic; generative hyphae with simple septa, hyaline, thin-walled, occasionally thick walled in the context, 6-12 um wide.
Gloeoplerous hyphae present in the trama and the context with a brownish content, 4-15 µm wide.
Cystidia absent.
Basidia 8-14 x 4.5-5 µm clavate, 4-sterigmate and a basal simple septum.
Basidiospores 3.5-4 x 3-3.5 µm, subglobose, smooth, thin walled and without reaction in Melzer's reagent.
Substrata. Dead hardwoods.
Distribution. A rare species known from Brazil, French Guyana and Costa Rica, but probably widespread in the Neotropical zone.
Remarks. The caespitose basidiocarps with a bright yellowish pore surface and the brown pileus becoming black when dry should help in the field while the simple septa and the subglobose spores are diagnostic together with the macromorphology.

Henningsia macrospora Gibertoni & Ryvarden,
Synopsis Fung. 32: 56, 2014.
Basidiocarps annual, caespitose, dimidiate with a contracted base, semicircular, 2-4 cm wide and long and 1.2 cm thick at the base, probably fleshy when fresh, shrinking considerable by drying , pileus dark brown with scattered black spots adpressed velutinate to or tomentose to almost hispid in parts, probably smooth becoming wrinkled to almost curly and distorted in dry condition, colour of pore surface unknown when fresh, black when dry, pores angular, thin walled, 3-5 per mm, tubes concolorous, up to 4 mm deep with a dense black line towards he context, this snuff brown homogenous, slightly corky, up to 1 cm thick at the base.
Hyphal system monomitic; generative hyphae with simple septa, hyaline, thin-walled, 3-8 um wide.
Gloeoplerous hyphae present in the context, yellow to brown, 4-8 µm wide in trama, in context up to 20 µm wide, slightly darker in Melzer's reagent.
Cystidia absent.
Basidia 14–18 x 5-7 µm, clavate, 4-sterigmate.
Basidiospores 6-7 x 4.5-5 µm, subglobose to ellipsoid, smooth and thin walled and negative in Melzer's reagent.
Substrata. Dead hard wood tree.
Distribution. Known only from the type locality in Pernambuco Brazil.
Remarks. The blackish basidiocarp when dry the simple septate hyphae mixed with numerous gloeoplerous hyphae and the large spores make this a distinctive species

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, longer than 12 µm, smooth, thin-walled and non-amyloid, on deciduous trees. 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, most species have also large hexagonal pores, which, however, is not the case with the two species treated here. There are difficulties in drawing a sharp borderline with some *Trametes* subgenus *Coriolopsis* species, but normally they are of a lighter colour and have shorter spores.

Key to species

1. Pileus with stiff hairs 2
1. Pileus finely velutinate to glabrous 3

2. Upper surface more or less blackish, often glabrous in zones, pores 3-4 per mm..... ..... **H. hydnoides**
2. Upper surface deep brown, persistently covered with strigose hairs, pores 2-5 mm wide ..... **H. capillacea**

3. Pileus glabrous pale brown, often with a reddish cuticle spreading from the base, pore size variable ..... **H. glaber**
3. Pileus velvety to scrupose, no red cuticle from base 4

4. Pileus cinnamon to brown, often scrupose, no cuticle in section, basidiocarps light of weight, usually more than 1 cm thick ..... **H. leprosa**
4. Pileus deep brown, becoming glabrous and then bay to deep reddish brown with a distinctly cuticle, basidiocarps rarely above 4 mm thick ..... **H. papyracea**

Hexagonia capillacea Pat. & Gaillard,
Bull. Soc. Mycol. Fr. 4:36, 1888.

Basidiocarp annual, solitary, sessile, mostly dimidiate with a tapering base, up to 10 cm long, 5 cm wide, and 1 cm thick at the base, corky and coriaceous; pileus reniform, semicircular to flabelliform, applanate to concave, dark cinnamon, chestnut brown or umber, strigose and covered with scattered to crowded antler like, erect brown hairs, frequently forked in the upper part, apparently mostly persistently so, margin sharp and even; pore surface brown becoming greyish-brown with age, pores angular, somewhat

variable, mostly 2-5 mm wide (4-2 per cm) often larger and somewhat elongated radially in the centre towards the base of the basidiocarp; tubes brown up to 1 cm long; context dark brown, black in KOH, very thin, and up to 0.5 mm thick.
Hyphal system trimitic, generative hyphae hyaline and with clamps at the septa, 1.5-2.5 µm wide, binding hyphae hyaline to yellowish thick-walled to solid, much branched, 1.5-3 µm wide, skeletal hyphae dominating in the basidiocarp, yellowish to pale rusty-brown, unbranched, thick-walled but mostly with a distinct lumen, 2.5-6 µm wide.
Cystidia present, thick- walled, clavate, almost solid and often with an apparently septate lumen, pale brown, sometimes dichotomous forked, smooth or with an apical resinous deposit, arising from a clamp in the subhymenium and partly projecting beyond the hymenium, up to 50 µm long and 4-9 µm wide..
Hyphal pegs present, cylindrical to conical, 50-100 µm long, 30-55 µm, yellowish-brown to rusty-brown.
Basidia mostly collapsed, clavate 13-18 µm long with 4 sterigmata.
Basidiospores 9.5-10.5 x 3-3.5 µm, cylindrical.
Substrata. On hardwoods.
Distribution. Amazonian species, known from Venezuela, Colombia and Brazil, but will certainly be found in other countries within the area.
Remarks. The species is easy to recognize because of the large brown strigose basidiocarp with large angular pores. Microscopically the brown cystidia are diagnostic.

Hexagonia glaber (P. Beauv.) Ryvarden,
Mycotaxon 72:216, 1999.- *Favolus glaber* P. Beauv., Flora d`Oware Benin 2:76, 1819. - *Boletus tenuis* Hook. 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, margin paper-thin, acute, slightly depressed, wavy, entire to lobed, 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 occur (5-25 per cm), dissepiments thin, entire, 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, coralloid to little branched, the tapering branches often break off so binding hyphae can sometimes be difficult to demonstrate, the red cuticle is composed of skeletal hyphae.
Cystidia none.

Basidia clavate, 14-20 x 4-6 µm with 4 sterigmata.
Basidiospores 14-20 x 4.7- 6.3 µm (from spore-print), cylindrical.
Substrate. On hard wood of all kinds, preferably in open and seasonally dry localities.
Distribution. Pantropical, but not common in the neotropics.
Remarks. Because of its persistent basidiocarps it is rather often collected. It is a very variable species which has repeatedly been redescribed (for numerous synonyms, see Ryvarden & Johansen 1981), because of the variable pore size and the reddish cuticle the presence of which is variable, even within a single collection.

Hexagonia hydnoides (Fr.:Sw.) M. Fidalgo,
Mem. New York Bot. Gard. 17 (2):35-108, 1968. - *Boletus hydnoides* Swartz. Nov. Gen. Sp. Plant Prodromus p. 149, 1788. - *Polyporus hydnoides* 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, margin thin, acute, entire or slightly incised and lobed, concolorous with the surface, 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 very thin.
Hyphal system trimitic, generative hyphae hyaline, thin-walled and clamped, 2-2.5 µm wide, early collapsed and not easy to demonstrate, 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. The pileus hairs are dominated by parallel yellowish-brown skeletal hyphae.
Cystidia and other sterile hymenial elements absent.
Basidia clavate, 25-35 x 7-9 µm, collapsing rapidly.
Basidiospores 11-14.5 x 3.5-5 µm, cylindrical.
Substrata. Numerous hardwood trees.
Distribution. Pantropical, often in semidry areas, in savannas and similar places.
Remarks. The species is common and easy to recognize because of the dense mass of black erect hairs on the pileus, often in distinct zones. In the paleotropics there are other species with the same type of pileus cover but they all have far larger pores.

Hexagonia leprosa Fr.,
Nova Acta Soc. sci. Uppsal. Ser. 3:101, 1851.
Basidiocarps annual, pileate, single to imbricate, dimidiate, applanate, coriaceous and flexible and light of weight, 3-8 cm wide and long, 1-2.5 cm thick, upper surface smooth, dull, finely adpressed velutinate, azonate, pale to dark brown, margin thin and wavy, pore surface brown, pores hexagonal to angular, 1-2 per mm, tubes 1 cm deep, concolorous with the pore surface, context 1-2 mm thick, cinnamon brown.

Hyphal system dimitic, generative hyphae with clamps, 2-4 µm wide, skeletal hyphae dominating, pale brown, thick-walled to solid 3-6 µm in diameter.
Cystidia present and dominating in the sterile hymenium and the skeletal hyphae are bent into the hymenium as skeletocystidia, smooth, 4-6 µm wide,
Basidia and **basidiospores** not seen.
Substrata. On dead hardwood.
Distribution. Puerto Rico, Jamaica and Venezuela.
Remarks. It is with doubt that the species is placed in *Hexagonia* but no better alternative was found. The context is paler than usual for the genus, but the large angular pores will bring the genus to mind. Fresh fertile specimens are highly desirable to ascertain its generic status.

Hexagonia papyracea Berk.,
Ann. Mag. Nat. Hist. 10:379, 1843. - *Hexagonia variegata* Berk. Ibid. Ser. 2, vol. 9:196, 1852.
Basidiocarps annual, pileate, single to imbricate, dimidiate to fan shaped or reniform, applanate, coriaceous and flexible, 3-15 cm wide and long, 1-3 mm thick, upper surface distinctly zoned usually evenly sienna to umber brown, but zones may be purplish to slightly greyish green due to algae in the tomentum, first velutinate, later glabrous in zones and then mostly more bay to purplish and often radially wrinkled, margin thin and wavy, pore surface greyish brown when actively growing, later dark brown due to protruding skeletal hyphae, margin purplish brown, pores hexagonal to angular, 1-2 per mm, tubes shallow, concolorous with the pore surface, context 1-2 mm thick, dark brown an with a thin cuticle where the pileus is glabrous, whole basidiocarps black with KOH.
Hyphal system trimitic, generative hyphae with clamps, 2-4 µm wide, skeletal hyphae dominating, pale to dark brown, thick-walled to solid 3-6 µm in diameter, the pileus tomentum consist almost exclusively of such hyphae, binding hyphae yellowish brown, solid, 1.5-4 µm wide, common in context and trama.
Hyphal pegs common 40-100 x 15-25 µm consisting of skeletal hyphae.
Cystidia none.
Basidia 15-25 x 6-10 µm, clavate with 4-sterigmate.
Basidiospores 9-14 x 4.5-5.5 µm, cylindrical.
Substrata. On dead wood of numerous hardwood species.
Distribution. Neotropical species from Louisiana and Florida in United States and south to Northern Argentina.
Remarks. The species is rather easy to recognize because of the thin, flexible, dark brown and strongly zoned basidiocarps with fairly large pores. Often there are remarkably many basidiocarps together on small sticks and narrow branches indicating an efficient metabolism.

Hydnopolyporus D. A. Reid,

Persoonia 2:151, 1962.
Basidiocarps annual, pileate, single or caespitose, usually composed of numerous flabelliform irregular pilei, often erect and multiplex, upper surface finely velutinate to

glabrous, striate, azonate to zonate, white to isabelline, becoming darker when dried, pore surface first almost smooth, papillate, hydnoid to irregularly poroid with angular pores, context white and thin, hyphal system monomitic, generative hyphae with simple septa, hyaline and narrow to wide, cystidia none, basidia clavate, basidiospores broadly ellipsoid to ovoid. Causes a white rot in hardwood trees. American, monotypic genus.
Type species: *Hydnopolyporus fimbriatus* (Fr.) D. A. Reid.
Remarks. The irregular basidiocarps with a variable hymenophore make this a distinct genus. *Henningsia* is also microscopically very similar but has black basidiocarps are regular pores, and no conidia are produced in the upper tomentum.

Hydnopolyporus fimbriatus (Fr.) D. A. Reid,
Persoonia 2:151, 1962. - *Polyporus fimbriatus* Fr. Linnaea 5:520, 1830.
Basidiocarps annual, pileate, irregular, often as small rosettes with fimbriate to incised fan shaped pilei and a rudimentary, sterile contracted base or stipe, caespitose or more rarely single, in clusters 2-12 cm in diameter, individual pilei up to 2.5 cm wide and 1-3 mm thick, flexible and tough, upper surface velutinate, becoming glabrous, azonate to concentrically zonate, smooth to radially striate, white to pale tan becoming darker when dried, margin very thin, incised, fimbriate to irregularly split, often darker than the basal parts of pileus as if soaked with resinous substances, pore surface variable, first almost smooth (it has been described as Stereum!) then papillate, irpicoid, hydnoid to poroid, in the latter case with angular to sinuous pores, 3-5 per mm close to the margin, larger and 2-3 per mm towards the base, tubes concolorous with pore surface and without hyphal pegs, context thin and duplex, upper layer soft, the lower one denser, but duplex consistency often difficult to observe and no dark line between the two parts.
Hyphal system monomitic, generative hyphae with simple septa, thin to distinctly thick-walled, moderately branched 3-8 µm wide, those of the trama and hymenium generally narrower, 2.5-4 µm wide.
Cystidia none.
Basidia clavate 18-24 x 4-6 µm.
Basidiospores 3.5-5 x 2.5-3.5 µm, broadly ellipsoid to subglobose, often with a large oil drop.
Substrata. On hard wood, often from roots or buried wood.
Distribution. Tropical species, from Florida and Louisiana to Northern Argentina.
Remarks. The irregular, often deeply split and incised basidiocarps with an irregular hymenophore are good field characters. Microscopically the simple septate hyphae and the subglobose spores will be diagnostic.

Irpex Fr.

Elench. Fung. 1:142, 1828.
Basidiocarps annual, sessile, effused-reflexed, or resupinate, hymenophore becoming strongly hydnaceous, pileus surface tomentose to hirsute, white to pale buff, hyphal system dimitic, generative hyphae simple-septate, cystidia thick-walled, encrusted, basidiospores cylindrical, negative in Melzer's reagent, causing a white rot of dead hardwoods and conifers.
Type species: *Irpex lacteus* (Fr.: Fr.) Fr.
Remarks. The genus comes close to *Steccherinum* which in principle is separated only by its clamped generative hyphae, a character of dubious generic value as there are many genera with both types of septation.

Irpex lacteus (Fr.: Fr.) Fr.,
Elench. Fung., p. 145, 1828. - *Sistotrema lacteum* Fr., Obs. Mycol. 2:226, 1818. - *Hydnum lacteum* Fr.: Fr., Syst. Mycol. 1:412, 1821.
Basidiocarps annual, usually effused-reflexed or resupinate at first, occasionally sessile, pilei usually imbricate, dimidiate or laterally fused, up to 1 x 7 x .5 cm, upper surface white to cream coloured or pale buff, densely tomentose to hirsute, azonate to faintly zonate, smooth or shallowly sulcate, margin concolorous, pore surface white to cream, the pores angular, 2-3 per mm near the margin, with thin dissepiments that split deeply at an early stage to form an irpiciform hymenophore, context white to pale tan, soft-fibrous, azonate, up to 2 mm thick, tube layer concolorous and continuous with the context, up to 3 mm thick.
Hyphal system dimitic, contextual generative hyphae thin- to firm-walled, with frequent branching, simple-septate, 2-4 µm in diam, contextual skeletal hyphae hyaline, thick-walled, occasionally simple-septate, with rare branching, 2.5-6 µm in diam, tramal hyphae similar.
Cystidia conspicuous, abundant, thick-walled, heavily encrusted apically, 50-110 x 5- l0 µm, projecting up to 40 µm, originating in the subhymenium from tramal skeletal hyphae.
Basidia clavate, 4-sterigmate, developing in intricately branched candelabra, 20-25 x 4-6 µm, simple-septate at the base.
Basidiospores 5-7 x 2-3 µm, oblong to cylindrical, straight to slightly curved, hyaline, smooth, negative in Melzer's reagent.
Distribution. Cosmopolitan species.
Remarks The strongly hydnaceous hymenophore, conspicuous encrusted cystidia, and simple-septate hyphae are the diagnostic characters of *I. lacteus.*

Ischnoderma P. Karst.,

Med. Soc. Fauna Fl. Fenn. 3:38, 1879.
Basidiocarps annual, sessile, applanate, dimidiate, semicircular to almost circular, first soft and sappy and sterile, pileus surface tomentose to smooth, dark brown to almost black, becoming rugose; pore surface white, darkening when touched or dried, pores entire and small; tubes concolorous with pore surface; context ochraceous to light brown and separated from the tomentum by a distinct thin black zone which becomes a crust on

the pileus when the tomentum wears away; hyphal system dimitic; generative hyphae with clamps; skeletal hyphae hyaline to light yellowish brown, thick-walled; cystidia none, spores cylindrical, thin-walled, smooth, negative in Melzer's reagent; on dead conifers and hardwoods, causing a white rot.
Type species: *Polyporus resinosum* Fr.
Remarks. The genus is fairly well recognized by its dark brown and tomentose pileus that becomes black and glabrous with age, and usually radially wrinkled. The tomentum and the context are monomitic and consist of very thick-walled yellowish brown generative hyphae with large and conspicuous clamps. Skeletal hyphae proper are present only in the trama of the tubes.

Key to species:

1. Pores 6-7 per mm, spores cylindrical, 3-3.5 x 1-1.5 µm ..... **I. porphyrites**
1. Pores 3-4 per mm, spores broadly ellipsoid **2**

2. Pileus ochraceous to pale brown, pores 3-4 per mm, spores 3.5-4 µm wide. **I. brasilense**
2. Pileus dark brown, pores 2-3 per mm, spores 2.5-3.0 µm wide ..... **I. albotexta**

Ischnoderma. albotexta (Lloyd) D. A. Reid,
South Afr. J. Bot. 39:168, 1973. – *Trametes albotexta* Lloyd, Mycol. Writ. 5:614, 1916.
Basidiocarps annual, single dimidiate, 5-7 cm wide, 8-10 cm long and up to 2.5 cm thick at base, upper surface at first finely tomentose, brown in concentric zones, later dark brown and dull and in parts glabrous with black zones, pore surface at first whitish, darker when touched, later brown, pores angular to circular, 2-3 per mm; tube layer concolorous with pore surface, up to 6 mm thick, context wood coloured with brown spots, especially near the brown cuticle.
Hyphal system monomitic; generative hyphae with clamps, moderately branched, 3-8 µm in diam, in the context there are scattered dark gloeoplerous hyphae mixed with hyaline generative hyphae, while those in the pileus tomentum are distinctly brown and thick walled.
Basidia not seen.
Basidiospores 4.2-6 x 2.5-3.0 µm, broadly ellipsoid.
Distribution. In America known only from the Napo province in Ecuador, but has certainly a wider distribution in the Amazon basin.
Remarks. *I. albotexta* is characterized by a dark brown, partially tomentose to black pileus. As the name indicates, there is a strong contrast between the dark pore layer and the much lighter context.

Ischnoderma brasilense Corner,
Beiheft Nova Hedwigia 96:78, 1989.
Basidiocarps annual, single or effused reflexed dimidiate, horizontal, 2.5 cm wide and long, to 1 cm thick at the base, upper surface at first finely tomentose, ochraceous with concentric zones, later brown in zones, pore surface at first whitish, darker when touched,

later pale ochraceous, pores angular to circular, 3-4 per mm; some even sublabyrinthiform and dentate, tube layer concolorous with pore surface, up to 6 mm thick, context whitish and with a pale upper crust, up to 5 mm thick at the base;
Hyphal system monomitic; generative hyphae with clamps, 3-6 µm in diam.
Basidia not seen.
Basidiospores 4.5-5 x 3.5-4 µm, broadly ellipsoid, smooth and thin-walled.
Distribution. Known only from the type locality in Corcovado, near Rio de Janeiro in Brazil.
Remarks. This description is based on Corners original description which again was based on a single collection. Thus, important observations may be lacking and fresh specimens are highly desirable to verify its status. The species may easily be taken for a *Tyromyces* in the field, due to the light colour.

Ischnoderma prophyrites Corner,
Beiheft Nova Hedwigia 96:82, 1989.
Basidiocarps annual, single broadly attached, 15 mm wide and long, to 2 cm thick at the base, upper surface at first finely tomentose, brown to slightly purplish when fresh and strongly wrinkled and azonate with concentric zones, pore surface at first whitish, darker when touched, later pale ochraceous to dark brown , pores angular to circular, 6-7 per mm; tube layer concolorous with pore surface, up to 1 mm thick and fragile when dry and darker than the context which is whitish and with a dark upper crust, 1,5 mm thick at the base;
Hyphal system dimitic; generative hyphae with clamps, in the brown tomentum of the pileus tortuous, brownish and very thick-walled with a few large, scattered clamps, moderately branched, 4-10 µm in diam; generative hyphae of the context dominant, hyaline, more frequently clamped, in parts swollen up to 6 um in diam skeletal hyphae partly mixed with generative hyphae in the dissepiments, straight or slightly sinuous, very thick-walled, 3-6 µm in diam.
Basidia not seen.
Basidiospores 3-4 x 1.3- 1.5 µm, cylindrical.
Distribution. Known from the type locality in Brazil besides Costa Rica and Panama.
Remarks. This description is partly based on Corners original description and a collection from Panama. The brown adpressed velutinate surface with a black cuticle is a good field character.

Junghuhnia Corda. emend. Ryvarden,

Anl. Stud. Mycol. p. 195, 1842. - Persoonia 7:18, 1972.

Basidiocarps annual, resupinate, rarely effused reflexed, pore surface cream-coloured to pinkish buff or cinnamon, pores mostly small, with thin, lacerate dissepiments, hyphal system dimitic, generative hyphae with clamps, thick-walled skeletocystidia rare to abundant, heavily encrusted, imbedded or projecting, basidia clavate, 4-sterigmate, basidiospores ovoid to cylindrical, curved in some species, causing white rots 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 time will be shown to be polyphyletic, and the concept used here is plainly 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 and all species are found on hard woods, this information is not repeated for each species.

Key to Neotropical species

1. Basidiocarp pileate **2**
1. Basidiocarp resupinate 7

2. Spores minute 2.5-3 x 2-2.5 µm **3**
2. Spores larger **4**

3. Cystidia clavate and encrusted ..... **J. minuta**
3. Cystidia smooth or with a few scattered crystals and with swollen pointed apex and usually with an elongated base ..... **J. neotropica**

4. Pores round, 5-7 per mm, cystidia encrusted **5**
4. Pores radially elongated, 3-5 per mm, cystidia smooth ..... **J. sobria**

5. Pileus tomentose, pores partly elongated to semilamellate ..... **J. kotlabae**
5. Pileus glabrous to adpressed velutinate, pores round **6**

6. Spores broadly ellipsoid to subglobose 4-5 x 3.5-4 µm ..... **J. undigerus**
6. Spores ellipsoid, 3.5-4.5 x 2.4-3.5 µm ..... **J. semisupiniformis**

7. Dextrinoid chlamydospores present, basidiospores cylindrical ..... **J. chlamydospora**
7. Chlamydospores absent, spores ellipsoid to globose 8

8. Skeletal cystidia finely encrusted, pore surface yellow becoming reddish when bruised ..... **J. carneola**
8. Pore surface white, cream to pale pink, cystidia club like smooth or with crystals 9

9. Spores subcylindric, 2.5-3.5 x 1-1.5 µm, pore surface first ochre then brownish orange ..... **J. polycystidifera**
9. Spores broadly ellipsoid to globose 10

10. Spores ellipsoid, 4-4.5 x 2-2.5 µm, pore surface pale orange pink ..... **J. nitida**
10. Spores globose to subglobose 11

11. Basidiospores subglobose, 2.5-3 x 2-2.5 µm, pore surface first ochre, then patchily discoloured, and finally pale brownish ..... **J. subundata**
11. Basidiospores globose, 4-5 µm in diam, pore surface cream coloured ..... **J. globispora**

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 reddish-brown when touched, when dry straw coloured, ochraceous, to pinkish-brown, margin slightly fibriate, lighter than the pore surface, up to 2 mm wide, 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 thin-walled and with clamps, 2.5-4 µm wide, skeletal hyphae dominating in the basidiocarp, thick-walled to solid, often tinted yellowish, in the outer ends finely encrusted, most easily seen in the dissepiments.
Basidiospores broadly ellipsoid, 3-5 x 1.5-2.5 µm.
Basidia clavate, 12-14 x 3-5 µm.
Distribution. Common in tropical areas.
Remarks. Rather easy to recognize because of the yellow basidiocarp becoming reddish when bruised in fresh condition and the finely encrusted thick-walled, yellowish skeletal hyphae.

Junghuhnia chlamydospora Ryvarden,
Synopsis Fung. 23: 43. 2007.
Basidiocarp annual, resupinate, decurrent on the substrate, adnate up to 2 mm thick, soft when fresh, resinous hard when dry, pore surface ochraceous to discoloured when fresh, becoming blackish in parts when dry, margin narrow, lighter than the pore surface, up to 2 mm wide, pores angular, and mostly split due to the almost vertical growth, thin- walled and 2-3 per mm, tubes more or less concolorous with the pore surface, up to 3 mm deep, context thin and ochraceous.

Hyphal system dimitic, generative hyphae thin-walled and with clamps, 2.5-4 µm wide, skeletal hyphae dominating in the basidiocarp, thick-walled to solid, apically finely encrusted, most easily seen in the dissepiments.
Cystidia as such not present, but apically encrusted skeletal hyphae richly present, especially in the dissepiments.
Basidia clavate, 12-14 x 3-5 µm.
Basidiospores 4-4.5 x 1.5-2 µm, cylindrical.
Chlamydospores 8-12 x 4-6 µm, abundantly present, ellipsoid to navicular, often with a tapering end, thick-walled, yellowish brown, strongly dextrinoid.
Substrata. On hard wood.
Distribution. Known only from the type locality in Stan Creek Distr. in Belize.
Remarks. The abundant dextrinoid chlamydospores make this a characteristic species. It shares the finely encrusted skeletal hyphae with *J. carneola*, which however has a yellow colour changing to red or pale brown when touched in fresh condition. The blackish pore surface and ochraceous margin should also make the species distinct in the field.

Junghuhnia globospora Iturr. & Ryvarden,
Synopsis Fung. 27:83, 2010.
Basidiocarp annual, resupinate, effused, adnate, up to 3 mm thick, papery and flexible with reflexed margin when dry, in the type up to 8 x 8 cm and 0.7 mm thick, pore surface cream, margin very narrow, smooth, concolorous with the pore surface, abhymenial side cream coloured, smooth and glabrous, pores angular, thin-walled, 5-6 per mm, tubes whitish, very shallow (about 250 µm deep), context cream, soft and up to 400 µm thick.
Hyphal system dimitic; generative hyphae 2.5-4 µm wide, with clamps, thin-walled; skeletal hyphae 2-4 µm wide, thick-walled, solid.
Cystidia??
Basidiospores 4-5 µm wide, globose.
Basidia 12-14 x 3-5 µm, clavate, tetrasterigmatic.
Substrate. On wood (of an unknown hardwood tree)
Distribution. Known only from the type locality.
Remarks. The species is characterised by the papery thin and flexible basidiocarp and globose basidiospores.

Junghuhnia kotlabae Pouzar,
Czech mycol. 55:2, 2003.
Basidiocarps annual, effused reflexed to pileate or completely resupinate, separable, pileus up 7cm long, 1.3 cm wide and up to 1.1 cm thick at the base, pileus, tomentose, zonate, pale cream to whitish, pore surface cream to straw wood coloured, pores angular, thin-walled, 5-6 per mm, in parts radially elongated to almost semi lamellate, tubes whitish, up o.5 cm deep), context white 0.4 cm thick.
Hyphal system dimitic; generative hyphae 2.5-4 µm wide, with clamps, thin-walled; skeletal hyphae 2-4 µm wide, thick-walled, solid.
Cystidia 40-50 x 8-11 µm thick-walled, encrusted, partly apically and in some cystidia up to half of the length, along the dissepiments shorter and thin walled cystidia are present, ventricose to clavate, probably representing young cystidia.

Basidiospores 3-7-5.5 x 3-4 broadly ellipsoid.
Basidia 20-26 x 5-6 µm, clavate, tetrasterigmatic and with a basal clamp.
Substrate. The type was found on the palm *Roystonea regia*.
Distribution. Known only from the type locality in the Pinar del Rio province in Cuba.
Remarks. The distinctly pileate habitat with a whitish tomentose pileus and the broadly ellipsoid spores, characterize this species.

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, thick-walled, nonseptate, straight, 2-5 µm in diam.
Cystidia very abundant in the trama and the dissepiments, arising from skeletal hyphae, cylindrical to slightly clavate, upper part strongly encrusted, occasionally projecting into the hymenium, 30-60 x 7-10 µm.
Basidia 6-8 x 3-4 µm, clavate, 4-sterigmatewith a basal clamp.
Basidiospores 2.5-3 x 2- 2.5 µm, ellipsoid to subglobose.
Distribution. Known only from Guanacaste province in Costa Rica, but certainly overlooked due to its minute size.
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.
Other pileate species from America all have larger basidiospores and basidiocarps.

Junghuhnia neotropica I. Lindblad & Ryvarden,
Mycotaxon 71: 349, 1999.
Basidiocarps annual, pileate to effused reflexed, rarely completely resupinate, spatulate to fan shaped, single, up to 10-30 mm wide, 10-40 mm along the margin, up to 1.2 mm thick, flat and tough when fresh, strongly bent and cartilaginous bony hard when dry, upper surface glabrous, azonate, smooth, yellowish brown, pore surface white to pale ochraceous, pores round angular, thin-walled, 8-10 per mm and invisible to the naked eye, tubes up to 1.3 mm deep, context dense cartilaginous and pale yellowish brown up to 0.5. mm deep.
Hyphal system dimitic; generative hyphae with clamps, hyaline, very difficult to observe due to the dense structure of the basidiocarp, 2-4 µm wide; skeletal hyphae abundant, hyaline to pale yellow, thick-walled to solid, nonseptate, straight, 2-5 µm in diam.

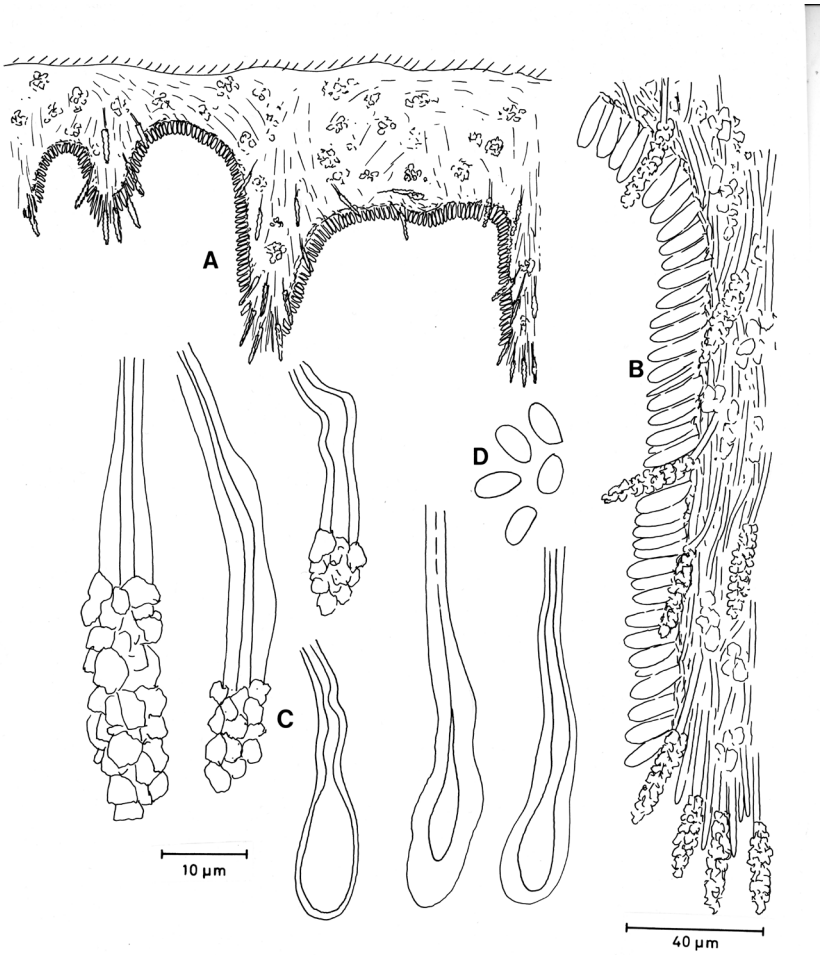

Fig. 20. *Junghuhnia nitida*, A) section through basidiocarp, B) section though tube showing position of metuloid cystidia, C) metuloid cystidia, encrusted and smooth, D) basidiospores. Del. L. Ryvarden.

Cystidia smooth with an elongated base and a swollen ventricose, pointed to rounded apex, partly bending into the hymenium, but also embedded in the trama, up to 120 µm long, apex 25-40 x 12-20 µm.
Basidia clavate, 4-sterigmate, 6-8 x 3-4 µm, with a basal clamp.
Basidiospores oblong ellipsoid to subglobose, 2.5-3 x 2-2.5 µm.
Substrata. Dead hardwoods from unknown genera.
Distribution. Known only from Guanacaste province in Costa Rica, but certainly overlooked due to its minute size.
Remarks. The species is characterized by a tiny, glabrous, pale yellowish brown and dense basidiocarp, tiny basidiospores and smooth apically ventricose cystidia not seen in any other *Junghuhnia* species.
Macroscopically it is similar to *J. minuta*, which however has tiny, thin often partly split basidiocarps and numerous club shaped encrusted cystidia in the trama and the dissepiments. The basidiospores are seemingly identical in the two species.

Junghuhnia nitida(Fr.) Ryvarden, Fig. 20
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, tough-fibrous, 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 thin-walled, with clamps, rarely branched, 2-4 µm in diam, subicular skeletal hyphae thick-walled, hyaline, nonseptate, rarely branched, 2-4 µm in diam, tramal hyphae similar.
Cystidia 40-100 x 5-10 µm, abundant and conspicuous, thick-walled, cylindrical to clavate, heavily encrusted, completely imbedded or projecting to 30 µm.
Basidia clavate, 4-sterigmate, 10-13 x 4-5 µm, with a basal clamp.
Basidiospores 4-4.5 x 2-2.5 µm broadly ellipsoid to ovoid.
Substrata. Dead wood of numerous genera of hardwoods, rarely on conifers.
Distribution. Not common in tropical America, but seen from Venezuela and French Guyana. Widespread in the temperate zone.
Remarks. The diagnostic characters of *J. nitida* are the pinkish-cinnamon pore surface, the abundant encrusted, thick-walled cystidia, and the ovoid to broadly ellipsoid spores. It is the most common *Junghuhnia* species in many places.

Junghuhnia polycystidifera (Rick) Rajchenb.,
Nord. J. Bot. 7:566, 1987. - *Poria polycystidifera* Rick Iheringia 7:281, 1960. - *Junghuhnia microspora* Rajchenb. Mycotaxon 16:504, 1983.
Basidiocarps annual, resupinate, adnate, corky to fibrillose, pore surface first cream coloured bruising pale chestnut, becoming beige to brownish orange or chestnut when dry, pores angular to round, 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 thin-walled, with clamps, rarely branched, 2-6 µm in diam, subicular skeletal hyphae thick-walled, hyaline, nonseptate, rarely branched, 2-6 µm in diam, tramal hyphae similar.
Cystidia few to abundant, thick-walled, cylindrical to clavate, heavily encrusted, 40-100 x 5-10 µm, completely imbedded or projecting to 30 µm in the pore mouths.
Basidia 8-11 x 3-5 µm, clavate, 4-sterigmate, with a basal clamp.
Basidiospores 2.5-3.5 x 1.0-1.5 µm, ellipsoid to subcylindrical.
Substrata. Dead hardwoods.
Distribution. Known only from Northern Argentina and Southern Brazil.
Remarks. The diagnostic characters of this species are the small pores and spores beside the dark colours in dry condition.

Junghuhnia semisupiniformis (Murrill) Ryvarden,
Mycotaxon 23:195, 1985. - *Tyromyces semisupiniformis* Murrill, Bull. New York Bot. Gard.8:148, 1912.
Basidiocarps annual, resupinate to effused-reflexed; pileus when present up to 3 cm long, often fused with adjacent pilei to form more complex lobed basidiocarps, up to 2 mm thick; upper surface more or less glabrous or with radiating streaks or fibrils, in the end agglutinated to a thin cuticle, cream to pale brownish yellow; pore surface white to pale ochraceous, pores angular and thin-walled, 5-6 per mm with finely fimbriate dissepiments; context pale ochraceous, homogeneous, tough, up to 1 mm thick; tube layer concolorous with pore surface, up to 1 mm thick.
Hyphal system dimitic; generative hyphae with clamps, hyaline, moderately branched, 3-5 µm in diam; skeletal hyphae abundant, hyaline to pale yellow, thick-walled, nonseptate, straight, 2-5 µm in diam, in the trama more sinuous, narrower and occasionally branched, 2-4 µm in diam.
Cystidia abundant in the trama, arising from skeletal hyphae, cylindrical to slightly clavate, apically encrusted, occasionally projecting into the hymenium, 40-100 x 7-10 µm.
Basidia 17-25 x 5-6 µm, clavate, 4-sterigmate, , with a basal clamp.
Basidiospores 3.5-4.5 x 2.5-3.5 µm, ellipsoid to subglobose.
Distribution. Widespread in the Caribbean area.
Remarks. The species is characterized by being pileate,

Junghuhnia sobria (Berk.) Ryv. comb. nov. Index Fung. 551747**.**
Polyporus sobrius Berk & M. A. Curtis, J. Linn. Soc. Bot. 20:316, 1868.
Basidiocarps annual, pileate, dimidiate to flabelliform, 2 x 5 x 0.2 cm, upper surface cream-coloured with darker spots, glabrous and radially striate and without zones, pore surface varying from brownish cream to more dark brown, pores radially elongated, transversely about 5 per mm, radially about 3 per mm, becoming split and dentate in basal parts of the basidiocarp, tube layer dark brown and slightly translucent and fragile with a resinous consistency, up to 0.5 mm deep, subiculum pale tan, about 2 mm thick.
Hyphal system dimitic, subicular generative hyphae thin-walled, with clamps, rarely branched, 2-5 µm in diam, subicular skeletal hyphae thick-walled, hyaline, nonseptate, rarely branched, 3-6 µm in diam, tramal hyphae similar.

Cystidia scattered, club like to clavate, apparently smooth as observed in the type, up to 30 µm long.
Basidia clavate, 4-sterigmate, 10-12 x 4-5 µm, with a basal clamp.
Basidiospores 4-5 x 2-2.5 µm**,** oblong ellipsoid.
Substrata. Presumably dead wood hardwoods.
Distribution. Known from the type locality in La Perla on Cuba and in Venezuela.
Remarks. The species is characterized by a pileate basidiocarp and fairly large spores.

Junghuhnia subundata (Murrill.) Ryvarden,
Synopsis Fung. 32: 80, 2014. - *Poria subundata* Murr. Mycologia 13:86, 1921.
Basidiocarp resupinate, adnate, effused, dense and tough when fresh, woody hard when dry and then slightly contracted, larger basidiocarps crack up, taste mild, pore surface straw-coloured to pale sand- coloured when fresh, dries to ochraceous, often with a slight patch wise discolouration becoming ultimately pale yellow- brown with orange tints, shiny when turned in incident light, margin white, absent to very narrow, pores tiny, invisible to the naked eye, 7-9 per mm, tubes concolorous with the pore surface, up to 5 mm thick and indistinctly stratified in thick specimens, subiculum absent to very thin and ochraceous, and in some specimen there are red zones in the attacked wood or bark
Hyphal system dimitic, generative hyphae hyaline and with clamps and simple septa(?), usually extremely difficult to find, 1.5-3 µm wide, skeletal hyphae dominating, thick-walled, but with a wide and distinct lumen, 4-6 µm wide, apically thin-walled and often slightly swollen to small bulb-like structure.
Cystidia of two types, a) hymenial ones ventricose and smooth with acute to rounded with a bent base, in some cases arising in the subhymenium, more commonly as the apical bent part of a skeletal hyphae that may be extended for a distance of 120 µm, frequent to very scanty, b) embedded, large heavily encrusted tramal cystidia, extremely difficult to release from the trama in which they are embedded and they are usually observed as large club-like heavily encrusted organs running parallel with the pore walls, up to 20 µm wide in the apical encrusted part.
Basidia 7-10 µm long, 4 sterigmata.
Basidiospores 2.5-3 x 2-2.5 µm, minute, subglobose to broadly ellipsoid.
Distribution. Pantropical and quite common in the Caribbean area, specimens have been seen from Puerto Rico, Belize, Costa Rica and Panama.
Remarks. The tiny spores, the tan-straw-coloured pore surface with extremely tiny pores should make the species recognizable. The spore form separates it from the other resupinate species described in the genus. The occurrence of the cystidia is apparently variable and sometimes they are easily observed, while they in other specimens are difficult to find and good vertical sections of the pores are necessary to ascertain their presence. The red zone observed below the basidiocarps in some collection is of uncertain identity since it apparently is absent in some collections and may represent another organism.
The septation of the generative hyphae is extremely difficult to observe and according to my opinion, seemingly both clamps and some scattered simple septa are present. Fresh specimens should be examined carefully to have this point elucidated.

Junghuhnia undigerus (Berk.) Ryvarden,
Mycotaxon 20:359, 1984. - *Polyporus undigerus* Berk. J. Linn. Soc. Bot. 20:317, 1868.
Basidiocarps annual, pileate, effused reflexed or dimidiate to almost laterally stipitate, single or in imbricate clusters, , tough when fresh, fragile when dry, upper surface ochraceous with a pink tint when fresh, drying tan to sand coloured or pale straw coloured, azonate to narrowly zonate, adpressed velutinate to soft, up to 2-3 cm long and wide, pore surface ochraceous with a pink tint when fresh,, drying tan to sand coloured or straw coloured, pores angular, 5-7 per mm, with thin, entire dissepiments, slight irregular on sloping parts of the basidiocarp, subiculum cream coloured to ochre or sand coloured, fibrous, up to 1 mm thick, tube layer concolorous and continuous with the subiculum, up to 2 mm thick.
Hyphal system dimitic, subicular generative hyphae thin-walled, with clamps, rarely branched, 2-4 µm in diam, subicular skeletal hyphae thick-walled, hyaline, nonseptate, rarely branched, 2-4 µm in diam, tramal hyphae similar.
Cystidia 40-100 x 5-12 µm, scattered, thick-walled, cylindrical to clavate, encrusted apically or almost smooth with a papillae, completely imbedded or projecting to 30 µm, most common in the dissepiments.
Basidia 12-18 x 4-5 µm, clavate, 4-sterigmate.
Basidiospores , 4-5 x 3.5-4 µm, broadly ellipsoid to ovoid, hyaline, smooth, negative in Melzer's reagent.
Distribution. Known from Cuba and Puerto Rico, but will probably be found more widely in the Caribbean area.
Remarks. The diagnostic characters of *J. undigerus* are the small imbricate pilei and the fairly large subglobose spores.

Laetiporus Murrill,

Bull. Torrey Bot. Club 31:607, 1904.
Basidiocarps annual, sessile to stipitate, soft and fleshy, friable and light in weight on drying, pileus surface orange to pinkish brown, becoming glabrous, pore surface yellow to pinkish cream, the pores regular, 3-4 per mm, context white to pinkish buff, soft, zonate to azonate, hyphal system dimitic, generative hyphae simple-septate, binding hyphae thick-walled, nonseptate, much branched and interlocked, cystidia lacking, basidiospores ovoid to broadly ellipsoid, smooth, hyaline, negative in Melzer's reagent, causing brown cubical rot in living hardwoods and conifers.
Type species: *Laetiporus sulphureus* (Bull.: Fr.) Murrill.
Remarks. The genus is characterized by the brown rot, its dimitic hyphal system with wide binding hyphae and simple septate generative hyphae.

Key to species

1. Basidiocarps sessile to substipitate, upper surface orange, pore surface yellow .... **L. sulphureus**
1. Basidiocarps stipitate, upper surface pinkish brown, pore surface pinkish-cream .... **L. persicinus**

Laetiporus persicinus (Berk. & M. A. Curtis) Gilbn., 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 pinkish-cream when fresh, bruising brown, drying to dark, dull brown, pores circular, 3-4 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 pinkish-straw coloured when fresh, with concentric dark zone lines, drying pinkish-buff, soft fibrous and easily pulled apart, 1-2 cm thick on pileus, tube layer pinkish-tan when fresh, distinct and drying darker than the context, soft, up to 8 mm thick, entire basidiocarp drying very light in weight, odour of fresh specimens like ham or bacon.
Hyphal system dimitic, contextual generative hyphae thin-walled, hyaline, simple-septate, with rare branching, 7-20 µm in diam, contextual binding hyphae firm- to thick-walled, hyaline, nonseptate, much branched, 5-12 µm in diam, gloeopleurous hyphae also present, tramal hyphae thin-walled, simple-septate, with occasional branching, 2.5-4.5 µm in diam.
Cystidia or other sterile hymenial elements lacking.
Basidia clavate, 4-sterigmate, 25-29 x 8-10 µm.
Basidiospores 6.5-8 x 4-5 µm, ovoid to ellipsoid.
Substrata. Fruiting usually from roots at the base of living or dead trees.
Distribution. In America from south-eastern U.S and the Gulf area and south to Brazil. Widespread in the tropical zone.
Remarks. *Laetiporus persicinus* shows striking similarities to *L. sulphureus* in all microscopic characters. Basidia, basidiospores and generative hyphae of the two species are virtually identical. The binding hyphae of *L. persicinus* are not as profusely branched as those of *L. sulphureus,* but do show a high degree of branching and are otherwise very similar. Both species typically develop basidiocarps at or near the base of living trees and cause a brown cubical butt and root rot.

Laetiporus sulphureus (Bull.:Fr.) Murrill, Fig. 21
Mycologia 12:11, 1920. - *Boletus sulphureus* Bull. Herb. France, pl. 429. 1788. - *Polyporus sulphureus* Bull.:Fr., Syst. Mycol. 1:357, 1821.
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

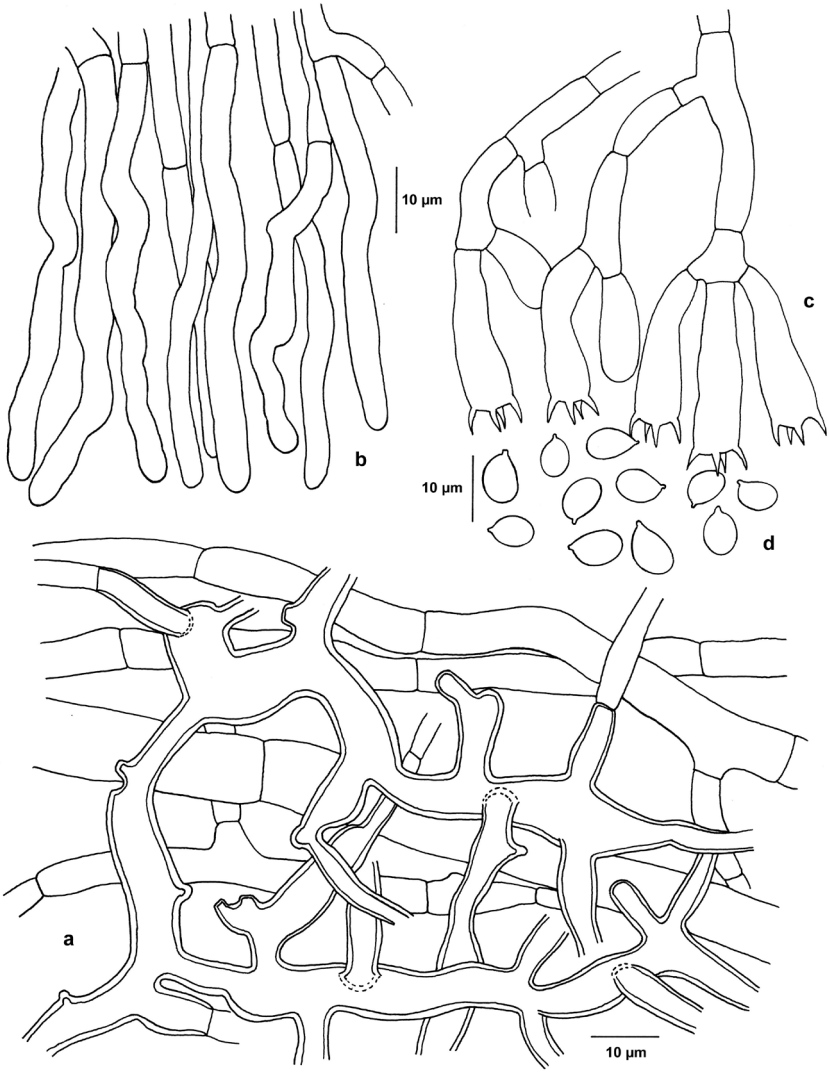

Fig. 21. *Laetiporus sulphureus*, a) hyphae from context, b) hyphae from dissepiments edge, c) basidia, d) basidiospores. M. Correia, Portugal, Del. I. Melo.

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 sulphur yellow when fresh, fading to pale tan on drying, the pores angular, 3-4 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 sulphur yellow when fresh, drying pale buff, distinct, up to 4 mm thick, taste and odour nut like, pleasant.
Hyphal system dimitic, contextual generative hyphae thin-walled, hyaline, simple-septate, with rare branching, 6-12 µm in diam, contextual binding hyphae firm- to thick-walled, hyaline, nonseptate, much branched and interlocking, 3-20 µm in diam, tramal hyphae thin- to firm-walled, with occasional branching, simple-septate, 4-6 µm in diam.
Cystidia or other sterile hymenial elements lacking.
Basidia 20-25 x 6-9 µm, clavate, 4-sterigmate.
Basidiospores 5-8 x 4-5 µm ovoid to ellipsoid, hyaline.
Substrata. In temperate zones more or less restricted to hardwoods and are particularly common on *Quercus*. Widespread, but not common in the tropical zones and redescribed numerous times based on tropical collections.
Distribution. Cosmopolitan species except in the extreme north.
Remarks. The bright orange coloration and the tubular hymenophore make it easily identifiable. Recent studies have shown that there are several species involved in the previous and here adopted wide concept of this species. The interested reader is referred to Banik et al (2010) for details.

Lamelloporus Ryvarden,

Mycotaxon 28:529, 1987.
Basidiocarps pileate, spatulate, tough to dense, upper surface glabrous, zonate, whitish to pale brown, hymenophore concentrically lamellate, each lamellae about 1 mm apart, pale brown to ochraceous, context dense and concolorous. Hyphal system dimitic, generative hyphae with clamps, skeletal hyphae hyaline, cystidia present, cylindrical, thick-walled, smooth, projecting beyond the basidia, basidiospores ellipsoid, smooth, thin-walled non-amyloid. On dead hardwoods with a white rot. Neotropical monotypic genus.
Type species: *Lamelloporus americanus* Ryvarden.
Remarks: The concentric lamellae are unique among the light coloured polypores, and this and the tubular smooth cystidia makes the genus rather distinct. *Antrodiella* seems to be the closest relative sharing the same hyphal system and spores, but in this genus the hymenophore is poroid to slightly and irregularly hydnoid, and tubular thick-walled cystidia are not known from the genus.

Lamelloporus americanus Ryvarden, op. cit. Fig. 22
Basidiocarps annual, spatulate to semicircular, up to 3 cm wide and 5 cm long, often smaller, and up to 1.5 mm thick at the base, tough when fresh, dense and hard when dry, upper surface, glabrous, dull, zonate, pale brown to almost bay when old, first smooth

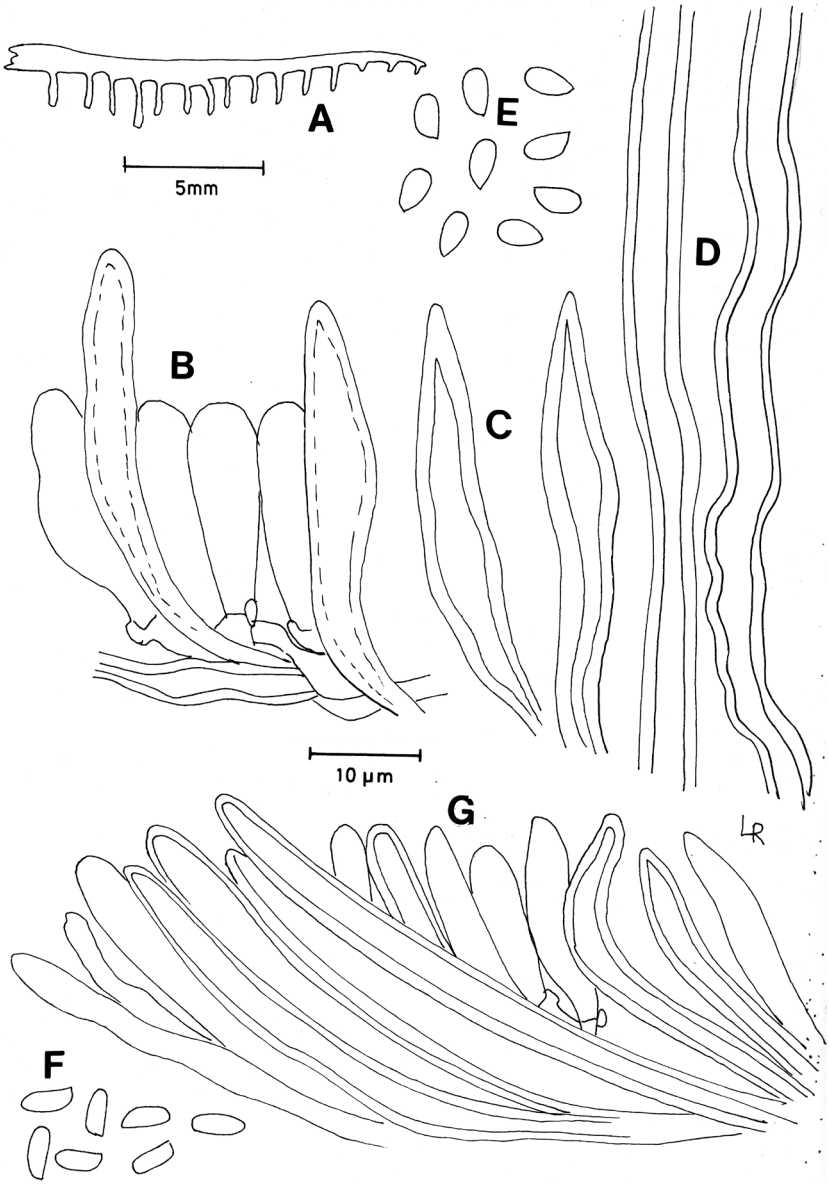

Fig. 22. *Lamelloporus americanus*, A) section of basidiocarp, B) hymenium with cystidia, C) cystidia, D) skeletal hyphae, E) basidiospores. From the holotype

then slightly wrinkled from the base and then finely pruinose, margin thin and sharp, curled in dry specimens, hymenophore concentrically lamellate, each lamellae about 1 mm apart, pale brown to beige, up to 1 mm deep, context whitish when fresh, drying cream or pale brown, cartilaginous with numerous concentric dark zones.
Hyphal system dimitic; generative hyphae with clamps, hyaline, thin-walled, 3-6 µm wide, difficult to observe due to the dense structure, skeletal hyphae thick-walled to solid, hyaline, 3-6 µm wide.
Cystidia 20-40 x 5-7 µm, present, tubular to slightly pointed, thick-walled, hyaline, smooth, projecting up to 20 µm beyond the hymenium.
Basidia 10-14 x 4-5 µm with 4 sterigmata, clavate.
Basidiospores 3-4 x 2-2.5 µm, ellipsoid, smooth, thin-walled and non-amyloid.
Distribution. Southern Mexico, Belize, Colombia, Costa Rica and Venezuela.
Remarks. The concentric lamellae, the brownish colours on the pileus and the long, thick-walled cystidia make this a distinct species.

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 involuted 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 ellipsoid, hyaline, non-amyloid, non-dextrinoid, thin-walled, smooth; basidia typically narrow and cylindrical to clavate with four sterigmata. Cystidia present or absent. All species 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.

Key to Neotropical species of *Lentinus*

1. Arboriform skeletal hyphae present, hyphal pegs often present (subgenus *Lentinus)* **2**
1. Unbranched skeletal hyphae present, hyphal pegs absent (subgenus *Panis*)..... **11**

2. Pileus covered with dark brown dense hairs, especially towards the margin.. **L. bertieri**
2. Pileus with adpressed lines, squamules or more or less smooth..... **3**

3. Margin with cilia..... **4**
3. Margin without cilia..... **6**

4. Pileus yellowish brown to dark brown with narrow and dense radial striae and some marginal cilia or hairs ..... **L. crinitus**
4. Pileus with squamules or more or less glabrous **5**

5. Pileus covered with small squamules, slightly floccose and hairy towards the margin..... ..... **L. swartzii**
5, Pileus glabrous and with squamules ..... **L. nigroosseus**

6. Lamellae interveined to reticulate (subporoid), pileus with a few dark brown squamules **7**
6 Lamellae straight and free, no dark brown squamules on pileus..... **8**

7. Basidiospores 8.5-10 µm long ..... **L. glabratus**
7. Basidiospores 5.5-6.5 µm long ..... **L. retinervus**

8, Stipe elongate and slender, longer than diameter of pileus, partial veil present leaving pendant remnants at margin ..... **L. concavus**
8. Stipe relatively short, shorter than diameter of pileus, veil absent **9**

9. Lower part of stipe with small dark brown squamules, otherwise glabrous..... **10**
9. Stipe and pileus velutinate to tomentose..... **L. scleropus**

10. Pileus fibrillose to strigose, soon glabrous except for margin, basidiospores 6-8.5 x 1.7-2.5 µm..... **L. striatulus**
10. Pileus with minute dark brown to black squamules at centre and a striate margin, spores 8.5-11 x 3-4 µm ..... **L. patulus**

11. Metuloid cystidia or gloeocystidia present in hymenium **12**
11. Metuloid cystidia or gloeocystidia absent..... **16**

12. Lamellae edge denticulate to incised ..... **L. sulcatus**
12. Lamellae edge entire **13**

13. Pileus tomentose, villose to hispid strigose ..... **L. strigosus**
13. Pileus more or less glabrous or with a few scattered squamules **14**

14. Basidiocarps growing on grassroots, pileus usually 1-3 cm in diameter, basidiospores broadly ellipsoid 5.5-7 x 3-4.5 µm ..... **L. caespiticola**
14. Basidiocarps growing on dead wood, pileus usually wider than 3 cm in diameter, basidiospores cylindrical to oblong ellipsoid **15**

15. Basidiospores cylindrical 5-7- x 1.5-2.5 µm..... **L. hirtiformis**
15. Basidiospores ellipsoid, 5.5-7 x 3-4.5 µm ..... **L. strigellus**

16. Pileus and stipe velutinate or hispid **17**
16. Pileus and stipe more or less glabrous, except for some scattered squamules **18**

17. Basidiocarps large and robust, stipe up to 10 mm in diameter, pileus and stipe velutinate, basidiocarp often rising from a sclerotium in the wood, lamellae densely crowed, common species ..... **L. velutinus**
17. Basidiocarp small and slender, stipe 1.4 mm in diameter, pileus and stipe hispid, arising from mycelium under the bark or in the wood, lamellae moderately crowded .... **L. tephroleucus**

18. Basidiocarps fan-shaped to spatulate with lateral or almost missing stipe, basidiospores 7-8 x 2.7-3.2 µm ..... **L. copulatus**
18. Basidiocarps more or less centrally stipitate, basidiospores 8.5 -16 µm **19**

19. Lamellae edge denticulate to serrate..... **20**
19. Lamellae edge entire ..... **L. patulus**

20. Basidiocarps small and slender, rarely above 2.5 cm in diameter, whitish with minute scattered brown squamules, basidiospores 8.5-11 x 3-4 µm ..... **L. pallidus**
20. Basidiocarps robust, up to 20 cm in diameter, pileus without brown squamules, but tomentose becoming glabrous, basidiospores 9-16 x 4-6 µm ..... **L. levis**

NB Since the basidia have no taxonomic value, they are not described in the following. All spores are smooth, thin walled and non-amyloid, thus this information is not repeated for each species. If not indicated, the substrate is dead hardwood.

Lentinus bertieri (Fr.) Fr., Fig. 23
Syst. Org. Veg. P. 77, 1825. – *Agaricus berteri* Fr. Syst. Mycol. 1:175, 1821.
Basidiocarps stipitate, pileus 1-5 cm in diameter; dark to medium brown, first covered with dark hairs, slowly becoming glabrous from centre but consistently hirsute or tomentose towards he margin covered with long, erect and conspicuous fascicles increasingly abundant towards the margin; margin ciliate, at first involute, later expanding.

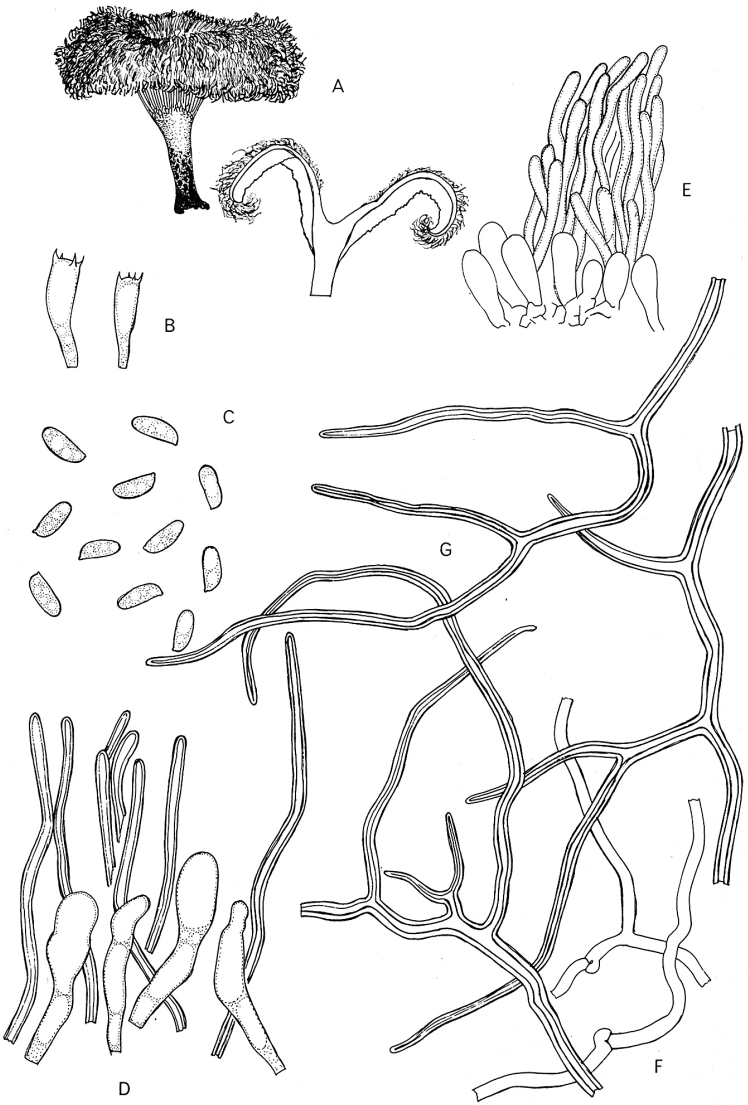

Fig. 23. *Lentinus bertieri*. A) Basidiocarp (Jamaica), B) Basidia, C) Spores, D) Cheilocystidia, E) Hyphal peg, F) Generative hyphae, G) Binding hyphae. Del. D. Pegler.

Stipe central, 1.5-3.5 cm long, smooth except for fine adpressed squamules towards the base, light brown to buff to almost black towards basis, lamellae, moderately decurrent and moderately crowded, often anastomosing at the margin, edge often denticulate, hyphal pegs, present and usually very abundant.
Hyphal system dimitic, generative hyphae with clamps, not inflated 1-3 mm wide, arboriform skeletal hyphae 2-5 mm wide, dichotomously branched.
Cheilocystidia 23-28 x 3-7 µm, clavate, smooth and thin walled.
Basidiospores, 2.3-3 x 6.5-9 mm, narrowly cylindrical.
Distribution, Central America, South America, Caribbean.
Remarks. *L. bertieri* is often confused with *L. crinitus* and *L. swartzii* and is indeed closely related to these species. See comments given under *L. crinitus*.

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.
Cystidia of two types:
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 on the hymenial surface, 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; ellipsoid.
Distribution. In America known only from Cuba.
Remarks. The small basidiocarps of *P. caespiticola* always grow tufted on dead grass, stems and root, and often in large numbers. The gloeocystidia of this species are similar to those found in *P. strigelllus.*

Lentinus copulatus (Ehrenb.:Fr.) P. Henn.,
Engler & Prantl. Nat. Plazen. Familien 1:224, 1900. - *Agaricus copulatus* Ehrenb.: Fr. Syst. Mycol. 1:504, 1821.
Pileus 0.3-2 cm, spatulate to flabelliform; either with a narrow lateral attachment or nearly sessile; surface pale ochraceous to ochraceous buff; smooth, pubescent to strigose, glabrous towards the margin; margin thin, undulate, irregular, lamellae decurrent, pale ochraceous; moderately crowded.
Stipe 0.5-2 mm long; lateral, reduced to almost absent; tomentose; white with a strigose base.

Hyphal system dimitic, generative hyphae, not inflated; 2-4 mm diameter; thin walled, frequently branched and with clamps, skeletal hyphae, 3-5 mm wide, mostly unbranched, but occasionally bifurcate
Basidiospores 7-8 x 2.7 -3.2 mm, cylindrical.
Distribution. Amazonas region and Cuba.
Remarks. This is a small minute, pleurotoid species that grows gregariously in imbricate clusters on dead wood or forest debris. It may remind one of *Panus stipticus*, but this is a monomitic species with different spores.

Lentinus concavus (Berk.) Henn.,
Engl. & Prantel, Nat. Pfl.-Familien 1:224, 1900. – *Panus concavus* Berk., Ann. Mag. Nat. Hist. Ser. 2, vol. 9:194, 1852.
Basidiocarp stipitate, pileus 0.5-3 (7) cm in diameter; thin; umblicate to deeply infundibuliform; chalk white, drying pale orange brown; glabrous, smooth, margin strongly incurved, not ciliate, lamellae deeply decurrent, not anastomosing, densely crowded; edge entire, hyphal pegs absent.
Stipe 2-6 (-8) cm long, elongate, slender; central or eccentric; pure white, striate and glabrous, partial veil present, not leaving an annulus on the stipe, but often remnants on the pileus margin.
Hyphal system dimitic, generative hyphae, not inflated; 2-5 µm wide; sparsely branched, arboriform skeletal hyphae; 4-10 (12) µm wide; occasionally branched.
Basidiospores, 1.7-2.5 µm x 6-7.5 (8) µm, narrowly cylindrical.
Distribution, South America, Caribbean.
Remarks. The basidiocarps often grow in clusters. Due to a reduced appearance of arboriform skeletal hyphae, this species is almost monomitic. The arboriform skeletal hyphae, when present, are sparsely branched.

Lentinus crinitus (L.: Fr.) Fr., Fig. 24
Syst. Org. Veg. p.77, 1825. – *Agaricus crinitus* L., Species Plant. 2. Ed. Vol 2:1644, 1763.
Basidiocarp stipitate deeply infundibuliform to cyathiform, 1-5 cm in diameter, yellowish to dark brown, smooth and glabrous in the centre, becoming hirsute to strigose; margin ciliate, inflexed or slightly involute, hymenophore lamellate, deeply decurrent, densely crowded, often anastomosing at apex; edge denticulate hyphal pegs, present and usually very abundant, projecting 20-50 mm above the hymenium.
Stipe central, 1-6 cm long; glabrous, smooth, light- to medium brown, darker towards basis.
Hyphal system dimitic**, g**enerative hyphae, not inflated or rarely slightly so 1-3 mm wide, frequently branched, arboriform skeletal type 2-5 mm wide, thick walled, frequently branched.
Basidiospores, 2.5-2.8 mm x 7-8 mm, narrowly cylindrical.
Distribution, United States, Central America, South America, Caribbean
Remarks. *Lentinus crinitus* is a variable species, and has frequently been confused with other species such as *L. bertieri*. It is perhaps the most common *Lentinus* species in the Neotropics, but compared with *L. bertieri*, it has a densely strigose pileus and usually shorter decurrent and less densely crowded lamellae. *L. bertieri* also tends to have a

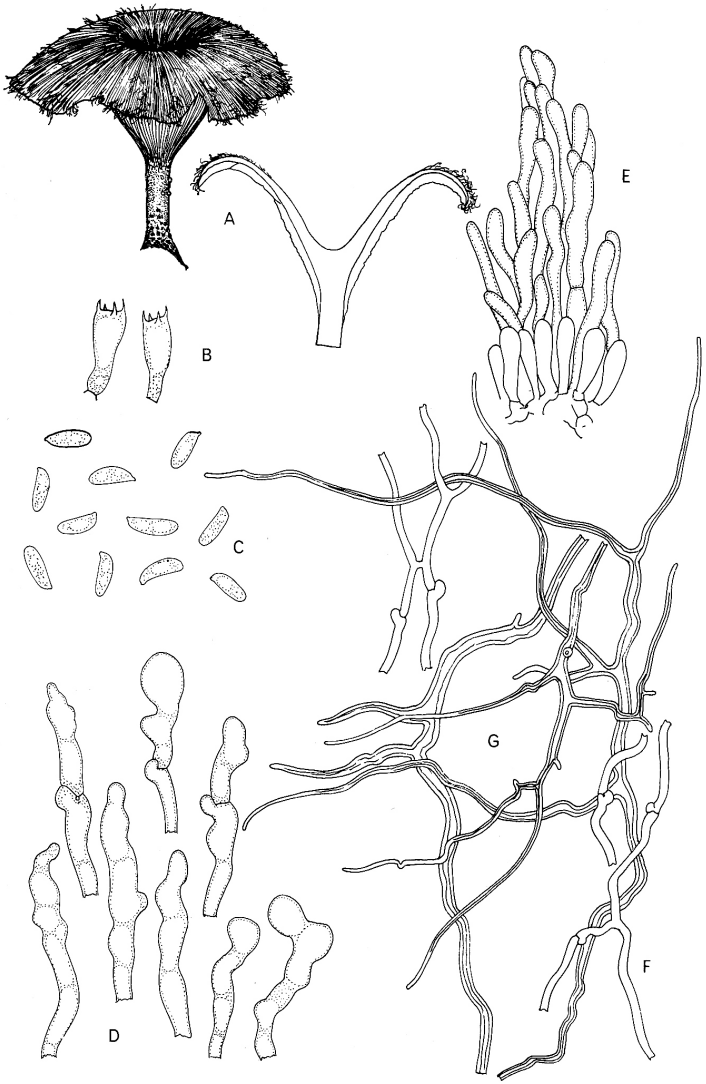

Fig 24. *Lentinus crinitus* (Surinam, type specimen), B) Basidia, C) Spores, D) cheilocystidia, E) hyphal peg, F) Generative hyphae, G) Binding hyphae. Del. D. Pegler.

stronger involuted margin, at least in young specimens. *L. swartzii* is another species of the *L. crinitus* complex, with conspicuous squamules on the pileus, and commonly less hyphal pegs. Most species of the *L. crinitus* complex have very similar microscopic features. In order to determine the correct species, macroscopic features are always important.

Lentinus glabratus Mont.,
In La Sagra, Plant. Cellul. Cuba p.424, 1842.
Basidiocarp centrally stipitate, pileus with a diameter of 2-3 cm, slightly appressed at the centre; thin and brittle, white to cream coloured, centrally with a few adpressed brown squamules, otherwise glabrous and smooth, margin ciliate, and subinvolute, lamellae, moderately decurrent, subporoid and distinctly intervened, concolorous with pileus, moderately crowded, edge strongly denticulate, hyphal pegs fairly abundant, quite pointed and narrow, 60-90 mm long.
Stipe 1-2 cm long, thin and fragile, concolorous with lamellae and pileus.
Hyphal system dimitic, generative hyphae, inflated, 2-6 mm wide, up to 14 mm when inflated, arboriform skeletal quite narrow, 2-3.5 mm, frequently branched**.**
Basidiospores, 3.5-4 x 8.5-10 mm, cylindrical.
Distribution. A rare species, originally described from Cuba, but known also from Brazil.
Remarks. *L. glabratus* is among the few *Lentinus* species with inflated generative hyphae, which makes the basidiocarp brittle and less coriaceous than in other *Lentinus* species. The subporoid structure of the lamellae is another distinct character.

Lentinus hirtiformis Murrill, Fig. 25
North Amer. Flora 9:293, 1915.
Basidiocarp stipitate, pileus 2-6 cm, wide, applanate to infundibuliform to almost spatulate, ochraceous brown, finely striate, glabrous except for minute, scattered dark brown appressed squamules, margin first ciliate to strigose, but soon glabrous, involute often rimose and uneven, lamellae moderately to deeply decurrent, ochraceous to buff, slightly paler than pileus surface; moderately crowded and of three lengths.
Stipe 0.5-1.5 cm long, central or eccentric, solid, cylindrical velutinate to tomentose with a continuous cover of short, erect hairs; pale to hazel brown, darker than the lamellae.
Hyphal system dimitic, generative hyphae, not inflated, 2-4 mm wide and with clamps, frequently branched, skeletal hyphae 2-5 mm wide, sinuous, thick-walled with a narrow continuous lumen, up to 1000 µm long, both terminal and intercalary.
Cystidia of two kinds:
Cheilocystidia 20-28 x 7-9 µm, present on lamellae edges, clavate with a slightly tapering apex, smooth, thin walled and obtuse.
Gloeocystidia 28-80 x 6-14 µm, numerous on the lamellae edges, scattered on hymenial surfaces, cylindrical to fusoid, first thin-walled then becoming more thick walled coming close to metuloid cystidia, sinuous and slight constricted, hyaline or yellowish, refractive, projecting up to 35 µm above the basidia.
Basidiospores 5-7 x 1.5-2.5 µm.
Distribution. Known from Belize and Costa Rica.

Fig. 25. *Lentinus hirtiformis* (Belize, Rick, lectotype), A) Basidiocarp, B) Spores, C) Basidia, D) Cheilocystidia, E) Gloeocystidia, F) Generative hyphae, G) Skeletal hyphae. Del. D. Pegler.

Remarks. *P. hirtiformis* is very similar to *P. strigellus*, and it is debatable whether they represent two distinct species. *P. hirtiformis* is characterised with more narrow spores and appressed squamules. More collections are needed to ascertain the status of this species.

Lentinus levis (Berk. & M. A. Curtis) Murrill,
North Am. Flora 9:293, 1915. – *Panus levis* Berk. & M. A. Curtis, Ann. Mag. Nat. Hist. Ser. 2, 12:427.
Basidiocarp stipitate, pileus 2-20 cm wide, applanate to subinfundibuliform, white becoming yellowish to pale pinkish in some specimens, finely tomentose to strigose –villose in the centre with short erect hairs, finely becoming glabrous , margin smooth without cilia straight to slightly involute, lamellae deeply decurrent, white to concolorous with the pileus, moderately crowded and of four lengths.
Stipe 4-10 x 1.5-2.5 cm, central or eccentric or occasionally lateral, solid, cylindrical tomentose to slightly strigose becoming glabrous near the apex, more consistently strigose at the base.
Hyphal system dimitic, generative hyphae, not inflated, 2-4 mm wide, frequently branched, skeletal hyphae 2-7mm wide, sinuous, thick-walled with a narrow continuous lumen, up to 1000 µm long, both terminal and intercalary.
Cystidia none.
Basidiospores 9-16 x 4-6 µm.
Distribution. In the neotropics known only from Honduras according to Pegler (1983).
Remarks. A rare species recognized by its whitish colours and the large spores.

Lentinus nigroosseus Pilat,
Ann. Mycol. 34:122, 1936.
Basidiocarp stipitate, pileus more or less circular 2.5-4 cm diameter; convex umblicate to infundibuliform; surface white to cream colour, drying pale to dark brown; glabrous, smooth; finely radially striate; margin at first involute, then expanding; and with scattered, short, whitish hair like squamules, lamellae deeply decurrent; white, drying brown; distant to moderately crowded; lamella edge denticulate first with cheilocystidia, later with emerging distal ends of the ligative hyphae, hyphal pegs abundant, 60-130 x 20-30 µm.
Stipe 0.2-2 cm long, central or eccentric; white to yellowish brown, generally paler than pileus; first scurfy to floccose then glabrous except for some few squamules close to the base.
Hyphal system dimitic, generative hyphae with clamps, not inflated; 2-5 mm diameter; arboriform skeletal hyphae, 2-7 µm diameter; frequently branched.
Cheilocystidia 15-25 x 3-6 µm, sinuous to cylindrical, smooth and thin walled.
Basidiospores 6-8 x 1.4-2.5 mm, narrowly cylindrical.
Distribution. Caribbean area.
Remarks. *L. nigroosseus* is closely related to species within the *L. crinitus* complex, as microstructure and hairs towards the pileus margin indicate. The white and mostly glabrescent basidiocarp makes it however to a distinct taxon within the complex.

Lentinus pallidus Berk. & M. A. Curtis**,**
Ann. Mag. Nat. Hist. Ser 2, 12:427, 1853.

Basidiocarp stipitate, pileus 2-2.5 cm, wide, applanate to slightly centrally depressed, first yellowish white, smooth except for a few scattered minute brown floccose squamules toward the centre, no cilia along the margin, involute, lamellae decurrent, white, soon lacerate, dentate to serrate, moderately crowded, and of three lengths, basidiocarps noted to grow in clusters.
Stipe 2-7 cm long, central, solid, cylindrical concolorous with the pileus, slightly tomentose with fine squamules towards the apex.
Hyphal system dimitic, generative hyphae not inflated, 2-4 mm wide, frequently branched, skeletal hyphae 2-5 mm wide, sinuous, thick-walled with a narrow continuous lumen, up to 1000 µm long, both terminal and intercalary.
Cystidia absent, but hair like elements present on the lamellae edges, 20-50 x 2-6 µm.
Basidiospores 8.5-11 x 3-4 µm cylindrical.
Distribution. A rare species, known only from Belize and Southern United States.
Remarks. The small size, the pale colours with a few tiny squamules on the pileus and the stipe and the fairly large spores, characterize this species.

Lentinus patulus Lev., Fig. 26
Ann. Sci. Nat. Bot. Ser. 3, vol 5:119, 1846.
Basidiocarp 6-15 cm diameter; cyathiform to infundibuliform; pileus white to cream glabrescent except for minute, fuscous brown to blackish squamules towards the centre; finely striate towards the margin, margin thin, often incised, finally lacerate, lamellae deeply decurrent; white, drying cream buff, moderately crowded; lamella edge entire, hyphal pegs absent.
Stipe 2-3 (5) cm long, central or eccentric mostly short, but longer than the pileus diameter; surface white, with flattened, fuscous to blackish squamules
Hyphal system dimitic, generative hyphae not inflated; 3-9 mm diameter; skeletal hyphae 2-6 mm diameter wide.
Cystidia absent.
Basidiospores, 8.5-11.5 x 3-4 µm cylindrical.
Distribution. Tropical America.
Remarks. The white, almost glabrous basidiocarps often grow gregariously, but not in tufts, characterize the species.

Lentinus retinervis Pegler, Fig. 27
Kew Bull. Add. Ser. 9:30, 1983.
Basidiocarp circular, 3-5 cm diameter; infundibuliform; surface initially pale grey but paling to ivory yellow on expansion; with minute appressed darker squamules which become more spaced upon ageing; margin entire, straight, neither incurved nor squamose, lamellae, deeply decurrent, conspicuously intervened; lamella edge strongly dentate, hyphal pegs, present but scattered, 60-100 x 25-40 µm consisting of agglutinated generative hyphae.
Stipe 2-3 cm long, whitish; glabrescent, except for some minute, scattered squamules.
Hyphal system dimitic, generative hyphae often inflated; 3-5 mm diameter, up to 13 mm when inflated, frequently branched, arboriform skeletal 1.5-6 mm diameter; frequently branched.

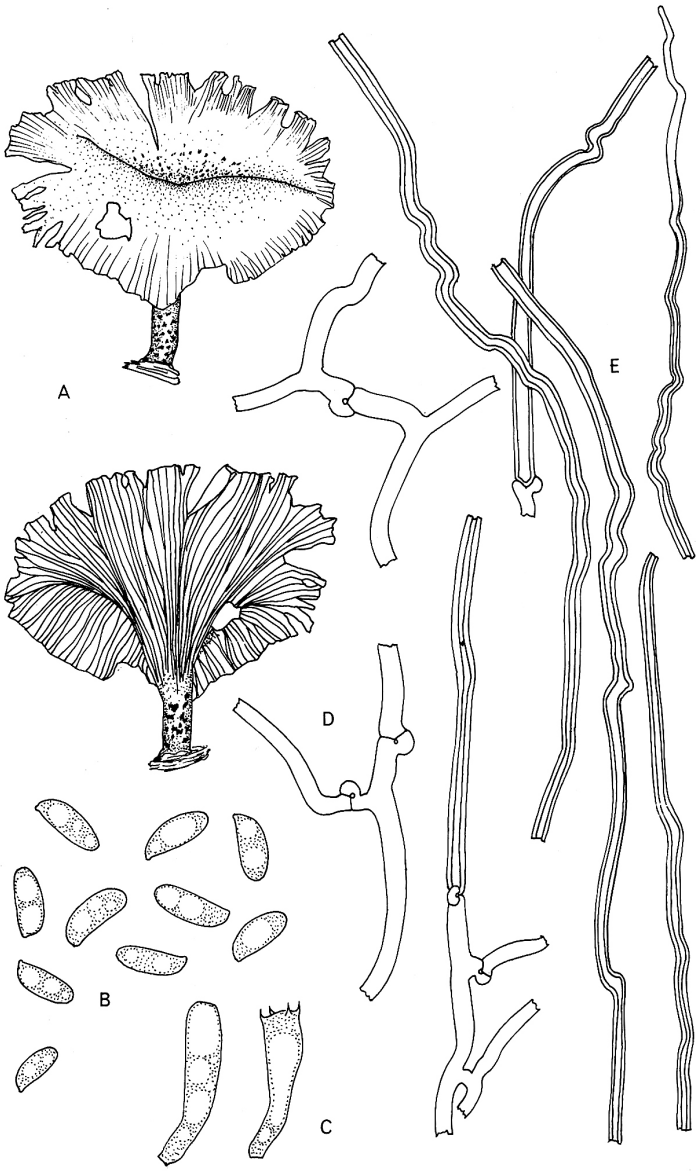

Fig. 26. *Lentinus patulus* (lectotype), A) Basidiocarp, B) Spores, C) Basidia, D) Generative hyphae, E) Skeletal hyphae. Del. D. Pegler.

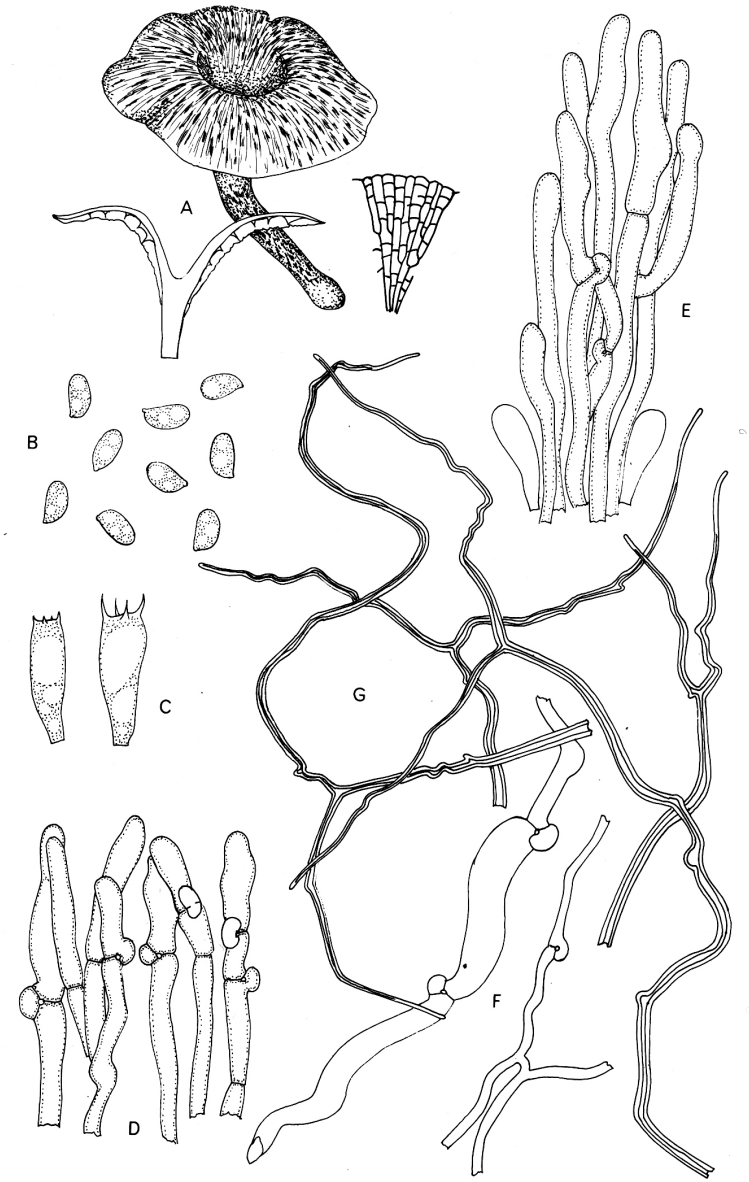

Fig. 27. *Lentinus retinervus* (Martinique, holotype), A) Basidiocarp, B) Spores, C) Basidia, D) Cheilocystidia, E) Hyphal peg, F) Generative hyphae, G) Binding hyphae. Del. D. Pegler

Basidiospores, 2.5-3.5 mm x 5.5-6.5 mm, ellipsoid-cylindrical,
Distribution, Lesser Antilles in the Caribbean.
Remarks. This species is closely related to *L. glabratus* with inflated generative hyphae and a subporoid hymenium. However, they are separated by spore size and the squamules which cover the pileus and stipe in *L. retinervus*.

Lentinus scleropus (Pers.) Fr.,
Syn. Gen. Lentinus p. 10, 1836 – *Agaricus scleropus* Pers., in Gaudichaud, Voyage Uranus & Physic. p. 167, 1827.
Basidiocarp eccentric to centrally stipitate, pileus more or less circular 4-7 cm in diameter, first finely tomentose, finally glabrous, white when fresh, becoming cinnamon brown to milky coffee when dry; margin ciliate, first slightly to strongly involute then straight and split, lamellae strongly decurrent, white when fresh, becoming darker and brown upon aging; moderately distant, edges entire to finely lacerate, hyphal pegs absent.
Stipe 2-5 cm long, cream coloured, tomentose to rugulose.
Hyphal system dimitic, generative hyphae with clamps, 2-6 µm wide, not inflated and thin-walled, binding hyphae 2-11 µm wide, often very thick-walled with up to 3 µm thick walls, and with a narrow continuous lumen, moderately to frequently branched**.**
Basidiospores 6-9 x 2.3-2.5 µm, narrowly cylindrical.
Cheilocystidia 22-34 x 3-6 µm, narrow, sinuous clavate often slightly constricted.
Substrate. Dead hardwoods.
Distribution, Central America, South America, Caribbean.
Remarks. The colour change of the basidiocarp is a distinct characteristic for *L. scleropus* as the white fresh basidiocarps become cinnamon brown when dry. The absence of hyphal pegs and the almost entire lamella edge will also aid in the identification.

Lentinus striatulus Lev.,
Ann. Sci. Nat. Bot. Ser 3, vol 5:120, 1846.
Basidiocarp stipitate, often in clusters, infundibuliform with a diameter up 9 cm; cream white when fresh, becoming ochraceous to off white; first velutinate to finely tomentose but soon becoming glabrous, margin ciliate and slightly striate and inflexed, lamellae strongly decurrent ochraceous, cream white when fresh; moderately distant edges entire to finely lacerate, hyphal pegs absent or scattered, stipe relatively short, 1-3 cm x 4-11 mm cylindrical or tapering and solid, white and smooth in the upper part, often with darker colours and a few squamules towards the base..
Hyphal system first monomitic then dimitic, generative hyphae 2-6 mm wide, sparsely branched and the whole basidiocarp consists of these hyphae until the binding hyphae, 2-8 mm wide, develop at a late stage in the development.
Basidiospores, 2-3 x 7-8 mm; long, cylindrical.
Distribution, Central America, South America, Caribbean.
Remarks. This species looks like a *Pleurotus* in the forest with its soft and almost fleshy consistency and microscopically with the late development of the vegetative hyphae. Frequently it occurs in clusters with a small and reduced stipe. Undoubtedly it is closely related to *L. scleropus* which however has larger and more robust basidiocarps and broader spores and a more persistently velutinate to fine tomentose pileus.

Lentinus strigellus Berk., Fig. 28
Journ. Linn. Soc. Bot. 10:302, 1868.
Basidiocarp stipitate, pileus 2-6 cm, wide, applanate to subinfundibuliform to almost spatulate, first pinkish or purplish then pale ochraceous to brown, finely striate, glabrous except for minute, scattered dark brown squamules, margin first ciliate to strigose, but soon glabrous, involute often rimose and uneven, lamellae moderately to deeply decurrent ochraceous to buff, slightly paler than pileus surface; moderately crowded and of three lengths.
Stipe 0.5-1.5 cm long, central or eccentric, solid, cylindrical velutinate tomentose by a continuous cover of short, erect hairs; pale to hazel brown, darker than the lamellae.
Hyphal system dimitic, generative hyphae, not inflated, 2-4 mm wide, frequently branched, skeletal hyphae 2-4 mm wide, sinuous, thick-walled with a narrow continuous lumen, up to 1000 µm long, both terminal and intercalary.
Cystidia of two kinds:
Cheilocystidia 22-28 x 7-9 µm, present on lamellae edges, clavate with a slightly tapering apex, smooth, thin walled and obtuse.
Gloeocystidia 35-70 x 6-14 µm, numerous on the lamellae edges, scattered in the hymenium, cylindrical fusoid, first thin-walled then becoming more thick walled coming close to metuloid cystidia, sinuous and slight constricted, hyaline or yellowish, refractive, projecting up to 35 µm above the basidia.
Basidiospores 5-7 x 3-4 µm, ellipsoid.
Substrate. Dead hardwoods.
Distribution. Widespread from Mexico to northern Argentina.
Remarks. Rather common and previously confused with *L. strigosus*, but separated by being glabrous on the pileus with a few scattered squamules and presence of gloeocystidia.
Distribution, South East Asia, Australia, Australia, Africa, Venezuela
Remarks. The numerous gloeocystidia are characteristic for this species.

Lentinus strigosus (Schw.) Fr., Fig. 29
Syst. Orb. Vegetab. 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 by up to 2 mm long hairs, and more strigose towards the margin, no zonation or radially 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 and 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 mm wide, skeletal hyphae almost unbranched, thick-walled, with a narrow lumen, both intercalary and terminally developed, up to 1200 µm long.
Cystidia. Of two kinds:

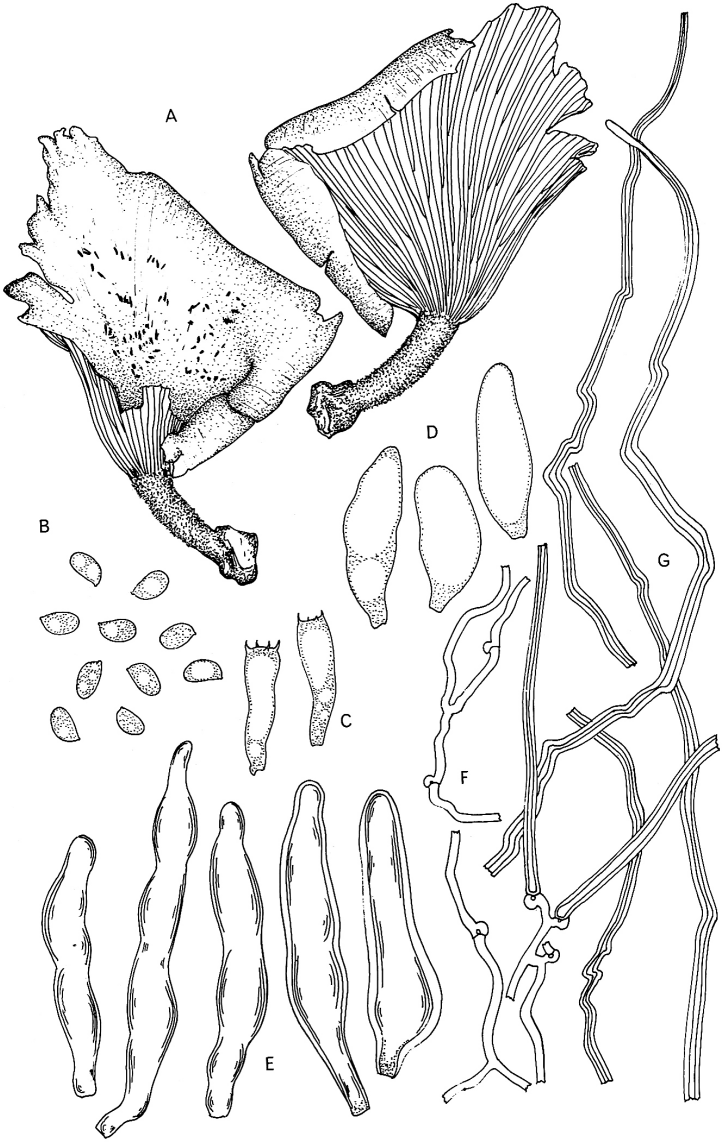

Fig. 28. *Lentinus strigellus* A) Basidiocarp (type of *L. subglaber*, a taxonomic synonym), B) Spores, C) Basidia, D) Cheilocystidia, E) Gloeocystidia, F) Generative hyphae, G) Skeletal hyphae. Del. D. Pegler.

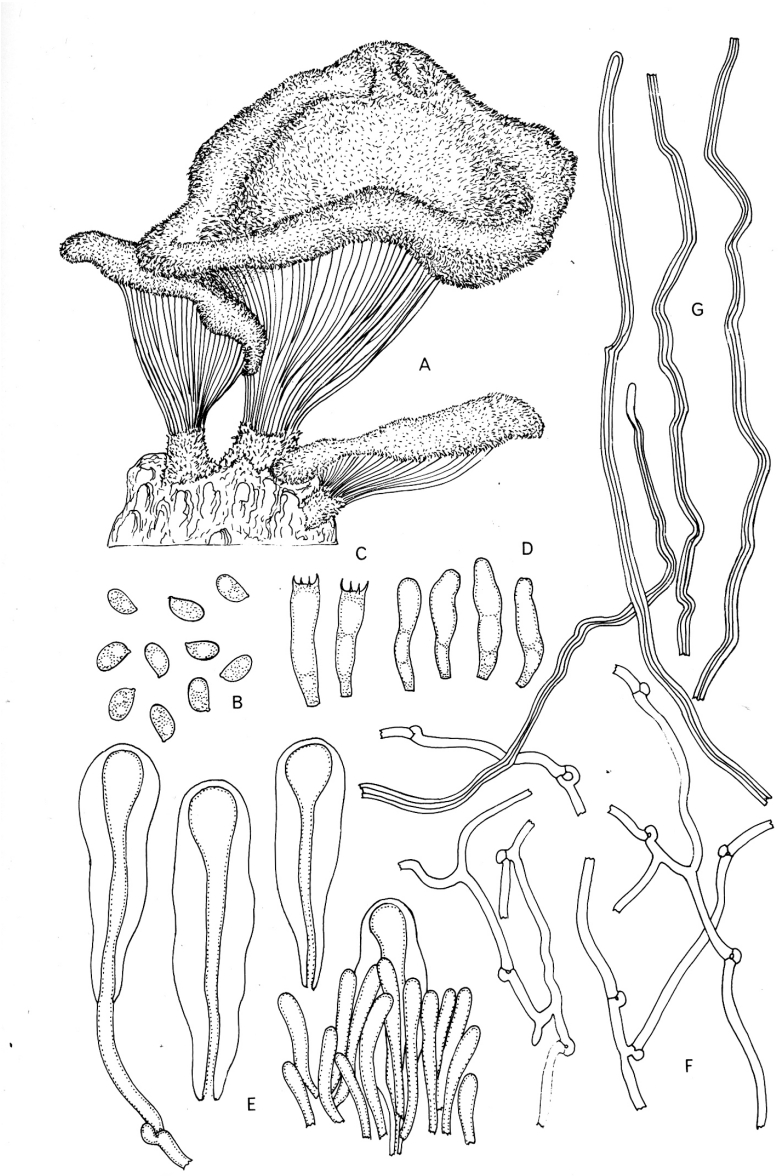

Fig. 29. *Lentinus strigosus* A) Basidiocarp, B) Spores, C) Basidia, D) Cheilocystidia, E) Metuloid cystidia, F) Generative hyphae, G) Skeletal hyphae. Del. D. Pegler.

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 mm x 5.5-6.5 mm, ellipsoid-cylindrical.
Distribution, Lesser Antilles in the Caribbean.
Remarks. The densely hirsute to strigose pileus in light colours, often with a pink tint when fresh, characterize this species.

Lentinus sulcatus Berk., Fig. 30
Hooker J. Bot. 4:301, 1845.
Basidiocarp circular, 1-5 cm in diameter; fleshy, campanulate and rounded conical, surface reddish to pure brown, often darker towards the centre, drying paler, typically covered with more or less concentrically arranged triangular squamules, sometimes indistinct and finally becoming glabrous, margin incurved, veined and sulcate with distinct furrows, lamellae sinuate and attached to the stipe
white to yellowish, ventricose, 2-3 mm wide, thick, moderately distant and with two different lengths, edge slightly dentate, hyphal pegs absent.
Stipe 0.5-3 cm long, tapering towards the base, whitish to pale brownish with small brown squamules in the lower part, solid.
Hyphal system dimitic, generative hyphae thin-walled with large clamps, 2-4 mm wide, frequently branched, binding hyphae 3-7 mm wide, thick-walled, but with a distinct lumen, moderately branched.
Cystidia 65-110 x 4-10 µm, present both on lamellae edges and in the hymenial surface as gloeocystidia, obtuse, smooth, thin-walled and then with a refractive content or more or less thick-walled arising from skeletal ligative hyphae
Basidiospores 10-15 x 4.5-6 5 mm, oblong ellipsoid to cylindrical with a distinct apiculus.
Distribution. Known only from Nicaragua in the Neotropical area.
Remarks. The conical pileus with brown squamules and a crenulated margin are important characteristics for field identification. The long spores and the cystidia make it also rather characteristic microscopically.

Lentinus swartzii Berk., Fig. 31
Hooker J. Bot. 2:632, 1843.
Basidiocarp stipitate, more or less circular with a diameter 2-5 cm, infundibuliform, pileus squamulose with bundles of hair glued together at partly to the surface, more hairy and strigose towards margin, margin ciliate, ochraceous to dark brown, almost black towards centre, lamellae, slightly decurrent, brown to grey; lamella edge denticulate, hyphal pegs, scattered to relatively abundant.
Stipe 1.5-3.5 cm high, pale grey to brown, at first covered by a greyish tomentum, soon glabrescent; expanding towards the lamellae.
Hyphal system dimitic, generative hyphae with clamps, 1-4 µm wide, arboriform skeletal arboriform, thick walled, frequently branched 2.5-5 (11) mm wide.
Basidiospores, 6-8 mm x 2.2-3 mm, narrow cylindrical.
Distribution, Central America, South America, Caribbean.

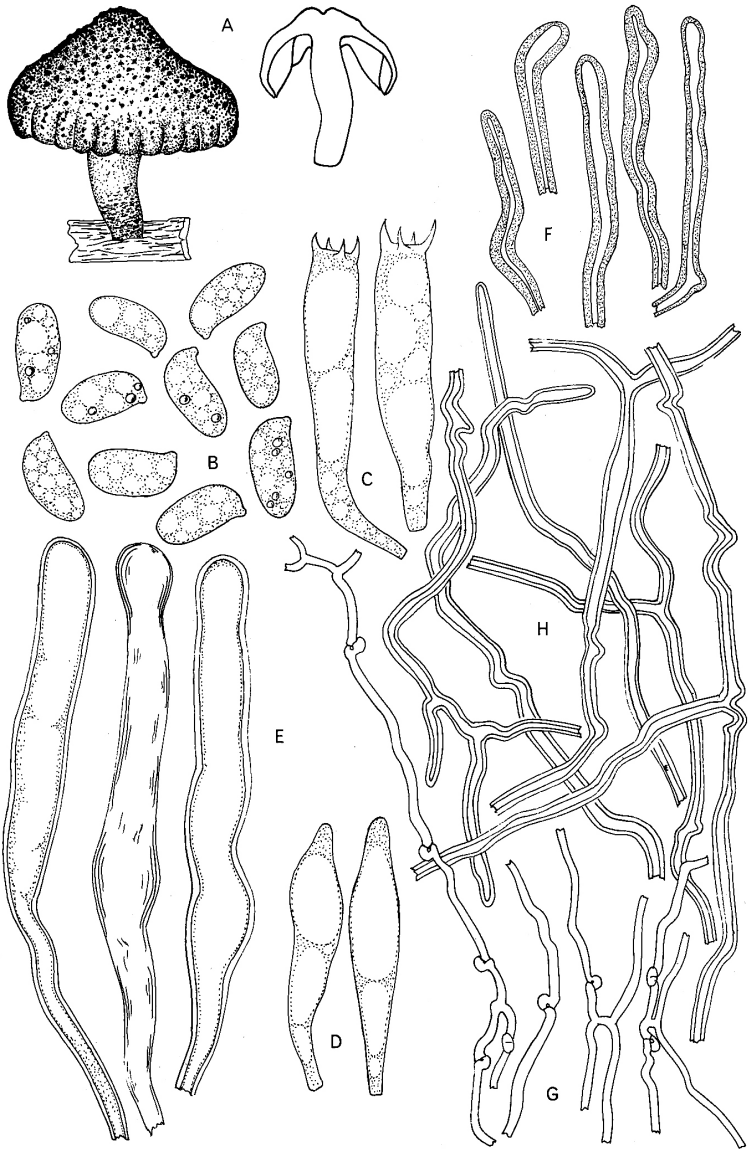

Fig. 30 *Lentinus sulcatus* A) Basidiocarp, (type of *L. fulvidus*, a taxonomic synonym), B) Spores, C) Basidia, D) Cystidiols, E) Cystidia, F) Projecting hyphae from pileus) G) Generative hyphae, H) Binding hyphae. Del. D. Pegler.

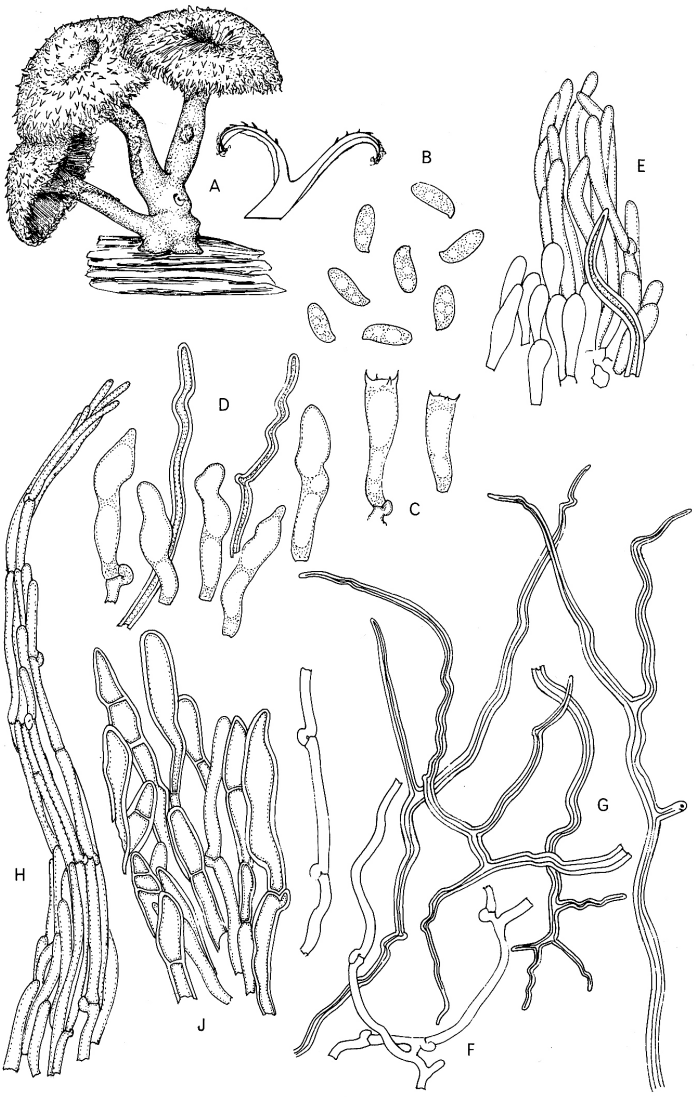

Fig. 31. *Lentinus swartzii* A) Basidiocarp (Type of *L. nictotianus*, a taxonomic synonym) B) Spores, C) Basidia, D) Cheilocystidia, E) Hyphal peg, F) Generative hyphae, G) Binding hyphae, H) Hairs from pileus margin, J) Squamule from centre of pileus. Del. D. Pegler.

Remarks. *L. swartzii* tends to be more robust than *L. bertieri* and especially *L. crinitus*. Squamules that cover the pileus are an important character distinguishing *L. swartzii* from related species. Hyphal pegs are generally less abundant in *L. swartzii* than in *L. crinitus* and *L. bertieri*. See comments given on *L. crinitus*.

Lentinus tephroleucus Mont., Fig. 32
Tijds. Wis. Nat. Wetens. Amsterdam 4:204, 1851.
Basidiocarp stipitate, pileus more or less circular, 1-4 cm wide, umblicate to deeply infundibuliform, pileus shortly hispid by being completely covered with fascicles of glued hairs with transitions to squamules, more squamulose towards the margin, becoming slowly glabrous in the centre, yellowish to cinnamon brown margin short ciliate, lamellae decurrent, cream coloured, edge entire, moderately crowded and of two lengths, hyphal pegs absent.
Stipe 1-4 cm x 1-4 mm, slender flexuous, dark fuscous brown becoming slightly paler with age, hispid, to velutinate covered with short hairs consisting of glued hairs.
Hyphal system dimitic, generative hyphae with clamps, 2-4 µm wide, skeletal hyphae thick walled, but with a distinct narrow lumen, 2.5-4mm wide.
Cheilocystidia 14-25 x 23-3.5 µm, sinuous cylindrical to fusoid thin walled and soon collapsing.
Metuloid cystidia 22-28 x 4-6 µm, scattered in the hymenium, fusoid, thick walled, hyaline to pale brown
Basidiospores, 6-8 x 2.7-4 mm, oblong cylindrical.
Substrate. Different dead hardwoods.
Distribution, Known from Mexico to southern Brazil.
Remarks. The species is undoubtedly related to *L. velutinus*, but is recognized by its small size and lack of a sclerotium. The stipe is also considerably shorter than in *L. velutinus* and besides by the more distantly spaced and thick lamellae.

Lentinus velutinus Fr., Fig. 33
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 by 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 sclerified wood impregnated with hyphae, pale greyish brown and smooth.
Hyphal system dimitic, generative hyphae, not inflated, 2-4 mm wide, frequently branched, skeletal hyphae 2-4 mm wide, sinuous, thick-walled with a narrow continuous lumen, up to 1000 µm long, both terminal and intercalary.

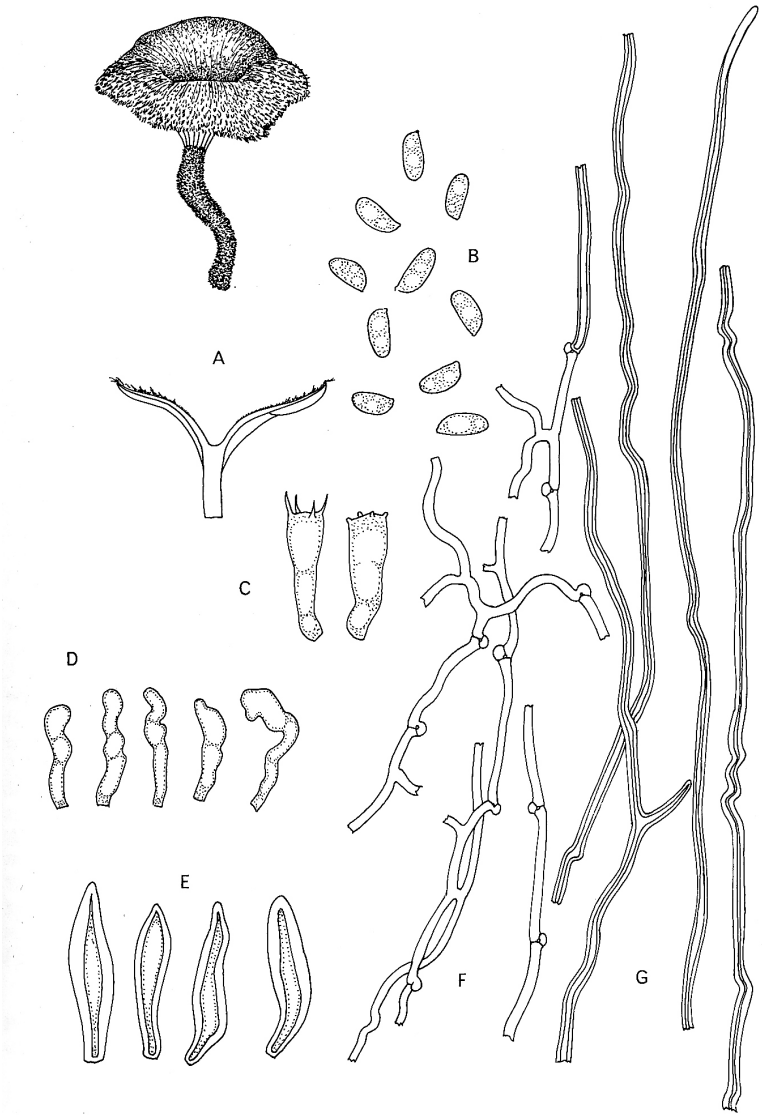

Fig. 32. *Lentinus tephroleucus* A) Basidiocarp (from Martinique), B) Spores, C) Basidia, D) Cheilocystidia, E) Metuloid cystidia, F) Generative hyphae, G) Skeletal hyphae. Del. D. Pegler.

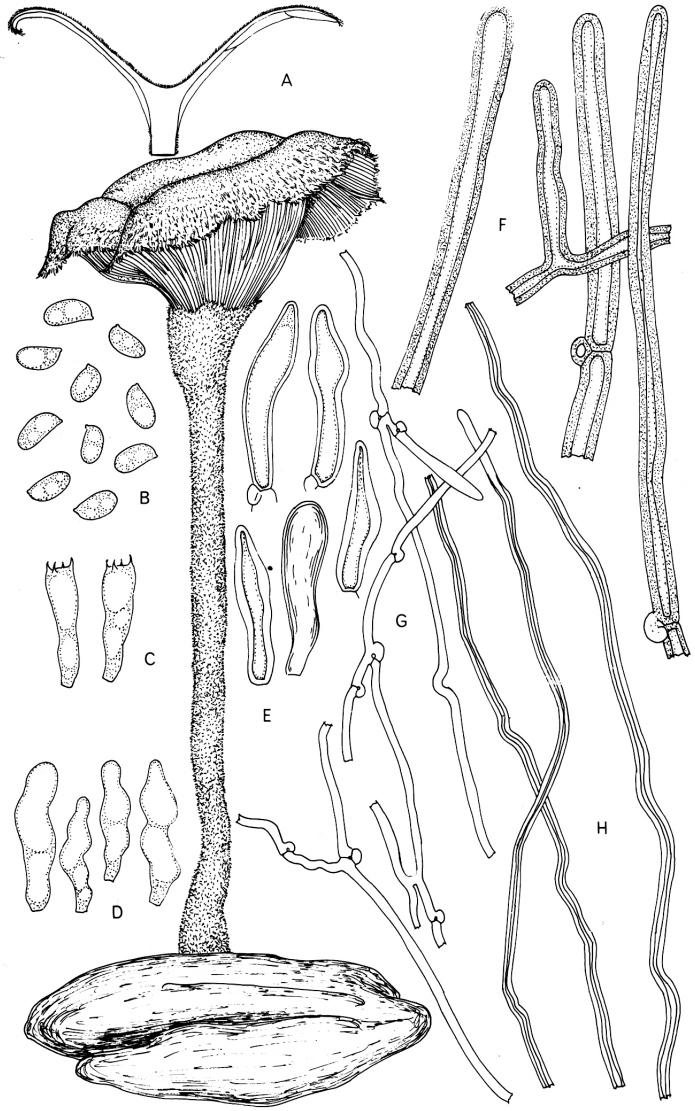

Fig. 33. *Lentinus velutinus* A) Basidiocarp (Zaire), B) Spores, C) Basidia, D) Cheilocystidia, E) Metuloid cystidia, F) Hyphae from pileus surface, G) Generative hyphae, H) Skeletal hyphae. Del. D. Pegler.

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 content, later thick walled, hyaline to brown and only slightly projecting above the basidia.
Basidiospores 5-7 x 3-4 µm, ellipsoid.
Distribution. Common and widespread from Mexico to northern Argentina.
Remarks. The species is recognized by the long slender brown velutinate stipe and equally coloured and velutinate pileus. It is one of the most common *Lentinus* species and apparently the only one which is pantropical in its distribution.

Lindtneria Pilát,

Stud. Bot. Cech. 1:72, 1938.
Basidiocarps annual, resupinate, merulioid to poroid with shallow and irregular tubes;, hyphal system monomitic; hyphae with simple septa or clamps; cystidia present or absent; basidia clavate, with granular contents; spores strongly ornamented, globose to ellipsoid, on dead wood causing a white rot; widespread genus. One species is known in Central America.
Type species: *Poria trachyspora* Bourd. & Galzin.
Remarks. The genus belongs in Corticiaceae s.lato with its irregularly poroid hymenophore and strongly ornamented spores. The latter makes the genus distinct and easy to recognize in the microscope.

Lindtneria trachyspora (Bourd. & Galzin) Pilát,
loc. cit. - *Poria trachyspora* Bourd. & Galzin, Bull. Soc. Mycol. Fr. 41:219, 1925.
Basidiocarps resupinate, effused but mostly rather small, loosely attached, thin, soft, almost cottony especially when young and in the living state, brittle when dried, when alive yellow, darkening with age and on drying to dull ochraceous, reddish, violaceous or brownish; hymenophore at first reticulate, then poroid with large pores (0.5-1 mm wide) and thin, low dissepiments; subiculum very thin.
Hyphal system monomitic; generative hyphae hyaline, thin-walled mostly 3-5 µm in diam, often widened to 10 µm or more at branches, often branched at more or less right angles, mostly without clamps but scattered clamps occur.
Cystidia none, but some hyphal ends in the hymenium produce a bulb of excreted substance and may be mistaken for cystidial organs.
Basidia 25-36 x 9-12 µm, rather wide and large, 4-sterigmate, often constricted, protoplasm granular and yellow in Melzer's reagent; in cotton-blue the granulation appears to consist of globules of varying sizes, many small or few larger ones; some basidia with only a single large globule.
Basidiospores globose, smooth and thin-walled at first, when mature with thickened walls and crests, 6-8 µm in diam excluding the spines, which reach a length of 1-2 µm, often with a central oil drop in the protoplasm.
Substrata. On well-rotted hardwoods and conifers.
Distribution. A rare species, wide spread in Europe and North America and found in Costa Rica

Remarks. The crested globose spores and the yellow basidiocarps drying brownish with pinkish shades are diagnostic characters for this species.

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 1-5 per mm or larger, context thin. Hyphal system monomitic-dimitic generative hyphae thin-walled and simple-septate, in the trama and context up to 20 µm wide, binding hyphae or strongly branched thick-walled generative hyphae dominating in the trama and context, inamyloid to weakly amyloid, also of large diameter, spores hyaline to pale yellow, smooth, thin to weakly thick-walled, subglobose to ellipsoid, non-amyloid, growing on wood with a white rot, one species with a sclerotium.
Type species: *Polyporus dictyoporus* Cooke. Illustrated next page.
Remarks. The characteristic feature of the genus is the very wide and simple septate generative hyphae and the binding-like hyphae with lateral swellings and short side branches with a variable amyloid reaction. The hyphal system is somewhat similar to that of *Laetiporus sulphureus* which, however, has binding hyphae and coloured basidiocarps. *Wolfiporia* is a related genus, separated mainly by having skeletal hyphae.

Key to species

1. Basidiocarp resupinate ..... **M. cocos**
1. Basidiocarp pileate ..... **M. pileata**

Macrohyporia cocos (Schwein.) Johan. & Ryvarden,
op. cit. - *Sclerotium cocos* Schwein., Naturf. Ges. Leipzig Schr. 1:56, 1822.
Basidiocarps annual, resupinate and effused, up to 10 mm thick, margin white to cork-coloured, pore surface white when fresh, pale ochraceous or wood-coloured when dry, flexible and coriaceous when dry, 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 thin-walled, 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 (mount in Melzer's as the hyphae have a tendency to swell in KOH), 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, thick-walled to almost solid, up to 15 µm in parts, swell in KOH and the lumen is then obliterated.
Cystidia none.
Basidia clavate, up to 30 µm long with 4 sterigmata.
Basidiospores 6-10 x 2.5-3.5 µm, cylindrical to slightly fusoid, thin-walled, hyaline and non-amyloid.

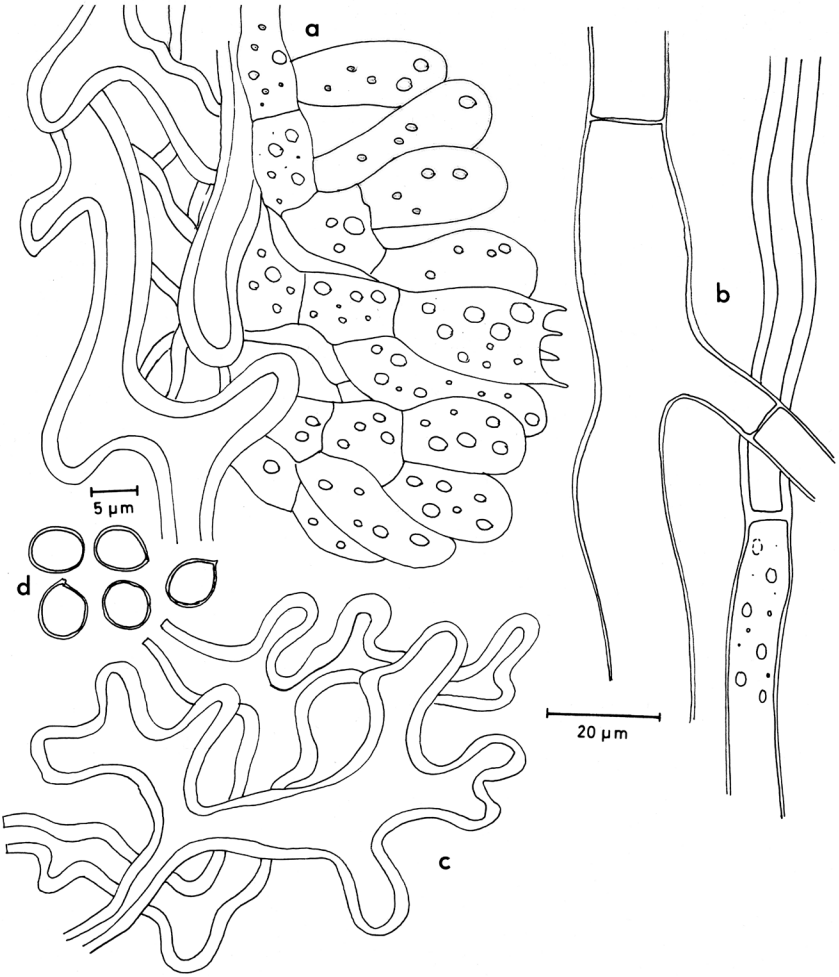

Fig. 34. *Macrohyporia dictyopora* a) part of hymenium, b) generative hyphae, c) binding hyphae, d) spores. From the lectotype.

Distribution. North and Central America, Japan and Malawi.
Remarks. Microscopically the species is easy to recognize because of the very wide generative hyphae and thick-walled and wide vegetative hyphae. The spores are distinctive if observed and some of them are characteristically fusoid with tapering ends.

Macrohyphoria pileata Ryvarden & Núñez,
Mycotaxon 71:393, 1999.
Basidiocarps annual, pileate, nodulose with sloping pileus, up to 3 cm from base to margin, up to 5 cm wide and 4 cm thick at the base, upper surface glabrous, dull, concentrically sulcate in shallow zones, slightly undulating radially, dark brown with a distinct black crust, reminding about that seen in *Ganoderma australe*, pore surface pale straw-coloured, pores angular, close to the margin radially elongated 1-3 per mm, tubes concolorous, up to 4 cm deep, context dense and white, up to 4 mm deep.
Hyphal system monomitic; generative hyphae with simple septa, hyaline, in the trama, 2-7 µm wide, in the context to 18 µm wide with thick walls, negative in Melzer´s reagent.
Cystidia absent.
Basidia 18-25 x 5-6 µm, clavate, 4-sterigmate, with a basal clamp.
Basidiospores 5-6 x 4-4.5 µm, ellipsoid to subglobose.
Distribution. Known only from the type locality.
Remarks. This species is highly characteristic by its large pores, dark brown to black, strongly indurate cuticle, both in structure and appearance reminding one strongly about the pileus of *Ganoderma australe* (Fr.) Pat and similar species.

Melanoporella Murrill,

North Am. Fl. 9:14, 1907.
Basidiocarps resupinate, perennial, purplish black to fuliginous, pores small, hyphal system dimitic, generative hyphae without clamps, skeletal hyphae pale to dark brown, cystidia none, spores ellipsoid, smooth and IKI-negative, causing white rot. Monotypic tropical genus.
Type species: *Melanoporella carbonaceus* (Berk. & M. A. Curtis) Murrill.
Remarks. It may be confused with *Melanoporia nigra* (Berk.) Murrill, which however has clamped hyphae, cylindrical spores and causes brown rot.

Melanoporella carbonaceus (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, thin-walled, 1-4 µm wide, often difficult to observe; skeletal hyphae dominating, thick-walled to solid, pale to dark brown, 3-7 µm wide.

Cystidia and other sterile hymenial elements absent.
Basidia 20-25 x 4-6 µm clavate and with a simple septum at the base.
Basidiospores 5.5-7.5 x 2.5-3.5 µm cylindrical, smooth, hyaline, IKI-.
Distribution. Tropical America, specimens have been seen from Cuba (type locality) and Brazil, in Africa from Nigeria and Sierra Leone.
Remarks. The resupinate, perennial, purplish brown basidiocarp with fairly large irregular pores will be diagnostic. *Nigrofomes* which occasionally also occurs as resupinate, has almost invisible pores. *Melanoporia nigra* has similar colours, but has clamps at the septa, causes brown rot and is mostly confined to *Quercus* and *Castanea*.

Melanoporia Murrill,

North Am. Fl. 9:14, 1907.
Basidiocarps resupinate, perennial, purplish black to fuliginous, pores small, hyphal system dimitic, generative hyphae with clamps, skeletal hyphae pale to dark brown, cystidia none, spores ellipsoid, smooth and IKI-negative, causing a brown rot. Monotypic American genus.
Type species: *Melanoporia nigra* (Berk.) Murrill.
Remarks. The type species may be confused with *Melanoporiella carbonacea* (Berk. & Curt.) Murrill, which however has simple septate hyphae and cylindrical spores.

Melanoporia nigra (Berk.) Murrill,
op. cit. - *Polyporus niger* Berk., Lond. J. Bot. 4:304:1845.
Basidiocarps resupinate, perennial, effused, purplish brown to dark fuliginous brown, woody, up to 2 cm thick; margin dark brown, narrow; pore surface dark umber to purplish brown, pores round, 5-6 (8) per mm; tubes concolorous with pore surface but in actively growing specimens, the hymenium along the tubes paler than the trama, the tubes normally distinctly stratified in narrow zones; context purplish black, fibrous and with a black zone next to the substrate at least in the central parts of the basidiocarp.
Hyphal system dimitic; subicular generative hyphae with clamps, hyaline to pale yellow, thin-walled, 1-4 µm wide, often difficult to observe; subicular skeletal hyphae thick-walled to solid, strongly dextrinoid, pale to dark snuff brown, 3-10 µm wide; tramal hyphae similar, skeletal hyphae 2-4.5 µm in diam.
Cystidia and other sterile hymenial elements absent.
Basidia 10-15 x 4-6 µm, clavate, and with a clamp at the base.
Basidiospores 3-4.5 x 2-3 µm, ellipsoid, IKI-.
Substrata. On hardwoods, especially oak and chestnut
Distribution. Central and Eastern United States and probably south to Central America where oak is growing.
Remarks. The resupinate, perennial, purplish brown basidiocarp with small pores will usually be sufficient to separate it from *Melanoporella carbonaceus* with similar coloured basidiocarps, but which has irregular pores, i.e. 1-3 per mm.

Meripilus P. Karst.,

Bidrag Kännedom Finlands Natur Folk 37: 33, 1882.
Basidiocarps annual, large, pileate, composed of numerous imbricate tongue- to fan shaped or spatulate pilei from a common short stipe or base; pileus brown with radial lines, smooth and mostly with concentric zones; pore surface white, darkening when touched or dried, pores small, dissepiments entire; tubes white and short; context white and fibrous; hyphal system monomitic; generative hyphae thin- to thick walled, smooth, hyaline, simple-septate; cystidia none; spores subglobose, thin-walled, smooth, hyaline, negative in Melzer's reagent. Growing on hardwoods, often from buried roots or close to stumps, causes a white rot. Cosmopolitan with two species in tropical America
Type species: Polyporus giganteus Fr.
Remarks. Easily recognized in the field by the large size and numerous fanshaped to spatulate brownish pilei arising from a common base or short stipe. It seems to be related to *Grifola*, the septation of the generative hyphae being the basic character separating the two genera, both of which have large, compound basidiocarps.

Meripilus tropicalis Guzman & E. P. Silva,
Bol. Soc. Mex. Mic. 9:53, 1975.
Basidiocarps annual, large and pileate with numerous imbricate, fan shaped to spatulate pilei from a common base or stem, single pilei 10-30 cm wide and long with tapering base, up to 2 cm thick, the basidiocarp as a whole up to 30 cm wide and long, fleshy when fresh, pilei hard and brittle when dry; pilei tomentose, rugulose , reddish brown to chocolate buff, margin thin, entire to lobed and wavy, often deflexed when dry; stipe not well formed, but tom 17 cm in the type and of same colour as the pileus, pore surface wood-coloured becoming pale reddish brown when dry, becoming darker when touched in fresh condition, pores 1-3 per mm, round to slightly irregular and elongated radially to polygon of shape, tube layer up to 8 mm thick, concolorous with the pore surface; context whitish to cork-coloured, paler than the tubes, distinctly fibrous and up to 1.5 cm thick near the bases of the individual pilei.
Hyphal system monomitic; generative hyphae with simple septa, in the trama more or less parallel, thin-walled and with numerous septa, 3-5 µm wide, Gloeopleurous hyphae present reddish yellow in KOH, sinuous, irregular of width, 3-8 µm in the trama, up to 18 µm in the context.
Gloeocystidia yellowish, present among the basidia, up to 25 µm long.
Basidia 25-33 x 7-9 µm, clavate, tetrasterigmatic, simple-septate at the base.
Basidiospores 6-9 x 5-7 µm, broadly ellipsoid to subglobose, hyaline, smooth, thin-walled, negative in Melzer's reagent.
Substrata. The type was found on roots of *Ficus* sp.
Distribution. Known only from the type locality in Vera Cruz, Mexico.
Remarks. This species should be easy to recognize in the field because of its multipileate large stipitate basidiocarp in brownish colours. More collections are desirable to verify its morphological variation. This description is taken the original publication.

Microporellus Murrill,

Bull. Torrey Bot. Club 32:483, 1905.

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, walls swelling or unchanged in KOH; ventricose cystidia absent or rare, basidiospores small, subglobose to tear-drop shaped, hyaline, thin-walled, smooth or finely asperulate in one species, 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. It 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 find.

Excluded species:
Microporellus setigerus Corner = *Amauroderma sp*.
Microporellus subincarnatus Corner, = *Perenniporia stipitata*

Key to species

1. Pores 6-8 per mm **2**
1. Pores 1-3 per mm or larger **3**

2. Basidiocarp stipitate, spores drop shaped, 4.5-6 x 3.5-4.5 µm ..... **M. dealbatus**
2. Basidiocarp sessile, spores globose, 4.0-5.0- x 3.8-4.5 µm ..... **M. brasilensis**

3. Cystidia present, generative hyphae with clamps, spores 8-10 µm long... M**. clemensiae**
3. Cystidia absent, generative hyphae with simple septa, spores 4.5-5.5 µm long .... **M. iguazuensis**

Microporellus dealbatus (Berk. & Curt.) Murrill,
Bull. Torrey Bot. Cl. 32:483, 1905. - *Polyporus dealbatus* Berk. & M. A. Curtis Ann. Mag. Nat. Hist. ser. 2, 12:432, 1853.

Basidiocarps annual, centrally, more rarely laterally stipitate, tough when fresh, hard when dry, pileus circular to reniform, 2-10 cm broad, often somewhat depressed in the centre, upper surface velutinate to unevenly tomentose, becoming glabrous with age, often strongly zonate, isabelline, grey to pale brown with age; stipe 3-7 cm long, 3-10 mm in diameter, concolorous with the pileus surface; pore surface first white, then cream to ochraceous often wrinkled when dry, pores minute, 8-10 per mm; tubes concolorous with pore surface, up to 3 mm long; context white and dense both in pileus and stipe, up to 2 mm thick in pileus.

Hyphal system dimitic; generative hyphae with clamps, 2-4 µm wide; skeletal hyphae dextrinoid, straight, thick-walled and with a distinct lumen, 3-7 µm wide in the context, narrower in the trama.
Cystidia rare, mostly in the dissepiments, ventricose with slightly thickened walls, apically encrusted, easy to overlook and difficult to find in some specimens.
Basidia 15-18 x 6-8 µm, clavate with a clamp at the base.
Basidiospores 4.5-6 x 3.5-4.5 µm, ellipsoid to drop shaped with a distinct apiculus, hyaline, thin-walled, IKI- or slightly dextrinoid.
Substrata. On the ground from buried roots of hardwood.
Distribution. From southern United States to Central and South America.
Remarks. The centrally stipitate basidiocarp with the minute pores, the dimitic hyphal system with dextrinoid skeletal hyphae, and the drop shaped spores are diagnostic characters. The cystidia are often difficult to find.

Microporellus brasilensis Ryvarden & Decock,
Czech Mycol. 54: 23, 2002.
Basidiocarp annual, pileate, sessile, with a reduced stipe-like base or stipitate, pileus solitary, (semicircular), dimidiate to spatulate, applanate, up to 70 mm long, 80 mm wide, 2-10 mm thick, smooth, slightly to coarsely tuberculate, slightly radially wrinkled, azonate, dull to silky, glabrous, whitish, pale greyish to greyish yellow, pale beige, pale greyish brown, to mouse grey, greyish brown discolouring to light brown to brown on aging, cinnamon, sunburn, cocoa brown, margin thin, sharp, slightly enrolled on dried specimen, even to lobed, white to greyish, or pale orange, greyish black to purple black on bruising, stipe lateral, up to 30-50 mm tall mm long, 6 mm thick, rather irregular, with hard corky consistency, mainly greyish, pale yellowish grey, pore surface whitish, pale creamy, pores round, even to irregular, 6-7(-8 per mm, , tube layer unique, with a hard corky consistency, a fibrous texture, and whitish to pale yellowish, 1-2.5 mm thick context homogeneous, with a hard corky consistency, a dense fibrous texture, silky, white (probably white when fresh), whitish, 1-3 mm thick.
Hyphal system dimitic, identical in the context and the trama of the tubes, generative hyphae hyaline, thin-walled, clamped, 1.8-2.8 µm, skeletal hyphae with a slightly to moderately thickened wall and a wide lumen, hyaline in KOH, strongly dextrinoid, 6 µm in the stipe, in the context enlarging from 3.5-4.0 µm at the basal septum to 4.7-8.0 µm in the main part, narrower in the trama.
Basidia 13.0-15.0 x 6.0-8.0 µm, clavate with a clamp the base.
Basidiospores 4.0-5.0-(5.2) x 3.8-4.5 µm, globose, subglobose to tear-shaped, with an apiculus, slightly thick-walled, with 0-1 large oil-drop, hyaline to faintly yellow, non- to faintly dextrinoid.
Cystidia 19-39 x 7.5-12.5 µm, variable in abundance between specimens, from very rare to abundant, fusoid to ventricose, the apex obtuse, sometimes slightly elongated, lightly to coarsely incrusted, evenly thick-walled, hyaline, non-dextrinoid.
Distribution. Known from two localities in Brazil**.**
Remarks. The small spores characterize this species.

Microporellus clemensiae (Murrill) Ryvarden,
Mycotaxon 23:171, 1985. - *Amauroderma clemensiae* Murrill, Bull. Torrey Bot. Cl. 35:408, 1908.
Basidiocarps annual, stipitate, solitary to caespitose, pileus up to 10 cm in diameter, circular, lobed and depressed in centre, up to 6 mm thick, coriaceous when fresh, hard an 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, upper surface first violet becoming pale brown to grey, azonate, irregularly wrinkled, pubescent; margin acute, deflexed on drying, slightly wavy or lobed, pore surface first white , pale violet and then creamish-brown, to greyish brown, even, darker than the pilear surface; pores rounded to angular, 200-375 µm diam, averaging (1-)2- 3 per mm; dissepiments 100-200 µm thick, entire, tubes not stratified, creamish in section, up to 4 mm deep, context cream-coloured, not darkening in KOH, homogenous, up to 2 mm thick.
Hyphal system dimitic; generative hyphae hyaline, thin- walled and with clamps, 3-8.5 µm diam; skeletal hyphae hyaline, thick-walled to almost solid, dextrinoid, 4-9 µm diam.
Cystidia 20-42 x 8.5-18 µm, abundant, ventricose, subhyaline, thick-walled, thickness more pronounced towards apex, some encrusted at apex.
Basidia not seen.
Basidiospores 8-10 x 5.5- 7 µm, hyaline, thin to slightly thick-walled, smooth, non-amyloid to weakly dextrinoid (very light brown in Melzer's reagent), ovoid to broadly ellipsoid, some uniguttulate.
Substrata. On the ground from buried roots.
Distribution. South Asia, Africa and Guiana (David & Rajchenberg 1985:304).
Remarks. The Guiana collection has smaller spores than normal, 6-7 x 5-5.5 µm and it may represent a new species. More comparative collections are needed to clarify its position in America.

Microporellus iguazuensis Rajchenb.,
Mycotaxon 28:111, 1987.
Basidiocarps annual, solitary or in fused clusters, laterally stipitate, pileus spatulate or flabelliform, slightly curled and funnel-shaped when dry, 2.5-5 x 1.5-4.5 cm wide and broad, pileus surface finely tomentose zonate, vinaceous buff, pale cinnamon to chest nut coloured in few zones, all zones with a lilac tint, stipe lateral, 3-4 x 0.3-0.5 cm, pale brown, pubescent to glabrous and longitudinally wrinkled when dry, pore surface cream to pale straw-coloured, pores round to angular, becoming daedaleoid to almost laminar towards the stipe, tubes decurrent on stipe, 1-2 per mm, up to 1 mm deep, context pale cream, up to 1 mm thick.
Hyphal system dimitic; generative hyphae simple septate, 2-5 µm wide, thin to thick-walled, skeletal hyphae 3-7.5 µm wide, swelling strongly in KOH to 10 µm wide, thick-walled and dextrinoid.
Cystidia and other sterile hymenial elements absent.
Basidia 23-35 x 8-9 µm, clavate, with 4 sterigmata and a simple septum at the base.
Basidiospores 7-9 x 5-6 µm broadly ellipsoid, hyaline and thin-walled, IKI -.
Substrata. On roots of *Ocotea indecora* (*Lauraceae*) and dead hardwoods,

Distribution. Known from Northern Argentine and southern Brazil.
Remarks. The flabelliform basidiocarp with large irregular pores and the simple septate generative hyphae make this a distinct species.

Murilloporus Ryvarden,

Mycotaxon 23:192, 1985.
Basidiocarps pileate, sessile, triangular in section, dimidiate with a constricted base, upper surface glabrous, reddish brown to chestnut at the base, pore surface white when fresh, ochraceous when dry, pores round to angular, tubes and context concolorous with pore surface. Hyphal system dimitic, generative hyphae with clamps, skeletal hyphae solid, strongly dextrinoid, basidiospores ornamented and non dextrinoid. Monotypic, Neotropical genus.
Type species: Trametes rutilantiformis Murrill.
Remarks. The genus is unique by its combination of dextrinoid skeletal hyphae and ornamented spores without reaction in Melzer´s reagent. The closest relative is undoubtedly *Wrightoporia* with which it shares dextrinoid skeletal hyphae and ornamented spores, but where the latter are amyloid in Melzer´s reagent. *Heterobasidion* is also a related genus with its finely amyloid and asperulate basidiospores, but which has simple septate generative hyphae. The relationship between these genera has to be solved with DNA sequencing.

Murrilloporus rutilantiformis (Murrill) Ryvarden,
op. cit. - *Trametes rutilantiformis* Murrill, Bull. New York. Bot. Garden 8:147, 1912.
Basidiocarps annual, sessile, dimidiate with contracted base, triquetrous in section, 3 x 4 x 1 cm, tough, but light of weight, upper surface glabrous, slightly sulcate and with some scattered tubercles or warts, reddish brown to chestnut at base and with a thin cuticle in section, pore surface white to pale pinkish when fresh, ochraceous to wood- coloured when dry, pores round to angular, thin-walled, 5-6 per mm, some larger and in places up to 3 per mm deep, margin as pores surface, but becoming pale brown in older specimens, tubes and context as pore surfaces, tubes to 8 mm deep, context homogenous, slightly fibrous and 4 mm thick at base.
Hyphal system dimitic; generative hyphae with clamps, 2-4 µm wide, skeletal hyphae thick-walled, 3-6 µm wide, dominating in basidiocarp, unbranched or dichotomously branched, in a few places even more branched and reminding about hyphae of the *Bovista*-type, hyaline and dextrinoid.
Cystidia and **basidia** not seen.
Basidiospores 4.5-5.5 x 2.5-3 µm, ellipsoid, finely asperulate and negative in Melzer´s reagent.
Distribution. Known from Belize, Costa Rica, Venezuela and Brazil.
Remarks. The asperulate, non- amyloid and non-dextrinoid spores and the strongly dextrinoid skeletal hyphae make this a distinct genus in the Polyporaceae.

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 wood-coloured to pale cinnamon, thick to thin, punky to coriaceous; hyphal system dimitic, generative hyphae with clamps, skeletal hyphae thick-walled and dextrinoid, basidiospores navicular to oblong fusiform or amygdaliform, hyaline with slightly thickened walls, non-amyloid, and slightly dextrinoid to non-dextrinoid. 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 large, 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. Basidiocarp stipitate, on the ground ..... **N. terrestris**
1. Basidiocarp sessile to effused reflexed, on dead wood 2

2. Pore surface, tubes and context ochraceous to cinnamon, context duplex with a black zone, pores 2-3 per mm, basidiospores 5-6 µm wide ..... **N. sulcatus**
2. Pore surface, tubes and context pale brown to isabelline, context homogenous, pores 7-8 per mm, basidiospores 2-5 µm wide 3

3. Basidiospores 12-15 µm long, context up to 8 cm thick, punky and isabelline .... **N. floccosus**
3. Basidiospores 7-8 µm long, context up to 1 cm thick, dense, pale brown ....**N. perennis**

Navisporus floccosus (Bres.) Ryvarden,

Preliminary polypore 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 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 and then 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 of 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 with clamps, 2-4 µm wide, skeletal hyphae dominating in context and trama, straight to sinuous, 3-6 µm thick-walled, but with a distinct lumen, hyaline and dextrinoid.
Cystidia absent.
Basidia, 30-35 x 6-8 µm, clavate.
Basidiospores 12-15 x 5-7 µm, navicular to amygdaliform, yellowish to golden when mature, smooth, slightly thick-walled, slightly dextrinoid in masses.
Distribution. Africa, Asia and several countries in tropical America from Cuba to Brazil.
Remarks. This species is characteristic by its large basidiocarps becoming darker when bruised or dried and large navicular basidiospores.

Navisporus perennis Ryvarden et Iturriaga,
Mycologia 95: 1070, 2003.
Basidiocarps perennial, dense and hard, broadly attached; pileus semicircular, up to 80 mm long, 55 mm wide, and 25 - 40 mm thick at the base, down to 2-3 mm thick at the rounded margin thick, probably white when fresh, drying cream-colored, upper surface glabrous, smooth to tuberculate, creamy to grayish in a narrow zone near the margin (probably white when fresh), rapidly turning flesh-coloured, to pinkish brown light brown to dark brown near the base, with some dark reddish brown tint (dark rusty brown, pore surface creamy in a narrow sterile margin, brownish orange to pale brown, pores regular, round, 6- 8 / mm, dissepiments entire, smooth, 40-75 µm thick, context with hard, fibrous, silky in section, up to 12 mm thick at the base, creamy at the very margin, greyish orange to brown to dark brown near the crust, tube layer stratified, with up 4 layers, each one 3-6 mm thick, total up to 20 mm thick, crust horny, dark brown in section, up to 500 µm thick.
Hyphal system dimitic, generative hyphae with clamps, 2- 4 µm wide, hyaline, skeletal hyphae dominating in the context and the trama of the tubes, non-septate or occasionally with terminal secondary septa, thick-walled but often with a wide lumen, straight to occasionally knobbed, hyaline to yellowish, strongly dextrinoid, in the context progressively widening from 2.5—3.5 µm at the basal clamps up to 3.5 - 6.0) µm diam, the crust made up of tightly packed skeletal hyphae.
Basidia 12-15 x 5-6 µm, clavate, with 4-sterigmate.
Basidiospores 7.5 - 9.5 x 2.5- 3.8 µm, oblong fusiform to navicular, hyaline, slightly thick-walled and IKI-.
Cystidia and other sterile elements absent.
Distribution: Known only from the type locality in Venezuela.
Remarks. *Navisporus perennis* is a distinct species in the genus because of its dense, perennial, glabrous, dark brown basidiocarps, and the distinctly fusiform to navicular basidiospores. Superficially, the species has the aspect of a *Ganoderma* species with a dark crust.

Navisporus sulcatus (Lloyd) Ryvarden,
Nordic J. Bot. 3:412, 1983. - *Trametes sulcata* Lloyd Mycol Writ. 7:1146, 1922. - *Coriolopsis tisdaleana* Murrill, Bull. Torrey Bot. Club 65:656, 1938. - *Fomes reviviscens* Lloyd in Rick, Broteria Ser. Bot. 21:7, 1924.

Basidiocarps annual, effused, reflexed to sessile and broadly attached; pileus up to 3 cm wide and long, up to 4 mm thick at the base, cinnamon brown in distinct sulcate zones, ochraceous at the margin in young specimens, finely velutinate to tomentose; pores horizontal to decurrent, wood-coloured to pale ochraceous when young, pale cinnamon in old specimens, thin-walled, subangular, 2-3 per mm, tubes concolorous, up to 6 mm deep, trama slightly darker than the inside of the tubes, context distinctly duplex, the lower part pale cinnamon and dense, separated from the upper part by a thin, dense and black zone, most easily seen close to the base; even if the black zone is weakly developed, the difference between the upper and lower layer is easily observed in section, upper layer softer and dark cinnamon, up to 2 mm thick.
Hyphal system dimitic; generative hyphae with clamps, 2-4 µm wide, skeletal hyphae thick-walled, 2-4 µm wide in the trama, up to 6 µm wide in the context, yellow to pale golden brown, distinctly dextrinoid.
Cystidia and other sterile elements absent.
Basidia 20-25 x 6-8 µm, clavate, 4-sterigmate.
Basidiospores 8-11 x 5-6 µm, oblong ellipsoid to fusoid or navicular, pale yellow when mature and with slightly thickened walls, IKI-.
Distribution. From Florida and southwards to southern Brazil, although apparently rarely collected.
Remarks. The cinnamon coloured basidiocarps and the duplex context make this a distinct species in the genus.

Navisporus terrestris Gibertoni & Ryvarden,
Synopsis Fung. 18: 50, 2004.
Basidiocarps perennial, pileate, laterally to centrally stipitate, slightly infundibuliform, cartilaginous to tough when dry, pileus circular, 3.5-5.5 diameter, upper surface glabrous, slightly sulcate in radial zones, concentrically zonate, light to dark reddish brown to snuff brown, margin involute, when dry, stipe reddish brown 0.6-1.5 cm diameter, 0.5-1.0 cm high above the ground and elongated below the surface to the root from which it arises, pore surface saffron to straw when fresh, to dark ochraceous to brown when dry, pores round to angular, 2-3/mm, dissepiments slightly thick, tubes concolorous with the context, up to 0.3cm thick, context homogeneous, ochraceous, up to 0.2cm thick at the base.
Hyphal system dimitic, generative hyphae hyaline with clamps and thin-walled, 2-7µm wide; skeletal hyphae pale brown, thick-walled, 3.6-13.5 µm wide, dextrinoid.
Basidia 18-20 x 8-9 µm.
Basidiospores 9.0-12.0 x 3.6-4.5 µm, navicular to cylindrical, slightly thick-walled, IKI-.
Substrata: On soil, under *Caesalpinia echinata* Lam.
Distribution: Known from few localities in Brazil.
Remarks: This species differs from the other species of *Navisporus* by the centrally stipitate basidiocarps and growing on soil.

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, purplish-black; 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, non-amyloid. Monotypic tropical genus with a white rot on hard wood.
Type species: *Nigrofomes melanoporus* (Mont.) Murrill.
Remarks. The species is easy to recognize in the field because of the blackish to dark purplish 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 by age and then with a distinct dense and thick cuticle; margin thin and sharp, commonly bent in dry specimens; pore surface dark brown becoming purplish black by drying, 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 probably dimitic; generative hyphae thin- to very thick-walled and with simple septa, hyaline to slightly tinted, 1-5 µm wide; thick-walled hyphae present, apparently without septa or with very few and they may easily be interpreted as skeletal hyphae or as very rarely septate generative hyphae, 2-5 µm wide, pale olivaceous brown in KOH.
Cystidia 10-30 x 5-12 µm, present, but rare, often several sections have to be made before they can be observed, ventricose, thick-walled, acute and dark fuscous brown, similar in shape to the setae seen in many species of Hymenochaetaceae, but distinctly more olivaceous brown.
Basidia 12-15 x 4-5 µm, clavate, often very difficult to observe, 4-sterigmate with a simple septum at the base.
Basidiospores 4-5 x 3-3.5 µm, broadly ellipsoid, hyaline, IKI-.
Distribution. Widespread in the tropics.
Remarks. The species is easy to recognize because of the very hard, purplish black pileate basidiocarp. *Nigroporus vinosus* has a similar, but more violaceous colour, has smaller basidiocarps and is microscopically different with cylindrical spores and clamps at the hyphal septa.

Nigrohydnum Ryvarden,

Mycotaxon 28.532, 1987.

Basidiocarps annual to perennial, pileate to resupinate; pileus when present, scrupose to glabrous, azonate to concentrically zonate, greyish-blue, vinaceous-brown to pink or violet; hymenial surface of same colours as pileus, lower side with teeth or spines, vinaceous-brown to pink and purplish; hyphal system dimitic; generative hyphae with clamps; skeletal hyphae fuliginous brown, thick-walled to solid; cystidia present; spores cylindrical, hyaline, smooth and thin-walled, cylindrical, non-amyloid; on deciduous wood, causing a white rot. Neotropical, monotypic genus.

Type species: *Nigrohydnum nigrum* Ryvarden.

Remarks. The purplish to almost black basidiocarp covered on the lower side with dense teeth makes this a very distinct genus.

Nigrohydnum nigrum Ryvarden,
Op.cit.

Basidiocarps annual, pileate, broadly attached, semi-circular to elongated along the substratum, up to 3 cm wide, 5 cm long, up to 1 cm thick, rigid and woody when dry, coriaceous when fresh; upper surface, purplish black, velutinate, but soon glabrous azonate or with distinct narrow sulcate zones, margin sharp; lower side concolorous with upper side, densely covered with flattened teeth, up to 3 mm long, 1-3 per mm, at the margin slightly daedaleoid to semi-lamellate, in the type specimen stratified with three distinct layers of spines separated by a thin layer of context, context purplish black and dense.

Hyphal system dimitic; generative hyphae with clamps, 2-4 µm in diam; trama and context dominated by skeletal hyphae, thick-walled to solid, fuliginous to pale pinkish brown (in KOH), 2-5 µm in diam.

Cystidia 70-120 x 4-12 µm, present as skeletal hyphae bending into the hymenium as smooth, thick-walled and dark brown organs, arising from a clamp in the subhymenium.

Basidia 10-15 x 4-5 µm, clavate, 4-sterigmate, with a basal clamp.

Basidiospores 4.5-5 x 2 µm, cylindrical, hyaline, IKI-.

Distribution. Known from the type locality in Brazil besides Venezuela.

Remarks. The purplish black basidiocarps with teeth or spines on the lower side make this to an unmistakable species. It may be related to *Nigroporus*, but the spines and the skeleto-cystidia make it distinctly different from this genus.

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, greyish-blue, vinaceous-brown to pink or violet; pore surface of same colours as pileus, pores usually small, entire, round to angular; context vinaceous-brown to pink and purplish; hyphal system dimitic; generative hyphae with clamps; skeletal hyphae fuliginous brown, thick-walled to solid; cystidia none; spores mostly small, longest dimension usually less than 5 µm, hyaline, smooth and

thin-walled, allantoid to broadly ellipsoid, non-amyloid; on deciduous wood, causing a white rot. Pantropical genus, three species in America.
Type species: *Nigroporus vinosus* (Berk.) Murrill.
Remarks. The dimitic hyphal system with the fuliginous skeletal hyphae which give the basidiocarps the pinkish, violet to dark brown colours, is the diagnostic characteristic. Whether the three species described here, really are related or represent a convergence, remains to see. In principle it is the dark pigments that separate the genus from similar white to ochre genera with white rot, non-amyloid spores, dimitic hyphal system and lack of all reactions in Melzer´s reagent. Examples of such genera are *Diplomitoporus, Antrodiella* and, *Flabellophora*.

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. Pores 1-2 per mm .....**N. macroporus**
1. Pores 7-9 per mm 2

2. Basidiocarps violet- blackish, usually less than 5 mm thick and flexible, basidiospores 1-1.5 µm wide ..... **N. vinosus**
2. Basidiocarps umber to deep brown, usually more than 5 mm thick and dense and hard, basidiospores 2 µm wide ..... **N. rigidus**

Nigroporus macroporus Ryvarden & Iturriaga,
Mycologia 95:1070, 2003.
Basidiocarps annual to perennial, pileate, broadly attached to dimidiate, in some specimens with a slight decurrent pore surface, semi-circular to elongated along the substratum, up to 5 cm wide, 2-10 cm long in reflexed specimens, up to 1 cm thick, rigid and woody when dry, coriaceous when fresh; upper surface glabrous dark brown to black and with distinct narrow sulcate zones, margin sharp; pore surface dark brown, pores 1-2 per mm horizontal parts of the pore surface, on decurrent parts elongated, sinuous and up to 3 mm long, tubes concolorous, up to 7 mm deep; context, umber to dark brown, up to 5 mm thick at the base and with a thin cuticle or a black zone where two pileus have fused basally.
Hyphal system dimitic; generative hyphae with clamps, 1.5-3 µm in diam; skeletal hyphae thick-walled to solid, pale brown, 3-6 µm in diam, straight to slightly sinuous.
Cystidia absent as such, but numerous short skeletal hyphae project into hymenium making up a dense catahymenium, 2-6 µm in diameter.
Basidia not seen.
Basidiospores 5-6 x 1.7-2 µm, cylindrical.
Distribution. Known only from Venezuela.
Remarks. The species is similar in many respects to *N. rigidus* which however has almost invisible pores (i.e. 7-9 per mm).

Nigroporus rigidus Ryvarden,
Mycotaxon 28: 532, 1987.
Basidiocarps annual to perennial, pileate, broadly attached to dimidiate, semi-circular to elongated along the substratum, up to 5 cm wide, 2-10 cm long in reflexed specimens, up to 1 cm thick, rigid and woody when dry, coriaceous when fresh; upper surface first felty to velutinate, but soon glabrous becoming slightly scrupose, dark brown to umber azonate or with distinct narrow sulcate zones, margin sharp; pore surface dark beige to dark brown, pores 7-9 per mm; tubes concolorous, up to 7 mm deep; context slightly duplex, umber to dark brown, up to 5 mm thick at the base.
Hyphal system dimitic; generative hyphae with clamps, 2-4 µm in diam; skeletal hyphae thick-walled to solid, fuliginous to pale pinkish brown (in KOH), 2-5 µm in diam, straight and unbranched or with rare dichotomous branching.
Cystidia or other sterile hymenial elements absent.
Basidia 6-10 x 3-4 µm, clavate, 2-sterigmate with a basal clamp.
Basidiospores 3-3.5 x 2 µm, cylindrical.
Distribution. Brazil, Venezuela and Costa Rica.
Remarks. The dark browns to umber brown basidiocarps make the species distinctive in the field although it may be mistaken for a small specimen of a *Phellinus* species. The clamped generative hyphae will of course immediately rule out this alternative. It is more brownish than the apparently related *N. vinosus* which are more dark violet to black when mature. The spores in this species are also smaller.
It may be that this species is the same as described as *Fomitopsis scalaris* where only the sterile type is known. It is desirable to do DNA sequencing of these dark coloured perennial species to ascertain their true generic affinity. It is mostly out of convenience that similar species are described twice.

Nigroporus vinosus (Berk.) Murrill,
Bull. Torrey Bot. Club. 32:361, 1905. - *Polyporus vinosus* Berk., Ann. Mag. Nat. Hist. ser. 2, vol. 11:195, 1852.
Basidiocarps annual, pileate, broadly attached to dimidiate, semi-circular 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 7-8 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 thick-walled to solid, fuliginous to pale pinkish brown (in KOH), 2-6 µm in diam, straight and unbranched or with rare dichotomous branching.
Cystidia or other sterile hymenial elements absent.
Basidia 6-10 x 3-4 µm, clavate, 4-sterigmate, with a basal clamp.
Basidiospores 3.5-4.5 x 1-1.5 µm, allantoid to cylindrical.
Distribution. Widespread in the tropics.

Remarks. The small purplish to violet basidiocarps make the species distinctive in the field. The dimitic hyphal system, the coloured skeletal hyphae and the allantoid to cylindrical spores separate it from *Nigrofomes* (see this genus for further remarks).