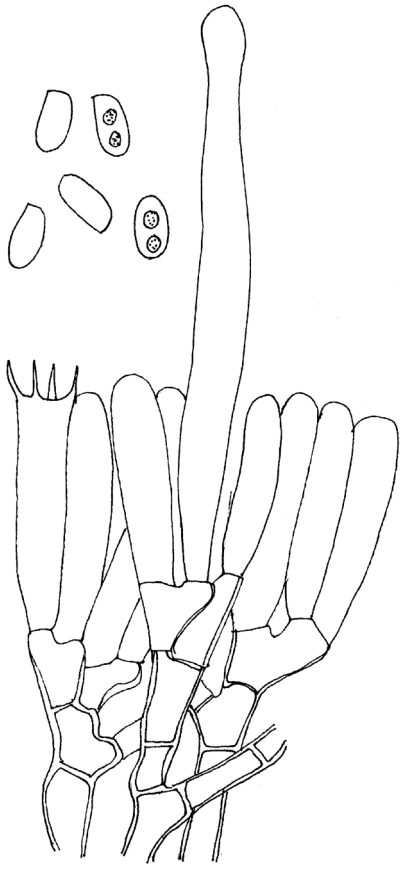
Some neotropical wood-inhabiting fungi



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Some neotropical wood-inhabiting fungi

Synopsis

Fungorum15

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Printed in Øystese trykkeri, Øystese, Norway.

Printing date 20 July 2002

ISBN 82-90724-26-8
ISSN 0802-8966.

Nomenclaturial novelties proposed in this volume:

New genera:
Alutaceodontia (Parmasto) Hjortstam & Ryvarden,
Australicium Hjortstam & Ryvarden
Leptocorticium Hjortstam & Ryvarden
Ceratoporia perplexa gen. and sp. nova Ryvarden & de Meijer

New species:
Botryodontia semispathulata Hjortstam & Ryvarden
Antrodiella brasiliensis Ryvarden & de Meijer,
Antrodiella luteocontexta Ryvarden & de Meijer,
Coltricia barbata Ryvarden & de Meijer,
Grammothelopsis bambusicola Ryvarden & de Meijer
Inonotus adnatus, Ryvarden,
Inonotus costaricensis Ryvarden,
Inonotus. dentiporus Ryvarden,
Inonotus marginatus Ryvarden,
Inonotus neotropicus Ryvarden,
Inonotus pseudoglomeratus Ryvarden
Inonotus dentatus Decock & Ryvarden

New combinations:
Alutaceodontia alutacea (Fr.) Hjortstam & Ryvarden,
Hyphodontia sphaerospora (N. Maek.) Hjortstam,
Kneifiella crassa (Rick) Hjortstam & Ryvarden,
Kneifiella crassispora (P. Roberts) Hjortstam & Ryvarden,
Kneifiella subglobosa (Sheng H. Wu) Hjortstam and
Kneifiella tetraspora (S.S. Rattan) Hjortstam & Ryvarden.
Australicium singulare (Cunningham) Hjortstam & Ryvarden
Leptocorticium cyatheae (S. Ito & S. Imai) Hjortstam & Ryvarden
Botryodontia tetraspora (S.S. Rattan) Hjortstam & Ryvarden
Trechispora thelephora (Lév.) Ryvarden

Contents:

Synopsis Fungorum 15: 7-17, 2002.

Studies in tropical corticioid fungi (Basidiomycotina, Aphyllophorales) Alutaceodontia, Botryodontia, Hyphodontia s.s. and Kneiffiella

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Abstract
Botryodontia semispathulata Hjortstam & Ryvarden is described while the following new combinations are proposed: *Alutaceodontia* (Parmasto) Hjortstam & Ryvarden, *Alutaceodontia alutaceae* (Fr.) Hjortstam & Ryvarden, *Hyphodontia sphaerospora* (N. Maek.) Hjortstam, *Kneiffiella crassa* (Rick) Hjortstam & Ryvarden, *Kneiffiella crassispora* (P. Roberts) Hjortstam & Ryvarden, *Kneiffiella subglobosa* (Sheng H. Wu) Hjortstam and *Kneiffiella tetraspora* (S.S. Rattan) Hjortstam & Ryvarden.

ALUTACEODONTIA (Parmasto) Hjortstam & Ryvarden comb. nov.
Basionym: *Hyphodontia* subg. *Hyphodontia* sectio *Alutaceodontia* Parmasto, Conspectus systematis corticiacearum, Inst. Zool. Bot. Acad. Sci. SSR Estonia, Tartu, p.124, 1968.
Basidiome resupinate, effused. Hymenophore odontioid with fairly small aculei. Hyphal system monomitic; hyphae distinct, with clamp connections. Cystidia arising from the subiculum or from the subhymenial layer, in the upper part thin-walled, aseptate and constricted. Basidia subclavate, 10-20 µm long, with four sterigmata and with a basal clamp connection. Spores allantoid, smooth, thin-walled, inamyloid, indextrinoid, acyanophilous.

The type species is reminiscent of *Kneiffiella abieticola*, but above all separated by allantoid spores and its monomitic hyphal system. For the time being the genus is considered monotypic.

Alutaceodontia alutacea (Fr.) Hjortstam & Ryvarden comb. nov.
Basionym: *Hydnum alutaceum* Fr., Syst. Mycol. 1:417, 1821
Grandinia alutacea (Pers.) J. Schröt. non Berk. & Ravenel, Pilze Schles. 1:454, 1888. - *Odontia alutacea* (Fr.) Bres. Atti I.R. Acc. Agiati Sez. 3 vol. 3:97, 1897. - *Hyphodontia alutacea* (Fr.) J. Erikss. Symb. bot. ups. 16:104, 1958. - *Kneiffiella alutacea* (Fr.) Jülich & Stalpers Verh. Kon. Ned. Akad. Wet., Afd. Natuurk., Tweede Reeks 74:134, 1980. -
Hyphodontia alutacea var. *mamillaecrinis* J. Erikss. & Hjortstam Svensk Bot. Tidskr. 63:230, 1969
Selected specimens examined: Sweden, Småland, Femsjö, S. Lundell, J. Stordal 2.IX. 1959. Fungi exs.suec. n. 2142, neotype of *Hydnum alutaceum* Fr., designated by Hjortstam (1984). (UPS; isotype GB); Sweden, Småland, between Björs and Moen, on conifer, 31.10. 1959 J. Eriksson No. 5200, holotype of *Hyphodontia alutacea* var. *mamillaecrinis* (GB); Colombia, Magdalena province, San Lorenzo, Station Reservo, Sierro Nevada, 1900 m, 16.VI, 1978, Ryvarden 15981 (O, Hjm Priv. Herb.).
Descriptions and illustrations: Eriksson and Ryvarden (1976), E. Langer (1994). It should also be noted that Bourdot and Galzin (1928) gave an illustration of the species.
Distribution: Not uncommon in boreal regions and grows nearly always on gymnosperms, recorded once in Colombia on angiosperm, (Hjortstam and Ryvarden (2000).

BOTRYODONTIA (Hjortstam & Ryvarden) Hjortstam, Mycotaxon 28:20, 1987
Generic type: *Candelabrochaete cirrata* Hjortstam & Ryvarden; *Candelabrochaete* subg. *Botryodontia* Hjortstam & Ryvarden
Basidiome resupinate, loosely adnate, soft, thin, arachnoid to more distinctly continuous. Hymenophore almost colliculose and with slender aculei. Hyphal system monomitic; hyphae without clamp connections, thin to moderately thick-walled. Hyphal ends in the aculei smooth or sometimes apically encrusted. Cystidia thin-walled, arising from the subhymenial layer. Basidia short, obconical, with four sterigmata and without a basal clamp connection. Spores more or less ellipsoid, thin-walled, smooth, inamyloid, indextrinoid, acyanophilous.

The main differences in micromorphology between *Hyphodontia* s.s. and *Botryodontia* are the lack of clamp connections and short obconical basidia in the latter.

Botryodontia cirrata (Hjortstam & Ryvarden) Hjortstam, Mycotaxon 28:20, 1987
Candelabrochaete subg. *Botryodontia* Hjortstam & Ryvarden, Mycotaxon 25: 545, 1986.
Botryodontia denticulata Hjortstam, Mycotaxon 28:20, 1987

Hyphodontia formosana Sheng H. Wu, Ann. Bot. Fenn. 142:91, 1990
Botryodontia formosana (Sheng H. Wu) Hjortstam, Windahlia 23:2, 1997

Basidiome resupinate, loosely adnate, almost arachnoid, semi-odontioid, with small, 0.1-0.3 µm long and somewhat penicillate aculei. Rhizomorphs are only seen in the type, consisting of at least two kinds of hyphae, thin or moderately thick-walled, generally 4-5 µm, but some up to 6-7 µm wide. Aculeal hyphae distinct, thin-walled, irregular and sometimes encrusted, 4 µm wide, other hyphae straight, partly encrusted with small crystals or resinuous matter, 4 µm wide, but some broader and up to 7 µm diam, all hyphae without clamp connections. Cystidia often very few and difficult to find, thin-walled, unseptate, generally 40 µm long and 10 µm wide in the middle part. Basidia short, 15-18(-20) x 6-7 µm, with four sterigmata and without a basal clamp connection. Spores ellipsoid, smooth, thin-walled, (5-)5.5-6(-6.5) x 4-5 µm.
The species should be fairly easy to recognize by lacking clamp connections, thin basidiome with small aculei and thin-walled tubular cystidia.
The holotype was growing on a leaf and the rhizomorphs mentioned in the original description seem to belong to the species, but are mainly restricted to the veins and additionally observed in specimens from Venezuela and Borneo (see below).
Selected specimens examined: Argentina, Misiones, Iguazu Nat. Park, 1-5 Mar 1982 L. Ryvarden 19572, holotype of *Candelabrochaete* subg. *Botryodontia cirrata* (O and isotype K); Africa, Kenya, W. Prov., Kakamega Forest, 25-27 Jan 1973 L. Ryvarden 9411, holotype of *Botryodontia denticulata* (O, Hjm Priv. Herb.); Taiwan, WU No. 880819-27, holotype of *Hyphodontia formosana* (TAI and isotypes in CFMR, H and GB); Venezuela, Estado Bolivar, Las Nieves, on a leaf, 12.VI. 1995, L. Ryvarden 37806 (O); Brunei, Temburong Distr., Sungai Belalong, near Field Centre, on fallen leaves, 13.III.1992, Spooner B113, K(M)28077.
Additional specimens were reported under *Botryodontia denticulata* by Hjortstam, Roberts and Spooner (1998).
Distribution: Argentina, Brazil, Venezuela, Brunei, Ghana, Kenya, Taiwan, and Java.

Botryodontia semispathulata Hjortstam & Ryvarden spec. nov
. Fig. 1
Basidioma resupinatum, adnatum. Hymenophorum distincte odontioideum, aculeis conicis vel saepe complanatis, quasi 1-2/mm et 0.4-0.5(-0.75) mm longis. Systema hyphale monomiticum; hyphis modice crassitunicatis, hyalinis, aliquantum rectis, 2.5-3(-4) µm latis, sine fibulis. Cystidia pauca, tenuitunicatis, 30-40 x 5-6 µm. Basidia brevia, 12-15 x 5-6 µm, 4 sterigmatibus, sporis ellipsoideis, levibus, 5-5.5(-6) x (3.5-)3.75-4(-4.25) µm, inamyloideis, indextrinoideis, acyanophilis.
Holotype: Venezuela, Miranda State, Maracay, National Park Henri Pittier, Rancho Grande, 22.VI.1955, on decayed deciduous wood, L. Ryvarden 37954 (O).
Paratype: Colombia, Magdalena, Parque Nacional, Tayrona, Estacion de Gairaca,

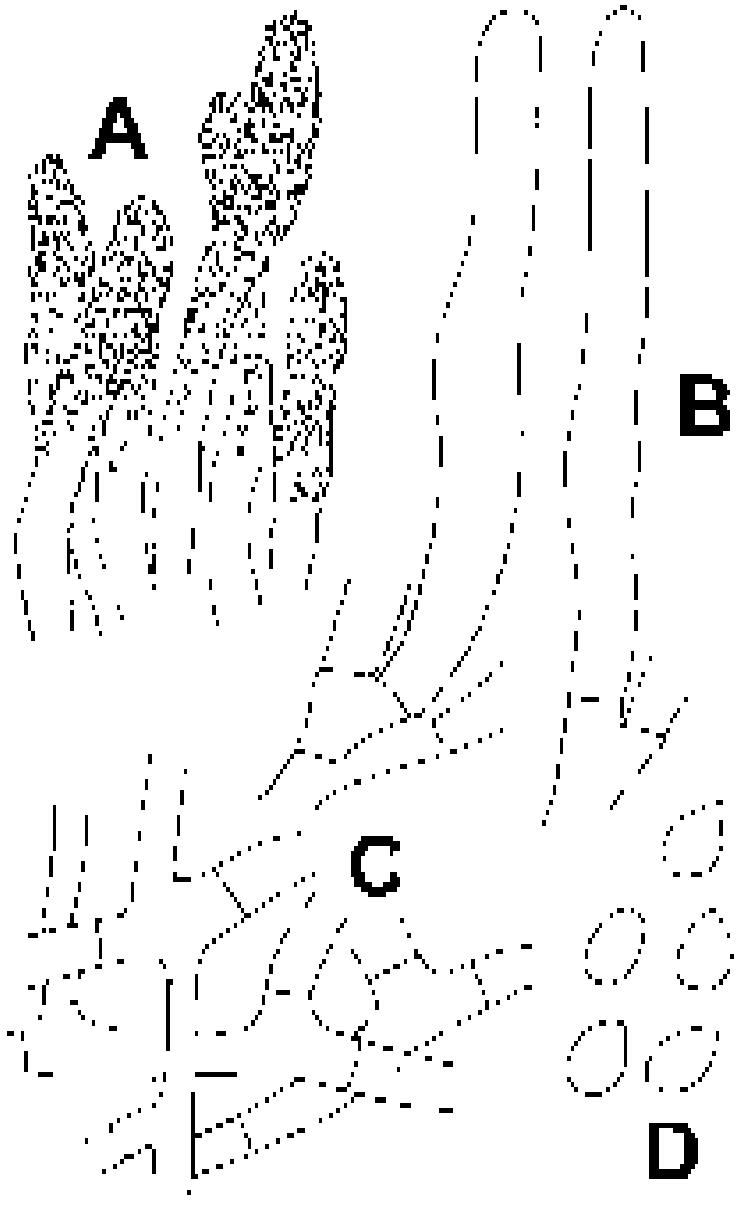

Fig. 1. *Botryodontia semispathulata*, A) encrusted hyphae from the aculei, B) cystidia, C) hyphae from the subiculum, D) basidiospores. From the holotype.

0-30 m.a.s.l., 12.VI.1978, L. Ryvarden 15811 (O).
Basidiome resupinate, odontioid with conical or more often flattened aculei, 1-2(-3) per mm and 0.4-0.5 (-0.75) mm long, cream-coloured to ochraceous. Hyphal system monomitic; hyphae without clamp connections, moderately thick-walled, 2.5-3(-4) µm wide, aculeal hyphae encrusted, simple septate. Cystidia hyaline, few and difficult to find, thin-walled, 30-40 x 5-6 µm long. Basidia short, 12-15 x 5-6 µm, with four sterigmata and without a basal clamp connection. Spores ellipsoid, smooth, thin-walled, 5-5.5(-6) x (3.5-)3.75-4(-4.25) µm

Botryodontia semispathulata is superficially similar to *B. cirrata* due to the basidia and morphology of the spores. The hymenophore is, however conspicuous with larger aculei, up to 0.5 mm long and in the type frequently flattened. The spores are of about the same size, but slightly narrower.

HYPHODONTIA J. Erikss. s.s.
Hymenophore hydnoid to smooth. Hyphal system monomitic; hyphae in the subiculum sometimes weakly dextrinoid and with a distinct cyanophilous reaction. Cystidia of two kinds, 1) septocystidia mainly 50-80 µm long, at least capitulate and often apically encrusted, constricted and with two or more septa with a clamp connection each, 2) lagenocystidia generally 15-20 µm long and apically strongly encrusted. Basidia subclavate or subcylindric, basally mainly with a slight thickened wall, with four sterimata and a basal clamp connection. Spores subglobose to ellipsoid, thin-walled or rarely with a slight thickened wall, inamyloid, indextrinoid and acyanophilous.
Up to date the genus comprises five species of which four are hitherto known from South America. *H. subdetritica* is an older name for *H. propinqua* Hjortstam. See further Hjortstam (1983).

Key to the species

1 Hymenophore hydnoid, aculei mainly 1-2 mm long, lagenocystidia present.....**2**
1 Hymenophore tuberculate to slightly grandinioid or smooth, lagenocystidia present, few or even absent.....**3**
2 Spores broadly ellipsoid 4.5-6 x 3.5-4 µm. Cosmopolitan though more common in temperate areas.....**H. arguta** (Fr.) J. Erikss.
2 Spores globoid, slightly thick-walled (3.25-)3.5-4(-4.5) µm. Known only from Japan
and Ecuador ..... **H. sphaerospora**
3 Hymenophore pale ochraceous, almost smooth to colliculose, lagenocystidia few or absent, spores 3.5-4.5 x 2-2.5(-3) µm. Northern hemisphere, South America, Africa, Taiwan .....**H. pallidula** (Bres.) J. Erikss.

3 Hymenophore pale ochraceous to yellowish, mainly colliculose, spores larger, (4.5-)5-7.5 µm, lagenocystidia few to abundant.....**4**
4 Lagenocystidia generally few, spores normally broadest towards the apiculus 6-7.5 x 4-4.5 µm. Africa, India, Taiwan..... **H**. **subdetritica** S. S. Rattan
4 Lagenocystidia abundant, septocystidia with 2(-3) septa, spores 4.5-6 x 3.5-4 µm. Cosmopolitan .....**H**. **alutaria** (Burt) J. Erikss.

Remarks. *Hyphodontia alba* Sheng H. Wu, keyed out by E. Langer (1994) under *H. pallidula*, is not a species of *Hyphodontia* s.s., but is reminiscent of *Hyphoderma setigerum* (Fr.) Donk by virtue of slightly grandinioid hymenophore, hyphal configuration and thick-walled septate cystidia. The spores are, however, subglobose and immediately separted from those of *H. setigerum*.

Hyphodontia sphaerospora (N.Maek.) Hjortstam comb. nov.
Basionym: *Grandinia arguta* var. *sphaerospora* N. Maek., Proc. Japan Acad. 69:120, 1993.
Description of the South-American specimens:
Basidiome resupinate, rather fragile. Hymenophore distinctly odontioid; aculei conical, pale ochraceous, mostly less than 1.5-2 µm long and about 2-4/mm. Subiculum thin, composed of thin-walled, hyaline and moderately straight hyphae, 2.5-3 µm in width. Hyphal system monomitic; hyphae straight in the middle part of the aculei, hyaline, 2-2.5 µm in width, all hyphae with clamp connections. Cystidia of two kinds 1) numerous in the aculei, hyaline, capitate or capitulate, apically encrusted, often with one or several constrictions below the neck, 20-30(-40) µm long and about 4-6 µm in width 2) lagenocystidia rare to abundant in the specimen, mainly from hyphae and fairly short, about 10-12 µm long. Basidia almost clavate, constricted, (15-)20-25 x 3-4 µm, with four sterigmata and a basal clamp connection. Spores globoid, smooth, thin-walled or with slight wall thickening, (3.25-)3.5-4(-4.5) µm.

The hymenophore of this species is almost as in *Hyphodontia arguta* (Fr.) J. Erikss., but the latter species is microscopically easily separated by its somewhat larger and broadly ellipsoid spores, 4.5-6 x 3.5-4 µm.

The difference between the type of *Grandinia arguta* var. *sphaerospora* and South American specimens is vague, but we are of the opinion that is an intraspecific variation.
Specimens examined: Japan, Oda-cho, Kamiukena-gun, pagi Ehimi, 4 Oct. 1989, (TMI 9419), holotype of *Grandinia arguta* var. *sphaerospora*; Ecuador, Cuyabeno Wildlife Reserve, Prov. Sucumbios. July 1993, M. Nuñes 305 (O); Venezuela, Estad Bolivar, Las Nieves, Ryv. 37738 (O).
Illustration. Maekawa (1993).

KNEIFFIELLA P. Karst., Bidr. Känned. Finl. Nat. Folk 48:371, 1889.
Generic type: *Hydnum barba-jovis* Bull.:Fr.
Basidiomata resupinate, effuse, hydnoid. Hyphal system monomitic or subdimitic

owing to the skeletoid hyphae or cystidia in the aculei. Hyphae thin to moderately thick-walled, with clamp connections or partially with simple septa or totally without clamp connections. Cystidia often numerous, thick-walled and arising from the subiculum. Basidia with four sterigmata, with or without a basal clamp connection. Spores thin-walled, generally subglobose to ellipsoid, inamyloid, indextrinoid and acyanophilous.

The name *Kneiffiella* was re-introduced by Jülich and Stalpers (1980) to replace *Hyphodontia*, but then the latter genus was conserved against *Chaetoporellus* Bondartsev & Singer, *Grandinia* Fr., *Lyomices* P. Karst., and *Kneiffiella* P. Karst. It should be noted that *Xylodon* (Pers.) S.F. Gray is a valid generic name from 1821 with the type *Sistotrema quercinum* (Pers.) Pers. (selected by Donk, 1956). This latter name is, however a synonym of *Hyphodontia quercina* (Pers.:Fr.) J. Erikss., and the morphology fits not the concept of *Kneiffiella*.

Key to the species

1 Clamp connections present, at least on the basidia base, cystidia mainly clustered **2**
1 Clamp connections absent, cystidia mainly single **5**
2 Clamp connections regularly on both hyphae and basidia base **3**
2 Clamp connections absent on the basal hyphae and on the projecting aculeal hyphae ..... **crassa**
3 Spores 1.5-1.75(-2) µm wide ..... **microspora**
3 Spores 3-4.5 µm wide **4**
4 Aculei large, normally 2-3 mm long, spores 4.5-5(-6) x 3.5-4.5 µm..... **barba-jovis**
4 Aculei smaller, about 0.5-1 mm long, spores 5-6.5 x 3-4.5 µm ..... **abieticola**
5 Spores with a slight wall thickening, 5-5.25(-6) x 3-3.25(-4) µm ..... **crassispora**
5 Spores thin-walled **6**
6 Spores narrowly ellipsoid 4-4.5x 2-2.5µm ..... **tetraspora**
6 Spores globoid 4-5 x 3-4 µm ..... **subglobosa**

Kneiffiella barba-jovis (Bull.:Fr.) P. Karst., Bidr. Känned. Finl. Nat. Folk 48:371, 1889. – *Hydnum barba-jovis* Bull.:Fr., Syst. Mycol. 1:421, 1821.
Hydnum nyssae Berk. & M.A. Curtis, Grevillea 1:100, 1873.
Kneiffia irpicoides P. Karst., Bidr. Känned. Finl. Nat. Folk 48: 368, 1889.
Hyphodontia barba-jovis (Bull.:Fr.) J. Erikss., Symb. bot. ups. 16:104, 1958.
Type specimens examined Sweden, Dalarna, Norrbärke par., Smedjebacken, on the underside of a prostrate decaying trunk of birch. 1937-07-30. K.-G. Ridelius. Fungi exs.suec. No.1018 neotype of *Hydnum barba-jovis* (UPS), designated by Hjortstam (1984); USA, Southern Carolina, 3716 lectotype of *Hydnum nyssae* (K) designated here.
Description and illustration: Eriksson et al. (1976) and E. Langer (1994).
Distribution: Widespread in temperate regions and E. Langer (loc.cit.) reported it also from USA (Florida), Costa Rica, and Taiwan. It could, however, easily be confused with *Kneiffiella crassa* (see below). By the authors never seen from subtropi-

cal or tropical regions.

Kneiffiella abieticola (Bourdot & Galzin) Jülich & Stalpers, Verh. Kon. Ned. Akad. Wet., Afd. Natuurk., Tweede Reeks 74:130, 1980
Odontia barba-jovis ssp. *abieticola* Bourdot & Galzin, Hym. de France p. 426 (1928)
Odontia abieticola (Bourdot & Galzin) S. Lundell, Fungi exs. suec. no. 738, 1939
Hyphodontia abieticola (Bourdot & Galzin) J. Erikss., Symb. bot. ups. 16:104, 1958
Grandinia abieticola (Bourdot & Galzin) Jülich, Int. J. Mycol. Lichenol. 1:35, 1982.
Type specimen examined: France, Gérardmer, L. Maire, Bourdot 24478, Maire 492 (M.A:D. and isotype in PC), lectotype, designated by Weresub (1961).
Description and illustration: Eriksson et al. (1976) and E. Langer (1994).
Distribution: Probably less common in the temperate area than the preceding species. Further reported from Malawi and Taiwan by E. Langer (1994) and Gazzano (1998) mentioned one specimen from Uruguay (det. J.E. Wright). By the authors never seen from subtropical or tropical regions.

Kneiffiella crassa (Rick) Hjortstam & Ryvarden comb. nov.
Basionym: *Odontia crassa* Rick, Egatea 17:279, 1932.
Synonym: *Hyphodontia orasinusensis* Gilb. & M. Blackw., Mycotaxon 33:382, 1988.
Type specimens examined: Brazil, S. Leopoldo, 1933 Rick 19888, neotype of of *Odontia crassa* (PACA, isotype O), designated by Hjortstam and Ryvarden (1982); USA, Louisiana, Baton Rouge, on *Celtis laevigata*, 20 Oct 1983 M. Blackwell 2141, holotype of *Hyphodontia orasinusensis* (BPI).
Selected specimens examined: Venezuela, Estado Miranda. Univ. Simom Bolivar, Sartenejas; Estado Bolivar, Las Nieves 37479, 37494, 37564; 37630, 37673 (on a dead *Lenzites* sp.), 37682; Estado Bolivar, Las Nieves 37809, 37864; Miranda State, Maracay, Nt. Park Henri Pittier, Rancho Grande 37958 (det KHL); 37969 (det. KHL); Amazonas, Yutajé 40358, all leg. L. Ryvarden; Amazonas, Sanmaria, 20 km east of Puerto Ayacucho, Reserva Hidrológica Rio Cataniapo, leg. Urbina 49 and 203 (all specimens O).
Description and illustration (of *Hyphodontia orasinusensis*): Langer (1994.
Distribution: Colombia, Venezuela, French Guiana.

The original description conforms to the selected neotype and Rick (published by Rambo 1959) reported eight specimens.
It is a well-known species and probably widespread at least in Northern South America, and more than twenty specimens are collected from Colombia, Venezuela and adjacent areas.

Hjortstam and Ryvarden (1982) considered *Odontia crassa* as a synonym of *Hyphodontia barba-jovis*. The two species are similar as to the size and appearance of the thick-walled and tubular pseudocystidia, but the latter differs, however,

in having clamps regularly and also slightly larger spores, 4.5-5.5 (-6) x 3.5-4.5 µm. In *Kneiffiella crassa* the spores are smaller (3.5-)4-5 x 2.5-3.5 µm and clamp connections are wanting or only occasional on the basal hyphae and on the projecting hyphae in the aculei. The subhymenial hyphae and basidia bases possess always clamp connections. Another closely related species is *Kneiffiella microspora*, but the spores are merely 2.5-3.5 x 1.5-1.8 µm.

See also Mauhs (2000) who reported most of Rick´s species and types stored in PACA (São Leopoldo, RS-Brasil).

Kneiffiella crassispora (P. Roberts) Hjortstam & Ryvarden comb. nov.
Basionym: *Botryodontia crassispora* P. Roberts, Kew Bull. 55:806, 2000.
Basidiome effused, almost smooth to colliculose, ochraceous to pale ochraceous brown. Hyphal system monomitic; subhymenial hyphae thin-walled, in the subiculum thick-walled, 3-4 µm diam., clamp connections absent. Cystidia of one kind, projecting, tubular, slightly narrowing towards apex, smooth, thick-walled, hyaline to subhyaline in KOH, up to 130 µm long, in the middle part about 5-7 µm wide. Basidia with four sterigmata, broadly clavate, normally 10-13 x 5-6 µm. Basidiospores oblong, 5-5.25(-6) x 3-3.25(-4) µm, smooth, hyaline, with a slight wall thickening, cyanophilous.

The species seems to be extremely similar to *K. tetraspora*, but has slightly larger and somewhat thick-walled spores. In our opinion it is better placed in *Kneiffiella*.

Type specimen examined: Cameroon, Korup National Park, 3.IV.1997, P. Roberts K851, K(M)50168.
Distribution: The species is known only from the type.

Kneiffiella microspora (J. Erikss. & Hjortstam) Jülich & Stalpers
Verh. Kon. Ned. Akad. Wet., Afd. Natuurk., Tweede Reeks 74:130, 1980
Hyphodontia microspora J. Erikss. & Hjortstam, Corticiaceae North Eur. 4:651, 1976.
Grandinia microsporella Jülich, Int. J. Mycol. Lichenol. 1:36, 1982 non *Grandinia microspora* P. Karst., Bidr. Känned. Finl. Nat. Folk 48:365, 1889; non *Grandinia microspora* Rick, Egatea 17:106, 1932.
Odontia palmae Rick in Rambo, Iheringia Bot. 5:163, 1959 (invalid name, holotype missing).
Hyphodontia palmae Rick ex E. Langer, Bibl. Mycol. 154:177, 1994.
Specimens examined: Sweden, Dalsland, near Uleviken, on coniferous wood, 24.VIII.1974, E. Hagström s.n., holotype of *Hyphodontia microspora* (GB); Brazil, S. Salvador, on palm tree, Rick, 1944, No. 22701 holotype of *Hyphodontia palmae* (PACA and isotype O); Venezuela, Estado Bolivar, Las Nieves, 12.VI. 1995, L. Ryvarden Nos. 37588 and 37598 (O).
Description and illustration: Eriksson and Ryvarden (1976) and E. Langer (1994).
Distribution: According to Langer (1994) recorded in Italy, Brazil and Malawi. Further known from Argentina and Spain (Galan et al. 1993 sub *Grandinia micro-*

sporella), Taiwan (Wu 1990) and Uganda, K.W. Brown, 3.VI.1959, No. 77871, (K, filed under *Odontia* unmatched).

When E. Langer (1994) legitimated *Odontia palmae* he mentioned the basionym and by that referring to the Latin diagnosis and a brief discussion given by Rambo in Iheringia.

Hjortstam and Ryvarden (1982) studied some species described by Rick and one specimen of *Odontia palmae* was sent from PACA (Rick No. 22701, San Salvador 1944) for examination. It was immediately recognized as *Hyphodontia microspora*, though the spores in Rick´s specimen were slightly larger than those given by Eriksson and Hjortstam (1976).

It seems, however, to be some parts in the Latin diagnosis which do not fit at all with the type chosen by Langer. Rambo clearly indicates the spores to be 7 x 4 µm and that *Odontia palmae* was a variety of *Odontia fibrosissima* Rick (a valid name). The latter is obviously near or the same as *Hyphodermella corrugata* (Fr.) J. Erikss. & Ryvarden (see Hjortstam and Ryvarden 1982). Further, the diagnosis also runs: *…dentibus submagnis, conicis, fibrosissimis lateraliter et apicaliter, raduloides, rudibus, sine cystidiis.*

The name *Hyphodontia palmae* seems, however, to be legitimate, though the non-fitting diagnosis.

Kneiffiella subglobosa (Sheng H. Wu) Hjortstam comb. nov.
Basionym: *Hyphodontia subglobosa* Sheng H. Wu, Acta Bot. fenn. 142:106, 1990.
Botryodontia subglobosa (Sheng H. Wu) Hjortstam, Kew Bull. 53:810, 1998.
Specimen examined: Taiwan, Taichung, on *Acacia confusa*, Wu 5.VIII.1989, 890805-2, holotype of *Hyphodontia subglobosa* (TAI) and isotypes (GB, H); Tanzania, Tanga Prov., Lushoto distr., alt. 1600-2000 m, 21-22.II.1973, Ryvarden 10881, (K under the name *Hyphodontia impexa* Hjortstam ined. and in Hjm Priv. Herb.).
Description and illustration: There is a good original description and E.Langer (1994) gave both description and a fine illustration to the species.
Distribution: Known only from the type and from Tanzania.

This species differs from *K. crassa* by lacking clamp connections throughout and with moderately thick-walled apical and projecting hyphae, mainly with frequent simple septa, often 200-300 µm long and 5-8(-10) µm wide. It has also thin to slightly thick-walled cystidia, approximately (50-)100-200 µm long penetrating the basidia layer.

Botryodontia cirrata is superficially similar, but this is a thinner species with much slender aculei and thin-walled cystidia.

Kneiffiella tetraspora (S.S. Rattan) Hjortstam & Ryvarden comb. nov.
Basionym: *Hyphodontia efibulata* John Erikss. & Hjortstam forma *tetraspora* S.S. Rattan, Bibl. Mycol. 60:335, 1977.
Hyphodontia tetraspora (S.S. Rattan) Hjortstam, Windahlia 17:58, 1987.
Basidiome resupinate, finely tuberculate or odontioid, with small subglobose ver-

rucae, 5-6/mm, pale ochraceous. Cystidia cylindric, rather thick-walled, normally without septation, often slightly widened towards the apex and moderately encrusted, about 100 µm long and 4-6 µm wide. Hyphae 3-6 µm wide, thin-walled, without clamp connections. Basidia 12-15 x 4-5 µm, with four sterigmata. Spores thin-walled, narrowly ellipsoid, (3.5-)4-4.5-(-5) x 2-2.5(-2.75) µm.
Specimens examined: India, *in ligno Piceae smithianae*, Jaggat Sukh, Kulu, Himachal Pradesh, 14.IX.1971. S.S. Rattan 4354 (K), holotype of *Hyphodontia efibulata* f. *tetraspora*; Lakkarmandi, Dalhousie, on stump under conifers, 16.VIII. 1974, S.S. Rattan 5914, paratype of *Hyphodontia efibulata* forma *tetraspora* (K).
The species is known only with certainty from India.

One specimen from Venezuela, Estad Bolivar, Las Nieves, on hardwood, 12.VI.1995, L. Ryvarden 37644 (O), is separated by slightly larger spores, 5-6 x 2.5-3 µm and strongly encrusted cystidia.

There are also two specimens equally similar from Venezuela, Amazonas, Sanmaria, 20 km east of Puerto Ayacucho, Reserva Hidrológica Rio Cataniapo, Urbina and Martinez, 7.15 and 13.32.

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Synopsis Fung. 15: 18-21, 2002

Australicium (Basidiomycotina, Aphyllophorales) a new genus for Corticium singulare G. Cunn.

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Abstract
The new genus *Australicium* Hjortstam & Ryvarden with the type *Corticium singulare* G. Cunn. is described and the combination *Australicium singulare* (Cunningham) Hjortstam & Ryvarden is proposed. The latter is a rare species, but seems to have a pantropical distribution.

Introduction
Several species with a felted subiculum composed by brownish hyphae next to the substrate are combined into *Phanerochaete*. Wu (1995) incorporated *P. monomitica* (G. Cunn.) S. H. Wu, a species which was considered by Hjortstam and Ryvarden (1990) to be dimitic (with skeletocystidia). In the same manuscript Wu also discussed *P. brunnea* S. H. Wu, *P. fuscomarginata* (Burt) Gilb., *P. singularis* and he also described *P. stereoides* S. H. Wu.

In our opinion *P. brunnea* is extremely similar to *Australicium singulare*, both in its subicular hyphal structure and the spore-size, and at present we considered it as a synonym. *Phanerochaete stereoides* could as well be a species of the new genus, but we have not studied the type and refrain from doing a formal combination. *P. fuscomarginata* was excluded from the bulk of *Phanerochaete* by Burdsall (1985) and we consent to this. Subsequently Hjortstam (1995) combined this species into *Porostereum*.

The specimens from Venezuela and Brazil are similar to each other and seem to fit well with the concept of *A. singulare*. In the Venezuelan specimen occasional cystidia have been detected, which also can be observed in the specimens from New Zealand. Cystidia were not mentioned by Wu when he described *P. brunnea*.

AUSTRALICIUM Hjortstam & Ryvarden gen. nov.
Phanerochaete P. Karst. aemulans, differt subiculii tomentosi, distincte brunneoli vel brunnei.
Typus generis: *Corticium singulare* G. Cunn.
Basidiome resupinate, closely adnate. Hymenophore, smooth, usually pale brown. Subiculum distinct, brownish to brown, tomentous. Hyphal system monomitic; subicular hyphae thick-walled, yellowish to brownish, without clamp connections, but single och double clamp-connections occur in the subiculum. Subhymenial hyphae generally hyaline, with thickened wall or thin-walled, without clamp-connections. Cystidia or hyphal ends rare, hyaline. Basidia hyaline, subclavate, slightly constricted, with four sterigmata, without a basal clamp connection. Spores narrowly ellipsoid to cylindrical, thin-walled, smooth, hyaline, mainly 5-7 µm long, inamylid, indextrinoid and acyanophilous.

Australicium singulare (G. Cunn.) Hjortstam & Ryvarden comb. nov.
Fig. 1
Basionym: *Corticium singulare* G. Cunn., Trans. R. Soc. New Zeal. 82:325, 1954.
Grandiniella singularis (G. Cunn.) Burds., Taxon 26:329, 1977.
Phanerochaete singularis (G. Cunn.) Burds., Mycol. Memoir 10:121, 1985.
Phanerochaete singularis (G. Cunn.) Stalpers, N.Z. Journ. Bot. 23:309, 1985. (superfluous).
Phanerochaete brunnea S. H. Wu, Acta Bot. Fenn. 142:42, 1990.

Brief description of the holotype.
Basidiome resupinate, thin, closely adnate, about 0.5 µm thick. Hymenophore membranous, smooth, pale brown in the herbarium, uncracked and with the margin somewhat fibrillose. Subiculum brown, tomentous, about 0.2-0.3 mm thick. Hyphal system monomitic; subicular hyphae thick-walled, yellowish to brownish, generally 5-7(-8-9) µm wide, without clamp connections, but with some scattered, single och double clamp-connections, subhymenial hyphae hyaline, moderately thick to thick-walled, 3-5 µm wide. Cystidia or hyphal ends hyaline, difficult to discern and almost as undeveloped basidia (in the original description mentioned as paraphyses by Cunningham), embedded or only projecting slightly above the basidia, 40-70 µm long and and 6-8 µm wide. Basidia hyaline, subclavate, slightly constricted, 20-25(-35) x 4.5-5 µm, with four sterigmata and without a basal clamp connection. Spores narrowly ellipsoid to cylindrical, thin-walled, smooth, 5-6.5(-7) x 2.25-3(-3.5) µm.
Specimens examined: Brazil, São Paulo, Mogi-Guaçu, Fazenda Campininha, on *Ta-*

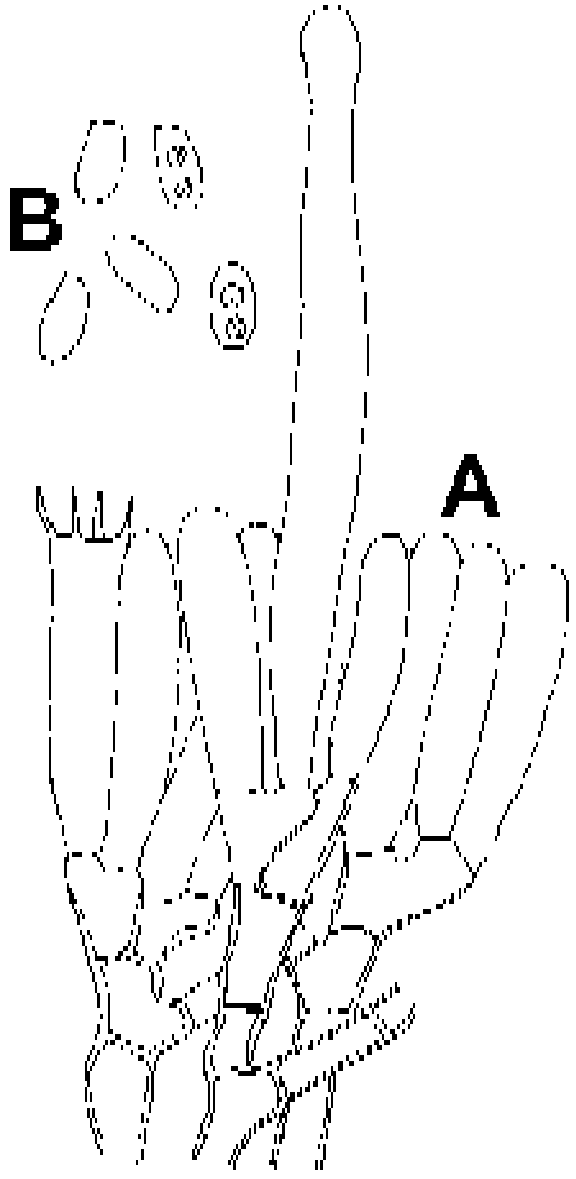

Fig 1. *Australicium singulare*, A) Part of hymenium with cystidium, B) Basidiospores. From the holotype.

xodium, 29-30 Jan. 1987, D. Pegler, K. Hjortstam and L. Ryvarden, Ryv. 24460 (K and Hjm priv. herb.); Venezuela, 1 km norte del Campamento Yutajé, bosque al pie de cerro Yutaje, 100 m, 15. Jan. 1997, Teresa Iturriaga 2855 (O); Taiwan, Nantou, on twig of angiosperm, 25.X.1988, Wu 881025-23, holotype of *Phanerochaete brunnea* (H); Taiwan, 19.VI.1991, Wu 910619-22. (GB); New Zealand, Auckland, Rotorua, on *Litsea calicaris*, 17.VI.1950, J.M. Dingley 19589, holotype of *Corticium singulare* (PDD); New Zealand, Auckland, Waiotapu, Kauri Forest, on *Beilschmiedia tarairi*, 21.I.1955, J.M. Dingley 14158, isotype of *Corticium singulare* (K).

Cunningham (1963) also reported the species from South Australia on unknown host.

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Synopsis Fung. 15:22-25, 2002.

Leptocorticium, a new genus among the corticoid fungi (Basidiomycotina, Aphyllophorales)

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Abstract
The new genus *Leptocorticium* Hjortstam & Ryvarden is described to accomodate *Corticium cyatheae* S. Ito & S. Imai. The combination *Leptocorticium cyatheae* (S. Ito & S. Imai) Hjortstam & Ryvarden is proposed.

Introduction
Several specimens of *Dendrothele cyatheae* (S. Ito & S. Imai) N. Maek. were reported from Colombia by Hjortstam and Ryvarden (1997). Subsequently, the species was recorded in Venezuela and after studies of description and illustration by Maekawa (1993) and of specimens gathered in Japan there are no doubt that all represents *Dendrothele cyatheae*. It seems that the species is almost obligate on palm-trees, bamboo or ferns, but may occur also rarely on hardwood.

It is strongly reminiscent of *Lepidomyces subcalceus* (Litsch.) Jülich in the morphology of the basidiome as well as the shape of cystidia and spores, but *Corticium cyatheae* has typical terminal basidia and also posesses dendrohyphidia. *Repetobasidiellum fusisporum* J. Erikss. & Hjortstam is comparatively similar, but has repetitive basidia. This latter species seems also to be an obligate fungus on ferns and is, besides the localities in Europe, also known from Brazil and Ethiopia. The genus *Dendrothele* Höhn. & Litsch. is typified with *Dendrothele papillosa* Höhn. & Litsch. (*Corticium griseo-canum* Bres.). This is a species with nearly a

epitheloid basidiome, pedunculate basidia and somewhat thick-walled spores and most species grow on bark of living trees. We are of the opinion that *Corticium cyatheae* does not fit the concept of neither *Repetobasidiellum* nor *Dendrothele*.

Leptocorticium Hjortstam & Ryvarden gen. nov.
Basidiome resupinata, arcte adnata, crustacea. Systema hyphale monomiticum; hyphae, hyalinae, tenuitunicatae, fibulatae, dendrohyphidiae frequenses, probabiliter dilute dextrinoideae. Cystidia tenuitunicata, quasi subulata, modice incrustata vel basaliter generaliter incrustata. Basidia subpedunculata tum fere pedunculata, 4 sterigmatibus. Sporae naviculares, subfusiformes, leves, tenuitunicatae vel leviter crassitunicatae, inamyloideae, indextrinoideae, acyanophilae.
Generic type: *Corticium cyatheae* S. Ito & S. Imai
Etymology: Lepto (slender, narrow) and corticium.

Leptocorticium cyatheae (S. Ito & S. Imai) Hjortstam & Ryvarden comb. nov.
Fig.1
Basionym: *Corticium cyatheae* S. Ito & S. Imai, Trans. Sapporo Nat. Hist. Soc. 16:132, 1940. - *Dendrothele cyatheae* (S. Ito & S. Imai) N. Maek., Rept. Tottori. Mycol. Inst. 31:10, 1993.
Basidiome resupinate, closely adnate, mainly less than 0.2-0.3 mm thick, crustaceous. Hymenophore smooth, white to greyish, margin indistinguishable. Hyphal system monomitic; hyphae hyaline, 1-2 µm wide, smooth, thin-walled, sometimes slightly encrusted, regularly with clamp connections. Dendrohyphidia abundant, at least encrusted in the upper part, thin-walled. Cystidia arising from the subhymenial layer, almost subulate, thin-walled, basally strongly encrusted with crystalline matter, 25-50 µm long and about 5-6 µm wide near the base. Basidia subpedunculate, thin-walled, 15-30 x 5-6 µm, with a basal clamp connection and four, fairly long sterigmata. Spores navicular, subfusiform, smooth, thin-walled or with a slight wall thickening, 8-12 x 2.5-3 µm.

This species should be fairly easy to recognize owing to the occurence of dendrohyphidia and subulate cystidia. Also the spores give important imformation as being navicular, about 8-12 µm long. All specimens except one from Venezuela are from tree ferns, palm-trees or bamboo.

For further information see Maekawa (1993) who also gave an excellent illustration of the species.

Specimens examined:
Japan, on petioles of *Cyathea boninsimensis*, Ogi-mura, Chichishima Isl., Bonin Islands, 9 Nov. 1936, lectotype of *Corticium cyatheae* (SAPA); Colombia, L. Ryvarden 15570, 15584, 15656, (15706 on wood), 15711, 15714, 15717; Venezuela, Estado Bolivar, Sifontes Tumerermo, on dead hardwood, 17.Nov. 1994, L. Ryvarden 35217. All specimens by Ryvarden deposited in (O).

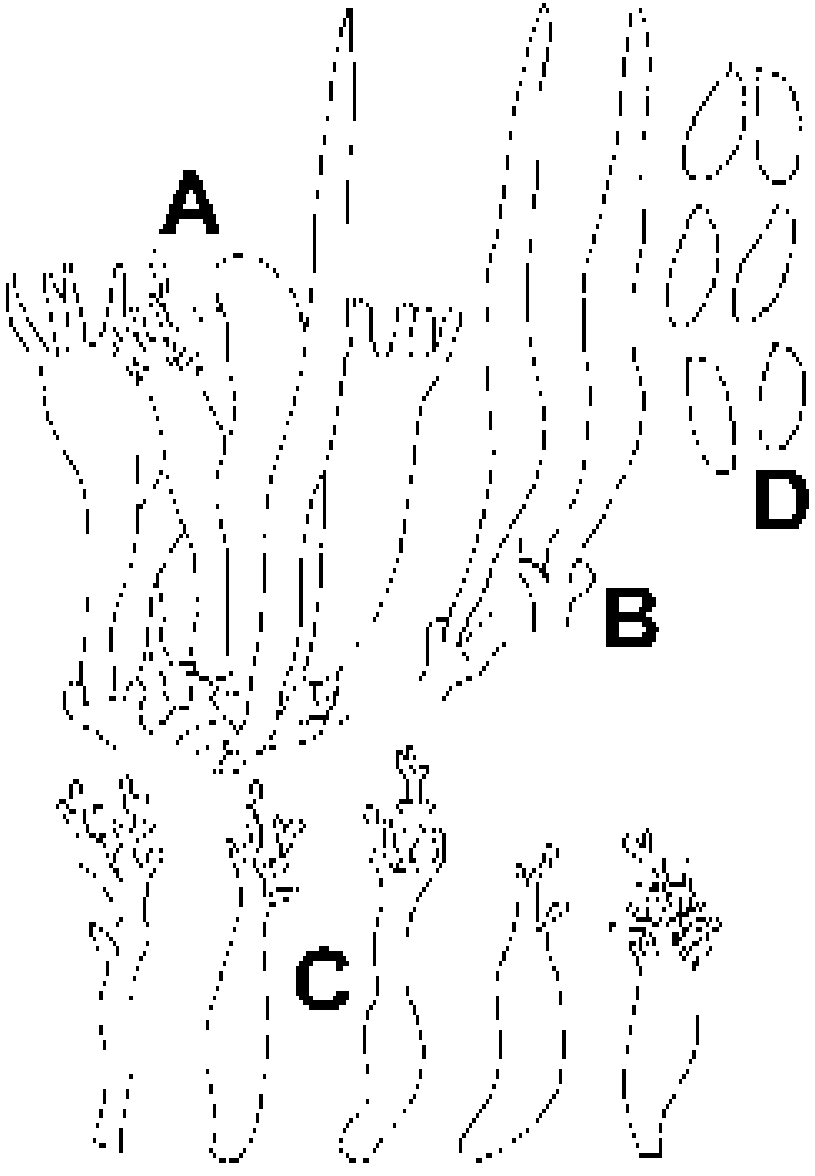

Fig. 1. *Leptocorticium cyatheae*, A) Part of hymeium, B) Cystidia, C) Dendrohyphidia, D) Basidiospores. From the holotype.

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Synopsis fung. 15:26-30, 2002

Studies in corticoid fungi from Venezuela I. (Basidiomycotina, Aphyllophorales)

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Abstract
Seven corticoid species are reported as new from Venezuela out of which *Botryodontia tetraspora* is new to America. The combination *Botryodontia tetraspora* (S.S. Rattan) Hjortstam & Ryvarden is proposed.

Introduction
The corticoid fungi of Venezuela are poorly known and no specific studies have been preformed on this group of fungi. The reason is obvious, there is a strong lack of pertinent manuals. However, recent studies on the same group in Colombia (Hjortstam & Ryvarden 1997,2000, 2001) have given us some insight what to expect in Venezuela as the two land to a certain degree share the same vegetation types and flora. In recent years two of us (LR & TI) have done numerous collections of corticoid fungi in Venezuela and reports based on these collections will be published in the future. The collections reported below were made by H. Urbina in connection with his master thesis under supervision by two of us (LR & TI).
All collections were made in the Amazonas department, Sanmaria, a 30 min. de Puerto Ayacucho, Reserva Hidrólogica Rio Cataniapo, $5^{0}36'$-$37'$ N - $67^{0}6'$-$29'$, W, approximately 100 m above sea level. All specimens are deposited in VENN, with duplicates in O.

List of species

Botryodontia tetraspora (S.S. Rattan) Hjortstam & Ryvarden comb. nov.
Basionym: *Hyphodontia efibulata* John Erikss. & Hjortstam forma *tetraspora* S.S. Rattan, Bibl. Mycol. 60:335, 1977.
Synonym: Hyphodontia tetraspora (S.S. Rattan) Hjortstam, Windahlia 17:58, 1987.
Holotype: India, *in ligno Piceae smithianae*, Jaggat Sukh, Kulu, Himachal Pradesh, 14.IX.1971. S.S. Rattan 4354 (K)! Another specimen in Kew (Rattan no. 5914), which were cited in the original description, is in even better condition than the type.

Basidiome resupinate, finely tuberculate or odontioid, with small subglobose verrucae, 5-6/mm, pale ochraceous. Cystidia cylindric, rather thick-walled, normally without septation, often slightly widened towards the apex and moderately encrusted, about 100 µm long and 4-6 µm wide. Hyphae 3-6 µm wide, thin-walled, without clamp-connections. Basidia 12-15 x 4-5 µm, with four sterigmata. Spores thin-walled, ellipsoid, 3.5-4.5(-5.5) x 2-2.5 µm.
Specimens examined: Urbina 7.15 and 13.32 (rather poor material). This is the first report outside India.

The genus *Botryodontia* is recognized by a monomitic hyphal system and hyphae without clamp-connections. The cystidial elements are smooth or encrusted and occur mainly in the aculei. The basidia are obconical, usually 10-15 µm long and with four sterigmata. The spores are subglobose, thin-walled, smooth and generally 5-6 µm diam.

The main differences in micromorphology between *Hyphodontia* and *Botryodontia* are the lack of clamp-connections and short, obconical basidia in the latter. In *Hyphodontia* the basidia are mainly longer, subclavate and with a median constriction. Macroscopically all species in *Botryodontia* are reminiscent of those of *Hyphodontia* by the colliculose to odontioid hymenophore. The only species left in *Hyphodontia* without clamp-connections are *H. efibulata* J. Erikss. & Hjortstam and *H. byssoidea* (H. Furuk.) N. Maek., but at present we refrain doing any formal transpositions.

Botryohypochnus bondarcevii Parmasto,
Eesti NSV Tead. Akad. Toim., Biol. 14: 221, 1965.
Basidiome loosely adnate, filamentous, yellowish brown. Hyphal system monomitic; hyphae loosely interwoven, basal ones 10-13(-15) µm wide, thick-walled, pale yellowish, slightly dextrinoid, other hyphae more or less hyaline, thin-walled or with slight wall thickening, without dextrinoid reaction, narrower, 8-10 µm wide; all hyphae without clamp-connections. Cystidia lacking. Basidia obovate to subcylindrical, thin-walled, 18-20 x 8-10 µm, with four sterigmata. Spores about 5-7 µm across (excl. spines), distinctly aculeate and with spines 2-4 long, with a prominent hilar appendix, hyaline or with a brownish tint.

The species was originally described from the Russian Far East and is known from Brazil (Hjortstam and Bononi 1987), Guyana, Japan and Massachusetts

(Maekawa (1992), Brunei (Hjortstam et al. 1998) and from Cameroon (Roberts 2000). G. Langer (1994) mentioned it from North Carolina, but did not accept the genus *Botryohypochnus* which she treated as a taxonomic synonym of *Botryobasidium*. We are following Parmasto and maintain the traditionally generic concept established by Donk (1931).
Specimen examined: Urbina and Martinez, Urbina No. 73.

Hyphodontia orasinusensis Gilb. & M. Blackw.,
Mycotaxon 33:382, 1988.
The species was originally described from USA, Louisiana and further known from Colombia and French Guiana. It is very similar to *Hyphodontia microspora* J.Erikss. & Hjortstam, but has somewhat larger (wider) spores and lack clamp-connexions on the basal hyphae. *H. microspora* is recorded in Argentina (Galan et al. 1993 sub *Grandinia microsporella* Jülich), Brazil (Langer 1994) and *as Odontia palmae* Rick ex Rambo (Hjortstam and Ryvarden 1982), Taiwan (Wu 1990) and we have seen specimens from Malawi and Uganda.
Specimens examined: Urbina 49 and 203.

Hypochnicium cfr. cymosum (D.P. Rogers & H.S. Jacks.) K.H. Larss. & Hjortstam, Mycotaxon 5:477, 1977. - *Peniophora cymosa* D.P. Rogers & H.S. Jacks., Can. J. Res. C 26:133, 1948. - *Lagarobasidium cymosum* (D.P. Rogers & H.S. Jacks.) Jülich, Persoonia 8:80, 1974.
Description of tropical specimens:
Basidiome resupinate thin. Hymenophore slightly flocculose. Hyphal system monomitic; hyphae thin to moderately thick-walled, 2.5-3 µm wide, subhymenial hyphae short-celled, somewhat broader and up to 4 µm wide, all hyphae with clamp-connections. Cystidia terminal, subulate, 40-60 µm long and 3-4 µm wide near the base, thin-walled in the upper part, basally thick-walled. Basidia short, with four sterigmata. Spores subglobose, smooth, moderately thick-walled and slightly cyanophilous, 4(-4.25) x 3-3.25(-3.5) µm.

The species was originally described from USA (North Carolina). From the tropical areas specimens are previously known from Venezuela (Liberta and Navas 1978). From Brazil known under the name *Kneiffia grisea* Rick 1934 (nomen invalidum non Berkeley and M.A: Curtis 1868), see also Hjortstam and Ryvarden (1982). It is also collected twice by Ryvarden on Ilha do Cardoso (Brazil) and further known from Tanzania.

According to Hjortstam and Larsson (1977) the spores are 5 x 4 µm, whereas in the original diagnosis (Jackson 1948) they described as 4.5-5 µm.

There are at least two differences between the type of *Peniophora cymosa* and the records from tropical areas. The basidiome is thicker and finely floccose and the spores smaller in the latter, whereas hyphae and cystidia conform to the former.

Another species that seems to be closely related is *Subulicium minus* Hjort-

stam. This species has the same kind of cystidia, but the spores are slightly smaller than in *H. cymosum,.*but lack clamp connections.
Specimen examined: Urbina 216

Phlebiopsis cfr. ***peniophoroides*** Gilb. & Adask.,
Mycotaxon 49:388, 1993.
This taxon was originally described from Hawaii on branches of *Spathodea campanulata* (type) and *Eugenia jambos*.

The specimen from Venezuela is characterized by a brownish subiculum, hyphae without clamp-connections and short metuloids with the encrusted part 15-30 µm long, spores are 4.5-5 x 2.75-3 µm. It corresponds well with the description given by Gilbertson and Adaskaveg (loc. cit.). Another species of the genus that is quite common in tropical areas, is *Ph. ravenelii*. It has about the same size of the spores, but the encrusted parts of the metuloids are longer, often up to 75 µm long and the subiculum is more or less hyaline.
Specimen examined: Urbina 93.

Resinicium friabile Hjortstam & Melo,
Mycotaxon 65:324, 1997.
Probably a pantropical species.
Specimens examined: Urbina 7.7, 7.31, 7.34, 7.35, and 293.

Veluticeps cfr. ***berkeleyi*** (Cooke) Pat.
Bull. Soc. mycol. Fr. 10:77, 1894.
Brief description of the Venzuelean specimen:
Basidiome resupinate, 6x4 cm, 0.5-1 mm thick, pale brown. Hymenophore dimitic or subdimitic, smooth, with projecting skeletocystidia, subiculum dense and cottony, skeletal hyphae brownish, 2-2.5 µm wide, without clamp-connections or with very long intervals, generative hyphae hyaline, moderately short-celled, 2-2.5(-3) µm wide. Skeletocystidia single, thick-walled almost smooth, brownish, up to 400 µm long, basidia 30-50 x 5(-6) µm, with four sterigmata and a basal clamp-connection, spores fusiform to subfusiform, hyaline, smooth, thin-walled, 12-14 x (2.5-)3-3.25 µm, non-amyloid, non-dextrinoid and acyanophilous.

Originally *V. Berkeleyi* was described from Cuba and according to Nakasone (1990) distributed in Mexico, Guatemala, Taiwan, and Japan. *Veluticeps pini* Pat., in Bull. Soc. mycol. Fr. 23:72, 1907, described from Tonkin, is probably a synonym of *V. berkeleyi.* The Venzuelean specimen differs from *V. berkeleyi* by narrower spores and single skeletocystidia. In *V. berkeleyi* the spores are 4-5 µm wide and the cystidia occur in fascicles. Most specimens are also known from gymnosperms, see Gilbertson et al. (1968).

It may be that the Venzuelean specimen represents a new species, but more collections is needed to verify the characters given above.
Specimen examined: Urbina 51.3, on angiosperm.

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Synopsis Fung. 15:31-33, 2002

A note on the genus *Hydnodon* Banker

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Abstract
The genus *Hydnodon* Banker is considered to be a taxonomic synonym of *Trechispora* P. Karsten, and the combination *Trechispora thelephora* (Lév.) Ryvarden is proposed.

Introduction
The genus *Hydnodon* Banker (1913) was erected to accommodate *Hydnum thelephorum* Lev. The latter is a widespread, semistipitate hydnoid species restricted to tropical parts of America. The genus had slept in oblivion for a long time until Maas Geesteranus (1963) described its hyphal system. He suggested that Scytinopogon Singer to be a possible related genus, but " whether the family should be Gomphaceae, I prefer to leave undecided for the moment". Next time the genus was brought to light was by Bononi (1988) where she cites a number of countries where the species has been recorded. Since then I have not seen the genus mentioned in the literature.

When reading Bankers original description and that of Beers and Coker(1951), where the spores are described as " minute, whitish, clouded, echinulate", it struck me *H. thelephorum* could be the same as *Trechispora hypogeton* Maas Geesteranus (1974) which are semistipitate and has the same type of spores. This species is rather common in parts of Costa Rica where I had collected and examined fresh specimens from Guanaste National Park.

Banker had seen the type of *Hydnum thelephorum* Lev. in the Paris herbarium and found it to be conspecific with a number of specimens in the New York herbarium, and to check their identity, they were borrowed for examination (see below for list). They were all identical with my specimens from Costa Rica and there is no doubt that *T. hypogeton* is a taxonomic synonym of *Hydnum thelephorum* Leveille. The remarkable fact is that Maas Geesteranus has identified one specimen in the New York herbarium as *Hydnodon thelephorum* (see below) in 1972 (note on the sheet), but never the less described the species as new a few years later (Maas Geesteranus 1974).

H. thelephorum has a semistipitate basidiocarp and characteristic small non-amyloid echinulate spores besides ampullate swellings at the hyphal septa. The latter

microscopical characters clearly places the species in *Trechispora* P. Karsten, and the generic disposition of Maas Geesteranus was confirmed by Larsson (1992) in his monograph of the genus. This necessitates the following new combination.

Trechispora thelephora (Lev.) Ryvarden comb nov.
Basionym: *Hydnum thelephorum* Lev. Ann. Sci. Nat. III, vol 2:204, 1844. - *Thelephora padinaeformis* Mont. Syll. Crypt. 175, 1856. - *Pseudohydnum guepinioides* Rick, Ann. Mycol. 2:409, 1904. - *Trechispora hypogeton* Maas Geesteranus, Kon. Nederl. Akad. Wetsch. Proc. Ser. C, vol 77, no 3:229, 1974.
Basidiocarp annual, pileate, often in dense clusters, semistipitate to fan shaped or spathulate, often incised and lobed, appearing irregular of outline, up to 7 cm wide and long, thin, rarely up to 4 mm thick, pliable when fresh, drying hard and brittle, upper surface white when fresh, drying pale reddish brown, often with a slight orange tint, first finely adpressed pubescent, soon becoming glabrous, lower side finely hydnoid, concolorous with the upper surface, individual teeth regular to irregular as tiny plates or wart like outgrowths, up to 1 mm long in well developed specimens, context thin and dense when dry, stipe lateral to eccentric , irregular, up to 8 cm long when growing in deep humus, usually shorter, lower side often covered with teeth, concolorous with the rest of the basidiocarp. Taste mild, almost tasteless, odour of old ham when old (teste Banker).
Hyphal system monomitic, generative hyphae with clamps, commonly with ampullaceous swellings, most hyphae thin walled, those of thinner stipe slightly thick-walled, 2-4 µm wide.
Basidia clavate with 4 sterigmata.
Basidiospores ellipsoid, echinulate, hyaline and negative in Melzer´s reagent, 4.2-4.5 x 3.5-4 µm.
Substrate. Growing on the ground in deciduous forest, often in deep humus and old leaves.
Distribution. Brazil (Rick 1904, Bononi 1988, Maas Geesteranus 1974) Chile (Coker and Beers 1951), French Guyana (Leveille 1844, Montagne 1856), Jamaica (Banker 1913) Bahamas (Banker 1913), Galapagos (Bonar 1939), Costa Rica, Colombia and Panama.
Remarks. The species is conspicuous, but short-lived and has certainly been overlooked in many places. From the presently known specimens, it is evident that it has a more or less coherent distribution in the neotropical area.
Specimens examined:
Brazil: Minas Gerais, Brejo do Lapa, E. Jasinski, 4. April 1966 (det. R. Maas Geesteranus) (NY)
Colombia: Dept Cauca, Municipio Tunia, reserva Forestal el Guayabo, D. Desjardin 16 Nov. 1988 (NY).
Trinidad: On Blanchisseuse Rd. Arima, 9 July 1960, P. A. Lemke & A.L. Welden 1773, plus 5 collections from same locality. Trinidad: Government Reserve, North-

ern Range 4 July P. A. Lemke & A.L. Welden 1716 (NY).
Panama: Puerto Obaldia- trail to Dairen, prov. San Blas, 22 June 1975, K. Dumont, PA-932 (NY).
Jamaica: Rose Hill, 24. Oct. 1902, F. S. Earle 54, no locality, Murrill 691 (NY).
Bahamas: Near Nassau, Dec. 1906, K. L Brace, same locality October 1906 (NY).

Acknowledgements.
Dr. Barbara Thiers and Ellen Bloch of the New York Botanical Garden have kindly helped with a loan of pertinent specimens from the New York Herbarium.

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Synopsis Fung. 15: 34-69, 2002

Studies in neotropical polypores 14
New species from the state of Paraná, Brazil

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Abstract
155 species of poroid Aphyllophorales are reported from the Brazilian State of Paraná. *Antrodiella brasiliensis* Ryvarden & de Meijer, *A. luteocontexta* Ryvarden & de Meijer, *Coltricia barbata* Ryvarden & de Meijer, *Ceratoporia perplexa* gen. and sp. nova Ryvarden & de Meijer and *Grammothelopsis bambusicola* Ryvarden & de Meijer are described as new. Keys to the neotropical species of *Antrodiella* and *Coltricia* besides all species of *Grammothelopsis* are provided.

Materials and methods
Collections reported below were made by one of us (AARM) from 1987 to April 2000, in numerous field trips to all parts of Paraná.
Species are cited alphabetically according to genus. As all collections listed are from Paraná, this information is not repeated for the species.
Synonyms are only given if used in the previous publication on Paraná polypores (Rajchenberg & de Meijer, 1990).
Only Paraná collections that are additional to those mentioned in the paper by Rajchenberg & de Meijer (1990) will be listed. The collections have been determined by us, but also by Dr. Mario Rajchenberg, and this is indicated as Det. Ryv., Det. M and Det. Rajch. respectively.
All specimens are kept at HFC (*Herbário Fernando Cardoso*, Colombo, Paraná,

Brazil), but many duplicates are also kept at O (Oslo, Norway). For all new species, the holotype is preserved at HFC; while the isotypes have been deposited in O. Duplicates of collections determined by M. Rajchenberg or J. E. Wright are preserved at BAFC (Buenos Aires, Argentina), while those determined by H. H. Burdsall, Jr. are at CFMR (Madison, Wisconsin, U.S.A.).
To save space, localities are identified by two- or four- letter codes that precede the collection numbers; the codes are given below.

List of collecting sites in Paraná.
Vegetational and habitat types:
a) native (following Veloso *et al*. 1991): **dof** = dense ombrophilous forest; **mofa** = mixed ombrophilous alluvial forest; **mofm** = mixed ombrophilous montane forest; **ssf** = seasonal semi-deciduous submontane/montane forest; **rea** = *restinga* (vegetation on marine sands);
b) exotic: **plp** = *Pinus*-plantation; **ple** = *Eucalyptus*-plantation.
In the following, first the mucipality is given, first with the abbreviation used in the species list, and then the real name, then the exact locality, the altitude and finally the type of vegetation, abbreviated as given above.

ALAa - Altonia, forest at Estrada do Amendoim, 2 km north of Jardim Paredão, 250 m, *pls/ssf.*
ANa - Antonina, *Reserva Morro da Mina*, 5-100 (-400) m, *dof.*
ANb - Antonina, *Reserva Biológica de Sapitanduva*, 30 m, *dof.*
AT - Almirante Tamandaré (Canavial district), 950 m, *mofm.*
CL - Campo Largo (Bateias district), *Reflorestamento Ouro Fino*, 950 m, *plp.*
COa - Colombo, Centro Nacional de Pesquisa de Florestas - *Embrapa Florestas*, 900 m, *mofm*/*pls*/*plp.*
CPa - Cornélio Procópio, *Fazenda São Paulo*, 670 m, *ssf.*
CPb - Cornélio Procópio, *Bosque Municipal Manoel Júlio de Almeida*, 670 m, *ssf.*
CUa - Curitiba (Uberaba quarter) and São José dos Pinhais, *Reserva Biológica Cambuí*, 870 m, *mofa*
CUb - Curitiba (Mercês/Santo Inácio quarter), *Parque Barigui*, 900 m, *mofm.*
CUc - Curitiba (Capão da Imbuia quarter), Forest of Natural History Museum *Capão da Imbuia*, 900 m, *mofm*
CUd - Curitiba (Cachoeira quarter), *Parque Barreirinha*, 900 m, *mofm.*
CUh - Curitiba (Uberaba quarter), school and boarding-school of Mennonites, 900 m, *mofm.*
CUi - Curitiba (Centro Civico quarter), *Bosque João Paulo II*, 900 m, *mofm.*
CUl - Curitiba (Bairro Alto quarter), *Colégio Madalena Sofia*, 900 m, *pls*/*plp.*
CUm - Curitiba (Hauer quarter), *Bosque Reinhard Maack*, 900 m, *mofm.*
CUp - Curitiba (Centro quarter), *Passeio Público*, 900 m.
DN - Diamante do Norte, *Estação Ecológica do Caiuá*, 250-300 m, *ssf.*

FE – Fênix, *Parque Estadual de Vila Rica do Espírito Santo*, 300-370 m, *ssf.*
FIb - Foz do Iguaçu, *Refugio Biológico Bela Vista*, 250 m, *ssf.*
GC - General Carneiro, *Fazenda São Pedro*, 800-950 m, *mofm*/*pls*/*plp.*
GUa - Guaraqueçaba, Potinga, 5 m, *dof.*
GUb - Guaraqueçaba, Ilha do Superaguï, 0-10 m, *rea*/*dof.*
GUc - Guaraqueçaba, Ilha das Peças, 0-10 m, *rea*/*dof.*
GUP - Guarapuava, *Segredo*, 500 m, *mofa/mofm*/*pls*/*plp.*
IGa - Foz do Iguaçu, *Parque Nacional do Iguaçu*, in neighborhood of waterfalls, 150 m, *ssf.*
JSa - Jundiaí do Sul, *Fazenda Monte Verde*, 550-700 m, *ssf.*
JSb - Jundiaí do Sul, *Fazenda Pau d'Alho*, 600 m, *ssf.*
LA- Lapa, *Parque Estadual do Monge*, 900 m, *mofm*/*plp.*
MAa-p, several municipalities, viz. Antonina, Campina Grande do Sul, Morretes, Piraquara, Quatro Barras, and São José dos Pinhais, *Área Especial de Interesse Turístico do Marumbi*, 20-1850 m, *dof.*
MAa - Antonina, rio São Sebastião, near BR 116 highway, 700-900 m, *dof.*
MAb - Antonina, rio do Nunes, 20-400 m, *dof.*
MAc - Campina Grande do Sul, forest track to Pico Paraná, 1000-1850 m, *dof.*
MAd - Campina Grande do Sul, rio Pardo, Capivari, near BR 116 highway, 1000-1500 m, *dof.*
MAe - Morretes, north of BR 277 highway, Mundo Novo da Anhaia, 300-850 m, *dof.*
MAf- Morretes, rio Mãe Catira + eastern part of Estrada da Graciosa, 100-400 m, *dof.*
MAg - Morretes, rio Nhundiaquara + eastern part of Caminho do Itupava + Marumbi, Eng. Lange and Véu da Noiva train stations, 40-1000 m, *dof.*
MAh - Piraquara, *Mananciais da Serra*, 850-1100 m, *dof.*
MAm - Quatro Barras, rio Taquari + western part of Estrada da Graciosa, 600-1500 m, *dof.*
MAp - São José dos Pinhais, rio Arraial, 900-950 m, *dof.*
MANa - Mandirituba, near graveyard and Diamante river, 850 m, *mofm.*
PAa - Paranáguá, Ilha do Mel, 0-150 m, *dof*/*rea.*
PAc - Paranáguá (Alexandra), 10 m, *dof.*
PAd - Paranáguá (Guaraguaçu), 5 m, *dof.*
PAe - Paranáguá, Ilha Valadares, 5 m, *rea.*
PAf - Paranáguá (Saquarema), 5-70 m, *dof.*
PIa - Piraquara, *Estação Experimental do Canguiri da UFPR*, 900 m, *mofm*/*pls*/*plp.*
PId - Piraquara, region between "Recreio da Serra" and Banhados train station, including western part of Caminho do Itupava, 900 m, *dof.*
PPa - Pontal do Paraná (Pontal do Sul + Praia de Leste), 0-5 m, *rea.*
QBb - Quatro Barras (Borda do Campo district), Morro Anhangava, 930-1480 m, *mofm.*

SJa - São José dos Pinhais, Harry Feeken street, 900 m, *mofm.*
SJc - São José dos Pinhais, Antonio Zaramella street, 900 m, *plp.*
SJf - São José dos Pinhais (Roça Velha district), 900 m, *mofm.*
SJg - São José dos Pinhais, Colônia Castelhanos, 300-500 m, *dof.*
SM - São Mateus do Sul, *Fazenda Durgo*, 750-800 m, *mofm*/*mofa.*
SMAa - Santa Mariana (+ Cornélio Procópio), *Parque Estadual Mata São Francisco*, 600 m, *ssf.*
SMAb - Santa Mariana, Palmeira and Guaicurus farms, 500 m, *ssf/pls/plp.*
TB - Telêmaco Borba, *Indústrias KLABIN do Paraná Agro-Florestal*, 750 m, *mofm*/*pls*/*plp.*
TU - Tunas do Paraná, *Parque Estadual de Campinhos*, 950 m, *mofm.*
VAa - Vila Alta, *Fazenda Pau d'Alho*, 260 m, *ssf.*
VAb - Vila Alta, Ilha dona Ana Maria, 250 m, *ssf.*

Abbreviations of scientific periodicals and of authors of taxa follow The Plant Names Project (1999). Authors of species are included when the binomial is used for the first time.

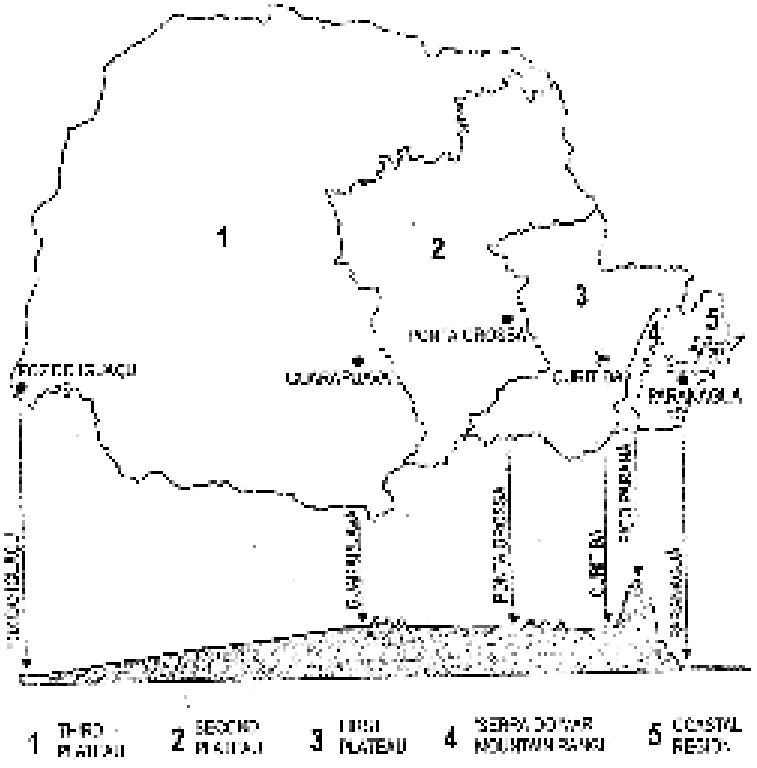

Fig. 1. Natural geographical regions of Paraná State, Brazil.

For each species information is given about their occurrence. All these data refer exclusively to the state of Paraná. The division of Paraná in natural geographical regions is shown in Figure 1. Further general information about Paraná State, its climatic regions, vegetation and mycota are given in Meijer (2001).

According to the classification of Kirk *et al*. (2001) the poroid fungi listed in this paper form a heterogeneous group distributed over the *Polyporales* (*Polyporaceae*, *Meripilaceae*, *Hapalopilaceae*, *Fomitopsidaceae*, *Gloeophyllaceae*, *Grammotheleaceae*, *Ganodermataceae*, *Steccherinaceae*, *Meruliaceae*), *Hymenochaetales* (*Hymenochaetaceae*, *Schizoporaceae*), *Cantharellales* (*Hydnaceae*), *Russulales* (*Bondarzewiaceae*), *Ceratobasidiales* (*Ceratobasidiaceae*), and *Tremellales* (*Exidiaceae*).

List of species

Abortiporus biennis (Bull.: Fr.) Singer
See Rajchenberg & de Meijer (1990, as *Heteroporus biennis*). Common. Specimens examined: Det. M: CUb-2510 (5.iii.1993; *mofm*, on soil against base of dicot. stub), GC-1708 (12.v.1990; on decayed (dicotyledonous?) stub in *Pinus* plantation).
f. **hexagonoides** (Lloyd) O. Fidalgo 1969. A rare variety. Specimens examined: Det. M: MAd-2951 (19.xi.1994; dof, on decayed dicot. branch). Det. Ryv. (as *Abortiporus biennis*): PAc-2966 (21.xii.1994; *dof*, on decayed dicot. trunk).

Abundisporus fuscopurpureus (Pers.) Ryvarden
Collected only once. Specimen examined: Det. Ryv.: SM-1320 (19.viii.1989; *mofm*; on decayed dicot. branch). There are some doubts whether this and the following species really are separate or only represent a variable taxon.

Abundisporus roseoalbus (Jungh.) Ryvarden
Collected only once. Specimen examined: Det. Ryv.: JSa-3239 (3.ii.1996; *ssf*, on decayed worked trunk).

Amauroderma camerarium (Berk.) J.S. Furtado
See Rajchenberg & de Meijer (1990). Collected only once.

Amauroderma corneri Gulaid & Ryvarden
Uncommon. Specimens examined: Det. Ryv.: COa-3734 (4.iv.2000; *mofm*, rooting in forest soil), COa-3759 (17.iv.2000; *mofm*, rooting in forest soil at 0.5 m distance of standing trunk).
Remarks. One of us (AARM) has received a specimen of this species from Georg Sobestiansky, collected in April 2000 in the city of Nova Petrópolis, Rio Grande do Sul State, on a dead stub of planted *Acacia decurrens* Willd. («black wattle»). It is a mystery how such a large and richly fruiting fungus - apparently widespread in Brazil - could have been overlooked until so recently.

Amauroderma omphalodes (Berk.) Torrend
(but compare: *Amauroderma* aff. *camerarium* (Berk.) J.S. Furtado)
Rare. Specimens examined: Det. Ryv.: PAa-1464 (3.ii.1990; *dof*, on forest humus). Det. Rajch.: MAf-1039 (31.xii.1987; *dof*, against base of living dicot. trunk),
Remarks. Rajchenberg identified coll. 1039 as *Amauroderma sprucei* (Pat.) Torrend (see Rajchenberg & de Meijer, 1990) and Ryvarden identified coll. 1464 as *A. omphalodes* (Berk.) Torrend.

Amauroderma praetervisum (Pat.) Torrend
Form a (spores 10.5-11 x 8.5-9 µm, broadly ellipsoid, appearing almost smooth, nearly hyaline).
Collected only once. Specimen examined: Det. Rajch.: CUm-2147 (5.iii.1992; *mofm*, on forest soil).
Form b (spores 10-11 µm, perfectly globose, punctate).
Uncommon. Specimen examined: Det. Ryv.: PAa-1801 (3.vi.1990; *dof*, on forest humus).

Amauroderma pseudoboletum (Speg.) J.S. Furtado
Collected only once.
Specimen examined: Det. Ryv.: MAh-1676 (2.v.1990; *dof*, on decayed dicot. twig).

Amauroderma rude (Berk.) Torrend *vel aff*.
Only in the Third Plateau. Specimen examined: Det. Rajch.: IGa-2431 (9.i.1993; *ssf*, on forest soil).

Amauroderma schomburgkii (Mont. & Berk.) Torrend
See Rajchenberg & de Meijer (1990). Common.
Specimens examined: Det. Rajch.: CUb-2554 (5.iii.1993; *mofm*, on forest soil), CUd-1880 (1.xii.1990; *mofm*, on forest soil), SJc-2121 (9.ii.1992; *mofm*, on forest soil), TB-2285 (2.vi.1992; *mofm*, on forest soil).

Amauroderma sprucei (Pat.) Torrend
See Rajchenberg & de Meijer (1990). Found only once (coll. 1248), under planted *Eucalyptus*.

Amauroderma trichodermatum J.S. Furtado
Quite rare. Specimens examined: Det. Ryv.: MANa-2624 (20.iv.1993; *mofm*, on decayed dicot. stub). Det. M: CUm-2148 (5.iii.1992; *mofm*, on soil, near root of dicot. tree), GUb-3474 (19.x.1997; *dof*, on decayed dicot. branch), IGa-2405 (3.i.1992; *ssf*, on decayed dicot. trunk), PId-2100 (19.i.1992; *dof*, on forest soil).
Amylosporus campbellii (Berk.) Ryvarden
Collected only once. Specimen examined: Det. Ryv.: SMAa-3531 (10.iii.1998; *ssf*,

on forest soil).
Antrodia albida (Fr.: Fr.) Donk
Uncommon. Specimens examined: Det. Rajch.: MAg-1994 (13.vii.1991; *dof*, on decayed dicot. twig). Det. M: MAe-1923 (10.iv. 1991; *dof*, on decayed dicot. twig), MAg-(11.iv.1992; *dof*, on decayed dicot. branch).

Antrodia malicola (Berk. & M.A. Curtis) Donk
See Rajchenberg & de Meijer (1990). Rare. Specimen examined: Det. Rajch.: GUP-2265 (14.v.1992; *mofm*, on decayed branch of *Araucaria angustifolia* (Bert.) Kuntze).

Antrodiella angulatopora Ryvarden
Rajchenberg & de Meijer (1990) reported this species as *Ceriporiopsis latemarginata*. There is some doubt whether the hyphal system is mono- or dimitic and how the interrelationship is between these two taxa. Common. Specimens examined: Det. M: ALAa-3213 (19.i.1996; *ple*, on *Eucalyptus* bark), CPa-3530 (10.iii.1998; *ssf*, on decayed dicot. branch), VAa-3171 (13.xii.1995; *ssf*, on dead dicot. wood), VAa-3172 (13.xii.1995; *ssf*, on dead dicot. wood).

Antrodiella brasiliensis Ryvarden & de Meijer nova sp.
Fructificatio sessilis, pileus ochraceus, pori rotundis vel angulatis, 1-2 per mm, albidis vel cremicoloribus, systema hyphale dimiticum, hyphae generatoriae fibulatae, basidiosporae allantoideae, 4.5-6 x 1.8-2.2 µm.
Holotypus: Brazil, Paraná, Colombo, Embrapa Florestas, 900 m.s.m., 28.v.1999, on dicotyledonous branch, A.A.R. de Meijer & M.A.L. de A. Amazonas, no. 3637, in herb. HFC, isotype in O.
Basidiocarps pileate, annual, imbricate, broadly sessile, gregarious, forming rows of up to 10 cm, pileus semicircular, up to 25 µm wide, plane, white azonate, surface dull, smooth and glabrous, margin sharp, pore surface pure white to cream, pores angular, partly split to sinuous, 1-2 per mm, tubes to 9 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 clavate, 4-sterigmate, 15-20 x 4-5 µm, with a basal clamp.
Basidiospores allantoid to cylindrical, hyaline, smooth, negative in Melzer's reagent, 4.5-5.5 (6) x 1.8-2.2 µm.
Substrata. Known from dead dicotyledonous wood.
Distribution. Known from the type locality and one in the same state.
Remarks. This species is characteristic with the small gregarious white basidio-

carps, the irregular dentate hymenophore and the allantoid basidiospores. The only other species with an irregular pore surface and allantoid basidiospores is *A. dentipora* Ryvarden & Iturriaga. This species, however, has smaller pores and narrower basidiospores, i.e. 2-5 per µm and 1-1.3 µm wide respectively.
Additional specimen examined. Brazil, Paraná: Campina Grande do Sul, Capivari, Parque Marumbi, 1000 m.s.m., 7.v.1992, A.A.R. de Meijer 2248 (HFC, O).
A key to all neotropical *Antrodiella* species is given below.

Antrodiella duracina (Pat.) Ryvarden
Collected only once. Specimen examined: Det. Ryv.: JSa-3256 (5.ii.1996; *ssf*, on dead dicot. wood).

Antrodiella hydrophila (Berk. & M.A. Curtis) Ryvarden
See Rajchenberg & de Meijer (1990, as *Flaviporus hydrophilus*). Rare. Specimens examined: Det. Ryv.: probably belongs here, but sterile: PAd-2808 (22.vi.1993; *dof,* on decayed dicot. trunk).
Det. Rajch.: MAe-1967 (28.iv.1991; *dof*, on decayed dicot. branch).

Antrodiella liebmannii (Fr.) Ryvarden
See Rajchenberg & de Meijer (1990, as *Flaviporus liebmannii*). Common. Specimens examined: Det. Rajch.: CUb-2513 (5.iii.1993; *mofm*, on decayed dicot. wood). Det. M: COa-3646 (28.v.1999; *mofm*, on decayed dicot. branch), COa-3757 (17. iv.2000; *mofm*, on decayed dicot. branch), GUa-3108 (5.vii.1995; *dof*, on decayed dicot. branch), MAg-2234 (11.iv.1992; *dof*, on decayed dicot. trunk).
Remarks. According to Ginns (1980) *Flaviporus liebmannii* (Fr.) Ginns has 14-20 pores per mm and spores 2.4-3.4 µm long. According to Rajchenberg & Wright (1987: 259) *Flaviporus subhydrophilus* (Speg.) Rajchenb. & J.E. Wright has 7 pores per mm and spores 3.5-4 µm long. In several collections from Paraná the spore length corresponds with the former species, whilst the pore width fits with the latter (e.g. coll. 3646), or the spore length corresponds with the former, whilst the pore width is intermediate between the former and the latter (e.g. coll. 3108). In one collection (2234) the pore width fits with *F. subhydrophilus*, whilst the spore length is 2.5-4 µm, i.e. extends over the entire range of both species. This seems to indicate that *F. subhydrophilus* is a synonym of *A. liebmannii.*

Antrodiella luteocontexta Ryvarden & de Meijer nova sp.
Fructificatio sessilis, pileus luteus vel ochraceus, pori rotundis vel angulatis, 1-2 per µm, albidis vel cremicoloribus, systema hyphale dimiticum, hyphae generatoriae fibulatae, basidiosporae cylindricae 3-3.5 (4) x 1.4-2.0 µm.
Holotypus: Brazil, Paraná, Curitiba, Parque Barigui, 900 m.s.m., 5.iii.1993, on dicotyledonous log, A.A.R. de Meijer no. 2574, in herb. HFC, isotype in O.
Basidiocarps pileate, annual, imbricate, broadly sessile, gregarious, pileus semi-

circular, 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, 2-6 µm.
Cystidia absent.
Basidia clavate, 4-sterigmate, 15-18 x 4-5 µm, with a basal clamp.
Basidiospores cylindrical or slightly curved, hyaline, smooth, negative in Melzer's reagent, 3-3.5 (4) x 1.4-2.0 µm.
Substrata. Known from dead dicotyledonous wood.
Distribution. Known from the type locality and several other localities in Paraná.
Remarks. This species is characteristic by the yellow basidiocarps, the large round to angular pores, the short cylindrical basidiospores and the yellow context. *A. brasiliensis* described above, has dentate sinuous to split pores, a whitish glabrous pileus, a white context and longer, allantoid basidiospores.

Antrodiella multipileata Loguercio-Leite & J.E. Wright
See Loguercio-Leite & Wright (1991: 169) for reference to Paraná material (collections *de Meijer* 752, 1288, 1382). Very common. Specimens examined: Det. Ryv.: MANa-2623 (20.iv.1993; *mofm*, on standing dead dicot. trunk). Det. M: COa-3615 (18.v.1999; *mofm*, on dead dicot. branch), MAc-1859 (12.viii.1990; *dof*, on decayed dicot. trunk).

Antrodiella reflexa Núñez & Ryvarden
Brazil, Paraná, Guaraqueçaba island, on dead standing trunk of *Avicennia schaueriana* Stapf & Leechman, 20.x.1997, A.A.R. de Meijer no. 3478.
A. reflexa was recently described from Panama (Núñez & Ryvarden 2000) and the Brazilian specimen matches the type very well in all aspects. It is the second known collection.

Antrodiella semisupina (Berk. & M.A. Curtis) Ryvarden
Specimens examined: Det. Rajch.: CUb-2573 (5.iii.1993; *mofm*, on decayed dicot. branch). Det. M: COa-3758 (17.iv.2000; *mofm*, on decayed horizontal trunk).

Key to neotropical species of *Antrodiella*

1. Basidiocarp resupinate 2
1. Basidiocarp pileate 3

2. Basidiospores 4-5 x 2.5-3 µm, pores 4-5 per mm, angular ..... **A. incrustans**
2. Basidiospores 2.5 x 2 µm, pores round, 8 per mm ..... **A. 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. angulatopora**
5. Spores ellipsoid, 3.6-5 x 2-2.5 µm..... **A. multipileata**

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

7. Spores 1-1.3 µm wide ..... **A. dentipora**
7. Spores 1.8-2.2 µm wide ..... **A. brasiliensis**

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 .....**A. semisupina**
12. Pileus brown to purplish black or chestnut, context brown and darker than the tubes, basidiocarp mostly fanshaped with tapering base 13

13. Pileus finely tomentose, slowly becoming glabrous, no hymenial cystidia present, context with dark horizontal lines, with age dense and resinous ..**A. hydrophila**
13. 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**

Antrodiella sp.
Specimens examined: Det. Ryv.: SM-1756 (23.v.1990; *mofm,* on decayed dicot. branch). Det. M: CUa-27 (8.vi.1979; *mofa,* on dead dicot. branch), CUa-1414 (13. xii.1989; *mofa,* on base of small, living dicot. tree).
The basidiocarps of this species are reminiscent of *A. brasiliensis*, described above, but the basidiospores are larger, i.e. 5-7 x 2.5-2.8 µm. We feel that more collections are needed before even another species in this complex is described.

Bjerkandera adusta (Willd.: Fr.) P. Karst.
See Rajchenberg & de Meijer (1990). Common. Specimens examined: Det. M: CUb-2959 (23.xi.1994; *mofm*, on decayed dicot. trunk), QBb-3701 (15.viii.1999; *mofm*, on decayed dicot. wood).

Ceratoporia perplexa Ryvarden & de Meijer species and gen. nova.
Fig.2
Fructificatio resupinata, pro facies albidus, pori 2 per mm, basidia usque ad 40 µm, 4 sterigmata, systema hypharum monomiticum, hyphae generatoriae fibulatae, sporae cylindricae, 10-12 x 4-6 µm, tenuitunicatae, non-amyloideae,
Type species: *Ceratoporia perplexa* Ryvarden & de Meijer.
Holotypus: Brazil, Paraná, Colombo, Centro Nacional de Pesquisa de Florestas, 900 m.s.m., 10.iv.2000, on decayed dicot. branch. in mixed ombrophilous forest, A.A.R. de Meijer & M.A.L. de A. Amazonas no. 3752, in herb. HFC, isotypes in O and K
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, wall 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 cylindrical, smooth, thin-walled, and without reaction in Melzer's reagent, 10-12 x 4-6 µm.
Substrata. On decayed branch of unknown dicotyledonous tree.
Distribution. Known only from the type locality.
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, corticioid genera (see Roberts 1999).

The reasons for assuming that the genus belongs in Ceratobasidiales, are

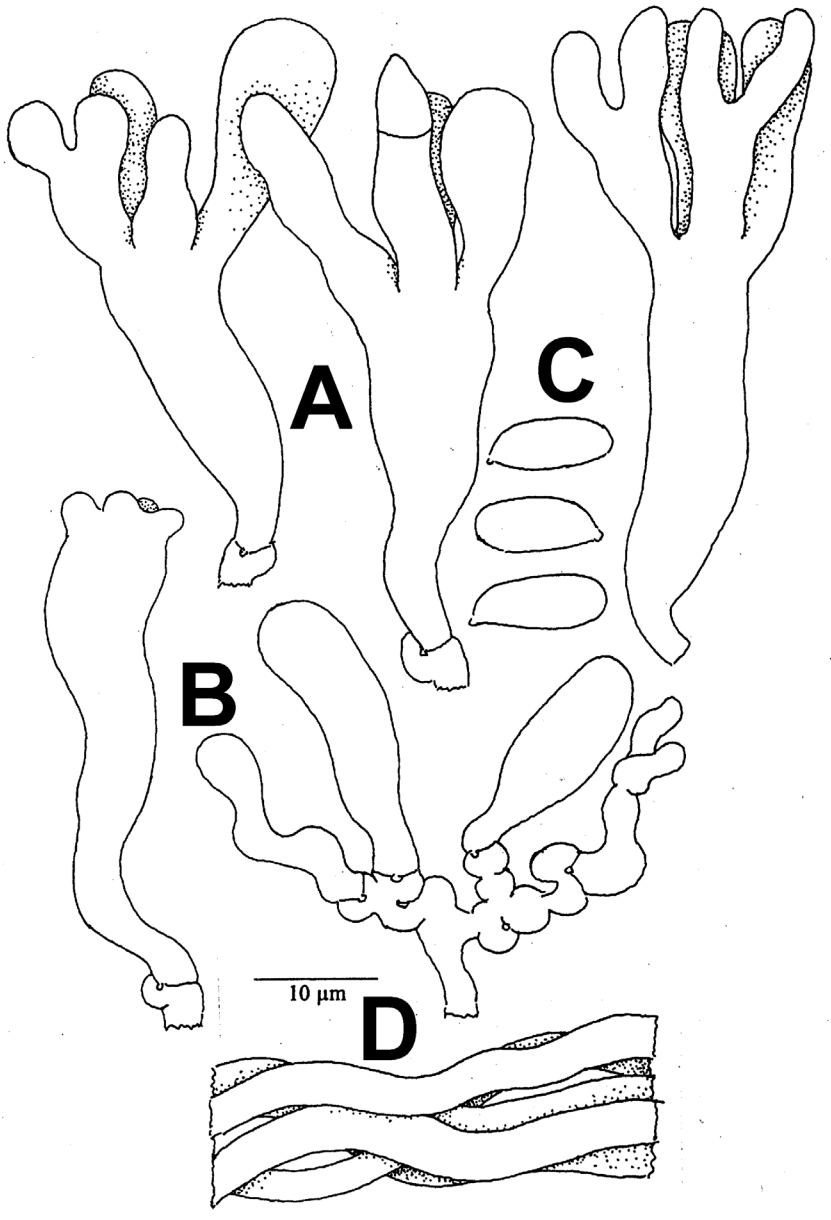

Fig. 2. *Ceratoporia perplexa* A) Basidia, B) Unripe Basidia, C) Bsidiospores, D) hyphae from subiculum. From the holotype. Del. Peter Roberts.

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. We were unable to see any septa in the basidia even after prologed examination, nor any repetitive spores.

We will admit that we are a little in doubt whether to formerly publish a genus and a species based on a single collection, but felt that it was so deviating from anything we have seen among poroid species that it would be valuable to draw attention to this combination of characters. Dr. P. Roberts, Royal Botanic Gardens, Kew, has kindly examined the specimen and agreed in our taxonomic arrangement. He has also very kindly supplied the drawings.

Ceriporia tarda (Berk.) Ginns
Collected only once. Specimen examined: Det. Ryv.: PAa-1239 (6.v.1989*; rea,* on decayed dicot. wood).

Ceriporia xylostromatoides (Berk.) Ryvarden
Collected only once. Specimen examined: Det. C. Loguercio-Leite: CUc-1567 (5.iii.1990; *mofm*, on decayed dicot. branch, passing over to twigs of *Araucaria angustifolia*).
See also remark under *Oxyporus latemarginatus.*

Ceriporiopsis lowei Rajchenb.
Collected only once. Specimen examined: Det. Rajch.: COa-815 (12.v.1987; *plp*, on dead branch of *Pinus taeda* L.).

Cerrena cystidiata Rajchenb. & de Meijer
See Rajchenberg & de Meijer (1990). In South America only known from the type locality in Curitiba, but also known from Japan (Núñez & Ryvarden 2000: 111).

Cerrena sclerodepsis (Berk.) Ryvarden
Only in the Third Plateau, where it is common. Specimens examined: Det. Ryv.: VAa-3168 (13.xii.1995; *ssf*, on decayed dicot. wood). Det. Rajch.: IGa-2400 (2.i.1993; *ssf*, on decayed dicot. trunk), IGa-2437 (11.1.1993; *ssf*, on decayed dicot. branch). Det. M: IGa-2385 (29.xii.1992; *ssf*, on decayed dicot. branch).

Coltricia barbata Ryvarden & de Meijer nova sp.
Fig. 3
Fructificatio stipitata, pileus brunneus, pori rotundis 4-8 per mm, brunneus, systema hyphale monomiticum, hyphae generatoriae afibulatae, basidiosporae subglobosae, pallide brunnea, 5-6 µm in diametro.
Holotypus: Brazil, Paraná, Morretes, Porto de Cima, Marumbi Parque, 20 m.s.m., 27.vi.1995, on the ground in dense ombrophilous forest, A.A.R. de Meijer no. 3085, in herb. HFC, isotype in O.

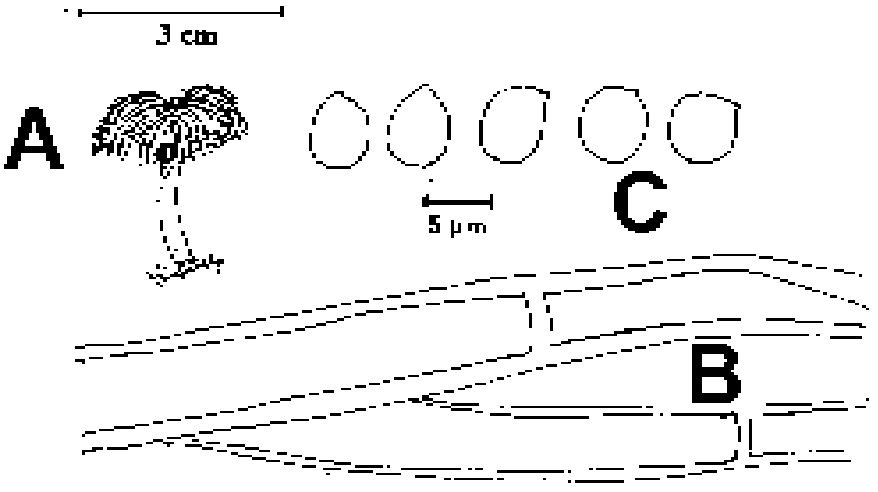

Fig. 3. *Coltricia barbata* A) Basidiocarp, B) Hyphae from context, C. Basidiospores. From the holotype.

Basidiocarps annual, centrally stipitate, pileus circular, infundibuliform, 10-18 mm in diameter, concentrically zonate, glabrous, shining, deep reddish brown, margin with 1-2 mm long tufts, pore surface reddish brown sharply delimited toward the stipe, pores thin-walled, round to angular, 4-9 per mm; context reddish brown, fibrous, up to 400 µm thick, stipe 10-30 x 1-2 mm, deep reddish brown and velutinous.
Hyphal system monomitic; generative hyphae with simple septa, thin-walled to thick-walled, golden to light rusty brown, septation frequent in hymenium and subhymenium, more scattered in the context, in the trama and hymenium 2-5 µm in diam, in the context of pileus and stipe up to 8 µm in diam.
Basidia not seen.
Setae or other sterile hymenial elements absent.
Basidiospores subglobose, smooth, thick-walled, golden yellow to rusty brown, and without reaction in Melzer's reagent, 5-6 µm in diameter.
Substrata. On the ground in ombrophilous forest.
Distribution. Known from several localities in the *Serra do Mar* and coastal region of Paraná.
Remarks. The species is conspicuous by its barbate margin with hanging tufts of entangled hyphae besides its small globose basidiospores. For a key to the neotropical species of the genus, see below.

Coltricia cinnamomea (Jacq.) Murrill
Form a (pores 2 per mm, pileus context up to 6 mm thick, stipe 3-5 mm thick). Not rare. Always at the base of living *Syagrus romanzoffiana* (Cham.) Glassm. (Palmae). Specimens examined: Det. Ryv.: SM-1758 (23.v.1990; *mofa*). Det. M: CUa-2692 (12.v.1993; *mofa*), SM-1321 (19.viii.1989; *mofm*). Rajchenberg & de Meijer (1990) reported this taxon wrongly as *C. duporti*.
Form b (terrestrial, pores 1 per mm, pileus context up to 2 mm thick, stipe 8-15 mm thick). Collected only once. Specimen examined: Det. M: GUc-3726 (2.ii.2000; *rea*, on forest humus).

Coltricia duporti (Pat.) Ryvarden
Collected at one locality only. Specimen examined: Det. Ryv.: MAe-1925 (10. iv.1991; *dof*, on trunk of standing, living dicot. tree).
Remarks. This is the second known collection. It was originally described from French Guinea in Africa.

Coltricia perennis (L.: Fr.) Murrill
Collected at one locality only. Specimen examined: Det. Ryv.: LA-1223 (23.iv.1989; *plp*, on the ground under *Pinus* and once on a fallen *Pinus* strobilus).

Key to neotropical species of *Coltricia*

1. Setae or setal hyphae present ..... **C. hamata**
1. Setae or setal hyphae absent 2

2. Basidiospores longer than 6 µm..... 3
2. Basidiospores shorter than 6 µm..... 5

3. Basidiospores cylindrical, basidiocarps on burnt wood or fire places ..... **C. focicola**
3. basidiospores ellipsoid, on the ground..... 4

4. Basidiospores 9-14 µm long, pores 1-3 mm wide ..... **C. montagnei**
4. Basidiospores 6-10 µm long, pores 2-4 per mm..... **C. cinnamomea**

5. Basidiospores globose, margin ciliate..... **C. barbata**
5. Basidiospores ellipsoid, no cilia along the margin 6

6. Basidiospores 2.5-3 µm wide, pores 6-8 mm, context duplex..... **C. fonsecoensis**
6. Basidiospores 3-3.5 µm wide, pores 2-6 per mm, context homogenous 7

7. Pores 4-6 per mm, on the ground in Argentina and Paraguay ..... **C. stuckertiana**

7. Pores 2-4 per mm, on burnt ground in Venezuela..... **C. pyrophila**

Coltriciella oblectabilis (Lloyd) Kotl., Pouz. & Ryvarden
See Rajchenberg & de Meijer (1990). Only in the coastal region, where it is not rare. Specimens examined: Det. M: PAa-1791 (3.vi.1990*; rea,* on forest humus), PAc-2761 (1.vi.1993; *dof*, once collected between moss on sand and once directly on sand).
Coriolopsis polyzona (Pers.) Ryvarden
See Rajchenberg & de Meijer (1990) and Gerber & Loguercio-Leite (2000). Common. Specimens examined: Det. Rajch.: GUP-2061 (20.xi.1991; *mofm*, on decayed dicot. trunk), IGa-2382 (29.xii.1992; *ssf*, on decayed dicot. wood). Det. M: FE-3304 (24.ii.1996; *ssf,* on decayed dicot. trunk), VAa-3167 (13.xii.1995; *ssf*, on decayed dicot. wood).
Gerber & Loguercio-Leite (2000: 178) mention an additional collection from Paraná (Capanema municipality).

Coriolopsis rigida (Berk. & Mont.) Murrill
See Rajchenberg & de Meijer (1990). Common.

Cyclomyces iodinus (Mont.) Pat.
Only in the tropical parts, where it is common. Specimens examined: Det. Ryv.: PAc-2721 (22.v.1993; *dof*, on decayed dicot. stub). Det. Rajch.: MAe-2307 (21. vi.1992; *dof*, on stub of cut dicot. stub). Det. M: DN-3370 (18.iii.1996; *ssf*, on dead dicot. wood).

Daedalea sprucei Berk.
Collected only once. Specimen examined: Det. Ryv.: DN-3344 (15.iii.1996; *ssf*, on decayed dicot. stub).

cf. **Daedalea microsticta** Cooke
Probably rare. Specimen examined: Det. Ryv.: PAd-2795 (17.vi.1993; dof, on decayed dicot. wood). The collection is sterile.

Datronia caperata (Berk.) Ryvarden
Gerber & Loguercio-Leite (2000: 179) mention a collection from Paraná (Capanema municipality).

Datronia mollis (Sommerf.: Fr.) Donk
Rare. Specimens examined: Det. Ryv.: CUc-1687 (7.v.1990; *dof*, on decayed dicot. branch). Det. Rajch.: GUP-2276 (14.v.1992; *mofm*, on decayed dicot. branch).

Diacanthodes novo-guineensis (Henn.) O. Fidalgo

Only in the Third Plateau. Specimens examined: Det. Rajch.: *de Meijer* 2344 (Leg.: H. Abrão (no. 876), 4.iv.1992, Paraná, Pinhão, *Reserva Rio dos Touros*, 800 m.s.m., *ssf*, substrate?). Det. M: DN-3338 (14.iii.1996; *ssf*, on forest humus).

Dichomitus cavernulosus (Berk.) Masuka & Ryvarden
Only in the Third Plateau and in the coastal region. Specimen examined: Det. Rajch.: IGa-2416 (6.i.1993; *ssf*, on decayed dicot. branch).
Remarks. Macroscopically this species is indistinguishable from *Pachykytospora alabamae* (Berk. & M.A. Curtis) Ryvarden Microscopically it differs in the smooth, longer and narrower spores.

Dichomitus setulosus (Henn.) Masuka & Ryvarden
(See Rajchenberg & de Meijer (1990, as *Megasporoporia setulosa*). Common. Specimens examined: Det. Rajch.: MAd-2249 (7.v.1992; *dof*, on decayed dicot. trunk). Det. M: CUa-2695 (12.v.1993; *mofa*, on decayed trunk of *Sebastiana commersoniana* (Baill.) Smith & Downs).

Earliella scabrosa (Pers.) Gilb. & Ryvarden
See Rajchenberg & de Meijer (1990). Only in the Third Plateau, where it is common, and in the coastal region. Specimens examined: Det. Rajch.: IGa-2409 (3.i.1992; *ssf*, on decayed dicot. trunk). Det. M: FE-3305 (24.ii.1996; *ssf*, on decayed dicot. trunk), GUa-3579 (26.vii.1998; in the open, on decayed trunk of *Ficus* sp.), PAf-3073 (22.vi.1995; *dof*, on dead branch of huge dicot. tree with board roots).

Echinochaete brachyporus (Mont.) Ryvarden
Only in the Third Plateau, where it is not rare. Specimens examined: Det. Ryv.: IGa-2379 (29.xii.1992; *ssf*, on decayed dicot. branch and trunk). Det. Rajch.: GUP-2066 (Leg.: A. Kostim; 1991; *ssf*, on dead wood).

Echinoporia aculeifera (Berk. & M.A. Curtis) Ryvarden
See Rajchenberg & de Meijer (1990). Common. Specimen examined: Det. Ryv.: MAg-2863 (10.vii.1993; *dof*, on decayed dicot. twig).

Flabellophora obovata (Jungh.) Núñez & Ryvarden
The species was previously placed in *Microporellus*, but this is a genus characterized by dextrinoid skeletal hyphae and ventricose, apically encrusted cystidia, both characters lacking in *F. obovata*.

The latter species is very variable and our determinations have to be taken as tentative. There is a variation both as to size and shape of the basidiospores (subglobose to ellipsoid) and the shape of the basidiocarps. The following forms have been examined:
Form a (spores 2.7-4 x 2-3 µm).

Common. Specimens examined: Det. Ryv.: GUb-3475 (19.x.1997; *dof*, on dead dicot. branch). Det. M: Cud-(11.iii.1992; *mofm*, on decayed dicot. trunk), MAm-3041 (16.iii.1995; *dof*, on decayed dicot. stub), PAd-3419 (7.viii.1996; *dof*, on decayed dicot. branch).
Form b (spores 3.5-5 x 2.8-3.8 µm).
Common. Specimens examined: Det. Ryv.: VAa-3162 (13.xii.1995; *ssf*, on decayed dicot. trunk). Det. M: COa-3617 (18.v.1999; *mofm*, on decayed dicot. branch), PAc-2756 (1.vi.1993; *dof*, on decayed dicot. wood), PAd-2803 (22.vi.1993; *dof*, on decayed dicot. branch),
Form c (spores 5-6 x 4-5.5 µm).
Only in the Third Plateau and in the coastal region. Specimen examined: Det. M: JSa-3249 (4.ii.1996; *ssf*, apparently terrestrial).
Form d (spores 4.5-5 x 3.8-4.5 µm).
Rare. Specimen examined: Det. Ryv. (Sept. 1987!): CUa-18 (25.v.1979; *mofa*, on dead dicot. branch).

Flabellophora parva Corner
This species was described from Peru and is as far as we know, hitherto only known from the type locality. The Brazilian specimen is a bit deviating as the base is tapering to a pseudo-stipe more than to a distinct stipe as in the type collection. As the microstructure matches the description in all aspects we feel convinced about its identity.
Specimen examined: Brazil, Paraná, Piraquara, Estação Experimental do Canguiri da UFPR, on decayed trunk of *Pinus* sp., 800 m.s.m., 26.iii.1992, A.A.R. de Meijer no. 2206.

Flaviporus brownei (Humboldt) Donk
See Rajchenberg & de Meijer (1990). Common. Specimens examined: Det. M: COa-3649 (28.v.1999; *mofm*, on decayed dicot. trunk), MANa-2639 (20.iv.1993; *mofm*, on decayed dicot. stub).

Flaviporus venustus A. David & Rajchenb.
Specimens examined: Det. Rajch.: CUb-1878 (28.xi.1990; *mofm*, on dead dicot. wood), GC-1310 (27.vi.1989; *mofm*, on dead dicot. stub), IGa-2406 (3.i.1992; *ssf*, on decayed dicot. trunk). Det. Ryv.: COa-3656 (2.vi.1999; *mofm*, on decayed dicot. branch). Det. M: GUP-2057 (20.xi.1991; *mofm*, on decayed dicot. stub).
Remarks. According to David & Rajchenberg (1985), *Flaviporus venustus* has ?probably a monomitic trama?. The color of the wood rot is not known, so this species can belong either to *Tyromyces* or to *Oligoporus*.

Fomitella supina (Sw.: Fr.) Murrill
See Rajchenberg & de Meijer (1990). Common. Specimens examined: Det.

Ryv.: CUa-837 (7.vi.1987; *mofa*, on dead woody liana). Det. Rajch.: CUb-2577 (5.iii.1993; *mofm*, on dead dicot. wood).

Fomitopsis cupreo-rosea (Berk.) Carranza-Morse & Gilb.
Only in the Third Plateau and in the coastal region. Specimens examined: Det. Ryv.: DN-3343 (15.iii.1996; *ssf*, on decayed dicot. stub). Det. Rajch.: PAc-2703 (18.v.1993; *dof*, on decayed dicot. branch). Det. M: VAa-3166 (13.xii.1995; *ssf*, on decayed dicot. wood). Gerber & Loguercio-Leite (2000: 179 mention an additional collection from Paraná (Capanema municipality).
Fomitopsis feei (Fr.) Kreisel
Collected only once. Specimen examined: Det. Ryv.: IGa-2404 (3.i.1993; *ssf*, on decayed worked wood). Gerber & Loguercio-Leite (2000: 179) mention an additional collection from Paraná (Capanema municipality).

Fomitopsis nivosa (Berk.) Gilb. & Ryvarden
Only in the coastal region where it is very common. Specimens examined: Det. Ryv.: PAe-3031 (28.ii.1995; on unworked stake used as fence post, the wood coming from the mangrove tree *Rhizophora mangle* L.), *de Meijer* 3465 (12.x.1997; Paraná, Antonina, Cacatu, in pasture, at 3 m height on standing dead trunk of solitary *Syagrus romanzoffiana*). Det. M: PAa-1470 (3.ii.1990; *rea*, on decayed dicot. trunk), PAa-1794 (3.vi.1990; *rea*, on wound in living dicot. tree), PPa-2872 (14.xi.1993; on stake of dicot. wood used as fence post).
Possibly also belonging here: coll. 1018, which was identified by Rajchenberg as *Fomitopsis meliae* (Underw.) Gilb. & Ryvarden, and reported as such by Rajchenberg & de Meijer (1990).

Fuscocerrena portoricensis (Fr.: Fr.) Ryvarden
See Rajchenberg & de Meijer (1990). Common.

Ganoderma australe (Fr.) Pat. complex
See Rajchenberg & de Meijer (1990, as *G. tornatum* (Pers.) Bres. complex). Very common.

Ganoderma coffeatum (Berk.) J.S. Furtado
Collected only once. Specimen examined: Det. Ryv.: FE-3292 (23.ii.1996; *ssf*, at base of dead dicot. trunk and on slightly buried wood from same tree). Gerber & Loguercio-Leite (2000: 176) mention an additional collection from Paraná (Capanema municipality).

Ganoderma concinnum Ryv.
Rather common. Specimens examined: Det. Ryv.: CUa-2961 (24.xi.1994; *mofa*, on forest soil, near dicot. trees), JSa-3253 (5.ii.1996; *ssf*, on buried and non-buried

dicot. wood). Det. M: CUb-2533 (5.iii.1993; *mofm*, on forest soil).
Remarks. Coll. 1194, which belongs here, was reported by Rajchenberg & de Meijer (1990) *as Ganoderma lucidum* (W. Curt.: Fr.) Karst. *G. concinnum* was recognized as an undescribed species only recently (Ryvarden 1999).

Ganoderma orbiformum (Fr.) Ryvarden
Rather common in the *Serra do Mar* and coastal region. Specimens examined: Det. Ryv.: MAb-962 (6.xii.1987; *dof*, on dead dicot. trunk), PAa-1234 (6.v.1989*; rea,* on dead standing trunk of *Ocotea pulchella* Mart.).
Remarks. Coll. 962 and 1234, which belong here, were reported by Rajchenberg & de Meijer (1990) *as Ganoderma subfornicatum* Murrill. The new combination *Ganoderma orbiformum* (Fr.) Ryvarden was proposed only recently (Ryvarden 1999).

Ganoderma resinaceum Boud.
Rather common. Specimens examined: Det. Ryv.: CUa-1418 (14.xii.1989; *mofa*, on dead dicot. trunk), CUl-2776 (6.vi.1993; *mofm*, on stub of *Araucaria angustifolia*), JSa-3238 (3.ii.1996; *ssf,* on dead trunk of *Piptadenia* sp., Leguminosae). Det. M: COa-3614 (18.v.1999; *plp*, on remnant stub of harvested *Pinus*), *de Meijer* 3034 (12. iii.1995; Curitiba, Campo Comprido quarter, Rua Paulo Gorski, on dead, standing trunk of *Chaemacyparis* sp.).
Remarks. Coll. 850, which belongs here, was earlier reported by Rajchenberg & de Meijer (1990) as *Ganoderma parvulum* Murrill.

Gloeophyllum striatum (Swartz.: Fr.) Murrill
See Rajchenberg & de Meijer (1990). In Paraná common in the tropical parts, very rare in the temperate climate region. Specimens examined: Det. M: PAe-3030 (28. ii.1995; *rea*, on fence post of unworked wood, possibly of *Rhizophora mangle*), VAb-3161 (13.xii.1995; *ssf*, on decayed dicot. branch), *de Meijer* 3514 (Paraná, Balsa Nova, 25.i.1998; on sleepers of railway bridge over Iguaçu river).

Gloeoporus dichrous (Fr.: Fr.) Bres.
See Rajchenberg & de Meijer (1990). Very common. Specimens examined: Det. M: CUa-740 (14.ii.1987; *mofa*, on very decayed dicot. branch), VAb-3163 (13.xii.1995; *ssf*, on decayed dicot. trunk).

Grammothele subargentea (Speg.) Rajchenb.
See Rajchenberg & de Meijer (1990). Only in the Third Plateau. Specimens examined: Det. Ryv.: CPb-3540 (12.iii.1998; *ssf,* on decayed dicot. branch). Det. Rajch.: FIb-2361 (15.x.1992; *mofa*, on dead dicot. wood).

Grammothelopsis bambusicola Ryvarden & de Meijer nova sp.
Fructificatio resupinata, pori angulatis, 4 per mm, albidis vel cremicoloribus, sys-

tema hyphale dimiticum, hyphae generatoriae fibulatae, hyphae skeletales dextrinoideae, basidiosporae ellipsoideae, crasse tunicatae, dextrinoideae, 11-15 x 8-10 µm. Holotypus: Brazil, Paraná, Colombo, Embrapa Florestas, 900 m.s.m., 24.v.1999, on dead stems of unidentified bamboo. A.A.R. de Meijer & M.A.L. de A. Amazonas no. 3631, in herb. HFC, isotype in O.

Basidiocarp resupinate, effused, adnate, up to 4 cm long, 2 cm 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 broadly ellipsoid, thick-walled and strongly dextrinoid, 11-15 x 8-10 µm, slightly swelling in KOH and then with wall-thickness up to 2 µm.

Substrata and distribution. Known only from a dead unidentified bamboo species in the type locality.

Remarks. The species reminds one of *G. puiggarii* (Speg.) Rajchenb. & J.E. Wright, but this species has larger, dentate and irregular pores (about 1 per mm) and larger basidiospores (17-20 x 10-12 µm). *G. incrustata* David & Rajchenb., from Guadeloupe, has large cylindrical basidiospores and strongly encrusted hyphae in the pore mouths.

With their large, thick-walled, strongly dextrinoid basidiospores with a germ pore, the species of *Grammothelopsis* remind one strongly of *Perenniporia*. Species of this genus, however, have more or less truncate basidiospores and regular poroid basidiocarps. All species of *Grammothelopsis* have shallow pores with the hymenium lining also the bottom of the pores. Only a DNA sequence investigation will reveal whether they are related or if we only are confronted with a case of biological convergence.

Grammothelopsis puiggarii (Speg.) Rajchenb. & J.E. Wright

Specimen examined: Brazil, São Paulo city, Sítio Cavaca, km 17 via Anhanguera, A. Teixeira & B. Rawlings, 1956, SP 38549 (NY, O).

Remarks. This is a very rare species hitherto known only from the type locality in São Paulo State, Brazil. Here we report the second known collection, again from São Paulo. The species is recognized by large angular pores (1-2 per mm) and large, dextrinoid, thick-walled basidiospores (17-20 x 10-12 µm) and dextrinoid skeletal hyphae.

Key to species of *Grammothelopsis*

1. Basidiospores ellipsoid, hyphae of dissepiments smooth 2
1. Basidiospores cylindrical, hyphae of dissepiments encrusted ..... **G. incrustata**

2. Pores irregular, 1-4 per mm, basidiospores 15-20 µm long.....3
2. Pores regular 4 per mm, basidiospores 11-15 µm long.....**G. bambusicola**

3. Dendrohyphidia and hyphal pegs present in the pore mouth, African species ..... **G. macrospora**
3. Dendrohyphidia and hyphal pegs absent from the pore mouths, American species ..... **G. puiggarii**

Henningsia brasiliensis (Speg.) Speg.
See Rajchenberg & de Meijer (1990). Not rare. Specimens examined: Det. Rajch.: CUc-1568 (5.iii.1990, *mofm*, on decayed branch of *Araucaria angustifolia*), MAm-2086 (5.i.1992; *dof*, on decayed dicot. branch).

Hexagonia hydnoides (Fr.: Sw.) M. Fidalgo
See Rajchenberg & de Meijer (1990). Only in the Third Plateau and in the coastal region, where it is common. Specimen examined: Det. M: IGa-1187 (11.xii.1988; *ssf*, on dead dicot. wood).

Hexagonia papyracea Berk.
See Rajchenberg & de Meijer (1990). In Paraná rather common in the Third Plateau and in the coastal region, rare in the temperate climate region. Specimen examined: Det. M: PAa-1466 (3.ii.1990; *dof*, on decayed dicot. branch).

Hydnopolyporus fimbriatus (Fr.) D.A. Reid
Common. Specimens examined: Det. M: COa-3729 (3.iv.2000; *mofm*, on base of trunk of living, standing *Eucalyptus* and between short grass near the base of this same tree), COa-3733 (4.iv.2000; *mofm*, on base of standing dead dicot. trunk), CUa-311 (22.xii.1979; *mofa*, on living rootlets of dicot. tree).

Inonotus micantissimus (Rick) Rajchenb.
Collected only once. Specimen examined: Det. Rajch.: IGa-2399 (31.xii.1992; *ssf*, on standing dead dicot. trunk).
Remarks. A study of the type of this species was published by Rajchenberg (1987: 565).

Inonotus patouillardii (Rick) Imazeki
Specimen examined. Brazil, Paraná. Foz do Iguaçu, Parque Nacional do Iguaçu, 150

m.s.m., 29.xii.1992, on decayed dicotyledonous wood, A.A.R. de Meijer no. 2381
Remarks. This collection is a bit deviating since some specimens have a sterile eccentric stipe covered with a black cuticle. As all other characters are like those seen in *I. patouillardii* we are convinced about its identity.
Inonotus pseudoradiatus (Pat.) Ryvarden
Collected only once. Specimen examined: Det. Ryv.: MAg-2906 (12.vi.1994; *dof*, on decayed dicot. stub).
Remarks.This is the second known collection of a species originally described from Ecuador (Ryvarden 1983).

Inonotus splitgerberi (Mont.) Ryvarden
See Rajchenberg & de Meijer (1990). Rather common. Specimens examined: Det. Ryv.: COa-3642 (28.v.1999; *mofm*, on decayed branch), GC-1260 (31.v.1989; *mofm*, on dead dicot. branch). Det. Rajch.: CUb-2580 (21.iii.1993; *mofm*, on standing, dead dicot. trunk). Det. M: COa-3602 (14.v.1999; *mofm*, on decayed branch of *Baccharis* sp.). Rajchenberg & de Meijer (1990) reported coll. 1260 wrongly as *I. jamaicensis* Murrill.

Irpex lacteus (Fr.: Fr.) Fr.
See Rajchenberg & de Meijer (1990). Common. Specimens examined: Det. Ryv.: MAd-3405 (4.viii.1996; *dof*, on decayed dicot. branch). Det. Rajch.: GUP-2267 (14.v.1992; *mofm*, on decayed dicot. trunk). Det. H.H. Burdsall, Jr. (*in litt*. April 21, 1993): IGa-2423 (7.i.1993; *ssf*, on decayed dicot. branch). Det. M: GC-1356 (16. ix.1989; *mofm*, on decayed dicot. branch), DN-3342 (15.iii.1996; *ssf*, on decayed dicot. wood).

Junghuhnia minuta Lindblad & Ryvarden
Collected only once. New to Brazil. Specimen examined: Det. Ryv.: SJf-3905 (6.i.2001; *mofm*, on decayed dicot. stub).
Remarks. The species was originally described from Costa Rica and is probably overlooked since its basidiocarps hardly become more than 5 mm in longest dimension.

Junghuhnia cf. **nitida** (Pers.: Fr.) Ryvarden
Collected only once. Specimen examined: Det. Rajch.: MAg-2861 (10.vii.1993; *dof*, on decayed dicot. branches).

Junghuhnia undigera (Berk. & M.A. Curtis) Ryvarden
See Rajchenberg & de Meijer (1990). Common. Specimens examined: Det. Rajch.: CUa-2114 (4.ii.1992; *mofa*, on decayed decot. twig), MAg-2319 (8.vii.1992; *dof*, on decayed dicot. trunk). Det. M: CL-2840 (2.vii.1993; *plp*, on decayed *Pinus* branch), IGa-2408 (3.i.1992; *ssf*, on standing dead dicot. trunk), PIa-1186 (11.vi.1988; *plp*, on

base of living *Pinus*).

Laetiporus sulphureus (Fr.) Murrill
Rather common. Specimens examined: Det. Rajch.: CUa-1882 (1.ii.1991; *mofa*, on decayed dicot. wood). Det. M: CUa-324 (13.i.1980; *mofa*, on dead dicot. stump).

Lenzites betulinus (L.: Fr.) Fr.
See Rajchenberg & de Meijer (1990). Common. Specimens examined: Det. Rajch.: COa-2003 (21.vii.1991; *mofm*, on dead *Pinus* wood). Det. M: COa-2833 (26. vi.1993; *mofm*, on dead dicot. wood), COa-3665 (2.vi.1993; *mofm*, on decayed dicot. branch).

Navisporus sulcatus (Lloyd) Ryvarden
See Rajchenberg & de Meijer (1990). Rare.

Nigrofomes melanoporus (Mont.) Murrill
Only in the coastal region, where it is not rare. Specimens examined: Det. Ryv.: PAa-1793 (3.vi.1990; *dof*, on decayed standing dicot. trunk). Det. M: PAa-1468 (3.ii.1990; *rea,* on decayed dicot. branch), PAa-3420 (7.viii.1996; *dof*, on decayed dicot. trunk).

Nigrohydnum nigrum Ryv.
Known from only one locality in Curitiba. Specimens examined: Det. Ryv.: CUa-2697 (12.v.1993; *mofa*, on decayed dicot. trunk). Det. Rajch.: CUa-2461 (11.ii.1993; *mofa*, on decayed dicot. trunk).
Remarks. These are the world´s second and third collections. The species was originally described from the Brazilian State of Amazonas (Ryvarden 1987: 532).

Oligoporus stipticus (Pers.: Fr.) Gilb. & Ryvarden
Exclusively on wood of planted *Pinus*. Specimen examined: Det. Ryv.: TB-1249 (18.v.1989; *plp*, on wood of *Pinus*). Det. Rajch.: COa-1164 (16.v.1988; *plp*, on decayed stub of *Pinus elliottii* Engelm.).

Oligoporus subcaesius (A. David) Ryvarden & Gilb.
See Rajchenberg & de Meijer (1990, as *Postia subcaesia*). Common. Specimen examined: Det. M: COa-3761 (17.iv.2000; *mofm*, on dead dicot. trunk).
Remarks. According to Suhirman & Núñez (1998) *Oligoporus subcaesius* is not known from tropical South America. The species is similar to the South American *Tyromyces caesioflavus* (Pat.) Ryvarden, which differs by having a yellowish, glabrous pileus (*lit. cit*.) and presumably a white rot.

Oligoporus tephroleucus (Fr.: Fr.) Gilb. & Ryvarden
Collected only once. Specimen examined: Det. Ryv.: FE-3327 (27.ii.1996; *ssf*, on dead dicot. wood).

Oxyporus cinnamomea Núñez & Ryvarden
This species was recently described from Japan (Núñez & Ryvarden 2000) and it is rather remarkable that the second collecting has been done in such a remote locality. We have compared the Brazilian specimen with the holotype, however, and they are identical in all aspects except that the spores are slightly smaller in the Brazilian specimen than in the holotype, but the difference may be within the natural variation and more specimens are necessary to verify whether this difference is significant. Specimen examined: Det. Ryv.: Paraná, São Mateus do Sul, Fazenda Durgo, 800 m.s.m., mixed ombrophilous montane forest, 23.v.1990, A.A.R. de Meijer no. 1759 (HFC, O).
Oxyporus latemarginatus (Durieu & Mont.) Donk
Collected twice. Specimens examined: Det. Ryv.: PAa-1210 (18.iii.1989*; rea,* on decayed dicot. stub), VAa-3173 (13.xii.1995; *ssf*, on decayed dicot. wood). Coll. 1210 was reported wrongly as *Ceriporia xylostromatoides* by Rajchenberg & de Meijer (1990).

Oxyporus populinus (Schum.: Fr.) Donk
Collected only once. Specimen examined: Det. Ryv.: COa-3655 (2.vi.1999; *mofm*, on standing dead dicot. trunk).

Pachykytospora alabamae (Berk. & M.A. Curtis) Ryvarden
See Rajchenberg & de Meijer (1990). Very common. Specimens examined: Det. M: GC-1408 (30.xi.1989; *mofm*, on dead bamboo culm), PAc-2757 (1.vi.1993; *dof*, on dead dicot. twig).

Perenniporia contraria (Berk. & M.A. Curtis) Ryvarden
This is a neotropical species originally described from Cuba. The collections from Brazil show that the species are more variable as to macroscopic variation than previously assumed (see Decock & Ryvarden 2001).
Form a (spores 3-4 x 2.5-3 µm, not dextrinoid (coll. 2790) or dextrinoid (coll. 2856); pileus with black crust).
Only in the coastal region, where it is rare. Specimens examined: Det. Ryv.: MAg-2856 (10.vii.1993; *dof*, on decayed dicot. branch). Det. Rajch.: PAd-2790 (17. vi.1993; *dof*, on decayed dicot. trunk).
Form b (spores 4-4.8 x 2.8-3.5 µm, not dextrinoid; pileus without black crust).
Rare. Specimen examined: Det. Ryv.: MAg-2855 (10.vii.1993; *dof*, on decayed dicot. branch).

Perenniporia detrita (Berk.) Ryvarden

Collected only once. Specimen examined: Det. M: MAf-2214 (7.iv.1992; *dof*, on decayed dicot. twig).

Perenniporia martiusii (Berk.) Ryvarden
Only in the Third Plateau and in the coastal region, where it is not rare. Specimens examined: Det. Rajch.: PAc-2724 (22.v.1993; *dof*, on decayed dicot. wood). Det. M: JSa-3240 (3.ii.1996; *ssf,* on decayed dicot. trunk), SJg-3490 (26.x.1997; *dof,* on stub of decayed dicot. tree).
Remarks. For orthographic change of epithet to *martiusii* see Popoff & Wright (1998: 331).
This species differs from *P. sprucei* C. Decock & Ryvarden (1999) in having larger pores (4-5 per mm in the collections from Paraná) and much thicker basidiocarps.

Perenniporia medulla-panis (Jacq.: Fr.) Donk
Only in the Third Plateau. Specimens examined: Det. Ryv.: DN-3356 (16.iii.1996; *ssf*, on lower side of decayed dicot. trunk), VAa-3174 (13.xii.1995; *ssf*, on dead dicot. wood).

Perenniporia micropora Ryv.
Rare. Specimen examined: Det. Ryv.: MAg-2864 (10.vii.1993; *dof*, on decayed decot. branch).
Remarks. The type of this species was collected in Peru in 1976, and the species was published eleven years later (Ryvarden 1987).

Perenniporia neofulva (Lloyd) Ryvarden
Common. Specimens examined: Det. Ryv.: DN-3339 (14.iii.1996; *ssf*, on decayed dicot. trunk). Det. Rajch.: PAa-2002 (19.vii.1991*; rea,* on decayed dicot. branch). Det. M: FE-3291 (23.ii.1996; *ssf*, on decayed dicot. trunk), QBb-3702 (15.viii.1999; *mofm*, on decayed dicot. branch), SMAa-3547 (13.iii.1998*; ssf,* on decayed dicot. branch, SMAb-(1.iv.1998*; ssf,* on decayed dicot. branch).

Perenniporia parvispora C. Decock & Ryvarden
Only in the Third Plateau. Specimens examined: Det. Ryv.: *de Meijer* 808 (16. iv.1987; São Paulo State, Itu, *Área de Proteção Ambiental 'Bairro Taquaral*', gallery forest in savannah, on very decayed dicot. branch). Det. M.: GC-1355 (16.ix.1989; *mofm*, on decayed dicot. trunk).
Remarks. Rajchenberg & de Meijer (1990) reported coll. 808 and 1355 as *Perenniporia medulla-panis* (Jacq.: Fr.) Donk, but this species has larger spores and slightly larger pores.
For a key to this and similar resupinate species, see Decock & Ryvarden (2000: 359).

Phellinus bambusarum (Rick) Larsen
See Rajchenberg & de Meijer (1990). Common. Always on dead bamboo stems. Specimens examined: Det. M: COa-3672 (9.vi.1999; *mofm*, on decayed bamboo culm), MAa-2448 (6.ii.1993; *dof*, on culm of bamboo *Guadua* sp.), PId-3458 (31. viii.1997; *dof*, on dead culm of bamboo).

Phellinus cf. **callimorphus** (Lév.) Bres.
Possibly rare. Specimen examined: Det. Rajch.: CUa-2346 (4.x.1992; *ple*, on decayed *Eucalyptus* trunk).

Phellinus fastuosus (Lév.) Ryvarden
Rare. Specimens examined: Det. Rajch.: GUP-2058 (20.xi.1991; *mofa*, on decayed dicot. trunk). Det. M: CUi-2690 (11.v.1993; *mofm*, at base of living dicot. tree). Gerber & Loguercio-Leite (2000: 178) mention an additional collection from Paraná (Capanema municipality).
Phellinus gilvus (Schwein.) Pat.
See Rajchenberg & de Meijer (1990). Very common. Specimens examined: Det. Ryv.: COa-1586 (15.vii.1989; *plp*, on decayed *Pinus* stub), PAd-3423 (7.viii.1996; *dof*, on decayed dicot. branch). Det. Rajch.: CUp-2069 (3.iii.1991; on dead wood of *Platanus* sp.). Det. M: IGa-1189 (11.xii.1988; *ssf*, on dead dicot. wood).

Phellinus grenadensis (Murrill) Ryvarden
Quite common. Specimens examined: Det. Ryv.: MAm-1729 (19.v.1990; *dof*, on decayed dicot. trunk). Det. Rajch.: CUh-2116 (8.ii.1992; *mofm*, on decayed dicot. trunk).
Remarks. Coll. 2116 was determined by Rajchenberg as *Phellinus allardii* (Bres.) Ryvarden. This, however, is an African species not yet seen in America as far as we know. The two species are however rather similar.

Phellinus linteus (Berk. & M.A. Curtis) Teng
Rather common. Specimens examined: Det. Ryv.: DN-3336 (14.iii.1996; *ssf*, on decayed dicot. trunk). Det. Rajch.: IGa-1188 (11.xii.1988; *ssf*, on dead dicot. wood). Det. M: COa-3639 (28.v.1999; *mofm*, at 2-3 m height on trunk of standing living dicot. tree), MANa-2622 (20.iv.1993; *dof*, at base of dead dicot. trunk), MAa-2444 (6.ii.1993; *dof*, on decayed dicot. trunk).

Phellinus maxonii (Murrill) D.A. Reid
Collected only once. Specimen examined: Det. H. H. Burdsall, Jr. (*in litt*. April 21, 1993): PAa-1346 (26.viii.1989; *dof*, on decayed dicot. branch).

Phellinus merrillii (Murrill) Ryvarden
See Rajchenberg & de Meijer (1990). Not uncommon.

Phellinus punctatus (P. Karst.) Pilát
See Rajchenberg & de Meijer (1990). Uncommon. Specimens examined: Det. Ryv.: PAa-1467 (3.ii.1990; *rea*, on dead dicot. branch). Det. M: DN-3367 (18.iii.1996; *ssf*, on decayed dicot. trunk).

Phellinus sancti-georgii (Pat.) Ryvarden
See Rajchenberg & de Meijer (1990). Not uncommon. Specimen examined: Det. M: COa-3622 (24.v.1999; *mofm*, on decayed dicot. branch).

Phellinus senex (Nees & Mont.) Imaz.
Probably common. Specimen examined: Det. Rajch.: MAf-2222 (7.iv.1992; *dof*, on decayed dicot. trunk).

Phellinus cf. **tabaquilio** Urcelay, Robledo & Rajchenb.
Apparently rare. Specimen examined: Det. M: PAa-1792 (3.vi.1990*; rea,* on decayed dicot. stub).
Remark. No. 1792 is shortly characterized by hyaline, strongly dextrinoid spores 5-6 x 5-5.5 µm, absence of setae, triquetrous basidiocarp, concentrically zonate, glabrous pileus 120 mm wide, light brown pores 4(-5) per mm, and distinctly stratified tube layer up to 45 mm deep. *Phellinus tabaquilio* (in Mycotaxon 76: 287. 2000) apparently comes closest, though the spores of that species are given as slightly longer. De Meijer 1225, with spores 6 x 5.8 µm and pores 4 per mm, may represent the same species; Rajchenberg & de Meijer (1990) reported it as *P. apiahynus* (Speg.) Rajchenb. & J.E. Wright, but that species would differ in having smaller pores and narrower spores.

Phellinus tropicalis Larsen & Lomb.
See Rajchenberg & de Meijer (1990). Common. Specimens examined: Det. Rajch.: TB-2284 (2.vi.1992; *mofm*, on decayed dicot. trunk). Det. M: COa-3659 (2.vi.1999; *mofm*, on decayed dicot. branch), GC-1454 (20.xii.1989; *mofm*, on decayed dicot. branch), MANa-2621 (20.iv.1993; *mofm*, on decayed dicot. branch), SJf-3779 (25. vii.2000; *mofm*, on decayed branch of *Baccharis* sp.).
Remarks. *Phellinus anchietanus* Decock & Ryvarden (1997), described from Rio Grande do Sul State, differs from *P. tropicalis* in the presence of tramal setae and in the hymenial setae being commonly apically curved to distinctly hamate.

Phellinus umbrinellus (Bres.) Herrera & Bondartseva
See Rajchenberg & de Meijer (1990). Very common. Specimens examined: Det. Ryv.: SM-1638 (20.iv.1990; *mofa*, on decayed dicot. branch). Det. M: COa-3767 (24.iv.2000; *mofm*, on decayed dicot. trunk), CUa-2848 (8.vii.1993; *mofa*, on decayed dicot. branch), MAg-1498 (19.ii.1990; *dof*, on decayed dicot. branch), MANa-2621 (20.iv.1993; *mofm*, on decayed dicot. branch).

Phellinus wahlbergii (Fr.) D.A. Reid
Quite rare. Specimen examined: Det. Ryv.: COa-3623 (24.v.1999; *mofm*, on dead dicot. branch).

Phylloporia chrysita (Berk.) Ryvarden
See Rajchenberg & de Meijer (1990). Common. Specimen examined: Det. M: DN-3371 (18.iii.1996; *ssf*, on living young dicot. twigs).

Phylloporia pectinata (Klotzsch) Ryvarden
See Rajchenberg & de Meijer (1990, as *Phellinus pectinatus*). Common. Specimens examined: Det. Rajch.: MAd-2028 (10.xi.1991; *dof*, on dead dicot. wood). Det. M: MAg-1497 (19.ii.1990; *dof*, on dead dicot. trunk), PAd-2802 (22.vi.1993; *dof*, on decayed dicot. trunk).

Phylloporia spathulata (Hook.) Ryvarden
Common. Specimens examined: Det. Ryv.: SM-1637 (20.iv.1990; *mofm*, on decayed dicot. wood). Det. Rajch.: MAg-1496 (19.ii.1990; *dof*, on forest soil). Det. M: MANa-2627 (20.iv.1993; *mofm*, on forest soil), PAa-1465 (3.ii.1990; *dof*, on soil, against dicot. trunk).

Polyporus arcularioides A. David & Rajchenb. vel aff.
See Rajchenberg & de Meijer (1990). Rare.
Remarks. According to David & Rajchenberg (1985) *Polyporus arcularioides* should differ macroscopically from *P. arcularius* in having a much more decurrent hymenophore and a stouter stipe.This difference is somewhat doubtful as *P. arcularius* is known to be rather variable, but we´ll use the name until DNA sequencing has been performed.

Polyporus arcularius (Batsch: Fr.) Fr.
See Rajchenberg & de Meijer (1990). Common. Specimens examined: Det. M: CPa-3529 (10.iii.1998; *ssf*, decayed dicot. branch), CUc-2189 (18.iii.1992; *mofm*, substrate?), MAa-2443 (6.ii.1993; *dof*, on decayed bamboo culm; *Guadua* sp.), SJa-2463 (16.ii.1993; *mofm*, on decayed dicot. branch).

Polyporus ciliatus Fr.: Fr.
Common. Fruiting in all months of the year, but particularly in the period August to November. Specimen examined: Det. M: MAp-2915 (9.x.1994; *dof*, on decayed dicot. twigs).
Remarks. *Polyporus ciliatus* is microscopically separated from *P. tricholoma* by the narrower spores (in Paraná material: spores 1.8-2.7 µm broad in the former and 3-4 µm broad in the latter).

Polyporus cf. **craterellus** Berk. & M.A. Curtis
Rare. Specimen examined: Det. Ryv.: Brazil, Paraná: Foz do Iguaçu, Parque Nacional do Iguaçu, 31.xii.1992, on decayed dicot. trunk, A.A.R. de Meijer no. 2396.
Remarks. The cited specimen has slightly smaller spores, i.e. 7.5-10 x 3-4 µm, compared with those observed in the type (10-13 x 4-4.5 µm - taken from specimen Wright no 377, Cuba, in Kew). The specimens are otherwise in accordance with the description given by Núñez & Ryvarden 1995.
We are a little in doubt whether the Brazilian specimen represents a new species, but refrain from further formal description until more material has been collected.

Polyporus cucullatus Mont.
See Rajchenberg & de Meijer (1990, as *Pseudofavolus cucullatus*). Common. Specimens examined: Det. Rajch.: GUP-2060 (20.xi.1991; *mofm*, on decayed dicot. branch). Det. M: ANb-1802 (Leg.: G. Hatschbach (HFC 133105); 7.i.1990; *dof*, at base of trunk), GC-1406 (30.xi.1989; *mofm*, on dead dicot. wood).

Polyporus dictyopus Mont.
Common. Specimens examined: Det. M: GC-1445 (20.xii.1989; *mofm*, on decayed bamboo culm), MAe-1927 (13.iv.1991; *dof*, on decayed dicot. twig), MAe-2941 (17. xi.1994; *dof*, on decayed dicot. branch), PId-3457 (31.viii.1997; *dof*, on decayed dicot. branch).

Polyporus grammocephalus Berk.
Uncommon. Specimens examined: Det. Ryv.: ANa-3483 (21.x.1997; *dof*, on decayed dicot. wood), FE-3324 (27.ii.1996; *ssf*, on decayed dicot. trunk), PAc-2702 (18.v.1993; *dof*, on decayed dicot. branch), SMAa-3542 (13.iii.1998; *ssf*, on decayed dicot. branch).

Polyporus guianensis Mont.
Form a (spores 7-7.5 x 3 µm; pileus light brown to brown; pores 2-4 per mm, frequently elongated).
See Rajchenberg & de Meijer (1990). Common. Specimens examined: Det. M: COa-3666 (2.vi.1999; *mofm,* on decayed dicot. branch), FE-3316 (26.ii.1996; *ssf*, on decayed dicot. twig), MAg-3086 (27.vi.1999; *dof,* on dead dicot. branch), PAa-1238 (6.v.1989; *rea,* on dead dicot. twig), TB-2306 (2.vi.1992; *mofm*, on decayed dicot. wood).
Form b (spores (4-)5.5-6 x (2.5-)3 µm pileus dark brown; pores 2-4 per mm).
Rare. Specimens examined: Det. Ryv.: IGa-2393 (31.xii.1992; *ssf*, on decayed dicot. trunk). Det. M: CUb-1879 (28.xi.1990; *mofm*, on buried dicot. wood).
Form c (spores 9-11 x 3-4.5 µm; pileus pale yellow to light brown; pores 0.5-2 per mm, often slightly elongated).
See Rajchenberg & de Meijer (1990). Common. Specimen examined: Det. M: MAm-1584 (29.v.1987; *dof*, on dead dicot. wood).

Polyporus cf. **guianensis** Mont.
Collected only once. Specimen examined: Det. M: IGa-2395 (31.xii.1992; *ssf*, on decayed dicot. trunk).
Remarks. Coll. 2395 is peculiar because of the areolate pileus surface and almost labyrinthiform pores. The material is sterile.

Polyporus leprieurii (Mont.) Pat.
See Rajchenberg & de Meijer (1990). Common. Specimen examined: Det. M: PAd-3417 (7.viii.1996; *dof,* on decayed dicot. twigs), SJg-3485 (26.x.1997; *dof,* on decayed dicot. twig).

Polyporus cf. **puttemansii** Henn.
Only in the temperate climate region. Specimens examined: Det. Ryv.: GC-1610 (12.iv.1990; *mofm*, on forest humus), MAd-2950 (19.xi.1994; *dof*, attached to buried decayed dicot. twig). Det. M: CUd-1881 (1.xii.1990; *mofm*, between short grass near dicot. tree), CUi-2190 (18.iii.1992; *mofm*, on forest humus), TU-(10.i.1998; *mofm,* on forest soil).
Remarks. The Paraná materials were mostly found solitary, sometimes in pairs. In short the basidiocarps are characterised as follows: pileus 40-90 mm diam., light yellow, centre depressed, surface rather smooth, medium fleshed (context < 12 mm thick in centre and < 4 mm thick at ½R); tubes < 6 mm long; pores 1-2 mm wide, elongated to 3 mm, white when fresh, drying to brownish orange; stipe mostly central, 30-70 x 4-12 (middle) –18 (base) mm, entirely white to light yellow, rarely below middle dark brown (coll. 1610); context pure white; spores (11-)13-17(-20) x 4.5-6 µm, subcylindrical.

According to Henning's original description (in Hedwigia 43: 200. 1904) the type material of *P. puttemansii* (probably destroyed in World War II), differs from this material from Paraná in the narrower spores ("12-15 x 3½-4 µ"), much longer tubes ("ca. 2 cm longis"), narrower stipe ("2-3 mm crasso"), and smaller pileus ("ca. 2½ cm diam."). In Paraná no fungus has ever been found that matches completely with the description of *P. puttemansii*.

Polyporus squamosus Huds.: Fr.
See Rajchenberg & de Meijer (1990). Collected only once.

Polyporus tenuiculus Beauv.: Fr.
See Rajchenberg & de Meijer (1990, as *Favolus brasiliensis*). Very common. Specimens examined: Det. M: CUb-2561 (5.iii.1993; *mofm*, on decayed dicot. wood), GUP-2059 (20.xi.1991; *mofm*, on decayed dicot. twig), IGa-2430 (9.i.1993; *ssf*, on decayed dicot. branch).

Polyporus tessellatus (Mont.) Singer

See Rajchenberg & de Meijer (1990, as *Favolus tessellatus*). Rare. Specimen examined: Det. M: FE-3296 (24.ii.1996; *ssf*, on decayed dicot. branch).
Remarks. According to David & Rajchenberg (1985) *Favolus tessellatus* Mont. differs from *Favolus brasiliensis* (Fr.) Fr. in having thinner context (100-300 µm thick, against 300-550 µm thick in *Favolus brasiliensis*).

Polyporus tricholoma Mont.
See Rajchenberg & de Meijer (1990), and also Teixeira & Fidalgo (1983) with reference to one collection of Paraná. Common. Fruiting in all months of the year, but particularly from July to December.

Polyporus udus Jungh.
Rare. Specimens examined: Det. Ryv.: IGa-2384 (29.xii.1992; *ssf*, on decayed dicot. branch). Det. M: SJa-2010 (5.xi.1991; *mofm*, on standing dead dicot. trunk, at height of 5 m).

Protomerulius brasiliensis Möller
Collected only once. Specimen examined: Det. Ryv.: *de Meijer* 1247 (Paraná, Curitiba, Colégio Medianeira; 13.v.1989, on standing dead dicot. trunk).
Remarks. According to Lowy (1971) the generative hyphae of this species should be without clamps, but according to Ryvarden (1991) clamp-connections are present in the basidiocarps.

Protomerulius substuppeus (Berk. & M.A. Curtis) Ryvarden
Collected only once. Specimen examined: Det. Ryv.: JSa-3248 (4.ii.1996; *ssf*, on dead dicot. branch).

Pycnoporus sanguineus (Fr.) Murrill
See Rajchenberg & de Meijer (1990). Very common.

Pyrofomes lateritius (Cooke) Ryvarden
Rare. Specimens examined: Det. Ryv.: PAf-3074 (22.vi.1995; *dof*, on standing dicot. trunk). Det. Rajch.: *de Meijer* 2345 (Paraná, Curitiba, near building of Secretaria Estadual de Cultura; 29.ix.1992; at base of planted living *Jacaranda mimosifolia* D. Don.).

Rigidoporus albostygius (Berk. & M.A. Curtis) Rajchenb.
Rare. Specimens examined: Det. Rajch.: GC-1407 (30.xi.1989; *mofm*, on very decayed dicot. trunk of possibly *Ocotea* sp.), MAe-1968 (28.iv.1991; *dof*, on decayed dicot. twig).

Rigidoporus concrescens (Mont.) Rajchenb.

See Rajchenberg & de Meijer (1990, as *R. umbonatipes*). Collected only once.

Rigidoporus lineatus (Pers.) Ryvarden
See Rajchenberg & de Meijer (1990). Very common.

Rigidoporus ulmarius (Sw.: Fr.) Imazeki
Common. Specimens examined: Det. M: CUa-91 (17.vii.1979; *mofa*, on decayed dicot. trunk), CUa-136 (13.ix.1979; *mofa*, on dead dicot. branches), CUb-3518 (26.i.1998; *mofm*, at base of standing dicot. trunk), IGa-2380 (29.xii.1992; *ssf*, on decayed dicot. trunk), MAg-2860 (10.vii.1993; *dof*, on decayed dicot. twig).

Rigidoporus vinctus (Berk.) Ryvarden
Common. Specimens examined: Det. H.H. Burdsall, Jr. (*in litt*. April 21, 1993): CUa-772 (18.ii.1987; *mofa*, on decayed dicot. trunk).
Det. M: JSb-3262 (6.ii.1996; *ssf*, on decayed dicot. trunk), MAg-3500 (2.xi.1997; *dof*, on decayed dicot. trunk), SJg-3494 (26.x.1997; *dof*, on decayed dicot. branch), SM-1761 (23.v.1990; *mofm*, on decayed dicot. trunk).
Schizopora flavipora (Cooke) Ryvarden
See Rajchenberg & de Meijer (1990). Common. Specimen examined: Det. H.H. Burdsall, Jr. (*in litt*. April 21, 1993): CUa-779 (21.ii.1987; *mofa*, on dead dicot. branch).

Schizopora paradoxa (Schrad.: Fr.) Donk
See Rajchenberg & de Meijer (1990). Common.
Remarks. Using the key of Hallenberg (1983), the Paraná material fits better with *Schizopora paradoxa* s. str. then with *S. radula* (Pers.: Fr.) Hallenb.

Spongipellis pachyodon (Pers.) Kotlaba & Pouzar
Collected only once. Specimen examined: Paraná, Foz do Iguaçu, Parque Nacional do Iguaçu, 6.i.1993, A.A.R. de Meijer no. 2417 (HFC, O).
Remarks. This is an almost cosmopolitan, but rare species. It is recognized by its globose spores and hydnoid basidiocarp often in gregarious clusters. The generative hyphae of the context are rather thick-walled and in broken parts easily taken as skeletal hyphae.

Stiptophyllum erubescens (Berk.) Ryvarden
Only in the Third Plateau, where it is rather common. Specimens examined: Det. M: GUP-2055 (Leg.: J.C.T. Thomaz; Sept. 1991; *ssf*, on dead wood), IGa-2418 (7.i.1993; *ssf*, on decayed dicot. branch), *de Meijer* 1530 (Leg.: O. Riepenhoff; Jan. 1990; Paraná, Vera Cruz do Oeste, on dead wood).

Trametes cubensis (Mont.) Sacc.
Rather common. Specimens examined: Det. Ryv.: GUe-3566 (22.vii.1998; *dof*,

on decayed dicot. trunk). Det. Rajch.: MAg-2314 (4.vii.1992; *dof*, on dead dicot. wood). Det. M: CL-2837 (2.vii.1993; *mofm*, on decayed dicot. stub), COa-3657 (2.vi.1999; *mofm*, on decayed dicot. stub), PAd-3422 (7.viii.1996; *dof*, on decayed dicot. branch), SJg-3491 (26.x.1997; *dof,* on decayed dicot. trunk).

Trametes elegans (Spreng.: Fr.) Fr.
See Rajchenberg & de Meijer (1990). Very common.

Trametes membranacea (Fr.) Kreisel
Only in the Third Plateau. Specimen examined: Det. Ryv.: IGa-2407 (3.i.1992; *ssf,* on decayed dicot. trunk).

Trametes versicolor (L.: Fr.) Pilát
See Rajchenberg & de Meijer (1990). Common. Specimens examined: Det. M: CUd-2676 (4.v.1993; *mofm*, on decayed dicot. wood), MAe-2610 (15.iv.1993; *dof*, on dead dicot. wood).

Trametes villosa (Fr.) Kreisel
See Rajchenberg & de Meijer (1990). Very common.

Trichaptum byssogenum (Jungh.) Ryvarden
Only in the Third Plateau. Specimens examined: Det. Rajch.: GUP-2062 (20. xi.1991; *mofm*, on decayed dicot. stub). Det. M: VAa-3170 (13.xii.1995; *ssf*, on dead dicot. wood).

Trichaptum sector (Fr.) Kreisel
See Rajchenberg & de Meijer (1990). Very common.

Tyromyces hypocitrinus (Berk.) Ryvarden
Collected only twice in Paraná. Specimens examined: Det. Ryv.: COa-3636 (28.v.1999; *mofm*, against base of standing dicot. stub). Det. Rajch.: CUb-2080 (31. xii.1991; *mofm*, on decayed dicot. branch).

Tyromyces leucomallus (Berk. & M.A. Curtis) Murrill
See Rajchenberg & de Meijer (1990). Common. Specimens examined: Det. Ryv.: SJg-3489 (26.x.1997; *dof*, on dead dicot. branch). Det. Rajch.: MAg-1499 (19. ii.1990; *dof*, on dead bamboo culms). Det. M: PId-3710 (13.i.2000; *dof*, on dead bamboo culm).

Tyromyces pulcherrimus (Rodway) G. Cunn.
Common. Specimens examined: Det. Ryv.: MAm-1730 (19.v.1990; *dof*, on decayed dicot. trunk). Det. M: PId-2877 (16.i.1994; *dof*, on dead dicot. wood).

Remarks. An extensive description and comment on this species was presented by Rajchenberg & de Meijer (1990), as *Spongipellis* aff. *caseosus* (Pat.) Ryvarden. The Paraná material (*de Meijer* 1166) was later renamed *Aurantioporus pulcherrimus* (Rodw.) P.K. Buchanan & Hood by Rajchenberg (1995: 437).
We feel that *Tyromyces* may be a better genus since in structure and consistency the basidiocarps are rather similar to *T. fissilis*.
The borderline between *Tyromyces* and *Aurantioporus* is vague and is mainly of consistency and colour, doubtful characters in the Polyporaceae. A DNA sequencing of representative specimens may show us whether we are confronted with a monophyletic group or one of the many examples of convergent evolution.

Wrightoporia porilacerata Loguercio-Leite, Gerber & Ryvarden
Collected only once. Specimen examined: Det. Ryv.: PAd-2805 (22.vi.1993; *dof*, on decayed dicot. trunk).
Remarks. This cited material is actually the first collection of the species, but it was originally put aside for further studies. Three years later, a second collection was made 235 km to the south, in the coastal region of Santa Catarina State, probably in the same kind of habitat. This collection was then selected as the type of the species (Loguercio-Leite *et al*. 1998).

Acnowledgements
The junior author would like to express his sincere gratitude towards the colleagues at S.P.V.S., particularly Drs. Clóvis R. S. Borges, for having provided working conditions and shelter. He feels also very grateful to the National Forestry Centre of the Brazilian Agricultural Research Corporation (*Embrapa Florestas* - Centro Nacional de Pesquisa de Florestas), for having engaged him as a mycologist during extensive parts of the years 1999 and 2000. In addition, he thanks Dr. H. H. Burdsall, Jr. and Dr. J. E. Wright for having done some of the determinations. Further we most particularly acknowledge valuable comments from Dr. M. Rajchenberg, CIEFAP, C.C. 238, 9200 Esquel, Chubut, Argentina, and Dr. P. Roberts, Mycology department, Kew, London. Adriana Amazonas de Almeida is gratefully acknowledged for having prepared the map.

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Synopsis Fung. 15: 70-80, 2002

Studies in neotropical polypores 17
New neotropical Inonotus species.

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Abstract
Inonotus adnatus, Ryvarden, *I. costaricensis* Ryvarden, *I. dentiporus* Ryvarden, *I. marginatus* Ryvarden, *I. neotropicus* Ryvarden, *I. pseudoglomeratus* Ryvarden and *I. dentatus* Decock & Ryvarden are described as new species.

Introduction
Over some years a number of specimens of *Inonotus* (Hymenochaetaceae) have been collected from different neotropical countries. They have now been examined and a number of them apparently represent new species, which are described in the following with a key to all known species in the area. The basidiospores for all species were negative in Melzer's reagent, thus this information is not repeated for each species.

Inonotus adnatus Ryvarden nova species
Fig. 1
Fructificatio resupinatus et porus brunneus, pori rotundis, 7-9 per mm, tubi et contextibus brunneis, systema hyphale monomiticum, hyphae generatoriae hyalinae vel brunnea, efibulatae, setis praesentis, hyphae setales praesentis, basidiosporae globosae , 7-8 µm in diam.
Holotype: Costa Rica, Puntarenas, La Amistad Pacifico, Estacion Progreso, 1180 m, 27. Sept. 2000, Ryvarden 42795, INBIO, isotype in O.
Etymology: adnatus = adnate, refers to the strongly adnate basidiocarp.
Basidiocarps annual, resupinate, up to 4 cm in diameter, strongly adnate, probably tough when fresh, hard and dense when dry, pore surface ochraceous, dull, margin thin to absent, pores round to angular, 7-9 per mm, not visible to the naked eye, tubes brown, up to 3 mm deep, context cinnamon, very thin, virtually absent in parts.
Hyphal system monomitic, generative hyphae with simple septa, thin to thick-walled, golden to rusty brown, 3-5 ìm wide.

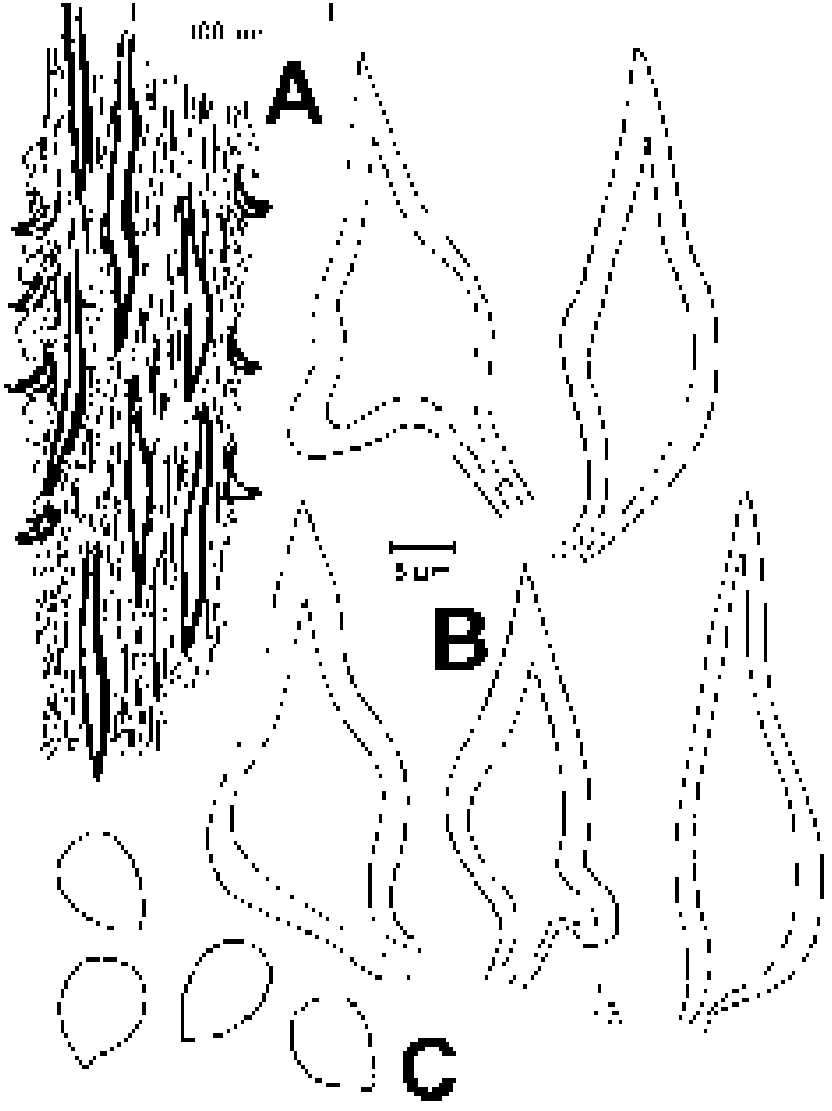

Fig. 1. *Inonotus adnatus* A) Section of tube, B) setae, C) basidiospores. From the holotype.

Setal hyphae abundantly present, dark brown, acute, thick-walled, up to 150 ìm long, 10-25 ìm wide, embedded in trama and not projecting.
Hymenial setae present, ventricose to more rarely clavate, thick-walled, dark brown, 20-45 x 7-16 ìm
Basidia not seen.
Basidiospores globose, slightly thick-walled, pale yellow in 3% KOH, 7-8 ìm in diameter.
Substrate. On unknown dead hardwood.
Distribution. Known only from the type locality.
Remarks. This species is easily separated from other resupinate species in the area by the combination of large globose basidiospores and presence of both hymenial setae and setal hyphae. The collection was dry when collected, thus the pore surface will probably be darker than described here in fresh specimens

Inonotus costaricensis Ryvarden nova species
Fructificatio resupinatus et porus brunneus, pori rotundis, 7-8 per mm, tubi et contextibus brunneis, systema hyphale monomiticum, hyphae generatoriae hyalinae vel brunnea, efibulatae, setis absentis, basidiosporae globosae , 5.5-6.5 µm in diam.
Holotype: Costa Rica, Puntarenas, La Amistad Pacifico, Estacion Biologicas, Las Tablas Finca Cafrosa, sendero Progreso, 29. Sept. 2000, Ryvarden 43076, INBIO, isotype in O.
Etymology: costaricensis = refers to the country in which the collection was made.
Basidiocarps annual, resupinate, individual basidiocarps more or less circular, up to 6 cm in diameter, soft when fresh, hard and brittle when dry, pore surface greyish brown, shiny when turned in incident light in fresh condition, slightly also so when dry, margin thin and narrow and pale cinnamon, pores round to angular, 7-8 per mm, not visible to the naked eye, tubes deep brown, up to 3 mm deep, context very thin, cinnamon.
Hyphal system monomitic, generative hyphae with simple septa, thin to thick-walled, golden to rusty brown, 3-5 ìm wide.
Setal hyphae absent.
Hymenial setae absent.
Basidia 10-12 x 7-8 ìm with 4 sterigmata.
Basidiospores globose, slightly thick-walled, pale yellow in 3% KOH, 5.5-6.5 (7) µm in diameter.
Substrate. On unknown dead hardwood.
Distribution. Known only from the type locality.
Remarks. This species is easily separated from other resupinate species in the area by the combination of globose basidiospores and a total lack of setal organs. *I. venezuelicus* is another resupinate species lacking setal organs, but this species has larger pores (3-4 per mm), a black line next to the substrate and ellipsoid basidiospores.
.

Inonotus dentatus Decock & Ryvarden nova species
Fructificatio pileatus et porus brunneus, pori angulatis, 1-3 per mm, tubi et contextibus brunneis, systema hyphale monomiticum, hyphae generatoriae hyalinae vel brunnea, efibulatae, setis et hyphae setales absentes, basidiosporae ellipsoideae , 5.-6. x 4-4.3 µm.
Holotype: French Guyana: Matouny, sentier d'interpretation de la montan Lamironde Jan 2000, C. Decok GC 1819, MUCL, isotype in O.
Etymology: dentata = refers to strongly dentate of irregular dissepiments .
Basidiocarps annual, pileate and dimidiate with strongly contracted base, semicircular of outline, up 1.5 cm wide and long, 1.5 mm thick at base, fragile and brittle when dry, upper surface shiny golden brown, at the base with raised tufts of loose fibres, becoming adpressed velutinate to fibrous towards the margin, azonate or faintly zonate, no cuticle in section, margin sharp, pore surface golden yellow, pores irregular, 1-3 per mm, angular, in parts radially elongated, up to 1 mm deep, context golden yellow brown, homogenous, up to 0.5 mm thick at base, the whole basidiocarp sharply cherry red with 3% KOH..
Hyphal system monomitic, generative hyphae with simple septa, thin to thick-walled, golden to rusty brown, 3-6 ìm wide.
Setal hyphae and **hymenial setae** absent.
Basidia clavate, 12-15 x 3-4.5 µm with 4 sterigmata. .
Basidiospores ellipsoid, slightly thick-walled, golden yellow, in 3% KOH, a few with a distinct oil drop, 4.5-5 x 3-3.5 ìm.
Substrate. On unknown dead hardwood.
Distribution. Known only from the type locality.
Remarks. This species is remarkable with its small, thin and fragile basidiocarps, the irregular pores and the fibrous hairs on the pileus varying from a vertical clustered position at the base becoming radially flattened and adpressed toward the margin.
The red colour in KOH is distinct, like seen in *Inonotus splitgerberi* which also lacks all hymenial organs.

Inonotus dentiporus Ryvarden nova species
Fig 2 A-C
Fructificatio pileata, pileus ferruginosus, pori facies umbrina, pori rotundi, 3-4 per mm, tubi et contextus ferruginosus, systema hypharum monomiticum, hyphae generatoriae afibulatae, ferruginosus ad aureum, basidiosporae ellipsoideae, 5.5-6 x 4-5 µm, setae nulla setal hyphae praesentia, ad 180 µmlonga, 10-20 µmin diametero.
Holotype: Costa Rica, Puntarenas prov. Sendero Higuero, Centra Zona protectos Tablas, 24 June 1999, L. Ryvarden 41845, Holotype: INB, isotype in O.
Basidiocarp annual, solitary or clustered with several partly fused basidiocarps, usually pendant to rarely dimidiate with distinctly tapering base, semicircular, up to 4 cm in diameter or wide and 1 cm thick at the base, applanate and soft when fresh,

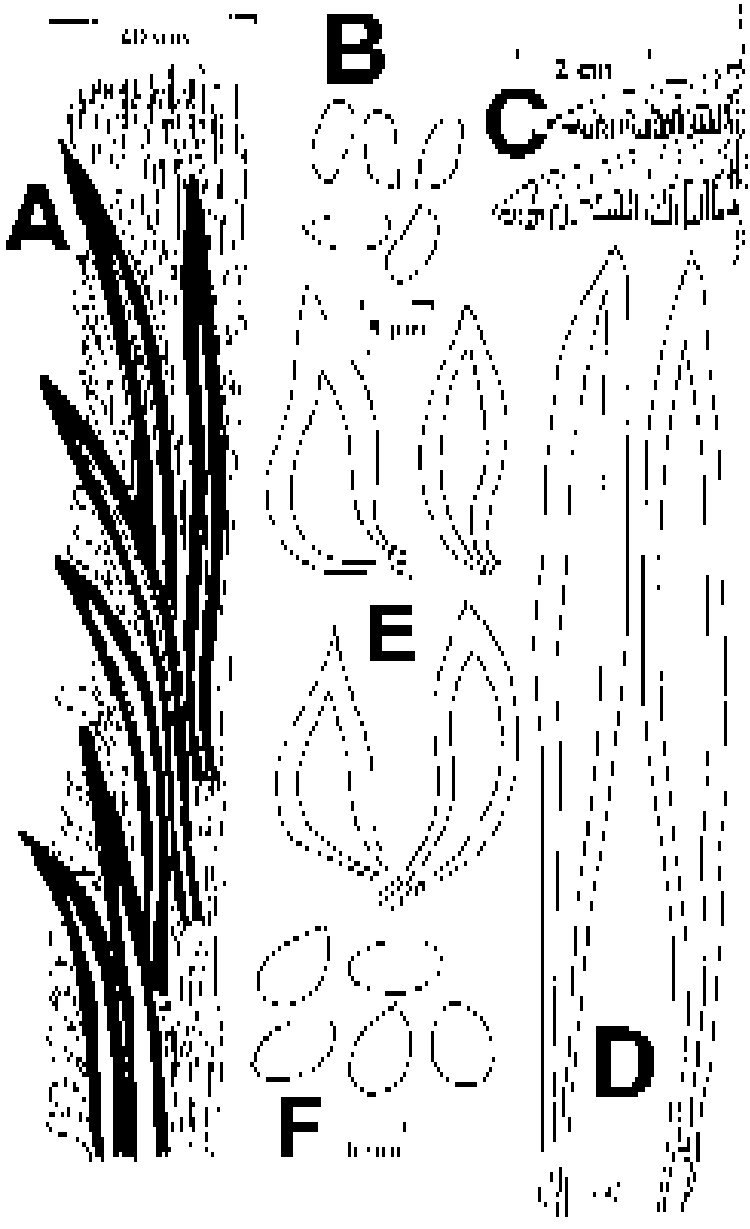

Fig. 2. *Inonotus dentiporus* A) section of tube, B) basidiospores, *I. pseudoglomeratus* C) section of basidiocarp, D) setal hyphae, E) hymenial setae, F) basidiospores. From the holotypes.

curled, hard and fragile when dry, upper surface glabrous, slightly zoned, yellowish to reddish brown, becoming blackish from base, but no distinct cuticle in section, margin sharp, strongly curled when dry, pore surface deep yellowish olivaceous brown and shiny even when dry, pores angular, 3-4 per mm, and with dentate dissepiments, tubes up to 7 mm deep concolorous with the pores surface, inside of pores with numerous small white hyphal pegs, context rusty brown and conspicuously different from the tubes, 3 mm deep, dense and homogenous.
Hyphal system monomitic, generative hyphae with simple septa, pale yellow to rusty brown, 4-6 µm wide in the context, generally narrower in the trama, 3-4 µm wide.
Setal hyphae abundantly present in the trama, dark brown, embedded and running more or less parallel to the tube walls, up to 180 µm long and 10-20 µm wide and strongly pointed.
Hymenial setae absent.
Basidia not seen.
Basidiospores ellipsoid, abundantly present, yellowish brown, thick-walled, 5.5-6 x 4-5 µm.
Substrate. Dead hardwood stump.
Distribution. Known only from Costa Rica.
Remarks. The species is characterized by yellowish basidiocarps, often dorsally attached, later becoming more brown, the prominent setal hyphae, the angular pores and the ellipsoid spores. The closest relative is undoubtedly *I. patouillardii*, which however, usually has larger and softer basidiocarp, rusty brown colours and larger basidiospores, i.e. 6-8 x 4-5.5 µm
Specimens examined: Costa Rica, Punta Arenas, Central Zona Protectora, los Tablas, Sendero Higueron, 24 June 1999, Ryvarden 41845, INBIO, isotype in O.

Inonotus marginatus Ryvarden nova species
Fig 3
Fructificatio resupinatus et porus brunneus, pori rotundis, 7-8 per mm, tubi et contextibus brunneis, systema hyphale monomiticum, hyphae generatoriae hyalinae vel brunnea, efibulatae setis praesentis, hyphae setales praesentis, basidiosporae globosae , 4.5-5 µm in diam.
Holotype: Costa Rica, Puntarenas, La Amistad Pacifico, Estacion Biologicas, Las Tablas Finca Cafrosa, sendero Progeso, 29. Sept. 2000, Ryvarden 43081, INBIO, isotype in O.
Etymology: marginatus = refers to the distinct sharp margin.
Basidiocarps annual, resupinate, in parts with new basidiocarps developing on top of old ones, as if biannual, individual basidiocarps more or less circular to elongated, up to 7 cm in longest dimension, soft and flat when fresh, hard, brittle and bent in thickest parts due to shrinking when dry, pore surface deep yellowish brown, margin 1-2 mm wide, deep brown to black and glabrous, distinct and sharp with a

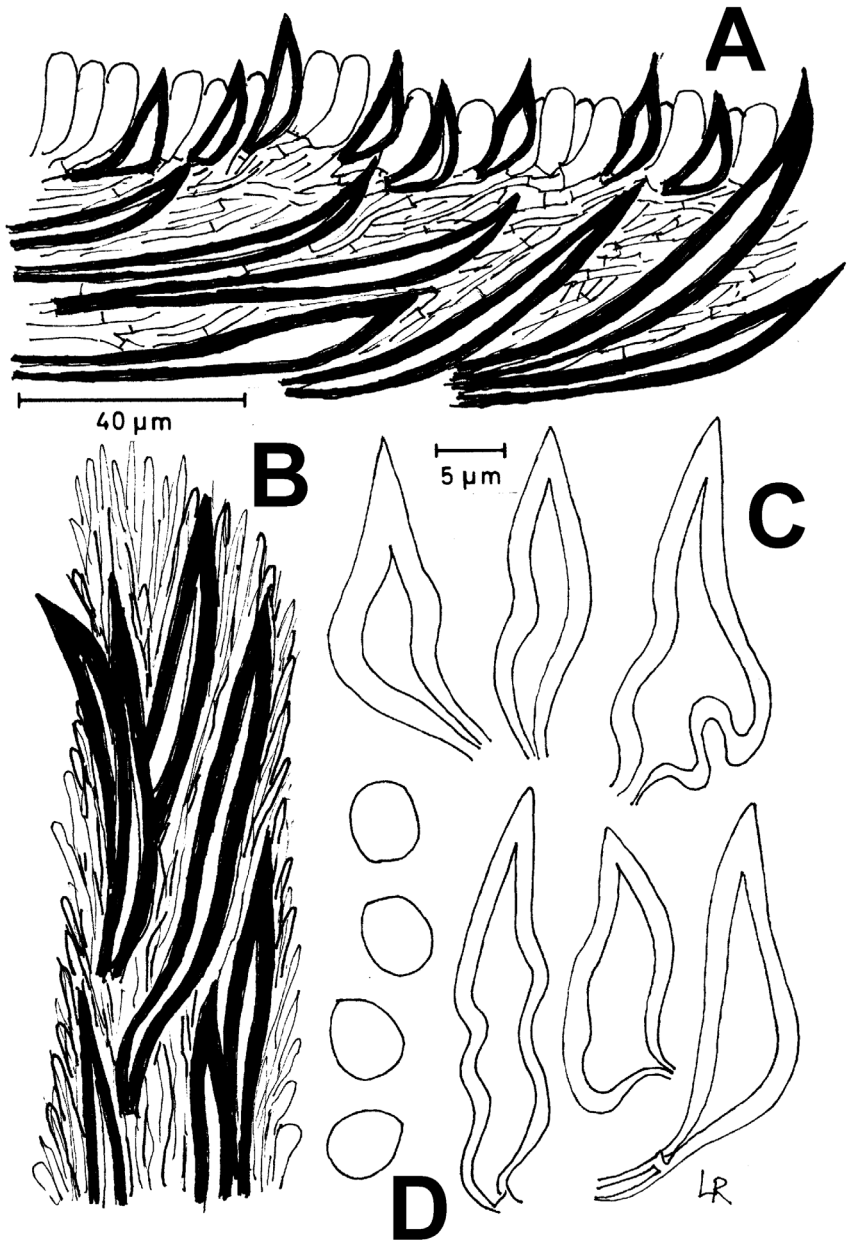

Fig. *3 Inonotus marginatus* A) section of hymenium and subhymenium, B) section of dissepiments, C) hymenial setae, D) basidiospores. From the holotypes.

sloping surface as the pores has a tendency to be well developed all the way to the sterile margin, pores round to angular, 7-8 per mm, invisible to the naked eye, tubes deep brown, up to 3 mm deep, subiculum cinnamon to rusty brown with intermittent black lines, in parts up to 1.5 mm thick, in some parts missing and in others extending to the margin. In old and dead basidiocarps below living ones, the subiculum is almost entirely transformed to a thick, black zone extending to the margin.
Hyphal system monomitic, generative hyphae with simple septa, thin to thick-walled, golden to rusty brown, 3-5 ìm wide.
Setal hyphae very abundant in the trama, embedded or projecting, especially in the dissepiments, 30-180 x 5-12 µm, dark brown and thick-walled.
Hymenial setae present, slightly ventricose to evenly tapering from the base, 18-30 x 6-10 µm
Basidia 10-15 x 6-7 ìm with 4 sterigmata.
Basidiospores globose, thin-walled, hyaline, 4.5-5 µm in diameter.
Substrate. On unknown dead hardwood.
Distribution. Known from the type locality and one locality in Venezuela.
Remarks. This species is easily separated from other resupinate *Inonotus* species in the area by the distinct, partly black margin originating from a black zone in the subiculum, the small globose basidiospores and presences of setal hyphae and hymenial setae.
Specimens examined: Same as type locality, Ryvarden 43018, Venezuela: Estado Bolivar, Gran Sabana. Estacion Aponwao, 1200m, 24 Feb. 2000, Iturriaga 7261/Ryvarden 42364B (VENN, O).

Inonotus neotropicus Ryvarden nova species
Fructificatio dimidiata, pileus et stipes ferruginosus, pori facies umbrina, pori rotundi, 4-5 per mm, tubi et contextus ferruginosus, systema hypharum monomiticum, hyphae generatoriae afibulatae, ferruginosus ad aureum, setae & hyphae setales absentia, basidiosporae subglobosae pallidus luteus ad ferruginosus 7-8 x 6-7 µm.
Holotype: Panama, Barro Colorado island, Shannon trail, 10. July 1925, C. W. Dodge 3569, holotype in BPI, isotype in O.
Etymology: neotropicus, occurring in the neotropical zone.
Basidiocarp annual, dimidiate, semicircular, up to 4 cm wide and 5 mm thick at the base, fragile when dry, upper surface dull, soft to touch and covered with a very fine adpressed tomentum, faintly concentrically zoned, deep rusty brown, margin sharp and slightly undulating, not deflexed when dry, pore surface rusty brown, pores angular, 4-5 per mm, and with entire dissepiments, tubes up to 3 mm deep concolorous with the pore surface, context rusty brown, dense, up to 2 mm thick at the base.
Hyphal system monomitic, generative hyphae with simple septa, hyaline, pale yellow to rusty brown, 3-7 µm wide in the context, 5-4 µm in the trama, no contorted hyphae present on the pileus.
Setal hyphae and **hymenial setae** absent.

Basidia not seen.
Basidiospores subglobose, abundantly present, yellowish brown to rusty brown, 7-8 x 6-7 µm, negative in Melzer´s reagent.
Substrate. Dead hardwood of unknown identity.
Distribution. Known only from the type locality.
Remarks. The species is characterized by the lack of setae and setal hyphae besides the fairly large subglobose basidiospores.

Inonotus pseudoglomeratus Ryvarden nova species
Fig 2 C-F.
Fructificatio pileatus et porus brunneus, pori angulatis, 4-6 per mm, tubi et contextibus brunneis, systema hyphale monomiticum, hyphae generatoriae hyalinae vel brunnea, efibulatae, setis et hyphae setales presentes, basidiosporae ellipsoideae , 5.-6. x 4-4.3 µm.
Holotype: Venezuela, Eastado Bolivar, Gran Sabana, Estacion Aponwao, 24 Feb. 2000, Iturriaga 7272 (Ryvarden 43076) VENN, isotype in O.
Etymology: pseudoglomeratus = refers to a strong microscopical similarity with *I. glomeratus.*
Basidiocarps annual, pileate and dimidiate with strongly contracted base, semicircular of outline, up 6 cm wide and long, 1.8 cm thick at base, probably soft when fresh, hard and brittle when dry, upper surface dark blackish brown, dull, glabrous, concentrically sulcate and with a black cuticle in section, margin sharp, pore surface deep rusty brown, tubes rusty brown, up to 8 mm deep, context cinnamon, distinctly paler than the tubes, dense and homogenous.
Hyphal system monomitic, generative hyphae with simple septa, thin to thick-walled, golden to rusty brown, 3-6 ìm wide.
Setal hyphae present, embedded and straight, dark brown, pointed 5-14 µm ide, up to 150 µm long.
Hymenial setae present, few and scattered, thick-walled and evenly tapering, 15-25 x 6-10 µm.
Basidia not seen.
Basidiospores ellipsoid, slightly thick-walled, yellow in 3% KOH, 5-6 x 4-4.3 µm. diameter.
Substrate. On unknown dead hardwood.
Distribution. Known only from the type locality.
Remarks. This species is microscopically reminiscent of *I glomeratus* from North America that however has much more abundant hymenial setae, mostly resupinate

basidiocarps, occasionally with a imbricate pilei.

Key to neotropical species of *Inonotus*

1. Basidiocarp resupinate to nodulose **2**
1. Basidiocarp pileate or effused reflexed 6

2. Hymenial setae and setal hyphae absent 3
2. Hymenial setae and setal hyphae present 4

3. Pores 3-4/mm, basidiospores ellipsoid 5-6 x 4.5-5 µm .....**I. venezuelicus**
3. Pores 7-8 per mm, basidiospores globose, 5.5-6.5 µmin diam ..... **I. costaricensis**

4. Basidiospores 10-13 x 8-12 µm .....**I. micantissimus**
4. Basidiospores globose 5

5. Basidiospores 7-8 µm in diam, margin thin to absent ..... **I. adnatus**
5. Basidiospores 4.5-5 µm in diam, margin sharp and distinct ..... **I. marginatus**

6. Setal hyphae present in the dissepiments 7
6. Setal hyphae absent in the dissepiments 10

7. Hymenial setae absent, pore surface olivaceous brown, context up to 3 mm thick .....**I. dentiporus**
7. Hymenial setae present, pore surface rusty to dark brown, context usually more than 3 mm thick 8

8. Basidiospores 5-6 x 4-4.5 µm, upper surface glabrous with black cuticle from the base .....**I. pseudoglomeratus**
8. Spores 6-8 x 4-5.5 µm, upper surface finely tomentose, becoming zoned 9

9. Upper surface with alternating black and rusty brown zones, chlamydospores absent .....**I. patouillardii**
9. Upper surface azonate, rusty brown, chlamydospores present in context or on pileus .....**I. rickii**

10. Hymenial setae absent 11
10. Hymenial setae present 21

12. Pores 4-6 per mm 13
12. Pores 1-4 per mm or wider..... 15

13. Basidiospores 7-8 x 6-7 µm ..... **I. neotropicus**
13. Basidiospores smaller 14
14. Basidiocarps tiny, approximately 2 x 2 x 1 mm, contorted hyphae absent on pileus..... **I. pusillus**
14. Basidiocarps larger, contorted hyphae present on pileus .....**I. porrectus**

15. Basidiospores 4-5.5 µm long 16
15. Basidiospores longer than 5.5 µm 18

16. Basidiocarps golden yellow, pores irregular 1-3 per mm, rarely above 1.5 mm thick ..... **I. dentatus**
16. Basidiocarps in shades of rusty brown, pores round to angular, 2-6 per mm.....17

17. Pores 4-6 per mm, basidiocarp yellowish to orange brown, hazel with age, red with KOH ..... **I. splitbergeri**
17. Pores 2-4 per mm, basidiocarp dark rusty brown, black with KOH...**I. fragilissimus**

18. Context up to 2 mm thick, pores 3-4 per mm, pileus becoming black and with cuticle ..... **I. jamaicensis**
18. Context 2-20 mm thick, pileus persistently brown 19

19. Setigerous elements present on the pileus, basidiospores 6-8 µm long, USA and Mexico ..... **I. munzii**
19. Setigerous elements absent on the pileus 20

20. Basidiospores 5-6.5 µm long, southern USA ..... **I. ludovicianus**
20. Basidiospores 8-10 x 6-7 µm long, tropical America ..... **I. duportii**

21. Setae hooked 22
21 Setae straight 24

22. Basidiospores 5-7 µm long ..... **I. fulvomelleus**
22. Basidiospores longer than 7 µm..... 23

23. Basidiospores rusty brown, pileus villose to hispid, pores 4-5 per mm ..... **I. fimbriatus**
23. Basidiospores hyaline to golden yellow, pileus glabrous to finely tomentose,

Some neotropical fungi

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