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STUDIES IN RESUPINATE BASIDIOMYCETES—VI

On some new taxa

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Resupinate Basidiomycetes from various parts of the world have been studied, all belonging to the Corticiaceae sensu lato. Eleven new genera and two new species are described, forty-three new combinations proposed. Two new families are described, viz. Corneromycetaceae (resupinate) and Heteroscyphaceae (cyphelloid).

A number of resupinate Basidiomycetes from temperate and tropical areas have been studied. Several new genera, based on microscopical characters, are described. All are placed in the Corticiaceae sensu lato, at least for the moment and in spite of the fact that some of them are characterized by a dimitic hyphal system, brown spores, or pleurobasidia, features which are typical for some closely related families.

SOME NEW GENERA AND SPECIES

CORTICIACEAE sensu lato

Adustomyces Jülich, *gen. nov.*

Carposomata perennia, resupinata, effusa, adnata, 1–5 mm crassa, trama in KOH solutione nigra, firme membranacea vel crustacea, margine abrupta, adnata vel paulum reflexa. Systema hypharum monomiticum. Hyphae hyaline vel brunneae, cylindraceae, dense intertextae, distinctae, tenui- vel incrassate tunicatae, circa 2–4 μm latae, fibulatae. Cystidia desunt sed hyphidia adsunt, nonnulla vel multa, hyalina, cylindriacea, tenui-tunicata. Basidia hyalina, clavata, circa 50 × 8 μm, fibulata, tetraspora. Sporae hyalinae, late ellipsoideae, tenui- vel paulum incrassate tunicatae, laeves, circa 9 × 7 μm, inamyloideae.
Typus: *Stereum repandum* var. *lusitanicum* Torrend 1913.

Basidiocarp perennial, resupinate, effused, adnate, 1–5 mm thick, the trama blackening in KOH, firm-membranaceous to crustaceous, the margin abrupt, adnate or slightly reflexed. Hyphal system monomitic. Hyphae hyaline or brown in the trama, cylindrical, densely arranged, distinct, thin- to slightly thick-walled, about 2–4 μm wide, with clamps. Cystidia absent but hyphidia present, few or abundant, hyaline, cylindrical, thin-walled. Basidia hyaline, clavate, about 50 × 8 μm, four-spored, with a basal clamp. Spores hyaline, broadly ellipsoid, thin- to slightly thick-walled, smooth, about 9 × 7 μm, not amyloid.
Type locality: Portugal

The genus *Adustomyces* is close to *Radulomyces*, but differs from that genus in its crustaceous, up to 5 mm thick basidiocarp, brown hyphae and a blackening trama (in KOH).

Adustomyces lusitanicus (Torrend) Jülich, *comb. nov.* (basionym: *Stereum repandum* var. *lusitanicum* Torrend *in* Broteria (Bot.) **11**: 76. 1913).

Aphanobasidium Jülich, *gen. nov.*

Carposomata resupinata, effusa, tenuia, ceracea, pallide colorata. Hymenophorum laeve. Systema hypharum monomiticum. Hyphae hyalinae, tenui-tunicatae, fibulatae. Cystidia desunt. Basidia (pleurobasidia) hyalina, parva, tenui-tunicata, tetraspora, fibulata. Sporae hyalinae, ellipsoideae, laeves, tenui-tunicatae, inamyloideae vel amyloideae.

Typus: *Corticium subnitens* Bourd. & Galz. 1928.

Basidiocarp resupinate, effused, thin, ceraceous, light coloured. Hymenial surface even. Hyphal system monomitic. Hyphae hyaline, thin-walled, with clamps. Cystidia lacking. Basidia (pleurobasidia) hyaline, small, thin-walled, four-spored, with a basal clamp. Spores hyaline, ellipsoid, smooth, thin-walled, not amyloid or amyloid.

Type locality: France.

The genus *Xenasma* sensu lato was composed of a number of not closely related groups held together by only one character, the more or less typically developed pleurobasidia. In the meantime it became clear that this genus had to be split up in smaller genera, containing now species with warted spores (the warts soluble in KOH or not) and species with thin-walled, smooth and amyloid or inamyloid spores. It is for this last group of species that the new genus is described.

Aphanobasidium allantosporum (Oberw.) Jülich, *comb. nov.* (basionym: *Xenasmatella allantospora* Oberw. *in* Sydowia **19**: 35. 1965).

Aphanobasidium filicinum (Bourd.) Jülich, *comb. nov.* (basionym: *Corticium filicinum* Bourd *in* Revue scient. Bourbonn. **23**: 12. 1910).

Aphanobasidium gaspesicum (Liberta) Jülich, *comb. nov.* (basionym: *Xenasma gaspesicum* Liberta *in* Mycologia **58**: 932. '1966', publ. 1967).

Aphanobasidium grisellum (Bourd.) Jülich, *comb. nov.* (basionym: *Corticium grisellum* Bourd *in* Revue scient. Bourbonn. **35**: 17. 1922).

Aphanobasidium lloydii (Liberta) Jülich, *comb. nov.* (basionym: *Xenasma lloydii* Liberta *in* Mycologia **52**: 906. '1960', publ. 1962).

Aphanobasidium ralla (H. S. Jacks.) Jülich, *comb. nov.* (basionym: *Corticium rallum* H. S. Jackson *in* Canad. J. Res. (C) **28**: 889. 1950).

Aphanobasidium subnitens (Bourd. & Galz.) Jülich, *comb. nov.* (basionym: *Corticium subnitens* Bourd. & Galz., Hyménomycètes de France 224. 1928).

Columnodontia Jülich, *gen. nov.*

Carposoma resupinatum, effusum, membranaceum vel crustaceum. Hymenophorum odontioideum ad hydnoideum. Systema hypharum monomiticum. Hyphae hyalinae vel luteo-brunneae, cylindricaceae, incrassate tunicatae, cum vel sine fibulis. Cystidia desunt vel adsunt. Spinae cylindraceae ad conicae,

constans ex columellis crystallorum procurrentibus. Basidia hyalina, anguste clavata, tetraspora. Sporae hyalinae, cylindraceae vel ellipsoideae, tenui-tunicatae, laeves, inamyloideae.
Typus: *Columnodontia resupinata* Jülich

Basidiocarp resupinate, effused, membranaceous or crustaceous. Hymenial surface odontioid to hydnoid. Hyphal system monomitic. Hyphae hyaline to yellowish-brown, cylindrical, somewhat thick-walled, with or without clamps. Cystidia present or lacking. Spines cylindrical to conical, consisting of small, projecting columns of crystals. Basidia hyaline, narrowly clavate, four-spored. Spores hyaline, cylindrical or ellipsoid, thin-walled, smooth, not amyloid.
Type locality: Borneo.

Columnodontia resupinata Jülich, *spec. nov.*

Carposomata resupinata, effusa, circa 300 μm crassa, adnata, ceraceo-crustacea. Hymenophorum odontioideum. Systema hypharum monomiticum. Hyphae hyalinae vel basales luteo-brunneae, incrassate tunicatae, 3–4 μm latae, sine fibulis. Cystidia desunt. Columellae crystallorum plus minusve cylindraceae, 150–250 × 40–80 μm. Basidia hyalina, anguste clavata, 16–22 × 3.5–4.5 μm, tetraspora. Sporae hyalinae, ellipsoideae, tenui-tunicatae, leaves, 3–4 × 2–2.2 μm, inamyloideae.

Basidiocarp resupinate, effused, about 300 μm thick, adnate, ceraceous-membranaceous. Hymenial surface odontioid. Hyphal system monomitic. Hyphae hyaline or yellowish-brown at the base, somewhat thick-walled, 3–4 μm wide, without clamps. Cystidia lacking. Columns of crystals more or less cylindrical, 150–250 × 40–80 μm. Basidia hyaline, narrowly clavate, 16–22 × 3.5–4.5 μm, four-spored. Spores hyaline, ellipsoid, thin-walled, smooth, 3–4 × 2–2.2 μm, not amyloid.
Type: Borneo, Sarawak, Gunong Mulu National Park, N. of Base Camp, *c.* 65 m alt., 10.III.1978, *W. Jülich 78–1564* (L).

The genus *Columnodontia* is easily identified because of the glistening, projecting columns of crystals. Three more species, all from South East Asia or Australia, belong to this genus.

Columnodontia columellifera (Cunn.) Jülich, *comb. nov.* (basionym: *Odontia columellifera* Cunn. *in* Trans. R. Soc. N. Zeal. **86**: 84. 1959).

Columnodontia lutea (Cunn.) Jülich, *comb. nov.* (basionym: *Odontia lutea* Cunn. *in* Trans. R. Soc. N. Zeal. **86**: 82–83. 1959).

Columnodontia subfascicularia (Wakef.) Jülich, *comb. nov.* (basionym: *Acia subfascicularis* Wakef. *in* Trans. Proc. R. Soc. S. Austr. 1930: 155–156. 1930).

Cyanobasidium Jülich, *gen. nov.*

Carposomata resupinata, effusa, hypochnoidea vel membranacea. Hymenophorum laeve. Systema hypharum monomiticum. Hyphae hyalinae vel luteae, cum vel sine fibulis, in parte basali grandes et crasse tunicatae, cyanophileae. Basidia hyalina, cylindracea vel clavata, tetraspora, cyanophilea. Sporae hyalinae vel pallide luteae, tenui vel leviter incrassate tunicatae, subglobosae vel late ellipsoideae, verrucosae, cyanophileae, inamyloideae.
Typus: *Pellicularia chordulata* D. P. Rogers 1943.

Basidiocarp resupinate, effused, hypochnoid or membranaceous. Hymenial surface even. Hyphal system monomitic. Hyphae hyaline or yellowish, with or without clamps, the basal ones

large and thick-walled, cyanophilous. Basidia hyaline, cylindrical or clavate, four-spored cyanophilous. Spores hyaline or pale yellowish, thin-walled to slightly thick-walled, subglobose to broadly ellipsoid, warty, cyanophilous, not amyloid.

Type locality: U.S.A.

The wide, thick-walled basal hyphae in the genus *Cyanobasidium* indicate a relationship with *Botryobasidium* or *Botryohypochnus*. *Botryobasidium* deviates because of its smooth spores, *Botryohypochnus* because of its larger spores with long spines. The spores of *Cyanobasidium* have an ornamentation of low warts more or less resembling that of the conidia in *Aspergillus* or *Penicillium*. Two species can be placed in the new genus.

Cyanobasidium asperulum (D. P. Rogers) Jülich, *comb. nov.* (basionym: *Pellicularia asperula* D. P. Rogers *in* Farlowia **1**: 100. 1943).

Cyanobasidium chordulatum (D. P. Rogers) Jülich, *comb. nov.* (basionym: *Pellicularia chordulata* D. P. Rogers *in* Farlowia **1**: 98. 1943).

Granulobasidium Jülich, *gen. nov.*

Carposomata resupinata, effusa, adnata, membranacea. Hymenophorum laeve vel leviter tuberculatum. Systema hypharum monomiticum. Hyphae hyalinae, angustae, fibulatae, saepe guttulatae. Cystidia desunt. Basidia hyalina, cylindracea vel anguste clavata, 40–60 μm longa, granulosa vel guttulata, tetraspora, fibulata. Sporae hyalinae, crasse tunicatae, asperae, guttulatae, cyanophileae, inamyloideae. Plerumque cum chlamydosporis ellipsoideis, crasse tunicatis, cyanophileis et dextrinoideis.

Typus: *Corticium vellereum* Ell. & Cragin apud Cragin 1885.

Basidiocarp resupinate, effused, adnate, membranaceous. Hymenial surface even or slightly tuberculate. Hyphal system monomitic. Hyphae hyaline, narrow, with clamps, often guttulate. Cystidia absent. Basidia hyaline, cylindrical to narrowly clavate, 40–60 μm long, with granular or guttulate contents, four-spored, with a basal clamp. Spores hyaline, thick-walled, with uneven surface, guttulate, cyanophilous, not amyloid. Often with ellipsoid, thick-walled, cyanophilous and dextrinoid chlamydospores.

Type locality: U.S.A.

The type species has been placed in the genus *Hypochnicium* by Parmasto (*1968*). It differs, however, from that genus in its long and slender basidia with remarkably short sterigmata and granular contents, lack of cystidia, uneven spore surface, presence of usually large numbers of chlamydospores; reaction on laccase weak or absent (laccase present in typical species of *Hypochnicium*).

Granulobasidium vellereum (Ellis & Cragin apud Cragin) Jülich, *comb. nov.* (basionym: *Corticium vellereum* Ellis & Cragin apud Cragin *in* Bull. Washburn Coll. Lab. Nat. Hist. **1**: 66. 1885).

Gyrophanopsis Jülich, *gen. nov.*

Carposomata resupinata, effusa, membranacea. Hymenophorum laeve. Systema hypharum monomiticum. Hyphae hyalinae vel basales luteo-brunneae, incrassate tunicatae, fibulatae. Lamprocystidia adsunt, luteo-brunnea, conica, incrustata, septata, cum fibulis. Basidia hyalina, clavata, tetraspora. Sporae hyalinae vel pallide luteae, leviter incrassate tunicatae, laeves, ellipsoideae, inamyloideae.
Typus: *Pellicularia zealandica* Cunn. 1953.

Basidiocarp resupinate, effused, membranaceous. Hymenial surface even. Hyphal system monomitic. Hyphae hyaline of yellowish brown in the trama, thick-walled, with clamps. Lamprocystidia present, yellowish-brown, conical, incrusted, septate, with clamps. Basidia hyaline, clavate, four-spored. Spores hyaline of slightly yellowish, slightly thick-walled, smooth, ellipsoid, not amyloid.
Type locality: New Zealand.

The genus *Gyrophanopsis* differs from all other genera with resupinate basidiocarp in its slightly thick-walled spores, yellowish-brown lamprocystidia and rather large yellowish-brown, thick-walled basal hyphae. The genus is up to now monotypic.

Gyrophanopsis zealandica (Cunn.) Jülich, *comb. nov.* (basionym: *Pellicularia zealandica* Cunn. *in* Trans. R. Soc. N. Zeal. **81**: 169. 1953).

Jacksonomyces Jülich, *gen. nov.*

Carposomata resupinata, effusa, adnata, ceracea, absque rhizomorphis. Hymenium laeve vel rugosum. Systema hypharum monomiticum. Hyphae hyalinae, cylindraceae vel torulosae, basales crasse-tunicatae, fibulatae. Cystidia hyalina, plus minusve tenui-tunicatae, fibulatae. Basidia hyalina, stipitate clavata, fibulata, tenui-tunicata, tetraspora, circa 10–20 μm longa. Sporae hyalinae, cylindraceae, laeves, tenui-tunicatae, circa 5 μm longae.
Typus: *Peniophora phlebioides* Jackson & Dearden 1949.

Basidiocarp resupinate, effused, adnate, ceraceous, without rhizomorphs. Hymenial surface even or somewhat folded. Hyphal system monomitic. Hyphae hyaline, cylindrical to torulose, thick-walled in the trama, with clamps. Cystidia (leptocystidia) hyaline, more or less thin-walled, with a basal clamp. Basidia hyaline, stalked-clavate, thin-walled, about 10–20 μm long, with a basal clamp, four-spored. Spores hyaline, cylindrical, smooth, thin-walled, about 5 μm long.
Type locality: Canada.

The type species of *Jacksonomyces* has the typical ceraceous basidiocarp of a *Phlebia* but deviates from that genus in its stalked-clavate, partly pleurobasidioid, and rather small basidia. It is named after H. S. Jackson who contributed much to our knowledge of Canadian Corticiaceae.

Jacksonomyces phlebioides (Jackson & Dearden) Jülich, *comb. nov.* (basionym: *Peniophora phlebioides* Jackson & Dearden *in* Canad. J. Res. (C) **27**: 150–151. 1949).

Lepidomyces Jülich, *gen. nov.*

Carposomata resupinata, effusa, ceraceo-crustacea, adnata. Hymenophorum laeve. Systema hypharum monomiticum. Hyphae hyalinae, tenui-tunicatae, indistinctae, torulosae, fibulatae. Leptocystidia adsunt,

hyalina, tenui-tunicata, fibulata, plus minusve incrustata. Basidia variabilia, cylindricacea, suburniformia vel clavata, nonnumquam pleurobasidioidea, circa 20 × 5 μm, hyalina, fibulata, tetraspora. Sporae hyalinae, cylindricaceae vel anguste ellipsoideae, tenui-tunicatae, laeves, 6–8 μm longae, inamyloideae.
Typus: *Peniophora subcalcea* Litsch. 1939.

Basidiocarp resupinate, effused, ceraceous-crustaceous, adnate. Hymenial surface even. Hyphal system monomitic. Hyphae hyaline, thin-walled, indistinct, torulose, with clamps. Leptocystidia present, hyaline, thin-walled, clamped, more or less incrusted. Basidia variable, cylindrical, suburniform or clavate, sometimes pleurobasidioid, about 20 × 5 μm, hyaline, with a basal clamp, four-spored. Spores hyaline, cylindrical to narrowly ellipsoid, thin-walled, smooth, 6–8 μm long, not amyloid.
Type locality: Austria.

The type species of *Lepidomyces* was formerly placed in *Phlebia* and *Xenasma*. *Phlebia* is characterized by a waxy basidiocarp with elongated and narrowly clavate basidia, *Xenasma* sensu lato is characterized by typical pleurobasidia and (in most species) amyloid or warty spores.

Lepidomyces subcalceus (Litsch.) Jülich, *comb. nov.* (basionym: *Peniophora subcalcea* Litsch. *in* Österr. bot. Z. **88**: 119. 1939).

Pseudomerulius Jülich, *gen. nov.*

Carposomata resupinata, effusa vel effuso-reflexa, ceraceo-membranacea, adnata, rhizomorphae desunt. Hymenophorum distincte merulioideum. Systema hypharum monomiticum. Hyphae hyalinae, distinctae, tenui- vel basales incrassate tunicatae, tumentes in KOH solutione, fibulae adsunt vel in parte desunt. Cystidia desunt. Basidia hyalina, suburniformia vel anguste clavata, fibulata, tetraspora. Sporae pallide luteae, cylindraceae vel leviter curvatae, laeves, leviter incrassate tunicatae, inamyloideae.
Typus: *Merulius aureus* Fr. 1828

Basidiocarp resupinate, effused or effuso-reflexed, ceraceous-membranaceous, adnate, rhizomorphs absent. Hymenial surface distinctly merulioid (also when dry). Hyphal system monomitic. Hyphae hyaline, distinct, thin-walled or the basal ones somewhat thick-walled and distinctly swelling in KOH, clamps present at all or most septa. Cystidia lacking. Basidia hyaline, suburniform or narrowly clavate, four-spored, with a basal clamp. Spores light yellowish (yellowish brown in masses), cylindrical or slightly curved, smooth, slightly thick-walled, not amyloid.
Type locality: Sweden.

The genus *Pseudomerulius* is related to *Leucogyrophana* and *Serpula*, but differs from both genera in its much smaller and narrower spores and basidia; it differs further in its basal hyphae which swell distinctly in KOH.

Pseudomerulius aureus (Fr.) Jülich, *comb. nov.* (basionym: *Merulius aureus* Fr., Elenchus **1**: 62 1828).

Pseudomerulius elliottii (Massee) Jülich, *comb. nov.* (basionym: *Merulius elliottii* Masse *in* J. Bot., Lond. **30**: 162. 1892).

Pteridomyces Jülich, *gen. nov.*

Carposomata resupinata, effusa, adnata, membranacea. Hymenophorum minute odontioideum. Systema hypharum monomiticum. Hyphae hyalinae, dense aggregatae, tenui-tunicatae, fibulatae. Cystidia desunt. Spinae steriles, conicae, constantes ex hyphis parallelis, fibulatis cum parietibus tenui-tunicatis et hyalinis. Basidia hyalina, clavata, fibulata, tetraspora, 10–15 μm longa. Sporae hyalinae, laeves, tenui-tunicatae, inamyloideae.

Typus: *Epithele galzinii* Bres. apud Bourd. & Galz. 1911.

Basidiocarp resupinate, effused, adnate, membranaceous. Hymenial surface minutely odontioid. Hyphal system monomitic. Hyphae hyaline, densely arranged, thin-walled, with clamps. Cystidia absent. Spines sterile (hyphal pegs), consisting of parallelly arranged, thin-walled, hyaline, clamped hyphae. Basidia hyaline, clavate, with a basal clamp, four-spored, about 10–15 μm long. Spores hyaline, smooth, thin-walled, inamyloid.

Type locality: France.

The type species of *Pteridomyces* is up to now only found on old fronds of ferns (*Arthyrium*, *Dryopteris*). It was originally described as *Epithele*, but the type of that genus has much larger basidia and very large, thick-walled spores. *Epithele galzinii* has been compared with *Athelopsis*, but the basidiocarp is not loosely pellicular, the hyphae are not loosely arranged and the basidia are not podobasidial.

Pteridomyces galzinii (Bres. apud Bourd. & Galz.) Jülich, *comb. nov.* (basionym: *Epithele galzinii* Bres. apud Bourd. & Galz. *in* Bull. trimest. Soc. myc. France **27**: 264. 1911).

Skeletohydnum Jülich, *gen. nov.*

Carposomata resupinata, effusa, adnata, membranacea. Hymenophorum minute hydnoidea cum spinulis sterilibus constans ex hyphis skeleticis hyalinis. Systema hypharum dimiticum cum hyphis skeleticis. Hyphae generativae hyalinae, cylindraceae vel torulosae, tenui-tunicatae, fibulatae, Dendrohyphidia hyalina vel hyphae paraphysoideae torulosae adsunt, cystidia desunt. Basidia in medio distincte constricta, fibulata, tetraspora. Sporae hyalinae, elongatae, ellipsoideae, tenui-tunicatae, laeves, circa 14 × 15 μm, inamyloideae.

Typus: *Epithele nikau* Cunn. 1956.

Basidiocarp resupinate, effused, adnate, membranaceous. Hymenial surface minutely hydnoid with sterile spines (hyphal pegs) consisting of hyaline skeletal hyphae. Hyphal system dimitic with skeletal hyphae. Generative hyphae hyaline, cylindrical to torulose, thin-walled, with clamps. Hyaline dendrohyphidia or torulose paraphysoid hyphae present, cystidia absent. Basidia distinctly constricted in the middle, with a basal clamp, four-spored. Spores hyaline, elongated, ellipsoid, thin-walled, smooth, about 14 × 5 μm, not amyloid.

Type locality: New Zealand.

The type species of *Skeletohydnum* shows the same elongated spores as *Epithele typhae*, but the spores are thin-walled. The genus differs from most other genera with hyphal pegs in that the spines are made up of skeletal hyphae. The genus is up to now monotypic.

Skeletohydnum nikau (Cunn.) Jülich, *comb. nov.* (basionym: *Epithele nikau* Cunn. *in* Trans. R. Soc. N. Zeal. **83**: 629. 1956).

A NEW SPECIES OF TUBULICRINIS DONK 1956

Tubulicrinis corneri Jülich, *spec. nov.* – Fig. 1

Carposomata resupinata, effusa, adnata, membranacea, albida vel cremea, odontioidea vel minute hydnoidea. Spinulae subulatae, 0.5–0.8 × 0.2–0.3 mm. Systema hypharum monomiticum. Hyphae hyalinae, cylindraceae, tenui- vel incrassate tunicatae (0.2–0.4 μm), laeves, fibulatae, 2–4 μm latae. Cystidia (lyocystidia) adsunt, hyalina, parietibus tumentibus in KOH, dimorpha: (a) 40–75 × 4–8.5 μm, subcylindracea vel ventricosa, crasse tunicata (0.5–3.5 μm), apicibus umbraculiformis; (b) 14–22 μm longa, crescentia lateraliter ex hyphis. Basidia hyalina, suburniformia, 20–30 × 5–6.5 μm, tetraspora, fibulata, Sporae hyalinae, late ellipsoideae, tenui-tunicatae, laeves, 5–6 × 4–5 μm, inamyloideae.

Typus: Malaya, Pahang, Fraser's Hill, 1300 m alt., on a rotten trunk in the forest, 3.X.1961, *E. J. H. Corner* (Herb. Corner).

Basidiocarp annual, resupinate, effused, several cm large, adnate, membranaceous, context homogeneous, margin thinning out, byssoid, rhizomorphs or hyphal strand lacking. Hymenial surface odontioid or slightly hydnoid, the spines 0.5–0.8 mm long and 0.2–0.3 mm wide, slender, terete-acicular, mostly simple and entire, scarcely crowded, in places patchily developed, the whole basidiocarp whitish to cream-coloured, not or only slightly cracked when dry. Hyphal system monomitic. Hyphae hyaline, rather distinct, cylindrical, densely arranged in subhymenium and trama, thin-walled and 2–4 μm wide in the subhymenium, slightly thick-walled and 2–4 μm wide in the trama, with smooth surface, clamps present at all septa, contents homogeneous. Cystidia (lyocystidia) present, abundant, of hymenial to subhymenial origin, hyaline, the walls swelling in KOH, dimorphic: (a) large, 40–75 × 4–8.5 μm, ventricose or subcylindric, the base sometimes bi-rooted, the capitate apex 6–8.5 μm wide and set with 6–8(–9) deflexed, up to 4.5 μm long, solid spines (crystals), a basal clamp present, more or less enclosed in the hymenium or projecting up to 30 μm; (b) small, 14–22 μm long, the cylindric stalk 1.5–2.5 μm wide, the head 2.5–4 μm wide and set with 4–6 short, deflexed spines (crystals), the cystidia originating laterally on hyphal cells and not cut off by a septum, the stalk slightly thick-walled, also swelling in KOH. At the base of the spines and in the trama are occasionally thick-walled, spicate processes up to 35 × 6 μm, mostly simple, rarely twinned, acute, not capitate, hyaline, smooth. Basidia hyaline, suburniform when mature, young basidia cylindrical to ellipsoid, 20–30 × 5–6.5 μm, thin-walled, smooth, a basal clamp always present, contents homogeneous, with four subulate sterigmata (4.5 × 0.8 μm). Spores hyaline, broadly ellipsoid, thin-walled, smooth, 5–6 × 4–5 μm, with distinct, about 1 μm long apiculus, contents homogeneous when dry, 1- or 2-guttulate when fresh, neither amyloid, dextrinoid, nor cyanophilous.

This type of lyocystidia with a head of umbrella-like crystals was up to now only known from *Tubulicrinis hamata* (Jackson) Donk (syn.: *Peniophora umbracula* Cunn.). It was a great surprise to find the same situation in a second species, which is microscopically rather similar, but differs in having a distinctly odontioid to somewhat hydnoid basidiocarp with nearly 1 mm long spines, whereas the basidiocarp of *T. hamata* is very thin and smooth. The specimen was sent by Professor E. J. H. Corner together with extensive notes on the macro- and micromorphology of the species. Corner has had the opportunity to study living specimens of this taxon and I made use of his notes to complete my own observations. In a footnote to his notes, Corner expressed exactly what every student of this taxon thinks: 'Why is such a little fungus so complicated?'

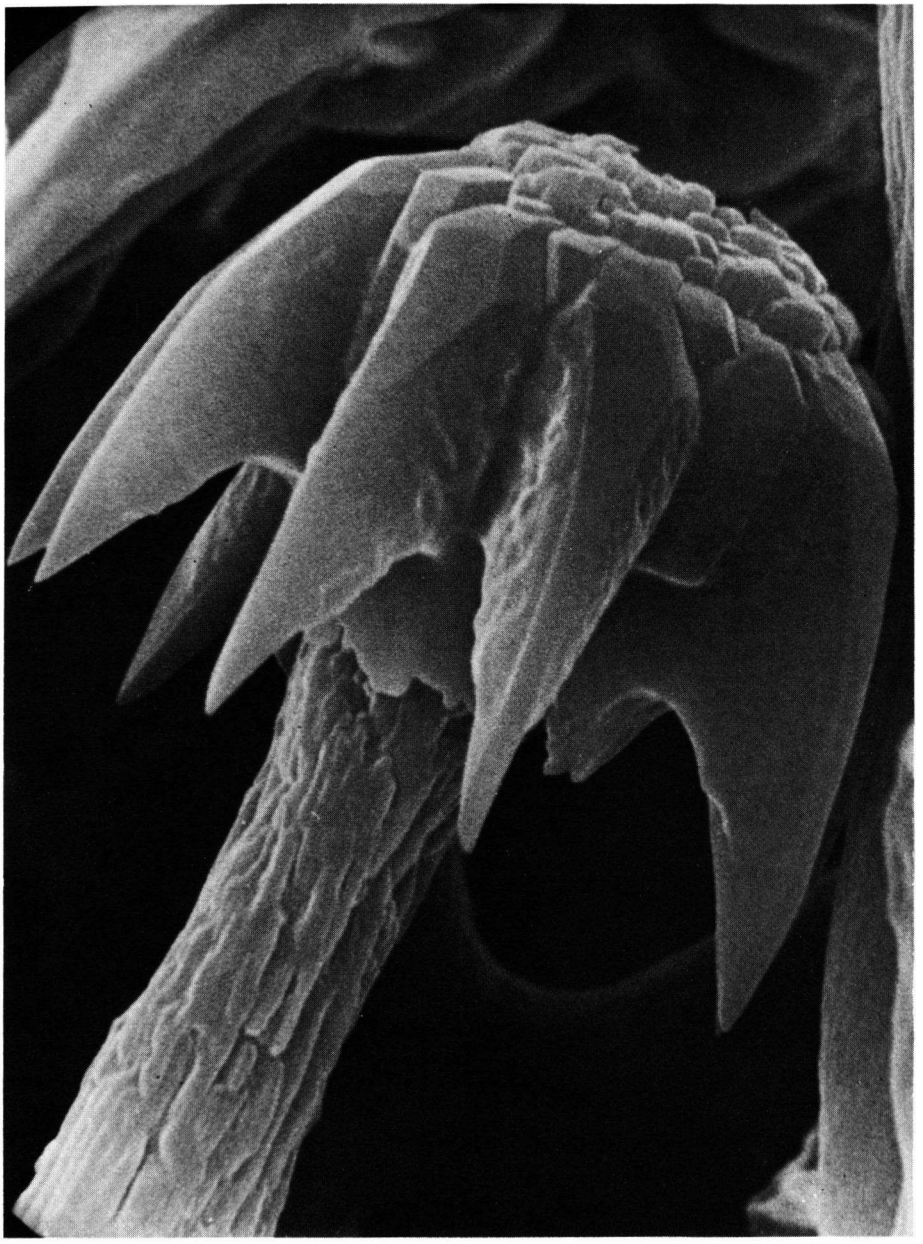

Fig. 1. *Tubulicrinus corneri* (holotype), a lyocystidium × 18,000.

FURTHER NEW COMBINATIONS PROPOSED

Botryobasidium cystidiatum (D. P. Rogers) Jülich, *comb. nov.* (basionym: *Pellicularia cystidiata* D. P. Rogers 1943 *in* Farlowia **1**: 101–102.)

Botryobasidium scabridum (Cunn.) Jülich, *comb. nov.* (basionym: *Pellicularia scabrida* Cunn. *in* Trans. R. Soc. N. Zeal. **81**: 326. 1953).

Botryohypochnus alutaceus (Boidin) Jülich, *comb. nov.* (basionym: *Botryobasidium alutaceum* Boidin *in* Cah. Maboké **8**: 18. 1970).

Lagarobasidium detriticum (Bourd. & Galz.) Jülich, *comb. nov.* (basionym: *Peniophora detritica* Bourd. & Galz. *in* Revue scient. Bourbonn. **23**: 13. 1910).

Megalobasidium humile (Boidin) Jülich, *comb. nov.* (basionym: *Gloeocystidiellum humile* Boidin *in* Cah. Maboké **4**: 9. 1966).

Parvobasidium lundellii (Ryv. & Solheim) Jülich, *comb. nov.* (basionym: *Physodontia lundellii* Ryv. & Solheim *in* Mycotaxon **6**: 376. 1977).

Phanerochaete arenata (Talbot apud Wakef. & Talbot) Jülich, *comb. nov.* (basionym: *Peniophora arenata* Talbot apud Wakef. & Talbot *in* Bothalia **4**: 944. 1948).

Phanerochaete leprosa (Bourd. & Galz.) Jülich, *comb. nov.* (basionym: *Peniophora radicata* subsp. *leprosa* Bourd. & Galz. *in* Bull. Soc. myc. France **28**: 394. 1913).

Phanerochaete pelliculosa (Talbot) Jülich, *comb. nov.* (basionym: *Peniophora pelliculosa* Talbot *in* Bothalia **6**: 63–64. 1951).

Radulomyces pseudomucidus (Petch) Jülich, *comb. nov.* (basionym: *Hydnum pseudomucidum* Petch *in* Ann. Roy. bot. Gdns Peradeniya **6**: 156. 1916. Lectotype: '*Hydnum pseudomucidum* Petch. Hakgala, Ap. 1919, *Petch 5962*' (K).

Radulomyces sulfureo-isabellinus (Litsch. apud Pilát) Jülich, *comb. nov.* (basionym: *Corticium sulfureo-isabellinum* Litsch. apud Pilát *in* Acta Mus. Nat. Pragae **2** B: 43. 1940).

Scotomyces subviolaceus (Peck) Jülich, *comb. nov.* (basionym: *Hypochnus subviolaceus* Peck *in* Ann. Rep. State Bot. for 1893: 25. 1894). The genus *Hydrabasidium* Perker-Rhodes ex Erikss. & Ryv. 1978 (The Corticiaceae of North Europe, 896) is herewith placed in synonymy with *Scotomyces* Jülich 1978.

Xenasmatella insperata (H. S. Jacks.) Jülich, *comb. nov.* (basionym: *Corticium insperatum* H. S Jackson *in* Canad. J. Res., C **28**: 718. 1950).

SOME NEW COMBINATIONS VALIDATED

In his important article on primitive Basidiomycetes Oberwinkler (*1965*) published a number of new combinations none of which is valid when the rules of the Botanical Code are strictly applied. Article 33 (of the 1978 Code) says: 'A new combination, ..., published on or after 1 Jan. 1953, for a previously and validly published name is not validly published unless its basionym ... is clearly indicated and a full and direct reference given to its author and original publication with page or plate reference and date.' The 1961 Code, which was available when Oberwinkler wrote his article, lays the same emphasis on 'a full and direct reference given to its author and original publication with page or plate reference and date.' In Oberwinklers article, however, the reference is cut down to the citation of the basionym, author and date; no direct reference is given

neither to the original publication nor to the page or plate on which the basionym was described. And some of the authors or publications are also not to be found in the bibliography, e.g. Berk. & Br. 1860, Rogers & Liberta 1960, Pat. 1899, Bourd. & Galz. 1913. Some time ago I discussed the problem with Oberwinkler, but he had no inclination to give himself valid publications of the new combinations in question.

In order to make Oberwinkler's article fully available for future use, the new combinations are herewith validly published. It should be noted, however, that some of his combinations have been omitted because the species are either still imperfectly studied, e.g. *Xenasmatella aurora*, or in the meantime placed in another genus, e.g. *Tubulicium clematidis*, or already validly published, *Athelidium aurantiacum* cited with full reference by Jülich (*1972*) and Eriksson & Ryvarden (*1973*).

Acanthobasidium delicatum (Wakef.) Oberw. ex Jülich, *comb. nov.* (basionym: *Aleurodiscus delicatus* Wakef. *in* Trans. Brit. mycol. Soc. **35**: 44. 1952).

Litschauerella abietis (Bourd. & Galz.) Oberw. ex Jülich, *comb. nov.* (basionym: *Peniophora aegerita* subsp. *abietis* Bourd. & Galz. *in* Bull. Soc. mycol. France **28**: 383. 1913).

Paullicorticium niveocremeum (Höhn. & Litsch.) Oberw. ex Jülich, *comb. nov.* (basionym: *Corticium niveocremeum* Höhn. & Litsch. *in* Sber. Akad. Wiss. Wien, Math.-nat. Kl., Abt. I, **117**: 1117.

Sphaerobasidium minutum (J. Erikss.) Oberw. ex Jülich, *comb. nov.* (basionym: *Xenasma minutum* J. Erikss. *in* Symb. bot. upsal. **16** (1): 65. 1958).

Tubulicium dussii (Pat.) Oberw. ex Jülich, *comb. nov.* (basionym: *Hypochnus dussii* Pat. *in* Bull Soc. mycol. France **15**: 202. 1899).

Tubulicium vermiferum (Bourd.) Oberw. ex Jülich, *comb. nov.* (basionym: *Peniophora vermifera* Bourd. *in* Revue scient. Bourbonn. **23**: 13. 1910).

Xenasmatella subflavidogrisea (Litsch.) Oberw. ex Jülich, *comb. nov.* (basionym: *Corticium subflavidogriseum* Litsch. *in* Annls mycol. **39**: 127. 1941).

Xenasmatella tulasnelloidea (Höhn. & Litsch.) Oberw. ex Jülich, *comb. nov.* (basionym: *Corticium tulasnelloideum* Höhn. & Litsch. *in* Österr. bot. Z. **58**: 330. 1908; also *in* Sber. Akad. Wiss. Wien, Math.-nat. Kl., Abt. I, **117**: 1118. 1908).

Xenosperma ludibundum (D. P. Rogers & Liberta apud Liberta) Oberw. ex Jülich, *comb. nov.* (basionym: *Xenasma ludibundum* D. P. Rogers & Liberta apud Liberta *in* Mycologia **52**: 902 '1960', publ. 1962).

A NEW FAMILY OF APHYLLOPHORALES

In 1976 Ginns described the monotypic genus *Corneromyces* based on a specimen collected by Professor E. J. H. Corner in Sabah. The only species, *Corneromyces kinabalui*, is characterized by a resupinate basidiocarp, monomitic hyphal system, brown hyphae with clamps, clavate basidia, and large, thick-walled, smooth, brown spores with an unusual feature: they are strongly amyloid but not (at least the mature spores) cyanophilous. The species can be compared with species of *Coniophora* which also have brownish basidiocarps and hyphae, clavate basidia and brown, thick-walled spores. But the spores in *Coniophora* are distinctly shorter and wider, not so thick-walled as in *Corneromyces*, never amyloid but practically always strongly cyanophilous. To accomodate this unique genus, a new family is proposed.

CORNEROMYCETACEAE Jülich, *fam. nov.*

Carposomata resupinata, effusa, brunnea. Hymenium laeve vel leviter hydnoideum. Systema hypharum monomiticum. Hyphae distinctae, brunneaea, fibulatae. Basidia stipitate clavata, tetraspora, fibulata. Sporae anguste ellipsoideae, laeves, brunneae, valde crassae et amyloideae.
Typus: *Corneromyces* Ginns *in* Mycologia **68**: 970. 1976.

Basidiocarp resupinate, effused, brownish. Hymenial surface even or slightly hydnoid. Hyphal system monomitic. Hyphae distinct, brown, with clamps. Basidia stalked-clavate, four-spored, with a basal clamp. Spores narrowly ellipsoid, smooth, brown, very thickwalled and strongly amyloid.

A NEW FAMILY OF TREMELLALES

The Tremellales have recently received special attention and several new taxa with unusual features have been described. Nearly all possible basidiocarp types have been found within the Tremellales and one of the missing forms, the cyphelloid ones, has been described recently by Oberwinkler & Agerer. The genus, based on *Cyphella applanata* Talbot (*1956*), has been called *Heteroscypha*. It is a cyphelloid genus with sessile, flat basidiocarps and somewhat curved margins, hyaline and fibulate hyphae and longitudinally septate basidia; the spores are narrowly ellipsoid, thin-walled, smooth, not amyloid and show spore-repetition. The genus was placed in the Tremellaceae, but since it deviates so much from the typical genera of that family, a new family is herewith described. It is not unlikely that the newly described genus *Tremelloscypha* Reid (*1979*) also belongs here.

HETEROSCYPHACEAE Jülich, *fam. nov.*

Carposomata cyphelloidea, sessiles vel stipitata. Systema hypharum monomiticum. Hyphae hyalinae, cum vel sine fibulis. Basidia hyalina, longitudinaliter septata. Sporae hyalinae, tenui-tunicatae, laeves.
Typus: *Heteroscypha* Oberw. & Agerer apud Agerer & Oberw. 1979.

Basidiocarp cyphelloid, sessile or stipitate. Hyphal system monomitic. Hyphae hyaline, with or without clamps. Basidia hyaline, longitudinally septate. Spores hyaline, thin-walled, smooth.

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