Conchomyces v. OVEREEM — an Independent Genus within the Agaricales?

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Introduction

The monotypic genus *Conchomyces* is based upon *C. verrucisporus* v. OVEREEM (1927) described from Java (Indonesia). In the original description v. OVEREEM emphasizes that this pleurotoid-crepidotoid agaric represents a colour-less species of *Crepidotus* („Die Art ist in jeder Hinsicht ein farbstoffloser *Crepidotus*") despite the fact that crystal-bearing and metuloid pleurocystidia have been observed (cp. v. OVEREEM's unpublished drawings and paintings in BO) and reported in the diagnosis. *)

It is unknown whether or not M. A. DONK, after living many years in Java, has seen fresh material of *C. verrucisporus*. By all means DONK has studied the type material (then in BO, now lost) of this agaric and subsequently his interpretation was adopted by SINGER (1947) who in accordance with DONK declared *Conchomyces* a synonym of *Crepidotus* (FR.) STAUDE 1857 (Singer, 1951). Thereafter *Conchomyces* v. OVEREEM disappeared in the current taxonomic literature.

Due to the lack of material I considered once *Conchomyces* to belong to the doubtful agaricaceous taxa (HORAK, 1968) but judging from v. OVEREEM's description alone I hesitated then to declare *C. verrucisporus* a representative of *Crepidotus* (Singer, 1975).

Conchomyces received new taxonomic and nomenclatural attention after REID's (1963) transfer of *Agaricus bursaeformis* BERKELEY (1860) to *Hohenbuehelia* (PEGLER, 1965). Undoubtedly the majority of *Hohenbuehelia* species have a close macroscopic affinity to *Conchomyces*. However, *Hohenbuehelia* is characterised by allantoid-cylindric, smooth spores in contrast to *Conchomyces* with its subglobose, spinulose spores. In addition the cystidia (and the cheilocystidia in particular) differ markedly in the two genera. Despite these

*) Recently HORAK (1977) has demonstrated that in fact metuloid cystidia capped with crystals occur in *Crepidotus*, however, the thick-walled, encrusted cystidia are restricted to the gill edge (cheilocystidia) and differ significantly from those found both in *Hohenbuehelia* and *Conchomyces*.

obvious macroscopic differences SINGER (1969) accepted REID's generic concept by introducing (the new and heterogenous) subgen. *Reidia* to accomodate *Ag. bursaeformis* BERK. (and its related taxa) in *Hohenbuehelia*.

Since 1963 (Chile) I collected *Ag. bursaeformis* BERK. at several occasions in Australasia (New Zealand, New Caledonia, Papua New Guinea). Finally during a visit of Java (1977) I gathered not only topotypical material of *C. verrucisporus* but at the same time became also acquainted with v. OVEREEM's unparalleled descriptive notes and paintings kept in the Bogor Herbarium (BO, unpublished). This experience made it clear that the Javanese *Conchomyces verrucisporus* v. OVEREEM is in fact conspecific with *Ag. bursaeformis* BERK.

Description

Conchomyces v. OVEREEM 1927
Bull. Jard. Bot. Buitenzorg III 9. 19

Syn. *Hohenbuehelia* subgen. *Reidia* SINGER 1969: Nova Hedwigia, Beih. 29: 62.

Type species: *Conchomyces verrucisporus* v. OVEREEM 1927: l. c. = *Conchomyces bursaeformis* (BERKELEY) HORAK, comb. nov.

Bas. *Agaricus bursaeformis* BERKELEY in HOOK. f. 1860: Fl. Tasm. 2: 245.
Pleurotus bursaeformis (BERK.) SACCARDO 1887: Syll. Fung. 5: 376.
Hohenbuehelia bursaeformis (BERK.) REID 1963: Kew Bull. 17: 304.
Syn. *Agaricus euphyllus* BERKELEY in HOOK. f. 1867: Handb. N. Z. Fl., 755.
Pleurotus euphyllus (BERK.) SACCARDO 1887: Syll. Fung. 9: 51.
Agaricus imberbis KALCHBRENNER 1880: Grevillea 8: 152.
Agaricus guilfoylei BERK. & F. MUELL. 1881: J. Linn. Soc. Bot. 18: 384.
Agaricus sordulentus BERKELEY & BROOME 1883: Trans. Linn. Soc. Bot. ser. 2, 2: 54.
Pleurotus sordulentus (B. & BR.) SACCARDO 1887: Syll. Fung. 5: 373.
Resupinatus sordulentus (B. & BR.) STEVENSON 1964: Kew Bull. 19: 24.
Agaricus colensoi BERK. ap. MASSEE 1898: Fung. Fl. New Zealand, 324.
Conchomyces verrucisporus v. OVEREEM 1927: Bull. Jard. Bot. Buitenzorg III, 9: 9.
Hohenbuehelia dimorphocystis SINGER 1969: Nova Hedwigia, Beih. 29: 63.
? *Ag.* (*Pleurotus*) *novae-zelandiae* BERKELEY in HOOK. 1855. Fl. Novae-Zelandiae 2: 174 (no material in K; cp. HORAK, 1971).

Description of *Conchomyces bursaeformis* (BERK.) — Fig. 2, 3

Pileus 10—65 (—120) mm diam., polymorphic in shape, convex (in young specimens with eccentric stipe), soon becoming dimidiate, conchate or fan-shaped, occasionally subdorsally attached to substrate, at first margin strongly inrolled becoming fully expanded in aged carpophores; white, whitish or cream-yellowish, changing to ochraceous, argillaceous or grey-cinnamon with age, colour changes considerably when drying out, strongly hygrophanous, margin striate in old but moist specimens; strigose to scaly-squamulose at and near

point of attachement or around disc, gradually floccose to velutinous (or even smooth) towards margin, felty coat often white, pileocutis peeling off readily, dry, cartilaginous, veil remnants absent. Lamellae eccentrically or laterally concurrent, very dense, rather narrow (up to 3 mm wide); white to cream, occasionally grey to pale argillaceous, fimbriate edge concolorous or slightly darker, often with characteristic transverse striation on both faces. Stipe absent, rudimentary or cylindric (—10×—3 mm) in eccentric position; concolorous with pileus; felty to strigose, dry, solid, veil remnants none. Isolated in dense groups, rarely single. Context tough to subgelatinous, especially beneath cuticle, white to pale argillaceous. Odour and taste sourish or not distinctive, unpleasant in old material. Reported to be an edible fungus (cp. v. OVEREEM, 1927: 20). Chemical reactions on pileus: KOH, HCl, NH_3 and formalin — negative.

Spore print white. Spores 5,5—8(—9)×5—6(—7) µm, ovoid to subglobose, hyaline, thick-walled, densely covered with isolated conic warts or spines, inamyloid, apiculus defined, germ pore none. The spines on the spores are dissolved in KOH and lactic acid (cp. REID, 1963: 306). Basidia 20—25×6—8 µm, 4-spored. Cheilo-

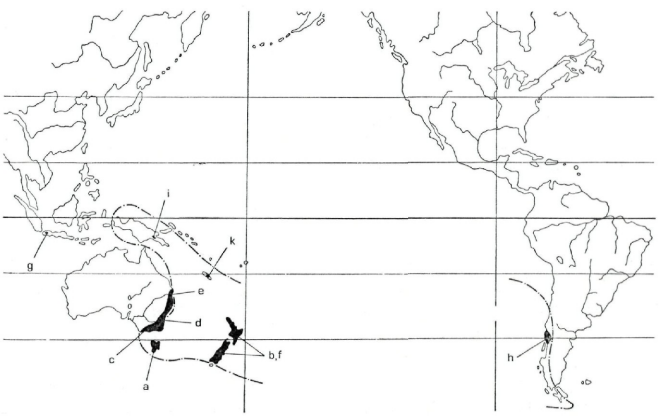

Fig. 1. Distribution of *Conchomyces bursaeformis* (BERK.) HK. (and its known synonymes) on the southern hemisphere: type localities and collecting sites: a. *C. bursaeformis* (type). — b. *Ag. euphyllus* (type). — c. *Ag. imberbis* (type). — d. *Ag. guilfoylei* (type). — e. *Ag. sordulentus* (type). — f. *Ag. colensoi* (type). — g. *Conchomyces verrucisporus* (type). — h. *Hohenbuehelia dimorphocystis* (type). — i. *C. bursaeformis* (ZT, 72/260; Papua New Guinea). — k. *C. bursaeformis* (ZT, (ZT, 77/151; New Caledonia). — Present area of distrubution of *Nothofagus* spp. (dotted line)

cystidia 20—50(—60)×7—20 µm, vesiculose, clavate or uteriform, hyaline, membrane thin-walled, forming sterile gill edge. Pleurocystidia 20—35×7—16 µm, fusoid, apex either pointed or rounded, membrane submetuloid towards apex (up to 1 µm diam.), hyaline, top covered with resinous encrustation or (rather rarely) with defined crystals, often scattered and easily overlooked in mounts. Oleiferous hyphae none.

Cuticle composed of bundled hyphae (in squamules up to 4 µm diam., membrane smooth, hyaline and thin-walled; hyphae of subcuticle gelatinised, 2—3 µm diam., conspicuously entangled. Clamp connections on septa.

Habitat and distribution. — On rotten wood of angiosperms (not observed yet on gymnosperms), from sea level to montane forests (in New Caledonia and Papua New Guinea up to 1200 m a. s. l., in Java up to 1700 m a. s. l.). Area of distribution (Fig. 1) coincides roughly with that of *Nothofagus* spp., but also in *Castanopsis-Lithocarpus* associations in Papua New Guinea and Java. Southern hemisphere.

Material. — Australia: Tasmania: Archer (K, holotype of *Ag. bursaeformis* Berk.). — Victoria: Melbourne, Dividing Range, Berggren, 419 (K, holotype of *Ag. imberbis* Kalchbr.); Tarra Valley Park (on dead wood of *Hedycarya angustifolia*), 21. IV. 1958, *Healey*, 6727 (K). — New South Wales: Tweed River, Guilfoyle (K. holotype of *Ag. guilfoylei* Berk. & F. Muell.). — Queensland: Brisbane, Bailey, 292 (K, holotype of *Ag. sordulentus* Berk. & Br.). — New Zealand: 1860, Sinclair (K, holotype of *Ag. euphyllus* Berk.); Herb. Colenso: b 523 (K, holotype of *Ag.* (*Pleurotus*) *colensoi* Berk.), b 581, b 896, b 1230 (K); Herb. Cooke: N. Z., Nelson (K); Wellington, Keith George Park, 30. V. 1949, Stevenson-Cone, 605 (K, as *Resupinatus sordulentus* (Berk. & Br.) Stev.); Auckland, Atkinson Park (on *Tetrapathaea tetrandra*), 4. IV. 1967, leg. MacNabb (PDD, 26020); Westcoast, Kopara (on *Nothofagus fusca*), 9. XII. 1967, Horak (ZT, 67/230). — Chile: Valdivia: Cordillera Pelada, Rio Hueycolla, 4. V. 1967, Singer, M 6880 (SGO, holotype of *Hohenbuehelia dimorphocystis* Sing.); Valdivia, Fundo San Martin (on *Laurelia sempervirens*), 10. IV. 1975, Horak (ZT, 75/281); Osorno: Valle Rio Gol-Gol, Anticura, Puyehue, 31. III. 1963, Horak (ZT, 62/210); Pucatrihue, 23. IV. 1963, Horak (ZT, 62/212); same locality, 25. IV. 1963, Horak (ZT, 62/218); Volcan Antillanca, Aquas Calientes, 24. IV. 1975, Horak (ZT, 75/347). — New Caledonia: Paita, Mt. Mou (on *Nothofagus* sp.), 20. II. 1977, Horak (ZT, 77/151). — Papua New Guinea: Morobe district, Bulolo, Watut, 20. III. 1972, Horak (ZT, 72/260). — Indonesia: Java, Tjibodas (on *Tetrastigma pergamaceum*), 15. III. 1977, Horak (ZT, 77/118, topotypical material of *Conchomyces verrucisporus* v. Overeem).

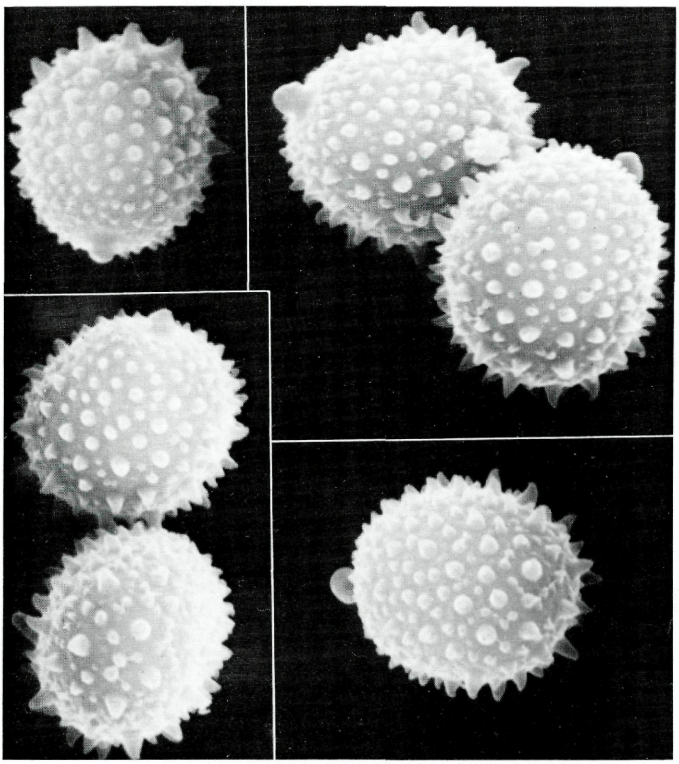

Fig. 2. *Conchomyces bursaeformis* (Berk.) Hk.: spores (SEM, × 7800; ZT 67/230)

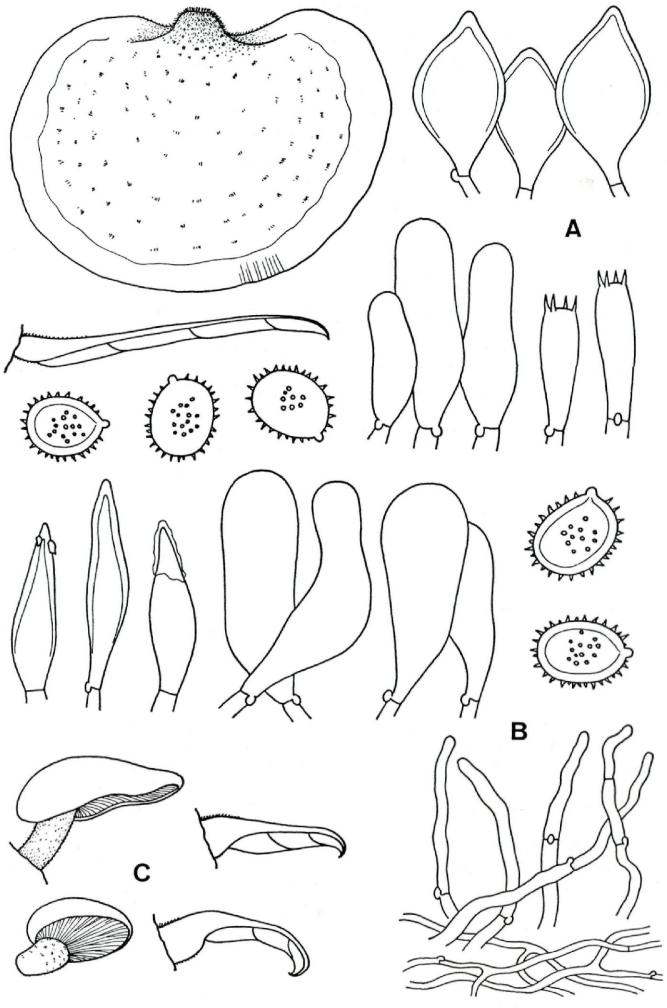

Fig. 3. *Conchomyces bursaeformis* (Berk.) Hk.: A. carpophores. spores, cheilocystidia, pleurocystidia (ZT, 72/260). — B. spores, cheilocystidia, pleurocystidia, cuticle of pileus (ZT, 75/281). — C. carpophores (ZT, 62/210)

Discussion

Summing up all data available on *C. bursaeformis* (BERK.) there is no doubt that *Conchomyces* must be considered an independent genus with no obvious relationships to any described taxa among the Agaricales. To present knowledge the area of distribution of the so far monotypic genus is restricted to the southern hemisphere where it is especially common in the subantarctic forests of southern South America and Australasia but occurs also in temperate montane forests in tropical-subtropical Australasia and Indomalaya (Indonesia).

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