

Botryobasidium baicalinum sp. nova (Aphylophorales, Basidiomycetes)

Heikki Kotiranta¹ & Leif Ryvarde²

¹ Finnish Environment Institute, Research Department, P.O. Box 140, FI-00251 Helsinki, Finland (heikki.kotiranta@ymparisto.fi)

² Department of Botany, University of Oslo, P.O. Box 1045, Blindern, N-0316 Oslo, Norway (leif.ryvarde@bio.uio.no)

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Botryobasidium baicalinum Kotir. & Ryvarde is described from Lake Baikal, southern Siberia, Russia. It is characterized by constantly clamped hyphae, long, thin-walled cystidia, ephemeral small basidia, smooth, thick-walled chlamydospores and navicular or subnavicular basidiospores. The new species is fairly similar to *B. parvisetosum*, which, however, differs in having smaller cystidia, specialized chlamydospore-bearing cells, ornamented chlamydospores and narrower basidiospores. The new species is illustrated and compared with *B. parvisetosum*.

Key words: Aphylophorales, *Botryobasidium*, new species, taxonomy

During the identification of specimens collected from the Lake Baikal area, southern Siberia, Russia, an unknown cystidiate *Botryobasidium* species came to our attention. It was provisionally identified as *B. parvisetosum* on the basis of Langer's (1994) key and good drawings. However, there were some details which did not match our material, and *B. parvisetosum* was described from Réunion (Boidin & Gilles 1988), an island climatically totally different from Siberia. After a comparison with the type of *B. parvisetosum*, it became clear that the specimen from Baikal represents an undescribed taxon.

The examined specimens are deposited in the herbaria LY and O. Thirty basidiospores per specimen were measured in Cotton Blue (CB). In addition, Melzer's reagent (IKI) and 5% potassium hydroxide (KOH) were used as mounting media.

The following abbreviations are used: L^* = mean spore length, W^* = mean spore width, Q = range of the variation in L/W ratio, Q^* = quotient of the mean spore length and width (L^*/W^*). None of the measurements derive from spore print.

***Botryobasidium baicalinum* Kotir. & Ryvarde, sp. nova** (Figs. 1 and 2a–b)

Fructificatio resupinata, pro parte hypochoi-dea, poroideo-reticulata, effusa, alba vel cremeo-alba. Systema hypharum monomiticum, hyphis et basidiis basi fibulatis, cyanophilis. Basidia 8–10 × 7 μm, 6-sterigmatibus; cystidia tenuitunicata, pro parte fibulata; chlamydosporae globosae, crassitunicatae, leves, 15 μm in diametro; sporae naviculares vel subnaviculares, 7–8 × 2.7–3.4 μm, leves, non amyloideae, cyanophylae.

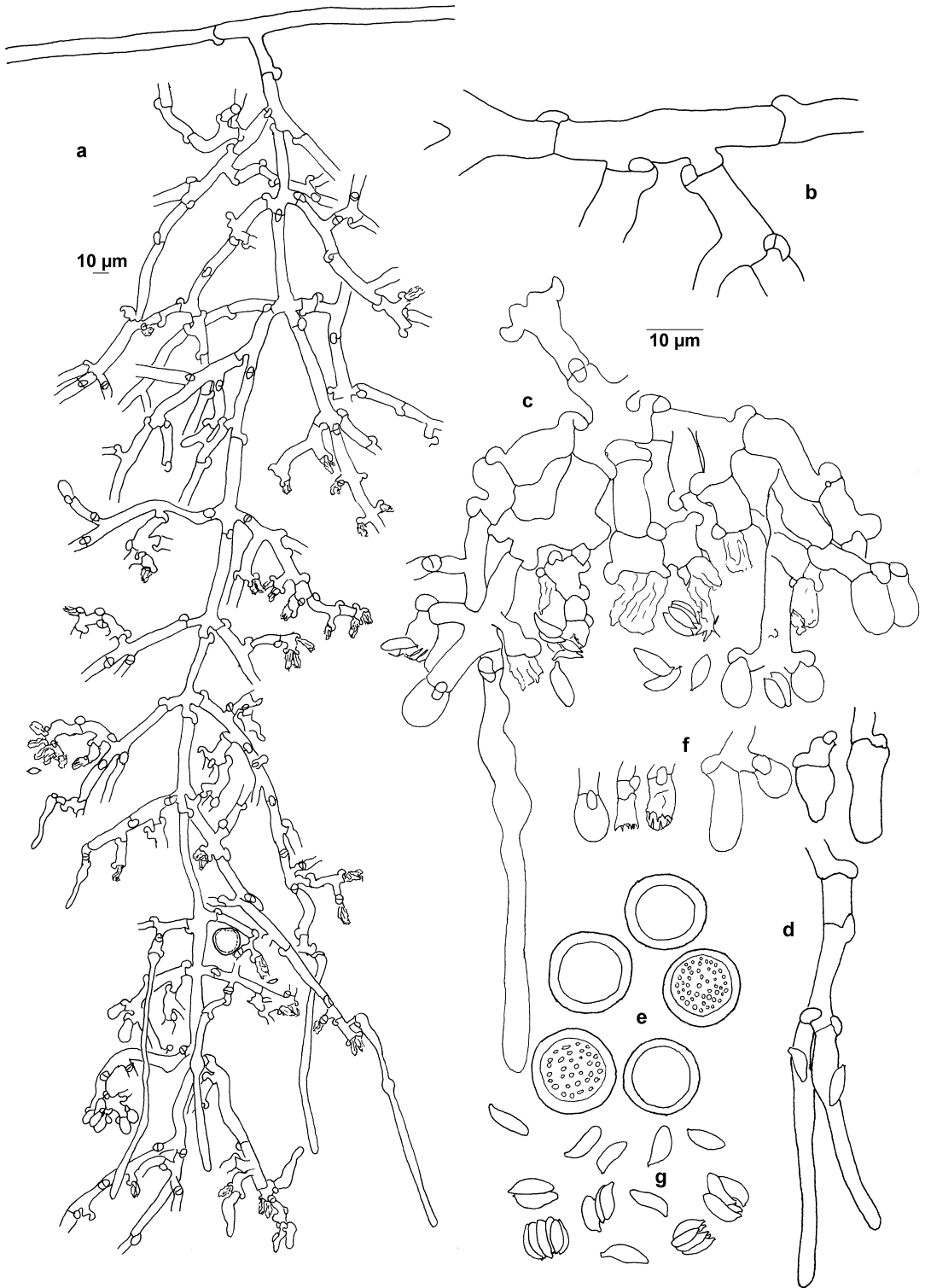


Fig. 1. *Botryobasidium baicalinum* (from holotype). — **a:** Section through basidiocarp. — **b:** Subicular hyphae. — **c:** Subhymenial hyphae, a cystidium, basidioles, collapsed basidia and spores. — **d:** A cystidium. — **e:** Chlamydospores. — **f:** Basidia at different stages of development. — **g:** Spores.

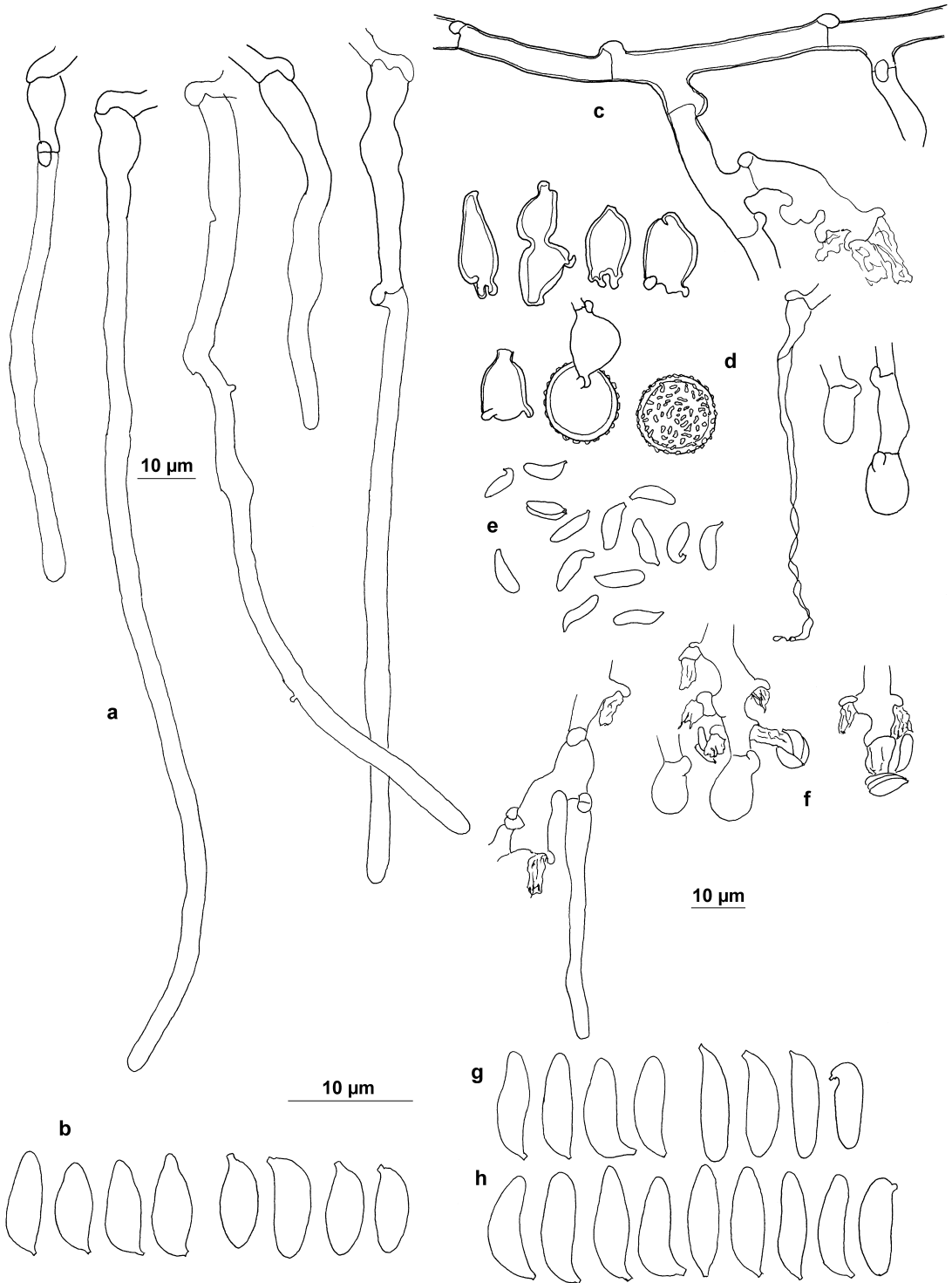


Fig 2. *Botryobasidium baicalinum* (a–b, from holotype). — a: Cystidia. — b: Spores. — *Botryobasidium parvisetosum* (c–d, h, from type, f–g from Boidin, LY 12563). — c: Subicular hyphae. — d: Chlamydospore bearing cells, chlamydospores, a collapsed cystidium. — e: Spores. — f: A cystidium and basidia at different stages of development. — g–h: Spores.

HOLOTYPE: Russia. Buryatia, Lake Baikal, Transbaikalian National Park (formerly Barguzin Nature Reserve), on decorticated *Pinus* sp. with advanced decay together with *Hypodontia pallidula*, 54°58'N, 109°55' E, 1.IX.2003 Ryvarde n 45990b (O).

Basidiocarp thin, resupinate, about 8 × 1.5 cm along wood, partly hypochnoid, partly porose-reticulate, when young white, later pale cream-coloured, margin not differentiated, thinning out, indistinct. Hyphal system monomitic, all hyphae with clamps, CB+. Subicular hyphae smooth, sparsely branched at right angles, slightly thick-walled (0.5–0.7 μm), normally 7–9 μm wide, but up to 11 μm. Subhymenial hyphae thin-walled, richly branched, (4–)5–7 μm wide. Cystidia relatively abundant, hyphoid, smooth, thin-walled, occasionally clamped, terminal cell being 100–160 μm long and total length may be over 200 μm, close to apical end 3–4.5 μm in diameter, but with bulbous base 6.5–7 μm in diameter. Chlamydospores globose, smooth, 13–16 μm, with yellowish or greenish oily contents, thick-walled (walls up to 1.8 μm), CB+ (some CB–), IKI–, KOH–. Basidioles ovoid, basidia small, short-cylindrical, ephemeral, basally clamped, (8–)9.5–11 × 6–7(–7.5) μm, with six (to eight?), up to 4 μm long sterigmata. Basidiospores navicular or subnavicular, often glued in pairs – octets (in CB), mostly separate in IKI and KOH, 6.6–8(–8.2) × (2.5–)2.7–3.4(–3.9) μm, $L^* = 7.6$ μm, $W^* = 3$ μm, $Q = 2.2–3$, $Q^* = 2.5$, thin- or slightly thick-walled, CB+, IKI–.

***Botryobasidium parvisetosum* Boidin & Gilles (Fig. 2c–h)**

Basidiocarps hypochnoid, thin, yellowish white. Hyphal system monomitic, all hyphae clamped, CB+. Subicular hyphae smooth with thickened walls, up to 8 μm wide, but mostly 6–7 μm. Subhymenial hyphae richly branched, thin-walled, 4–6 μm wide, clamped. Cystidia relatively few, hyphoid, basally bulbous, 6–6.5 μm wide, clamped (2–3 cells), totally 36–70 μm long, apical part 2 μm wide, often collapsed. Chlamydospores globose, rough, (13–)15–17 μm, with greenish oily contents (in CB), thick-walled, CB+ (at least ornamentation). Chlamydospore-bearing cells with thickened walls, usually somewhat

lemon-shaped, 12–15 × 9–10(–13) (including remnants of clamps). Basidioles ovoid, basidia small, short-cylindrical, very quickly deflating, 8.5–11 × (5–)6–7 μm, apparently with six sterigmata. Basidiospores very variable in shape, subfusiform, narrowly navicular, sometimes gently sigmoid or boomerang-shaped, 7.5–9(–9.5) × 2–2.9(–3.1) μm, $L^* = 8.1$ μm, $W^* = 2.6$ μm, $Q = 2.4–3.9$, $Q^* = 3.1$ (holotype), (6.5–)6.8–8.8(–9) × 1.9–2.6(–2.8) μm, $L^* = 7.7$ μm, $W^* = 2.3$ μm, $Q = 2.6–4.3$, $Q^* = 3.4$ (Boidin, LY 12563), with a large apiculus which is often strongly bent towards ventral side (basally hooked), thin-walled, CB+.

SPECIMENS EXAMINED: **Réunion**. Bébour, on advanced decayed, white-rotted stump, 28.III.1987 Boidin (LY 12560, holotype) same place and date, on very advanced decayed, white-rotted stump in *Cryptomeria* plantation, Boidin (LY 12563).

With its constantly clamped hyphae, *Botryobasidium baicalinum* resembles at first sight *B. subcoronatum* in a poor condition. The basidia of the latter species are, however, much larger, long-persisting and it lacks both cystidia and chlamydospores. The cystidiate *Botryobasidium* species with clamped hyphae, i.e. *B. ansosum*, *B. grandinoides* and *B. pilosellum*, all have unicelled cystidia while the two first also have much wider spores, viz. 4–5 μm and in *B. pilosellum* the spores are only 5–6 μm long (Langer 1994). Moreover, all those species lack chlamydospores and have much larger basidia. Undoubtedly the closest relative of *B. baicalinum* is *B. parvisetosum*. There are, however, some differences, even if they are relatively small. The subicular hyphae of *B. baicalinum* are wider (up to 11 μm) than in *B. parvisetosum* (up to 8 μm), the cystidia are normally longer and the apical part is even twice as wide in *B. baicalinum* (3–4.5 μm) as in *B. parvisetosum*. Moreover, the new species does not seem to have chlamydospore-bearing cells, as nicely illustrated by Langer (1994) and Boidin and Gilles (1988). Also the strongly cyanophilous ornamentation of the chlamydospores in *B. parvisetosum* is missing from *B. baicalinum*. There are striking differences in the shape of the spores, which are variable in *B. parvisetosum* and as a rule also narrower ($Q^* = 3.2$) than in *B. baicalinum* ($Q^* = 2.5$).

These two species, besides having chlamydospores, seem to differ from the other species in the genus in having small and ephemeral basidia. As a matter of fact no basidia with erect sterigmata could be observed, and the basidia collapse when the spores are still attached to the sterigmata. This also explains why the spores are very often seen glued together.

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