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Hohenbuehelia cyphelliformis – a rare pleurotoid fungus in Austria*

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A new find of *Hohenbuehelia cyphelliformis* in Austria is reported, described and illustrated. Its ecology, distribution and generic position are discussed.

Keywords: Tricholomataceae, *Hohenbuehelia cyphelliformis* (Berk.) O. K. Miller, description, ecology, mycoflora of Austria.

Riverine valleys with high relative humidity often yield rare fungi. One of these valleys is the Kleines Kesselbachtal in Upper Austria, where a rare species of *Hohenbuehelia, H. cyphelliformis*, was found.

Description of the carpophores of *Hohenbuehelia cyphelliformis* (Berk.) O. K. Miller

Pileus 2–13 mm diameter, 1–5 mm high, young campanulate, reverse top-shaped, pendulous, with inrolled margin, not conchate, later more expanded and margin slightly undulating, old fully expanded, point of attachment eccentric when growing on the side of a branch, ± central when growing on the underside of substrate, surface in young specimens entirely pale tomentose, old glabrous and slightly shining, with thick gelatinous layer, not hygrophanous, not or only old very faintly striate; dark blackish-brown (Kornerup & Wanscher, 1981: 9F4), some carpophores paler, umbra to Vandycke brown (6F6). – Lamellae very distant, young not fully developed, often rudimentary, vein-like, old more prominent and then ventricose, ending shortly before the centre of the pileus thereby leaving a small disc free of lamellae, 1–3 lamellulae; first pale greyish, later distinctly

* Dedicated to Univ.-Prof. Dr. Meinhard Moser on the occasion of his 70th birthday with thanks for many nice and informative excursions.

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white (from 6D2 to 6A1), edge concolorous, entire. – Stipe absent, carpophores sessile even when young. – Flesh very thin, gelatinous, not separable from the cuticle, smell inconspicuous, taste unknown. – Spores 9.2–11 × 3.7–4.3 µm, Ø (mean): 10.1 (S.D.: ± 0.6 µm, S.E.: 0.2 µm) × 3.9 µm (S.D.: 0.3 µm, S.E.: 0.1 µm), Q (= length:width): 2.6, slightly allantoid to typically sausage-shaped, thin-walled, smooth, colourless. – Basidia 22.7–32.2 × 7.3–8.6 µm, 4-spored, clavate, young with long, old with shorter sterigmata, thin-walled. – Cheilocystidia 17–28 × 3.4–8.6 µm, fusiform to lageniform, also broad with capitate apex, apex sometimes mucronate and furcate, or with irregular finger-like projections, thin-walled, not metuloid, some apices with conspicuous adhering amorphous oil globules, in microscope wall slightly yellowish, rather scattered. – Cuticle and trama consisting of rather thin, 2–5 µm wide, clamped hyphae, in the cuticle ending with fusiform or cylindric cells, some contorted, pale brown in L4, partly with brown incrusted walls, cuticle thin and its hyphae continuing into the very gelatinous, hyaline or very pale yellowish, not incrusted, irregular trama.

Ecology of the Austrian collection. – On dead small branch of *Evonymus europaeus* L., ca. 1.8 m above ground, solitary and in small groups; in riverside wood with *Alnus glutinosa* (L.) Gaertn., *Carpinus betulus* L., *Corylus avellana* L., and *Fraxinus excelsior* L.; fructification in winter.

Material examined AUSTRIA: Upper Austria, Bezirk Schärding, Kleines Kesselbachtal W Wesenufer, 290 m s. m., mapping grid square 7548/2, leg. H. Voglmayr, 9. 1. 1993, WU 12339 (with colour photo in the author's slide collection).

Iconography – Berkeley (1837: pl. 15 fig. 3, colour illustration of the type), Cooke (1880-1890: 291, 244), Smith (1934: pl. X: 2, black & white photo), Pilát (1935: fig. 88; 1948: p. 77, drawing, p. 76, b/w photo), Miller (1984: figs. 63-66, microscopic drawings, fig. 76, b/w photo, fig. 79, microscopic photo), Watling & Gregory (1989: fig. 100, habit drawing).

Discussion

Very distinctive features of *Hohenbuehelia cyphelliformis* are the rather large allantoid spores, the fusiform cheilocystidia with adhering amorphous oil globules, the conspicuous gelatinized trama,

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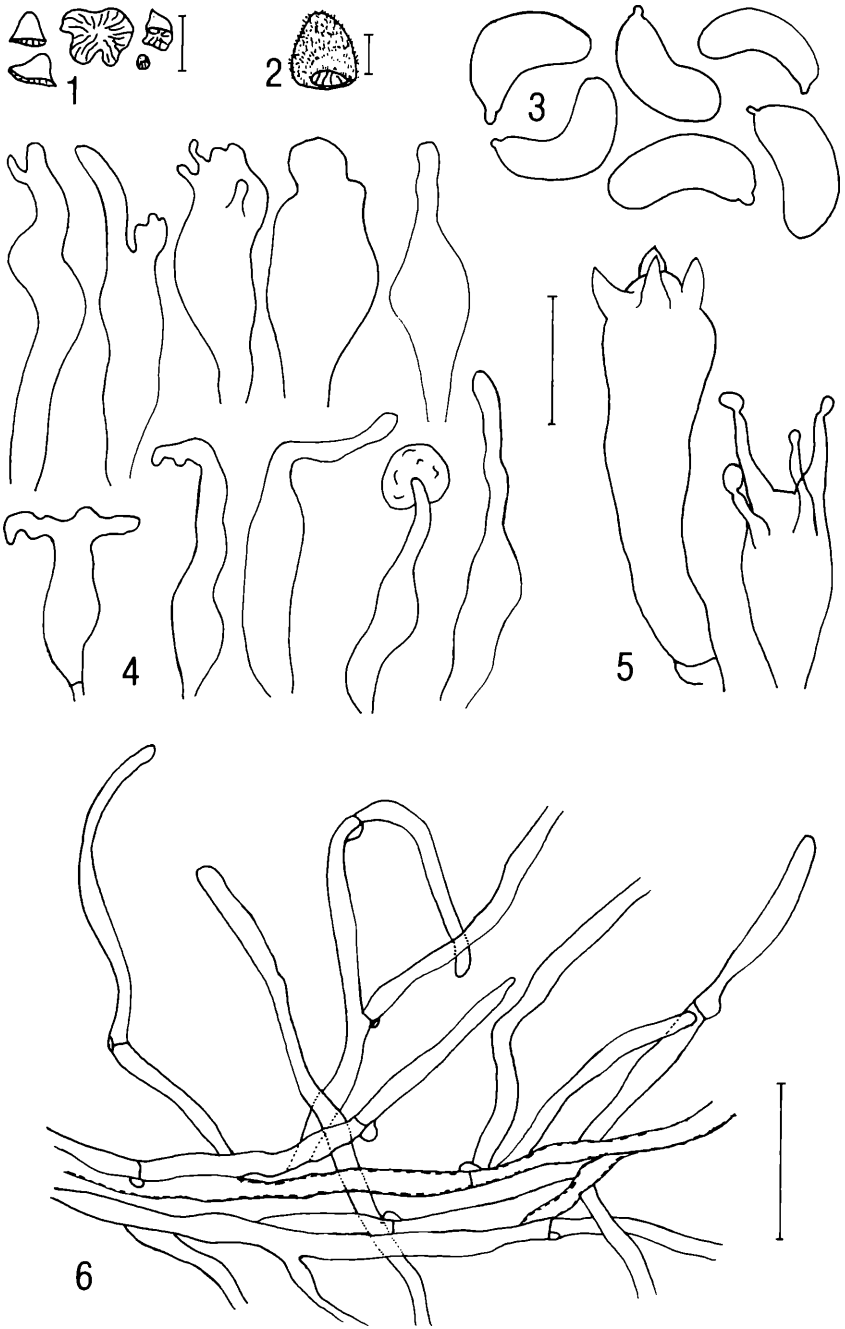

Figs. 1–6. *Hohenbuehelia cyphelliformis* (Berk.) O. K. Miller [WU 12339]. 1. Habit. 2. Young carpophore enlarged to show the inrolled margin and the tomentose surface. 3. Spores. 4. Cheilocystidiogram. 5. Young and old basidium. – 6. Cuticle and beginning of the gelatinized trama. – Bars: 1 = 10 mm; 2 = 1 mm; 3–5 = 10 μm; 6 = 30 μm.

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the white and partly rudimentary lamellae combined with the dark brown colour of the pileus.

The values of the spore size differ slightly according to different authors: Moser (1983): 7–9 × 3–3.5 μm, Pilát (1948): 8–9.5 × 3–3.4 μm, Miller (1984): 7.5–10 × 3–4 μm. The spores of the Austrian collection with 9.2–11 × 3.7–4.3 μm are even a little larger and fit best the values given by Miller (1984).

To my knowledge, this species is so far only known from the Northern Hemisphere: USA: Michigan: Ann Arbor ; New York (Miller, 1984). Europe: Bohemia (Czech Republic, Pilát, 1948); Hungary (Pilát, 1935); Switzerland [noted by Krieglsteiner (1991) without any further information]; southern parts of British Isles (Watling & Gregory, 1989); France (?, Kühner & Romagnesi, 1953); and Austria. Despite its conspicuous characters it was not often collected and seems to be a rather wide-spread but rare species. Its carpophores develop in summer in the USA and in winter in Europe. Ecologically, it always occurs on dead branches of small phanerophytes (shrubs) or hemicryptophytes with lignified stems, e. g. *Penstemon ovatum* Dougl. (Berkeley, 1837), *Morus* sp. (Murrill & al., 1915), *Solanum dulcamara* L. (Miller, 1984), *Sambucus nigra* L., *Angelica sylvestris* L., *Anethum* sp., *Arctium* sp. (Pilát, 1935) or *Evonymus europaeus* L.

Hohenbuehelia cyphelliformis has been hitherto placed in several different genera. It was described as *Agaricus (Pleurotus) cyphellaeformis* Berkeley (1837), as *Pleurotus cyphellaeformis* by Berkeley & Curtis (1860), as *P. campanulatus* by Peck (1891; a synonym), as *Marasmius spodoleucus* Berkeley & Broome (1859; a synonym), transferred into *Resupinatus* by Singer (1951) and Murrill (as *R. campanulatus*; cited in Murrill & al., 1915), into *Phyllotus* by Kühner & Romagnesi (1953), and finally included in *Hohenbuehelia* by Miller (1984). For the generic delimitation of *Hohenbuehelia* Miller (1984) stresses the fact that all *Hohenbuehelia* species have the anamorph *Nematoctonus* able to trap nematodes. In his opinion this ecological feature is more important than the metuloid cystidia used by Singer (1986) to delimitate his genus *Hohenbuehelia*. Singer (1975) originally placed all species without metuloids in *Resupinatus*, and those with metuloids in *Hohenbuehelia*. Nevertheless, in 1986 he adopted Miller´s (1984) genus delimitation. Singer (1986) lists *H. cyphelliformis* in *Hohenbuehelia* subg. *Hohenbuehelia* stirps *Petaloides* with the following characters 'Species with indistinct (less projecting, less thick-walled) metuloid cystidia' The ability to capture nematodes appears to be a good synapomorphy for the genus *Hohenbuehelia*. In a cladistic analysis the remaining species of *Resupinatus* may be revealed as paraphyletic. It would be worthwile to accumulate further data on culture characteristics and anamorphs

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to reach a better understanding of the phylogenetic relationships of this rather difficult tribe Resupinateae.

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