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# CZECH MYCOLOGY

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## THIS NUMBER OF CZECH MYCOLOGY IS DEDICATED TO THE EIGHTIETH BIRTHDAY OF CZECH MYCOLOGIST DR. JOSEF HERINK

### Eighty years of Dr. Josef Herink

ZDENĚK POUZAR

In 1995 and 1996, we could commemorate two important anniversaries: fifty years from the foundation of the Czech Scientific Society for Mycology in 1946 and the eightieth birthday of one of its founders, Dr. Josef Herink (born 1915).

Both the Society and Dr. Herink are closely connected – he has been one of the most active members of its council during the last half century and many members of this Society have been deeply influenced by his ideas, his methods and have profited from his knowledge of mycology and toxicology.

Josef Herink was born on December 26, 1915 in Prague to a family of an architect. Whilst still a young man and at secondary school, he directed his attention to fungi and wrote a treatise on his research into the polypores of Stromovka, a large park in Prague. Nevertheless, when thinking about a profession, he chose medicine and in 1934–1939 and after the World War 2 in 1945, he studied at the Medical Faculty of the Charles University in Prague. In his profession, he concentrated on internal medicine, toxicology and biochemistry, serving in various functions in hospitals, medical centers and laboratories in North Bohemia (Turnov, Mladá Boleslav, Kosmonosy etc.). However, in his free time, he concentrated on the fungi, especially the taxonomy of the Basidiomycetes and the

local research of Agaricales, Polyporales and Hydnaceae but also Discomycetes and other macromycetes.

During more than half a century, Dr. Herink accumulated a collection comprising a rather large herbarium (fungarium) of several tens of thousands of specimens (now partly deposited in the National Museum in Prague). In the former Czechoslovakia, he was the first mycologist who systematically built up a herbarium of Agaricales with nearly all specimens being supplemented by documents describing characters of the fresh carpophores with special attention to such features which disappear during drying. This method has not only been systematically applied to his own material but he also stressed the importance of such notes in a number of lectures and in his personal contacts, especially with the younger generation of mycologists.

Together with the written notes, he also soon applied the systematic photographic documentation of every important agaric collection. In addition, some other groups of fungi were photographed by Dr. Herink and his portraits of some Discomycetes were used by e. g. M. Svrček in his monograph of the Lachneoideae (1949).

Dr. Herink was an enthusiast in the research of macrochemical reactions of the Agaricales and he applied a number of various chemicals in every occasion when fresh carpophores were at his disposal. In the macroscopic examination of agarics and bolets, he found a number of characters, especially in smell, taste, colour, consistency etc., which sometimes enabled identification in the field, without using a microscope.

During more than sixty years of experience with macromycetes Dr. Herink become acquainted with number of very rare or only seldom collected species. A generation of his younger colleagues in the Czech Scientific Society for Mycology had the privilege to learn from his knowledge of these rarities. His main object of interest for about sixty years was the genus *Lepiota* s. l. His studies covered not only taxonomy but also morphology. Here is one point which should be mentioned: the discovery of velum universale in *Macrolepiota procera* and its change during the carpophore development.

Nevertheless, this, as well as the great majority of his results, still remain unpublished. In other groups of Agaricales, he was especially successful with his discovery of a new species, a purely white *Lentinellus pilati* Herink (published in 1953), a fungus the existence of which was later confirmed by some other mycologist both here and abroad.

From the methodological point of view it is interesting to note his work on the various ways of observing the change and colour reactions of *Lactarius* milk. He introduced standard methods which enabled mycologists to work with comparable results in this field.

Besides the accumulation of specimens for taxonomic studies, Dr. Herink explored also some important localities for data about their biodiversity. Here

should mainly be mentioned the famous Boubín virgin forest in the Šumava Mountains, where he started the exploration already before the 2<sup>nd</sup> World War, and for several decades afterwards, with some very interesting species being discovered (agarics as well as polypores).

Dr. Herink is still very active in the organisation of mycology in the Czech and the Slovak Republic. During the War he organised within the Czech Mycological Society a group of those mycologists seriously interested in scientific mycology. He delivered a number of lectures on the bases of the taxonomy of various groups of agarics and bolets, some of which were stenographically recorded, with the manuscript circulated among mycologists for a number of years.



*Dr. Josef Herink*  
1995

After the War, he energetically undertook the building of the newly established society, the Czech Mycological Club (1946) – now the Czech Scientific Society for Mycology – and the editing of the new journal “Česká mykologie” (1947) – now Czech Mycology. During the whole period of the last half century, he has been actively involved in a number of editorial and organisational activities.

The younger generations of mycologists in our country are deeply indebted to Dr. Josef Herink because of their chance to draw upon his knowledge and experience, not only in mycology but also in broader intellectual fields. We all are fortunate and feel honoured that we have had so many years in close association with his phenomenal personality.

## New, remarkable and rare higher Basidiomycetes from Israel

S. P. WASSER

International Center for Cryptogamic Plants and Fungi,  
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Wasser S.P. (1996): New, remarkable and rare higher Basidiomycetes from Israel – Czech Mycol. 48: 237–

Nine species and infraspecific taxa of Higher Basidiomycetes are recorded as new, remarkable and rare for Israel. One species is undescribed: *Agaricus herinkii* sp. nov., related to *A. nevoi* S. Wasser, *A. pratulorum* Romagn. and *A. gennadii* (Chat. et Boud.) P. D. Orton. *Macowanites galileensis* Mos., *Binyam. et Hersh.*, *Agaricus bonii* S. Wasser and *A. nevoi* S. Wasser are endemics of Israel. *Melanophyllum haematospermum* (Bull.: Fr.) Kreisel, *Agaricus geesteranii* Bas et Heinem., *A. xanthodermus* Gen. var. *leptoides* R. Mre, *A. gennadii* (Chat. et Boud.) P. D. Orton var. *microsporus* (Bohus) S. Wasser and *A. pequinii* (Boud.) Konr. et Maubl. are new for Israel and some of them – for Asia or for the Near East. Synonyms, detailed descriptions, locations and dates of collections in Israel, ecological peculiarities, general distribution, as well as taxonomic remarks to all nine taxa are given.

**Key words:** Higher Basidiomycetes, Agaricales, taxonomy, ecology, taxa, sp. nov., Israel

Wasser S. P. (1996): Nové, význačné a vzácné vyšší bazidiomycety Izraele. – Czech Mycol. 48: 237–

Devět druhů a infraspecifických taxonů vyšších bazidiomycetů je zaznamenáno jako nové, významné nebo vzácné pro Izrael. Je popsán jeden nový druh: *Agaricus herinkii* sp. nov., příbuzný druhům *Agaricus nevoi* S. Wasser, *A. pratulorum* Romagn. a *A. gennadii* (Chat. et Boud.) P. D. Orton. *Macowanites galileensis* Mos., *Binyam. et Hersh.*, *Agaricus bonii* S. Wasser, *A. nevoi* S. Wasser jsou izraelskými endemity. *Melanophyllum haematospermum* (Bull.: Fr.) Kreisel, *Agaricus geesteranii* Bas et Heinem., *A. xanthodermus* Gen. var. *leptoides* R. Mre, *A. gennadii* (Chat. et Boud.) P. D. Orton var. *microsporus* (Bohus) S. Wasser a *A. pequinii* (Boud.) Konr. et Maubl. jsou nové pro Izrael a některé z nich nové pro Asii nebo pro Blízký Východ.

Jsou uvedena synonyma, podrobné popisy, lokality a data sběrů z Izraele, dále ekologické zvláštnosti, celkové rozšíření, jakož i taxonomické poznámky ke všem devíti taxonům.

### INTRODUCTION

Inventory of Higher Basidiomycetes of Israel is as yet unfinished. Due to investigations of a number of authors (for example, Avizohar-Hershenzon 1961; Avizohar-Hershenzon and Binyamini 1972, 1974; Binyamini 1975, 1976a, b, c, 1980; Moser, Binyamini and Avizohar-Hershenzon 1977; Wasser and Binyamini 1992; Wasser 1995; Wasser et al. 1995) there are preliminary data on species composition of a number of taxa of Higher *Basidiomycetes* of Israel. However, many systematic groups (for example, *Agaricaceae*, *Crepidotaceae*, *Tricholomataceae*, *Amanitales*, *Russulales*, *Boletales*) of Israel mycobiota are still studied poorly. Their critical inventory has not been carried out.

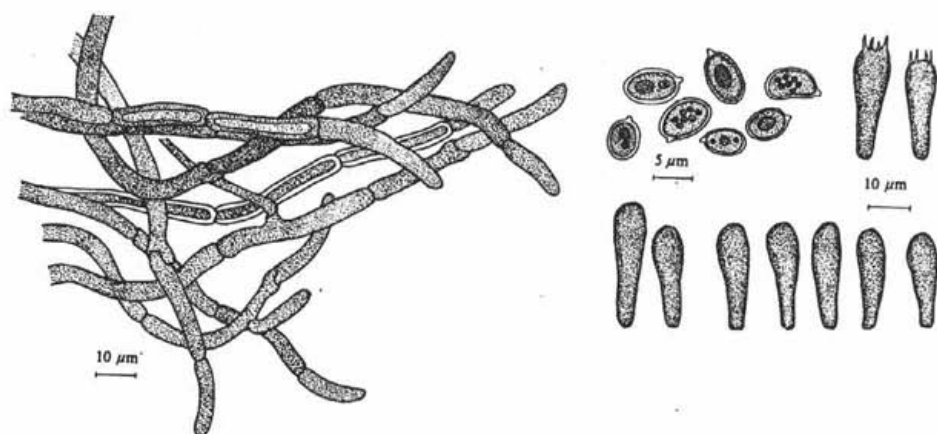


Fig. 1 *Agaricus herinkii* sp. nov.: a - elements of pileal cuticle, b - spores, c - basidia, d - cheilocystidia.

#### MATERIAL AND METHODS

Our investigations in the growing seasons of 1991, 1993-1995, the processing of an extensive herbarium material kept in the Herbarium of Tel-Aviv University (TELA, Israel) and in Herbarium of Innsbruck University (IB, Austria) as well as the analysis of the whole published literature on Higher *Basidiomycetes* of Israel serve as the scientific basis for analyzing the diversity of Higher *Basidiomycetes* in Israel. We have revealed among specimens collected in various botanical and geographical regions, mainly of the northern Israel, new for science, new, rare and remarkable for Israel and the Near East taxa of Higher *Basidiomycetes*.

The collected material of Higher *Basidiomycetes* of Israel is kept at the Herbarium of the Institute of Evolution, University of Haifa (HAI) and at the Herbarium of the N. G. Kholodny Institute of Botany, National Academy of Sciences of Ukraine (KW).

The procedure for studying soluble proteins in fruit bodies of Higher *Basidiomycetes* by the method of electrophoresis is described in our paper (Wasser and Brun 1991).

#### DESCRIPTION OF THE TAXA

Below are presented the descriptions of one science in the genus *Agaricus*, new to sciences, three endemic species of Israel and five taxa new to Israel and some of them - new for Asia or to the Near East.

##### 1. *Agaricus herinkii* S. Wasser, sp. nov. (Fig. 1).

Pileus 3-6 cm latus, valde carnosus, hemisphaericus, postea convexus, centro applanatus, sericeo-nitens, roseo-brunneus vel brunneus, tactus non flavescens,



squamis minutissimis, adpressis, dispersis, margine sterili 3mm crasso, diu involuto. Pileipellis hyphis 3–5  $\mu\text{m}$  latis composita. Lamellae liberae, confertae, e roseis, denique brunneae. Basidia tetrasterigmatica, 22–25  $\times$  7–8  $\mu\text{m}$ , clavata. Sterigmata 2–3  $\mu\text{m}$  longa. Cheilocystidia 23–30  $\times$  6–8  $\mu\text{m}$ , cylindrica, clavata. Sporae in cumulo obscure brunneae. Sporae 5–7,5  $\times$  3–4,5  $\mu\text{m}$ , pallidae, brunneae, subglobosae, ellipsoidiae. Stipes 2–4,5  $\times$  1,2–1,8 cm, cylindraceus, solidus, albidus, exannulatus, cum volva rosea, roseo-brunnea, extra marginem 2–3 mm scindens. Caro albida, fracta erubescens. Odor et sapor acidulus. Reactio Schaefferi –.

Typus: Israel, legit in Nahal Neshet Horshat Arbaim, monte Carmel prope Haifa, sub *Pino halepensi* et *Quercu calliprino*, 27. Nov. 1994, S. P. Wasser, in Herbario Inst. Evolution (HAI) conservatur. Isotypus in Herbario KW conservatur.

Etymology: *Agaricus herinkii* is named in honor of Dr. J. Herink (Czech Republic), dedicated taxonomist, in recognition of his contribution to the knowledge of *Agaricales* s.l. and in honor of his 80th anniversary.

Pileus 3–6 cm in diam., thick-fleshed, hemispherical, later convex, convex-expanded, sometimes flattened or slightly depressed at the centre, pale brownish-pinkish or brown, silky, shiny, covered with small appressed scales which are pale-brown, thin, radial, margin frequently with remnants of the veil. Pileal cuticle (and probably universal veil cuticle) consisting of hyaline and brownish, thin-walled, cylindrical, septate hyphae, without clamps, 3–5  $\mu\text{m}$  in diam. Gills free, thin, densely crowded, pink, later brown. Gill trama regular, consisting of cylindrical, thin-walled hyphae, colourless in water, 4–7(8)  $\mu\text{m}$  in diam. Basidia 4-sterigmata, 22–25  $\times$  7–8  $\mu\text{m}$ , clavate. Sterigmata 2–3  $\mu\text{m}$  long. Cheilocystidia 23–30  $\times$  6–8  $\mu\text{m}$ , abundant, cylindrical, clavate. Spore print brown. Spores 5–7.5  $\times$  3–4.5  $\mu\text{m}$ , light brown, ovate-ellipsoid, ellipsoid, with refractive droplets, with lateral apiculus. Stipe 2–4.5  $\times$  1.2–1.8 cm, central, erect, cylindrical, white, without ring, with basal, pink, pale brownish-pink volva, covered with small appressed scales. Flesh compact, dense, white, on exposure becoming reddish. Odor and taste acid. Cross reaction with Schaeffer's reagent negative.

Specimens examined Israel, Mt Carmel National Park, Nahal Neshet Horshat Arbaim, under *Pinus halepensis* Mill. and *Quercus calliprinos* Webb., 7. 11. 1994, coll. S. P. Wasser.

Note: *Agaricus herinkii* should be placed in the Subsection *Chitonioides* (Romagn.) S. Wasser of the Sect. *Duploannulatae* S. Wasser (Wasser 1980, 1989). This new species is more closely related to *Agaricus nevoi* S. Wasser, *A. pratulorum* Romagn. and *A. gennadii* (Chat. et Boud.) P. D. Orton, but differs in colour, shape, size and surface of volva, color of flesh on exposure, in spore size (Cappelli 1984; Romagnesi 1986; Wasser 1989, 1995).



Fig. 2 *Macowanites galileensis* Mos., Binyam. et Hersh.: fruits bodies



Fig. 3 *Macowanites galileensis* Mos., Binyam. et Hersh.: section of fruit body.

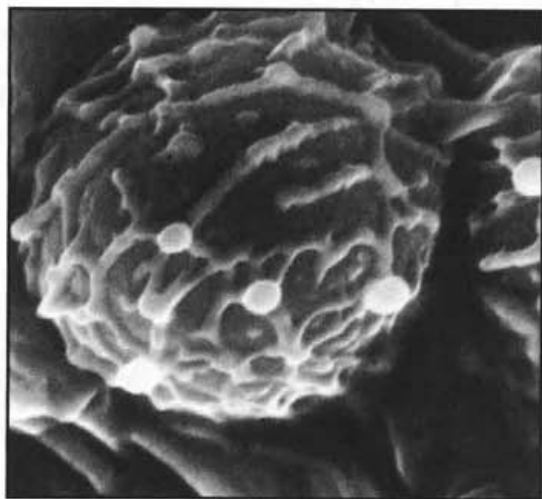


Fig. 4 *Macowanites galileensis* Mos., Binyam. et Hersh.: spore ( $\times 12000$ ).

2. *Macowanites galileensis* Mos., Binyam. et Hersh., Trans. Br. Mycol. Soc., 68, 3: 371, 1977 (Fig. 2-5).

Fruit body hypogeous, with the appearance of a small aborted *Russula*, stipitate, 1-6 (7) cm in diam., irregular and tuberous, apex sometimes depressed, completely closed by an arachnoid cortina or rarely at least with lacunose, indistinctly lamellate ("aborted" gills) gleba. Peridium in young carpophores whitish, yellowish-cream, then brownish, spotted. Epicutis of peridium consisting of hyaline, yellowish-cream,

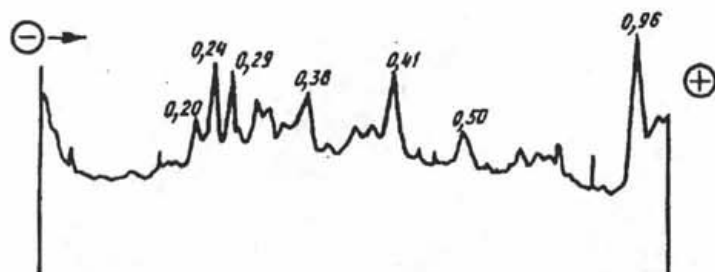


Fig. 5 Densitogram of soluble proteins *M. galileensis*.

cylindrical septated hyphae, 4–7  $\mu\text{m}$  in diam. Gleba lacunose, cream, are ochraceous when mature. Basidia 4-sterigmata or more rarely 2-3-sterigmata. Spore print brown. Spores (9) 10–15  $\times$  8–14  $\mu\text{m}$ , globose, short ellipsoid, ornamentation usually about 0.5–1  $\mu\text{m}$  high (Fig. 4) strongly amyloid. Pseudocystidia 40–60  $\times$  10–15  $\mu\text{m}$ . Stipe 0.5–5  $\times$  0.5–1.5 (2) cm, central or lateral, cylindrical, narrowing toward the base, solid, later slightly fistulose, white, whitish. Flesh white, lacking a distinctive smell, taste mild.

Specimens examined: Israel, Mt Carmel National Park, Nahal Neshet Horshat Arbaim, under *Quercus calliprinos* Webb., 7. 4. 1991, coll. N. Binyamini and S. P. Wasser; 27. 11. 1994, 5. 12. 1994, 23. 12. 1994, 3. 1. 1995, 16. 2. 1995, 13. 3. 1995, coll. E. Nevo and S. P. Wasser.

Note: *Macowanites galileensis*, an endemic of Israel, is described only in 1977 (Moser et al. 1977). *M. galileensis* is closely related to *M. krjukowensis* (Buch.) Sing. et A. H. Sm. and *M. fulvescens* Sing. et A. H. Sm. from which it differs in ecology (this species seemingly associated with *Q. calliprinos*), colour of gleba, stipe size, size and ornamentation of spores (Moser et al. l.c.).

First using the methods of electrophoresis in 10% polyacrylamide gel in the Laemmli system I have studied a soluble protein complex of *M. galileensis*. 15 protein fractions with relative electrophoretic mobility 0.08; 0.11; 0.13; 0.20; 0.24; 0.29; 0.38; 0.41; 0.43; 0.50; 0.60; 0.63; 0.79 and 0.96 were found on electrophoregrammes (Fig. 5).

The anatomical-morphological and biochemical data on *M. galileensis* supplement to the known evidence on relationship between *Asterogastraceae* – *Russulales* (Kreisel, 1969; Singer, 1986).

3. *Melanophyllum haematospermum* (Bull.: Fr.) Kreisel, Fedd. Repert., 95, 9–10 : 700, 1984 (Fig. 6).

Basionym: *Agaricus haematospermus* Bull., Herbarium de la France, tab. 591/1 : 698, 1793.

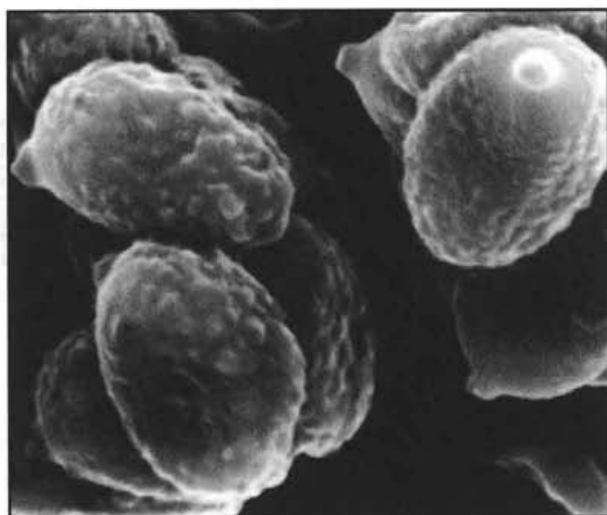


Fig. 6 *Melanophyllum haematospermum* (Bull.: Fr.) Kreisel: spores ( $\times 10500$ ).

Pileus 1–2.5 cm diam., thin-fleshy (1–2 mm in width), globose-campanulate, campanulate, later convex, in young specimens dark brown with pink tinge, later, especially when drying, smoky-brown, sometimes black with olive tinge, granular, with detersile punctate scales; margin with remnants of the universal veil. Pileal scales consisting of globose-elongate, almost polyhedral, 20–30  $\mu\text{m}$  wide, smooth, thin-walled, cells. Gills free, crowded (20–25 gills per 1 cm), with an even edge, devoid of anastomoses, carmine-wine-greenish-brown, wine-brown, on drying brown or almost black. Gill trama regular. Hyphae of trama consisting of cylindrical thin-walled cells, 10–22  $\mu\text{m}$  diam., with clamps. Basidia 4-sterigmata, 14–20  $\times$  5–6  $\mu\text{m}$ , clavate-cylindrical, hyaline, thin-walled. Sterigmata 2–2.5  $\mu\text{m}$  long. Spore print olive-green, when drying greyish-brown, pale-brownish-red. Spores 4–6.5  $\times$  2.5–4  $\mu\text{m}$ , pale-green-brown (under microscope umber-sepia), ellipsoid, ovoid, almost reniform, with lateral apiculus, thin-walled, rugose (Fig. 6). Stipe 2–4  $\times$  0.3–0.5 cm, central, even, sometimes curved (often with reddish rhizoids at the base), fistulose, the upper part (one third) – purple-red, lower part (two thirds) covered by granular reddish-brown floccose remnants of the universal veil. Flesh in the pileus white, dark brown at the base of the stipe, with strong fruity odor, in old carpophores odor unpleasant, resembling *Cortinarius camphoratus* Fr., taste pleasant.

Specimens examined: Israel, Tel-Aviv, Park Hayarkon N, on lown under *Cupressus* trees, 2. 11. 1972 (TELA N72. 343a); Mt Carmel National Park, under *Quercus calliprinos* Webb., 2. 1. 1995, leg. E. Nevo.

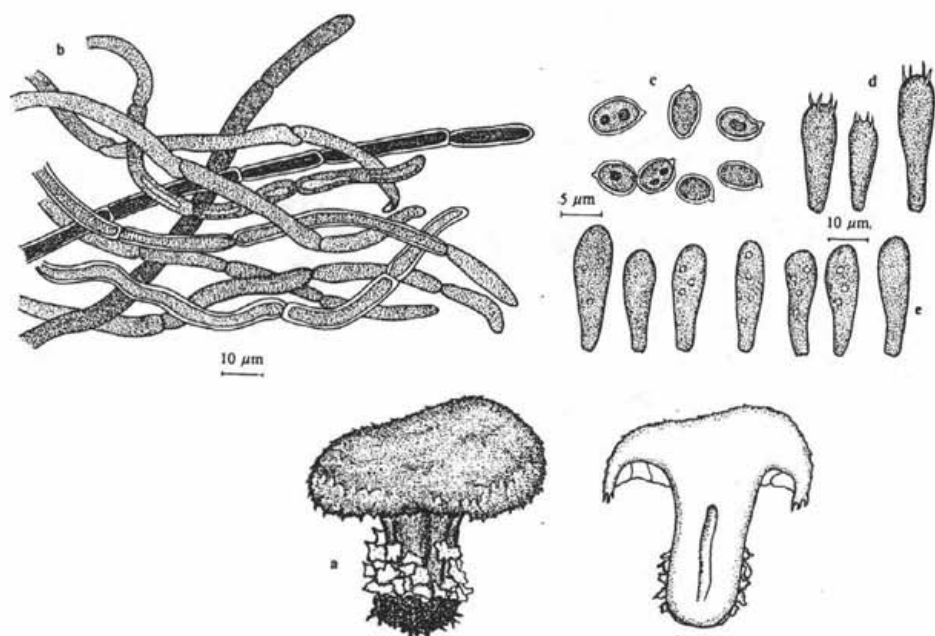


Fig. 7 *Agaricus bonii* S. Wasser: a - fruit bodies, b - elements of pileal cuticle, c - spores, d - basidia, e - cheilocystidia.

General distribution: Europe (British Isles, Spain, France, Belgium, Denmark, Czech Republic, Slovak Republic, Switzerland, Greece, Italy, Ukraine, Moldova, Lithuania, Russia); Asia (Japan, Israel, Russia), North America (USA), South America (Argentina; Africa (Algeria, Morocco, Ghana); Australia; New Zealand, New Guinea, Cuba.

4. *Agaricus bonii* S. Wasser, Doc. Mycol., 25, 98-100, 1995 (Fig. 7).

Pileus 4-12 cm in diam., thick-fleshed (flesh up to 1-2 cm thick), in young carpophores hemispherical, later convex-applanate, occasionally depressed in the center, whitish, later greyish, covered by orbicular, white, 1-3 mm in diam. granulated scales. Margin thick involute, later straight, undulating, with remnants of the veil covered by orbicular, white, up to 3-4 mm in diam. granulated scales. Pileal cuticle consisting of hyaline, greyish thin-walled cylindrical, septate hyphae, without clamps, 3-6  $\mu\text{m}$  in diam. Gills free, thin, crowded, whitish, pale pink, later dark brown with pale sterile edge. Gill trama regular, consisting of cylindrical, thin-walled hyphae 4-11  $\mu\text{m}$  in diam. Basidia 4-sterigmata, 22-33  $\times$  6-9  $\mu\text{m}$ , clavate. Sterigmata 2-4  $\mu\text{m}$  long. Cheilocystidia 25-31  $\times$  7-9  $\mu\text{m}$ , cylindrical, clavate, thin-walled. Spore print dark brown. Spores 5.0-7.5  $\times$  3.8-4.7  $\mu\text{m}$ , pale brown, ellipsoid,

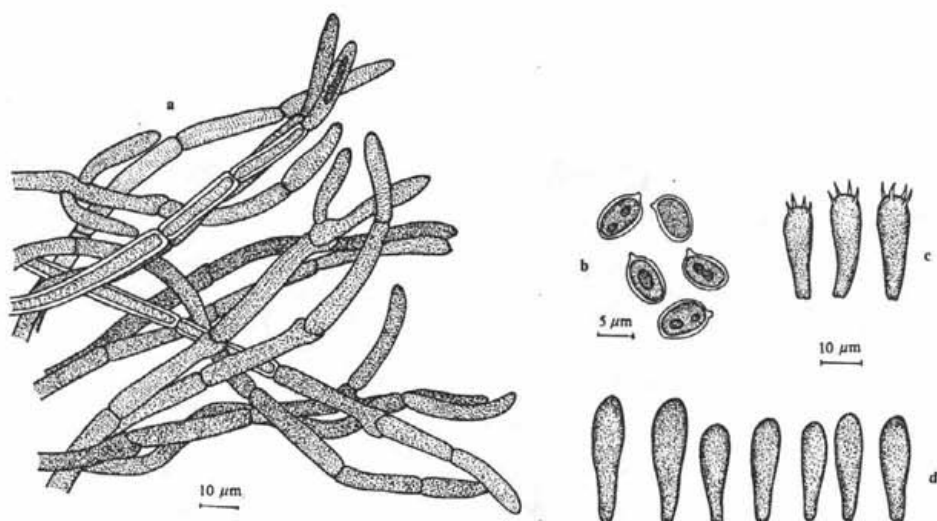


Fig. 8 *Agaricus nevoi* S. Wasser: a - elements of pileal cuticle, b - spores, c - basidia, d - cheilocystidia.

ovate-ellipsoid, with small apiculus, with 1-2 or without refractive droplets. Stipe 3-8 × 0.8-2 cm, central, cylindrical, narrowing toward the base, solid, later fistulous only in the centre, whitish, whitish-greyish, with 1/2 of stipe covered by orbicular, white, up to 5 mm in diam. granules. Ring apical, simple, white, thin, quickly disappearing. Flesh white, unchanging on exposure, then becoming pink in stipe and in the peripheral layers of the pileus, becoming pale yellow on drying. Odor and taste pleasant fungal. Cross reaction with Schaeffer's reagent negative.

Specimens examined: Israel, Mt Carmel National Park, Nahal Nesher, under *Quercus calliprinos* Webb., 5. 12. 1994, coll. S. P. Wasser.

Note: *Agaricus bonii*, an endemic of Israel, is described only in 1995 (Wasser 1995). This species is most closely related to *Agaricus floccipes* (Moell.) Bohus emend. Bohus (Bohus 1978) but differs in three striking features: 1) the presence of very specific granules on the surface of pileus and stipe, 2) presence of cheilocystidia and 3) lack of more or less lemon yellow colour when touched.

##### 5. *Agaricus nevoi* S. Wasser, Doc. Mycol., 25, 98-100, 1995 (Fig. 8).

Pileus 5-7 cm diam., thick-fleshed (flesh up to 2 cm thick), hemispherical, later convex, convex-expanded, sometimes at the centre with a small depression, whitish, pale-greyish, silky, shiny, covered with wide, appressed scales which are greyish, sometimes pale-brown, thin radially, fibrillose toward the margin which often bears remnants of the universal veil. The pileal diam. is always larger than the length of the stipe. Pileal cuticle consisting of hyaline, greyish, thin-walled cylindrical,

septated hyphae, without clamps, 4–7  $\mu\text{m}$  in diam. Gills free, thin, densely crowded, pink, later dark brown with whitish sterile edge. Gill trama regular, consisting of cylindrical, thin-walled hyphae 5–8  $\mu\text{m}$  in diam. Basidia 4-sterigmata, 24–27  $\times$  7.5–8.5  $\mu\text{m}$ , clavate. Sterigmata 3–4  $\mu\text{m}$  long. Cheilocystidia 26–33  $\times$  6.5–9  $\mu\text{m}$  abundant, clavate, short-clavate. Spore print dark brown. Spores (6)7–8.5  $\times$  4.5–5.5  $\mu\text{m}$  light brown, ellipsoid, with or without refractive droplets, with lateral apiculus. Stipe 4–6  $\times$  1.8–2.2 cm, central, erect, narrowing toward the base, solid, white, without ring, with broad basal, whitish, whitish-pink, covered with wide thin appressed scales volva. Flesh compact, dense, white, unchanging on exposure, often becoming slightly pink above the gills. Odor and taste pleasant, fungal. Cross reaction with Schaeffer's reagent negative.

Specimens examined: Israel, Mt Carmel National Park, under *Pinus halepensis* Mill., 14. 12. 1994, coll. S. P. Wasser.

Note: *Agaricus nevoi*, an endem of Israel, is described in 1995 (S. Wasser 1995). This species is more closely related to *Agaricus pratulorum* Romagn., *A. gennadii* (Chat. and Boud.) P. D. Orton and *A. volvatus* (Pears.) Heinem., but differs in shape, size and surface of volva, colour of flesh on exposure and in spore size (Cappelli 1984; Romagnesi 1986; Wasser 1989).

6. *Agaricus gennadii* (Chat. et Boud.) P. D. Orton var. *microsporus* (Bohus) S. Wasser, The Tribe Agariceae Pat. of the Soviet Union: 100, 1989. (Fig. 9).

Basionym: *Agaricus gennadii* (Chat. and Boud.) P. D. Orton ssp. *microsporus* Bohus, Ann. Hist.-Nat. Mus. Nat. Hung. 67: 38, 1975.

Description and illustration: Bohus, Ann. Hist.-Nat. Mus. Nat. Hung., 67, fig. 1, 1975

Pileus 3–7 cm in diam., thick-fleshed, at first spherical or hemispherical, then convex plane, sometimes with a central depression, white or whitish, sometimes dirty ochraceous in the centre, with appressed fibrillose scales, margin frequently with remnants of the veil. Pileal cuticle consisting of hyaline, greyish, thin-walled, cylindrical septate hyphae, without clamps, 3–6  $\mu\text{m}$  in diam. Gills free, thin, crowded, with an even sterile margin, at first pink, later dark brown, chocolate-brown. Gill trama regular. Basidia 4-sterigmata (sometimes 1–3-sterigmata), 23–28  $\times$  7–10  $\mu\text{m}$ , clavate. Sterigmata 3–4  $\mu\text{m}$  long. Cheilocystidia 23–33  $\times$  7–10  $\mu\text{m}$ , abundant clavate, hyaline. Spore print dark brown. Spores 5.7–7.5  $\times$  4–5.5  $\mu\text{m}$ , pale-brown, broadly ovoid, with lateral apiculus, with refractive droplets. Stipe 2–6  $\times$  1–1.5 cm, central, cylindrical, narrowing toward the base, solid, whitish, fibrous, with whitish basal volva. Flesh white, unchanging on exposure, or becoming slightly pinkish. Odor disappearable. Taste acidulous. Cross reaction with Schaeffer's reagent negative.

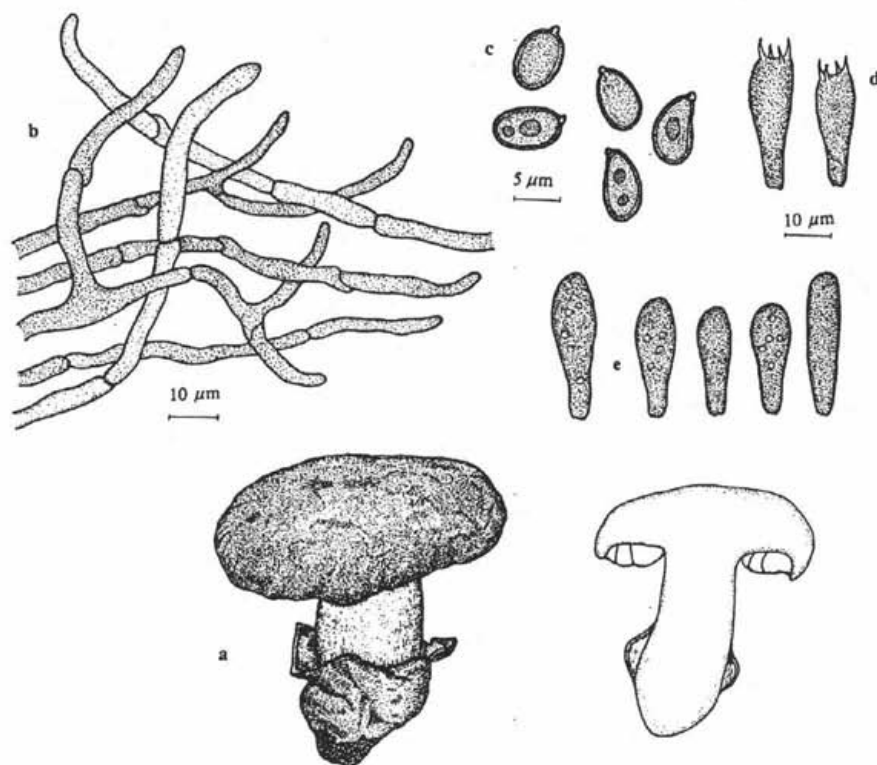


Fig. 9 *Agaricus gennadii* (Chat. et Boud.) P.D. Orton var. *microsporus* (Bohus) S. Wasser: a – fruit bodies, b – elements of pileal cuticle, c – spores, d – basidia, e – cheilocystidia.

Specimens examined: Israel, Mt Carmel National Park, Lower Nahal Oren, "Evolution Canyon", valley bottom, 13. 11. 1994, coll. S. P. Wasser; campus of the University of Haifa, on lawns, 5. 1. 1995, coll. E. Nevo.

General distribution: Europe (British Isles, Hungary, Italy, France, Ukraine), North Africa (Morocco), Asia (Uzbekistan, Turkmenistan, ?China, Israel).

Note: For *Agaricus gennadii*, G. Bohus described the new subspecies *microsporus* (Bohus 1975). Cappelli (1984) reduced this taxon to a synonym of *A. pequinii* (Boud.) Konr. et Maubl., in my opinion erroneously. It was mostly based on the size of spores.

In 1989, this taxa was left by myself (Wasser 1989) in *A. gennadii* at the varietal rank, viz. var. *microsporus*. Having studied all the available material on *A. gennadii* and *A. pequinii*, I consider *A. gennadii* var. *microsporus* to be a good taxon.



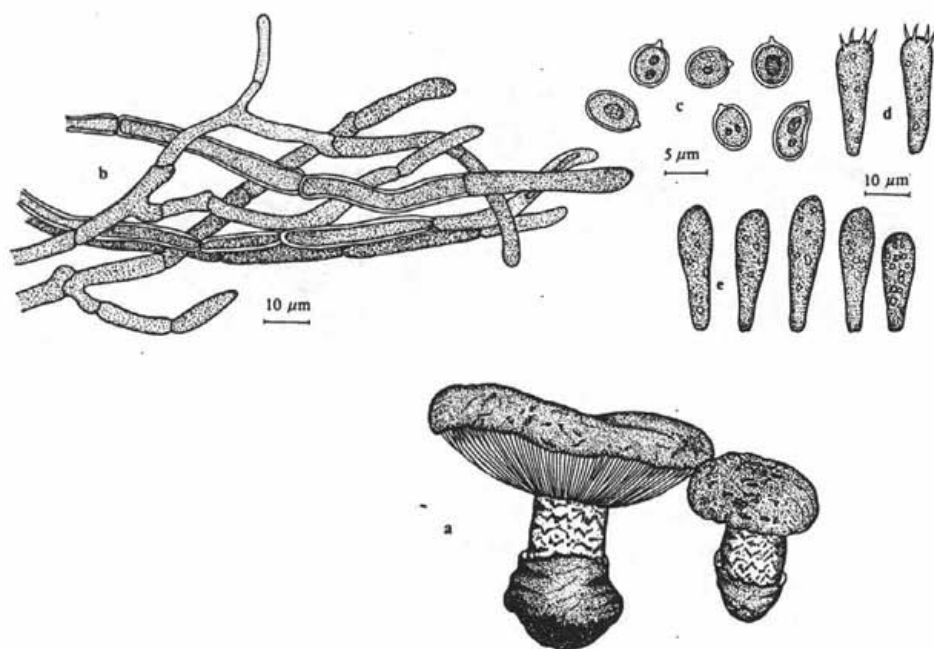


Fig. 10 *Agaricus pequinii* (Boud.) Konr. et Maubl.: a - fruit bodies, b - elements of pileal cuticle, c - spores, d - basidia, e - cheilocystidia.

7. *Agaricus pequinii* (Boud.) Konr. et Maubl., Icon. Sel. Fung., VI:61, 1937 (Fig. 10).

Basionym: *Chitonia pequinii* Boud., BSMF, 17: pl. 1, 1901.

Description and illustration: Cappelli, *Agaricus L.:Fr.* :pl.6, 1984.

Pileus 6-10 cm in diam., thick-fleshed, hemispherical, later convex-plane, often depressed at the centre, whitish, greyish-white, with scattered membranaceous patches from velar material; margin fibrillose, involute, later expanding, undulating, often cracked, with remnants of the veil. Pileal cuticle consisting of greyish, greyish-white, thin-walled, cylindrical, septate hyphae, without clamps, 3-6 μm in diam. Gills free, thin, crowded, pink, later chocolate brown, with paler sterile edge. Gill trama regular. Basidia 4-sterigmata, 23-29 × 7-9 μm, clavate. Sterigmata 2-3 μm long. Cheilocystidia 23-32 × 7-9 μm, abundant, clavate-fusiform, hyaline. Spore print dark brown. Spores 5-7 × 4.5-5.5 μm, pale brown, ovoid, rounded with lateral apiculus and refractive droplets. Stipe 4-7 × 1.8-2-(2.5) cm, central, equal, in the centre slightly inflated, solid, narrowing toward the base, whitish, below the volva covered with peculiar greyis-purple, appressed and transversely arranged scales, with basal, membranaceous, whitish, whitish-greyish volva. Flesh

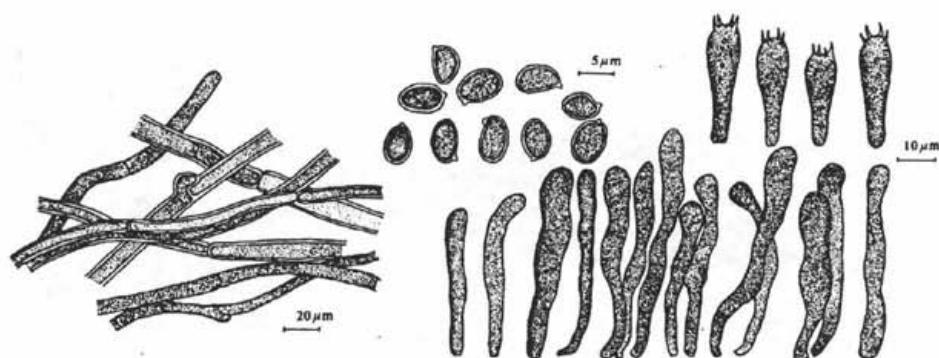


Fig. 11 *Agaricus geesteranii* Bas et Heinem.: a – elements of pileal cuticle, b – spores, c – basidia, d – cheilocystidia.

white, becoming pink or slightly brown on exposure. Odor and taste faint and agreeable. Cross reaction with Schaeffer's reagent negative.

Specimens examined: Israel, Mt Carmel National Park, campus of the University of Haifa, in park, on lawns, near *Pinus halepensis* trees, 26. 11. 1994, 13. 01. 1995, 21. 02. 1995, coll. S. P. Wasser.

General distribution: Europe (Italy, France, Hungary, Ukraine), Asia (Israel).

8. *Agaricus geesteranii* Bas et Heinem., Persoonia, 13 (1):114, 1986 (Fig. 11).

Description and illustration: Persoonia, 13(1): 1–3, Plate 1, 1986.

Pileus 7–12 cm in diam., thick-fleshed, campanulate, semiglobose, later convex, plane, sometimes with a depressed disk, at first with involute, then inflexed, finally straight margin with conspicuous, 5 mm thick, pinkish-brown, red-brown, with fibrillose purple-brown scales. The entire surface of pileus is covered with a veil, which later disappears and margin frequently with remnants of the veil. Pileal cuticle consisting of brown, pinkish-brown, thick-walled cylindrical hyphae, without clamps, (3)5 – 13(16)  $\mu\text{m}$  in diam. Gills free, thin, crowded, narrowing toward the margin of pileus, with an even edge, white, later pinkish, then reddish-brown, brown. Gill trama regular, consisting of cylindric, thin-walled hyphae, 4–9  $\mu\text{m}$  in diam. Basidia 4-sterigmata, 29–36  $\times$  8–11  $\mu\text{m}$ , clavate. Sterigmata 2–3  $\mu\text{m}$  long. Cheilocystidia 40–95  $\times$  6–11, 46–70  $\times$  3–9.5  $\mu\text{m}$ , clavate, lageniform, filiform, often capitulate, thin-walled, hyaline. Spore print dark-brown. Spores (6.5) 7–8  $\times$  4.5–5.5  $\mu\text{m}$ , pale brown, ovate, ovate-ellipsoid, with apiculus and 1–3 refractive droplets. Stipe 4–12  $\times$  1.5–3 cm, central, cylindrical, sometimes curved, often narrowings toward the base, solid, concolorous with the cap, volval layer breaking up into rings (1–3) and volval remnants. Flesh whitish, becoming yellow, then purple-brown on exposure. Odor of anise. Taste sweetish. Cross reaction with Schaeffer's reagent positiv (purple-brown).

Specimens examined: Israel, Golan Height, Masaada, oak forest, under *Quercus calliprinos* Webb. trees, 4. 1. 1995, coll. E. Nevo, 20. 1. 1995, coll. S. P. Wasser.

General distribution: Europe (The Netherlands), Asia (Israel).

Note: *Agaricus geesteranii* is very rare species only described in 1986. It is known from 3 localities in the Netherlands (Bas and Heinemann 1986) and one in Israel (Wasser 1995).

9. *Agaricus xanthodermus* Gen. var. *leptotoides* R. Mre, BSMF, 26: 109, 1911.

Basionym: *Agaricus leptotoides* (R. Mre) Konr. et Maubl., Les Agaricales, Pl.XIXb: 106, 1948.

Pileus 2–10 cm in diam., thick-fleshy, globose or hemispherical, later convex or applanate, grey, greyish or dark greyish-brown, with deep cracks, sometimes smooth toward the margin; at first cracks form radially, later transversely, the surface of the cracks sometimes with scales. On handling becoming yellow, 2–6 h later yellow colour disappears and only dingy-brown spots remain. When drying the pileus becomes brown or dingy-brownish with greyish spots. Gills free, thin, crowded, with even sterile edge, whitish, later pink-purple, brownish-purple. Gill trama regular. Basidia 4-sterigmata, 20–28 × 5–7 μm, clavate. Sterigmata 3–3.5 μm long. Cheilocystidia 20–35 × 8–12 μm, abundant, globose-ovoid or pyriform, hyaline. Spore print dark brown. Spores 5–7 × 3.3–4 μm, brownish, ellipsoid-ovate, ovate, apiculus lateral, smooth, with one-two refractive droplets. Stipe 6–17 × 1–2 cm, central, cylindrical, erect, occasionally slightly twisted, with a small basal bulb (often with white mycelial cords), solid, later often fistulose in the centre, whitish, in the centre with pinkish-crimson tinge, silky, smooth (often the stipe surface is cracked), on handling becoming yellow. Ring apical, wide (1–1.5 cm), simple, infundibuliform, toward the edge enlarged, white (along the edge yellowish, grooved above, with small brownish scales beneath. Flesh white, on exposure at the base of the stipe staining yellowish-orange. Odor of carbolic acid. On drying odor pleasant, fungal. Cross reaction with Schaeffer's reagent negative.

Specimens examined: Israel, Akko, in park and gardens in grass, 27. 12. 1994, 19. 2. 1995, coll. S. P. Wasser.

General distribution: Europe (Czech Republic, Ukraine, Hungary, France, Italy, Austria); Asia (Israel).

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## Un cas de malformation sporale chez un *Agaricus*

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P. Heinemann (1996): The malformation of the spores in *Agaricus*. – *Czech Mycol.* 48: 251–255

A collection of *Agaricus campester* L.: Fr. s.l., made on a little sand dune shows a number of misformed spores which are shortly analyzed as to their dimensions and forms. The weather of the days preceding the collection have been sufficiently dry and warm to be hypothetically responsible of the misformation of the spores.

**Key words:** Spore-formation, teratology, hydric stress.

P. Heinemann (1996): K otázce anomálních výtrusů rodu *Agaricus*. – *Czech Mycol.* 48: 251–255

Sběry *Agaricus campester* L.: Fr. s.l. z malé písčité duny vykazují množství anomálních výtrusů, které byly zkoumány co do jejich tvaru a rozměrů. Počasí, které předcházelo sběru, bylo dostatečně suché a teplé aby mohla být vyslovena hypotéza, že mohlo mít vliv na pozorované anomálie výtrusů.

La plupart des auteurs depuis A. Ricken admettent que les dimensions sporales sont remarquablement constantes dans le genre *Agaricus*. Nous ne pouvons que confirmer ce fait en précisant que le coefficient de variation des paramètres sporaux ( $L, l, Q=L/l$ ) se situe normalement aux environs de 5%; quant il est nettement plus élevé on peut en déduire la présence très probable de basides 3, 2 ou 1-sporiques (dans le cas d'espèces "tétrasporiques"). Cette occurrence n'est pas rare, elle est signalée, notamment par Møller (1950), pour des récoltes d'arrière-saison qui ont pu subir des températures trop basses pour le déroulement normal de la sporulation. Ces cas d'hétérogénéité sporale peuvent souvent être analysés: en partant des dimensions présumées des spores issues de basides tétrasporiques et moyennant l'hypothèse que le volume total des spores produites par une baside est une constante, on peut déduire les dimensions des différentes catégories de spores au moyen des coefficients 1,10 – 1,26 et 1,59 (Heinemann and Rammeloo 1985).

À côté de cette hétérosporie, où la forme des spores est généralement respectée, on observe très rarement des modifications considérables au niveau de la forme, du contenu et de la paroi. On peut alors parler de malformation.<sup>1)</sup> Nous voudrions,

<sup>1)</sup> Nous évitons le terme tératologie qui a une connotation d'hérédité car il s'agit ici de malformations induites vraisemblablement par les conditions climatiques.

ci-après, en décrire un cas et essayer de rechercher les circonstances écologiques qui ont pu le provoquer.

Au début de septembre 1951, nous avons récolté à proximité l'un de l'autre, deux carpophores d'*Agaricus campester* L.: Fr. s.l., sur une petite dune colonisée par un facies à *Plantago coronopus* de l'association *Tortuleto-Phleetum*, dans le Zwin à Knokke (Belgique, district littoral 07-09-1951 Heinemann 1784, BR). Ce matériel montrait à côté des spores normales, une proportion appréciable de spores anormales de taille et de forme. Voici le détail de nos observations.

La récolte se compose d'un carpophore adulte, qui a fourni une sporée, et d'un carpophore jeune à cavité hyméniale encore close.

**Tab. 1** *Agaricus campester* (Heinemann 1784), paramètres sporaux: a, spores de sporée; b, spores "normales" prises sur lamelles; c, spores "géantes" prises sur lamelles; L, l, Q: respectivement longueur, largeur et coefficient de forme moyens; s déviation standard; v coefficient de variation; n: nombre de spores prises en considération. Les flèches indiquent l'emplacement des pores apicaux.

	L ± s (v)	l ± s (v)	Q ± s (v)	n
a	7,10 ± 0,25 (3,5)	5,10 ± 0,22 (4,3)	1,40 ± 0,06 (4,2)	37
b	7,23 ± 0,46 (6,4)	5,17 ± 0,33 (6,4)	1,40 ± 0,08 (5,5)	26
c	11,18 ± 1,52 (13,6)	6,94 ± 0,86 (12,4)	1,61 ± 0,07 (4,1)	8

Les spores de sporée (Tab. 1a et fig. 2a) sont tout à fait normales; leur coefficient de variation se situe nettement en-dessous de 5%, pour les trois paramètres.

Les spores recueillies sur lamelles sont au contraire très variables: on peut y distinguer trois catégories:

- les spores "normales", les plus abondantes (Tab. 1b), dont les paramètres sont très voisins de ceux des spores de sporée mais sensiblement plus variables: plus de 6 % pour la longueur et la largeur. Les différences que montrent ces deux paramètres par rapport aux spores de sporée ne paraissent pas significatives, étant donné le faible nombre de mesures; Q, par contre, est identique (différence < 0,01).
- un petit nombre, de l'ordre de 1%, de spores "géantes" (Tab. 1c et fig. 2b), de forme nettement plus allongée que les spores "normales" mais de contour régulier. D'après le rapport des longueurs des spores "normales" et des spores "géantes", il pourrait s'agir de spores issues de basides monosporiques.
- un plus petit nombre de spores sont très anormales de taille et de forme (fig. 2c).

Dans les cas extrêmes, leur longueur atteint 18  $\mu\text{m}$ , soit 2,5 fois la normale et leur largeur 8  $\mu\text{m}$  soit plus de 1,5 fois la normale. Leur contour s'écarte franchement de la normale: souvent claviformes ou fusoides, parfois diverticulées ou avec un rétrécissement médian. Comme pour les spores normales, il y a généralement un pore apical rudimentaire, parfois deux! L'apicule aussi est très anormal: proportionnellement très gros et souvent pigmenté; il paraît souvent ouvert. Précisons aussi



Fig. 2 *Agaricus campester* (Heinemann 1784), spores  $\times 2000$ : a, spores de sporée, b, spore géante prise sur lamelle; c, spores malformées prises sur lamelles. (le contenu des spores n'a pas été représenté).

que les spores géantes ou malformées sont très inégalement réparties, les dernières étant moins rares chez le petit carpophore.

Au vu des spores malformées, il paraît évident qu'il s'agit de spores qui ne se sont pas détachées normalement et qui ont continué à grandir ou plutôt qui ont repris leur croissance, parfois avec des à-coups.

A priori, la cause de l'arrêt pourrait être un stress hydrique ou un choc thermique: la station de la récolte en question était sujette à de très grandes variations d'humidité et de température dues au substrat sableux et à la présence d'une couverture végétale rase et discontinue. Aussi nous a-t-il paru intéressant de rechercher les conditions météorologiques de la période ayant précédé la récolte. Les facteurs les plus importants sont sans conteste la pluviosité et la température, accessoirement l'insolation.

Nos données (R.S. 1951) proviennent:

- pour la pluviosité, de Zeebrugge, située dans la même région (littoral) à moins de 12 km et à la même altitude (5 m);
- pour les températures, de Gerdingen-Bree, située en Campine limbourgeoise, région sablonneuse, à environ 160 km à l'est de Knokke, à une altitude de 63 m;
- pour l'insolation, d'Uccle, situé à moins de 100 km au sud-est de Knokke, à 100 m d'altitude.

Les distances peuvent paraître trop grandes pour les deux dernières stations mais les données de température et d'insolation varient peu à cette échelle. Les données utilisées ont été mises en graphique, pour les 36 jours ayant précédé la récolte ce qui correspond au mois d'août et aux premiers jours de septembre (fig. 3).

La période de -36 à -4 jours a été très pluvieuse avec une acalmie de -22 à -12 j, mais cette période sèche nous semble trop éloignée de la récolte pour être prise en compte.

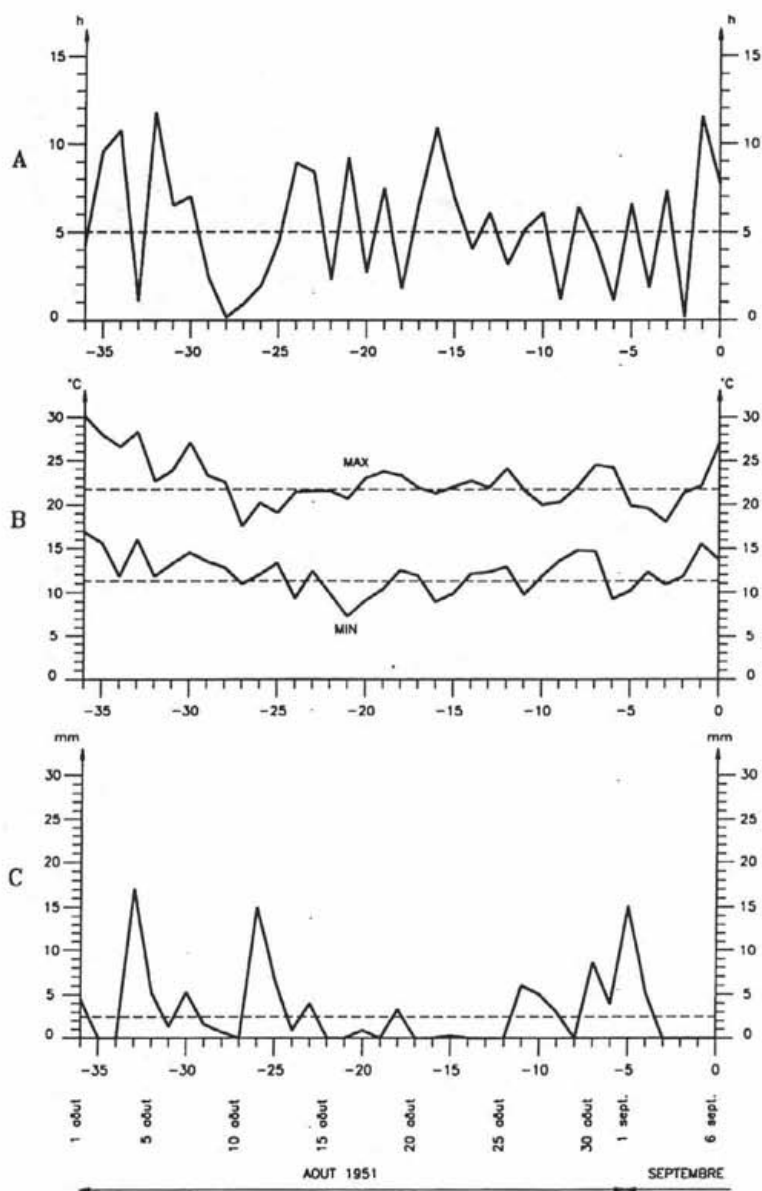


Fig. 3 Paramètres météorologiques pendant les 36 jours ayant précédé la récolte (1er août au 6 septembre 1951): A, insolation à Uccle, B, températures maxima (MAX) et minima (MIN), à Gerdingen-Bree; C, précipitations à Zeebrugge - Les lignes pointillées indiquent le niveau normal des paramètres.



De -12 à -4 j, il est tombé des quantités d'eau très supérieures à la normale et on peut admettre que c'est durant cette période que les carpophores sont apparus. Ils ont ensuite subi une période de 4 jours sans pluie ce qui, en terrain sablonneux, a pu induire un stress hydrique.

Pour les températures (fig. 3B), il faut préalablement faire remarquer que les températures mises en graphique ont été prises sous abri, à 1,5 m du sol et qu'au sol, quand le ciel est clair, il y a généralement un écart d'environ 5°, en moins pour les minima, en plus pour les maxima, ce qui donne une fluctuation journalière augmentée d'une dizaine de degrés; quand le ciel est couvert, les écarts sont nuls ou non significatifs (R. Sneyers, comm. orale).

Dans le cas présent, les températures minima se situent au dessus de 10°, pour la période de -4 à 0 j. Il est donc probable qu'au niveau du sol, elles soient descendues assez bas pour perturber la sporulation.

Pendant cette même période les températures maxima ont atteint plus de 25° et comme l'insolation (fig. 3A) a été également forte on peut admettre que la température a atteint ou même dépassé 30° au niveau du sol.

On peut conclure que la récolte étudiée a été faite après une brève période de temps sec et chaud, suivant une période pluvieuse et donc favorable à la croissance fongique. Nous privilégions l'hypothèse d'un stress hydrique: des précipitations nulles, une température élevée et une forte insolation, en milieu sablonneux très perméable, pendant une courte période, sont vraisemblablement à l'origine des malformations sporales observées.

Nous remercions vivement A. Drèze, J.-M. Snelart et R. Sneyers pour l'aide technique qu'ils nous ont apportée.

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## Ein interessanter Fund von *Marasmiellus omphaliformis* aus Italien

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Hausknecht A. and Zuccherelli A. (1996): An interesting find of *Marasmiellus omphaliformis* from Italy – Czech Mycol. 48: 257–260

*Marasmiellus omphaliformis* (Kühn.) Noordel., a very rare species collected only once before in Europe (France), has been rediscovered recently in Italy. This collection perfectly agrees with the conception given by Antonín and Noordeloos (1993), but is remarkable by the presence of true cheilocystidia. A full macroscopical description is given and drawings of microscopical features are provided.

**Key words:** Agaricales, Tricholomataceae, *Marasmiellus omphaliformis*; Italy.

Hausknecht A. and Zuccherelli A. (1996): Zajímavý nález druhu *Marasmiellus omphaliformis* z Itálie. – Czech Mycol. 48: 257–260

*Marasmiellus omphaliformis* (Kühn.) Noordel., velmi vzácný druh dosud pouze jednou sbíraný ve Francii byl nedávno znovu nalezen v Itálii. Tento sběr dokonale souhlasí s pojetím u Antonína a Noordelose (1993) je však významný přítomností pravých cheilocystid. Je podán úplný makroskopický popis a dále kresby mikroskopických znaků.

Die Gattung *Marasmiellus* enthält eine größere Anzahl von seltenen oder wegen der oft kleinen und unscheinbaren Fruchtkörper bisher nur wenige Male gesammelten Arten. Eine davon ist *Marasmiellus omphaliformis* (Kühn.) Noordel., ursprünglich von Kühner (Kühner and Romagnesi 1954) auf Grund eines Fundes aus der Charente (Frankreich) aus dem Jahr 1935 als *Marasmius omphaliformis* beschrieben. Die Art ist bisher in Europa nicht mehr aufgetaucht, es gibt jedoch Aufsammlungen aus Marokko (Malencon and Bertault 1975: 373) und aus den südöstlichen USA (Antonín and Noordeloos 1993: 169). Wir geben zunächst eine makroskopische Beschreibung der Kollektion aus Italien und ergänzen diese durch Mikro-Zeichnungen (Fig. 2-5):

Hut 3–6 mm, flach gewölbt, konkav, ganz jung gelbbraun bis graulich gelbbraun, später in der Hutmitte ± so bleibend, zum Rand hin heller werdend, etwa café-au-lait, creme bis schmutzig creme; nicht hygrophan, nicht gerieft; Oberfläche nicht glatt, sondern gänzlich körnig, körnig-flaumig bis haarig-filzig. Rand jung eingerollt. Lamellen herablaufend bis weit herablaufend, entfernt, teilweise gegabelt, mit 1–3 Lamelletten; cremeweiß mit gleichfarbiger, fein bereifter Schneide. Stiel 4–8 × 1 mm, zylindrisch, and der Spitze cremeweiß, zur Basis hin allmählich dunkler,

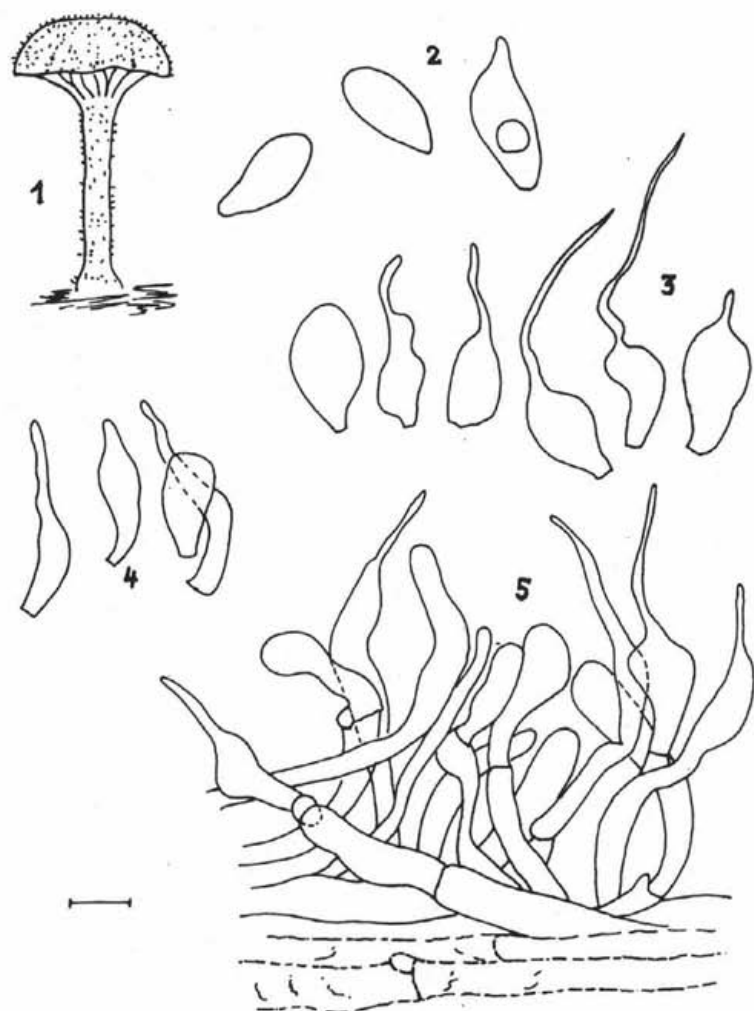


Fig. 1-5 *Marasmiellus omphaliformis* (WU). - 1. Fruchtkörper; 2. Sporen; 3. Cheilozystiden; 4. Stielzystiden; 5. Pileipellis mit Kutis und trichodermalen Endzellen. - Bar: Fruchtkörper = 2 mm; Sporen = 4  $\mu$ m; alle anderen Figuren = 10  $\mu$ m.

über hellbraun, gelbbraun bis kräftig graubraun; Basis mit auffälligem, weißlich-ockerlichem Filz, fast in der Art eines Basalscheibchens. Oberfläche in ganzer Länge bereift bis behaart. Fleisch: kein Geruch festgestellt.

Sporen 7-10  $\times$  4-4,8  $\mu$ m, Q = 1,6-2,0, ellipsoidisch bis tropfenförmig, glatt, hyalin, inamyloid, nicht dextrinoid. Basidien 4-sporig. Cheilozystiden 20-55  $\times$  7-

12  $\mu\text{m}$ , unregelmäßig blasig-keulig bis spindelig-blasig, mit einer faden- bis schnabelförmigen, bis 35  $\mu\text{m}$  langen und 1,5  $\mu\text{m}$  dicken Verlängerung. Pleurozystiden fehlen. Huthaut eine Kutis aus zylindrischen, bis 12  $\mu\text{m}$  dicken Hyphen mit inkrustiertem Pigment; Terminalzellen oft trichodermal aufgerichtet, 25–65  $\times$  6–11  $\mu\text{m}$ , keulenförmig, spindelig oder auch mit langen, schnabelförmigen Fortsetzungen ähnlich den Cheilozystiden. Stielzystiden 18–35  $\times$  5–7  $\mu\text{m}$ , unregelmäßig spindelig, keulig, mit oder ohne schnabelförmig ausgezogener Spitze. Schnallen reichlich in allen Teilen des Fruchtkörpers. Trama nirgends dextrinoid.

Habitat auf Rinde eines abgestorbenen Laubbaumes.

Untersuchte Kollektion: Italien, Ravenna, Pineta di Classe, Cà Danesi, 1.10.1994, leg. A. Zuccherelli (WU).

#### DISKUSSION

Unser Fund stimmt makro- und mikroskopisch perfekt mit dem Konzept von *M. omphaliformis*, wie es in der Monografie von Antonín and Noordeloos (1993) gegeben wird, überein, mit Ausnahme der Struktur der Lamellenschneide. Alle früheren Funde dieser Art haben keine echten Cheilozystiden, sondern höchstens fadenförmige Elemente zwischen den Basidien (Noordeloos 1983, Antonín and Noordeloos 1993). Bei unserem Material, das aus 4 frischen Fruchtkörpern besteht, konnte jedoch eine heterogene Lamellenschneide mit reichlich Cheilozystiden festgestellt werden (Fig. 3). Diesem Umstand wird aber in Übereinstimmung mit M. E. Noordeloos (briefl. Mitteilung) keine taxonomische Bedeutung zugemessen, zumal die wenigen bisherigen Funde kein endgültiges Urteil über die Variabilität der Art hinsichtlich dieser Eigenschaft erlaubt. Obwohl es von *Marasmiellus omphaliformis* kein Typusmaterial gibt (Antonín and Noordeloos 1993), sehen wir wegen der oben dargestellte mikroskopische Abweichung vom ursprünglichen Artenkonzept davon ab, unsere Aufsammlung aus Ravenna zum Neotypus zu erklären.

#### D a n k s a g u n g

Wir danken Frau Monika Köberl-Hausknecht für die Ausarbeitung der Zeichnungen und Frau Rita Ossi Cetto für ihre Mithilfe bei der Übersetzung des Textes.

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## *Mycena truncosalicicola* – a new species of *Mycena* from Britain

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Reid D.A. (1996): *Mycena truncosalicicola* – a new species of *Mycena* from Britain. – *Czech Mycol.* 48: 261–263

The new taxon, *Mycena truncosalicicola* collected on a standing trunk of *Salix caprea*, from the western part of the British Isles, is described. Diagnostic features include the lignicolous habit, the minute size of the pure white fruit bodies, the presence of apically diverticulate cheilocystidia and the amyloid, ellipsoid to ovoid spores.

**Key words:** *Mycena truncosalicicola*, new species, Britain.

Reid D.A. (1996): *Mycena truncosalicicola* – nový druh rodu *Mycena* z Británie. – *Czech Mycol.* 48: 261–263

Popisuje se nový taxon *Mycena truncosalicicola*, který byl sebrán na stojícím kmenu *Salix caprea* v západní části Britských ostrovů. Diagnostické znaky zahrnují lignikolní výskyt, drobnou velikost plodnic a jejich čistě bílou barvu, dále přítomnost cheilocystid s prstovitými výběžky a amyloidní, elipsoidní až vejčité výtrusy.

*Mycena truncosalicicola* Reid, spec.nov.

Sporophora minuta, omnino alba. Pileus in vivo 1.25–1.5 mm diam., laevis, campanulatus, sine pellicula viscida; in sicco cremeo-albus sed ad centrum leviter bubalino-brunneus, et superficiei saepe radialiter striata vel conspicue radialiter rugosa. Lamellae ascendentes, late adnatae. Lamellulae non profundae, inconspicuae. Stipes in vivo usque 3 mm longus, 0.3 mm latus, laevis, basi ad substratum per fibrillas albas radiantes affixus; in sicco pallide griseo-albus sed basin versus griseo-brunneus. Hyphae pileipellis 2.7–5.4  $\mu\text{m}$  latae, tenuitunicatae, hyalinae, septatae, fibulatae, diverticulis brevibus, simplicibus, 1.8  $\times$  0.9  $\mu\text{m}$  metientibus dense ornatae. Hyphae corticatae stipitis 1.8  $\mu\text{m}$  latae, tenuitunicatae, hyalinae, fibulatae, diverticulis plerumque simplicibus, cylindricis, 1.8–5.0  $\times$  0.9–1.3  $\mu\text{m}$  metientibus ornatae. Hyphae in tramis lamellarum iodo vivescentes, tenuitunicatae, hyalinae, fibulatae, nonnullae inflatae usque 20  $\mu\text{m}$  diam. Cheilocystidia 16–19  $\times$  9–11  $\mu\text{m}$  tenuitunicata, hyalina, clavata vel pyriformia, apicem versus diverticulis plerumque simplicibus, cylindricis, 1–5  $\times$  1  $\mu\text{m}$  metientibus conspicue ornata. Pleurocystidia carentia. Basidia 25.0–29.0  $\times$  7.5–8.0  $\mu\text{m}$ , tenuitunicata, hyalina, clavata, quadrispora. Sporae 6.5–8.5  $\times$  4.5–6.0  $\mu\text{m}$ , tenuitunicatae, hyalinae, amyloideae, late ellipsoideae vel ovoideae, raro subglobosae. In truncis erectis *Salicis capreae*, Llyncllys, Shropshire, Anglia, 27.X. 1994, coll. D.A. Reid (Holotypus: in L).

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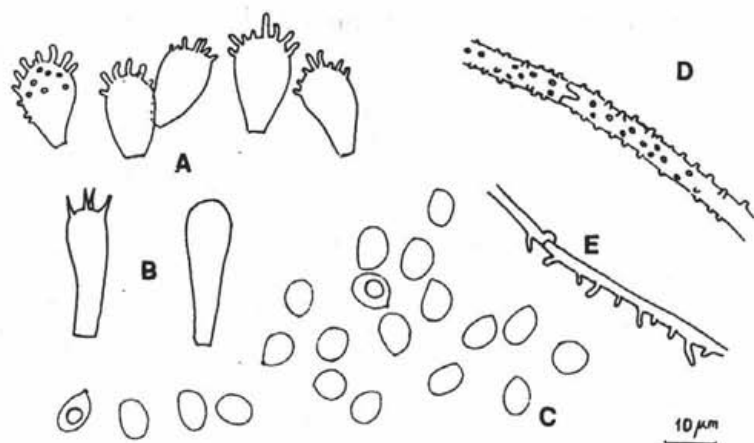


Fig. 1 *Mycena truncosalicicola* Reid. A. Cheilocystidia. B. Basidia. C. Spores. D. Hyphae of the pileipellis. E. Hyphae of the cortical layer of the stipe.

Fruit-bodies minute, entirely white in the fresh state. Pileus 1.25–1.5 mm diam. smooth, campanulate, lacking a separable viscid pellicle, in the dried state creamy-white with a slight buffy-brown tint at the disc, often becoming conspicuously radially wrinkled, and some pilei appearing striate. Lamellae ascending, broadly adnate, gill-edge non-gelatinized, concolorous with the gill-face; lamellules, very shallow, inconspicuous. Stipe to 3 mm long, 0.3 mm wide, smooth, attached to the substrate by white radiating fibrils; when dry, pale greyish white, becoming greyish brown toward the base. Hyphae of pileipellis 2.7–5.4  $\mu\text{m}$  wide, thin-walled, hyaline, densely ornamented with short simple diverticula, about  $1.8 \times 0.9 \mu\text{m}$ , and with clamp-connexions at the septa. Hyphae of the cortical layer of the stipe 1.8  $\mu\text{m}$  wide, thin-walled, hyaline with clamp-connexions at the septa, and ornamented with diverticula measuring  $1.8\text{--}5.0 \times 0.9\text{--}1.3 \mu\text{m}$ . Hyphae of the gill trama vinous in Melzer's solution, thin-walled, hyaline, with clamp-connexions, some inflated to 20  $\mu\text{m}$  diam. Cheilocystidia  $16\text{--}19 \times 9\text{--}11 \mu\text{m}$ , thin-walled, hyaline, clavate to pyriform, bearing prominent apical, mostly simple diverticula, measuring  $1\text{--}5 \times 1 \mu\text{m}$ . Pleurocystidia not seen. Basidia  $25.0\text{--}29.0 \times 7.5\text{--}8.0 \mu\text{m}$ , thin walled, hyaline, clavate, with four sterigmata. Spores  $6.5\text{--}8.5 \times 4.5\text{--}6.0 \mu\text{m}$ , thin walled, hyaline, amyloid, varying from broadly ellipsoid to ovoid, or rarely subglobose.

On standing trunk of *Salix caprea*, Llyncllys, Shropshire, Britain, 27.X.1994, coll. D.A. Reid (Holotype in L)

Observations: The collection described above has been studied by Dr R.A. Maas Geesteranus, who is of the opinion that it represents an undescribed taxon belonging to *Mycena* Section *Polyadelphia* Sing. ex Maas G.

Following the key to species of section *Polyadelphia* published by Maas Geesteranus (1986), the new taxon would key to *M. quercus-ilicis* Kühn., by virtue of the

lack of pink, purplish or violaceous tints to the fruit-body. However, the new taxon differs from *M. quercus-ilicis* in: habit (i.e. not growing on leaves of *Quercus*), in that the fruit-body is pure white when fresh (not grey becoming white), the pileus is smooth (not granular), the stipe is not insititious, and there are no conspicuous inflated terminal cells to the hyphae of the pileipellis.

#### A c k n o w l e d g e m e n t s

The generous help with opinion and comment by Dr R. A. Maas Geesteranus, of the Rijksherbarium, Leiden, which has culminated in the publication of this paper is gratefully acknowledged. It is also with very great pleasure that I contribute this paper to the Festschrift volume of Czech Mycology honouring Dr Josef Herink, who has done so much to advance our state of knowledge of mycology in general, and of the former Czechoslovakia in particular.

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**Myriosclerotinia caricis-ampullaceae on Carex rostrata and  
C. lasiocarpa – the first records for Austria, and two further  
Austrian localities for Lanzia henningsiana**

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Krisai-Greilhuber, I. (1996): *Myriosclerotinia caricis-ampullaceae* on *Carex rostrata*: the first records for Austria and two further Austrian localities for *Lanzia henningsiana*. – *Czech Mycol.* 48: 265–271

The first Austrian records of *Myriosclerotinia caricis-ampullaceae* are presented. It is a northerly distributed species, rare in Central Europe, where only two localities in the Czech Republic are hitherto known. A detailed description of the Austrian collection is given, and the ecology and distribution of the species are discussed. Further, two new Austrian localities for *Lanzia henningsiana* are given.

**Key words:** Ascomycetes, Sclerotiniaceae, *Myriosclerotinia caricis-ampullaceae*, *Lanzia henningsiana*, Austrian mycoflora.

Krisai-Greilhuber I. (1996): První nálezy *Myriosclerotinia caricis-ampullaceae* na *Carex rostrata* a *C. lasiocarpa* a dvě další rakouské lokality *Lanzia henningsiana*. – *Czech Mycol.* 48: 265–271

Jsou publikovány první rakouské nálezy *Myriosclerotinia caricis-ampullaceae*. Jedná se o druh se severským rozšířením, vzácný ve střední Evropě, kde jsou doposud známy pouze dvě lokality z České republiky. Rakouské sběry jsou detailně popsány a je diskutována ekologie, rozšíření a možnosti ochrany tohoto druhu. Rovněž jsou publikovány dvě nové rakouské lokality *Lanzia henningsiana*.

INTRODUCTION

Fungal species composition of bogs mostly is very characteristic, but rather uniform worldwide. In Austrian bogs, for instance, *Dermocybe palustris* (Moser) Moser, *D. sphagneti* (Orton) Moser, *Galerina paludosa* (Fr.) Kühner, *G. tibiicystis* (G. F. Atk.) Kühner, *Hygrocybe coccineocrenata* (Orton) Moser, *Omphalina oniscus* (Fr.: Fr.) Quél., *O. sphagnicola* (Berk.) Moser and *Russula paludosa* Britzelm., are very typical and common fungi, to mention some of these (see also Einhellinger 1976, 1977; Favre 1948; Krisai I. 1987). So it was rather surprising to find a Sclerotiniaceae in June 1994 and 1995 quite abundantly, which proved to be the very rare *Myriosclerotinia caricis-ampullaceae* (Nyberg) N. F. Buchw. During a revision of my Sclerotiniaceae herbarium specimens J. T. Palmer identified a further collection as *M. caricis-ampullaceae*, already collected in 1985. He further

revised two specimens as *Lanzia henningsiana* (Plötn.) Svrček, which has only known from Tyrol, so far (Palmer 1995).

#### MATERIAL AND METHODS

Collections examined: *M. caricis-ampullaceae*: (1) Austria: Salzburg, Lungau, district Tamsweg, community Tamsweg, Prebersee, bog Wirtsalmmoor, on *Carex lasiocarpa* Ehrh., 1514 m s. m., map grid 8849/1, 1. 7. 1985, leg. I. Krisai, rev. J. T. Palmer (herbarium IK 3775). (2) Austria: Lower Austria, Waldviertel, district Zwettl, community Pertenschlag-Melon, bog Altmeloner Au, on *Carex rostrata* Stokes ex With., 860 m s. m., map grid 7555/2, 2. 6. 1994, leg. J. Greilhuber, I. Krisai-Greilhuber, H. Voglmayr, confirm. J. T. Palmer (herbaria WU 12973, J. T. Palmer and IK 6301); (3) same locality as (2), 19. 6. 1995, leg. A. Tribsch, det. I. Krisai-Greilhuber (herbarium IK 6278).

*Lanzia henningsiana*: (1) Austria: Salzburg, Lungau, district Tamsweg, community Tamsweg, Prebersee, bog Wirtsalmmoor, on *Carex rostrata*, 1514 m s. m., map grid 8849/1, 1. 7. 1985, leg. I. Krisai, det. J. T. Palmer (herbarium IK 3774). (2) same community, Überlingberg, bog at the Dürreneggsee, on *Carex* sp., 1700 m s. m. map grid 8849/1, 4. 7. 1985, leg. I. Krisai, det. J. T. Palmer (herbarium IK 3786).

Light microscopic investigations were made of fresh or herbarium material in L4 or 3% KOH and in Melzer's reagent (prepared after Moser 1983) and viewed in a Reichert Diavar microscope. Ascospore measurements and the calculated means are based on 20 mature ascospores. Drawings were made with a drawing tube. The herbarium abbreviation follows Holmgren et al. (1990) and the citation of authorities Kirk and Ansell (1992).

#### DESCRIPTION OF THE AUSTRIAN COLLECTIONS OF *Myriosclerotinia caricis-ampullaceae*

**Macroscopic characters** (Fig. 1 a). Apothecia: stipitate, receptacle 12-45 mm in diameter, cupulate, young completely even, older basal part at the inside with ridges, at the outside just slightly undulating, inner surface smooth, outer surface finely tomentose, inside and outside light brown, cinnamon, raw Sienna, hazelnut brown, up to dark brown in very wet condition (Kornerup and Wanscher 1981: 6D7-8, 6E-F7-8), receptaculum gradually tapering into the stipe, stipe 65-110 mm long, 2-5 mm broad, long and cylindrical, bent several times, apex concolorous with the receptaculum, gradually darkening towards the base up to pure black, completely finely tomentose, at the base even more prominently tomentose, several apothecia arising from one sclerotium, sclerotia 87-135 mm long

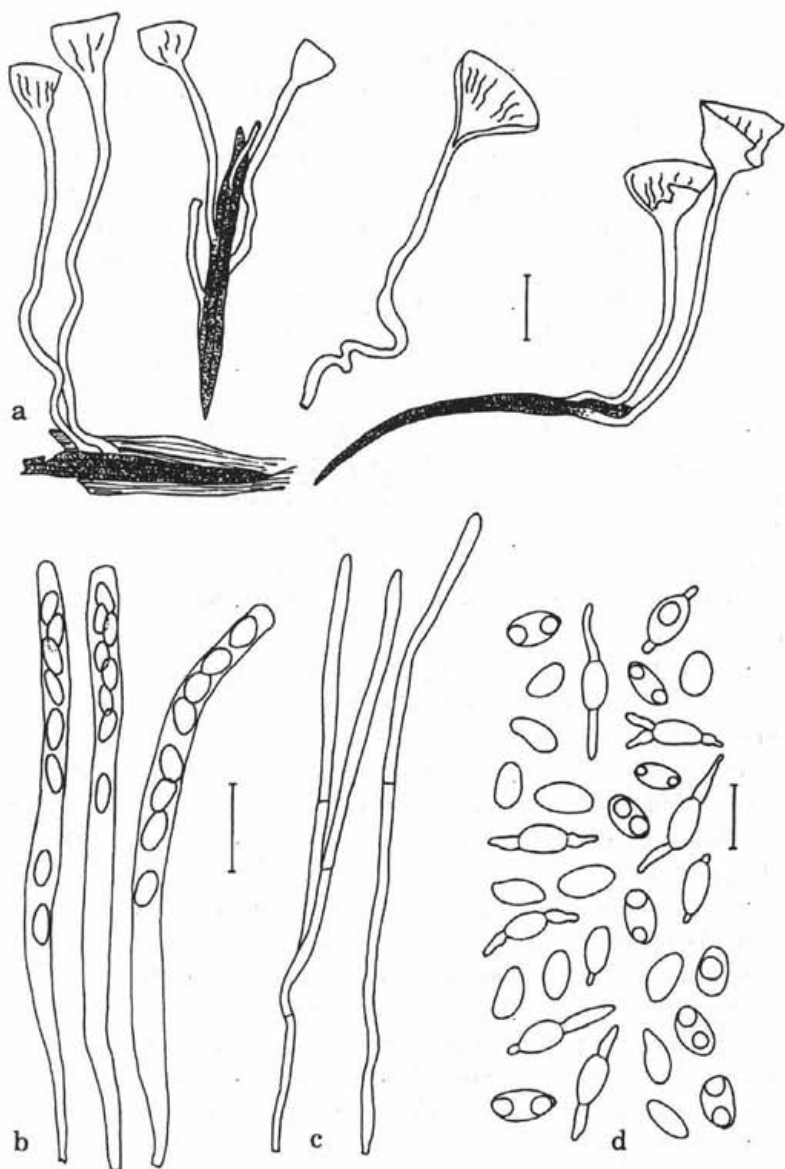


Fig. 1 *Myriosclerotinia caricis-ampullaceae*, IK 6301. a Habitus of apothecia and sclerotia, bar: 2 cm. b. Asci, bar: 30  $\mu$ m. c. Paraphyses, bar: 30  $\mu$ m. d. Ascospores, some germinating, bar: 15  $\mu$ m.

(in collection 3775 only up to 30 mm), 4–8 mm broad, ventricose, tapering into a whip-like tip at the upper end and more abruptly attenuating at the lower end, sometimes bent, surface black and longitudinally striate, striae following the vessels of the host culm, internally white.

**Microscopic characters:** Asci: 8-spored, cylindrical, J+, (156-)195–210 × 8–12 μm (Fig. 1 b), paraphyses hyaline, thin cylindrical, only very slightly enlarged at the tip, septate, sometimes branched in the lower part, 200–225 × 3–4.5 μm (Fig. 1 c), ascospores hyaline, one-celled, uni- or incompletely biseriate, broadly ellipsoid to ovoid, sometimes slightly pear-shaped, mostly eguttulate, but also uni- or biguttulate, frequently germinating already on the receptacle, with one or two (rarely three) germinating hyphae, (11.8-)12.3–14.4(-15.0) × (5.3-)6.4–8.6, mean: 13.14 (S. D.: 0.84 μm, S. E.: 0.18) × 6.83 (S. D.: 0.81 μm, S. E.: 0.18 μm), length/width: (1.56-)1.7–2.4, mean: 1.9 (S. D.: 0.2, S. E.: 0.05 μm) (Fig. 1. d), [ascospores of collection 3775: (8.8-)10.4–12.3–15.2 × 4.8–5.3–6.4 μm].

Microconidial anamorph not observed, probably due to lack of sufficient host material.

**Selected iconography:** Ryman and Holmåsén (1992: p. 653, colour), Palmer (1988: p. 37, black & white), Schumacher and Kohn (1985: figs. 42–44, drawings).

**Ecology:** Collection 3775 was made in a raised bog on *Carex lasiocarpa*, previously not known as host of this fungus, in a Caricetum lasiocarpae. This plant association is dominated by *Carex lasiocarpa*, partly intermingled with *C. rostrata* and *Sphagnum* species. The locality is situated in the Lungau in the Nedere Tauern, which are part of the Central Alps, an Austrian region very rich in bogs over silicate rock. The climate is suboceanic. A detailed description of bogs in the Lungau is given in Krisai et al. (1991).

The other two collections were made in two subsequent years in an acidic-mesotrophic "Durchströmungsmoor" (ss. Steiner 1992) on *Carex rostrata* in a Caricetum rostratae in the Waldviertel. The Caricetum rostratae in this region is very poor in plant species, the most characteristic ones being *Carex rostrata* itself together with *Sphagnum fallax* Klinggr. Further, this subassociation with *Sphagnum fallax* is the most frequent type of the Caricetum rostratae. The Waldviertel is part of the Austrian Granit- and Gneishochland and does not belong to the Alps. As the Lungau, this is also a bog-rich region on granitic soil. But most of them have been destroyed for peat extraction. These old peat-extraction sites have somehow regenerated and the collection locality exactly is such an old peat site (for a further characterization of Austrian bogs see Steiner 1992). The suboceanic climate in the Waldviertel is already subcontinentally influenced.

In the Lungau, once even in the same bog (Wirtsalmmoor), a further Sclerotiniaceae could be found: *Lanzia henningsiana*. Ecologically, it also occurs on *Carex* species in bogs in the same humidity conditions as *Myriosclerotinia caricis-*

*ampullaceae*. Its generic placement is still unclear. Schumacher and Kohn (1985) accommodate it in the genus *Poculum*. A thorough discussion on the genus and a detailed description of another Austrian specimen collected in Tyrol is given in Palmer (1995). Microscopic characters of the specimens of Salzburg are: asci  $150\text{--}194 \times 8\text{--}11 \mu\text{m}$ , ascospores  $12.2\text{--}18.0 \times 5.0\text{--}8.0 \mu\text{m}$ . Together with the Tyrolean record, three localities are now known for this species in Austria.

Table 1 Comparison of spore sizes of *Myriosclerotinia caricis-ampullaceae*

Source	Spore size ( $\mu\text{m}$ )	Mean spore size ( $\mu\text{m}$ )
Nyberg 1933	11–15 $\times$ 6.5–9	
Schumacher and Kohn 1985	11.0–16.5 $\times$ 7.0–10.2	13.2 $\times$ 8.5
Palmer 1988 (J. T. P. 4256)	11.4–16.0 $\times$ 6.5–9.8	
(J. T. P. 4157)	9.8–15.5 $\times$ 6.5–9.0	
(J. T. P. 3226)	11.7–14.7 $\times$ 6.5–8.2	
Ryman and Holmäsén 1992	10.0–15.0 $\times$ 6.5–9	
Tondl 1992	13.2–16.5 $\times$ 8.2–9.8	
Austrian collections (IK 6301)	11.8–15.0 $\times$ 5.3–8.6	13.14 $\times$ 6.83
(IK 3775)	8.8–15.2 $\times$ 4.8–6.4	

#### DISCUSSION

Besides macro- and microscopical features *Myriosclerotinia* species are characterized by producing sclerotia inside the culms of Cyperaceae or Juncaceae (Schumacher and Kohn 1985). Fully developed, *M. caricis-ampullaceae* easily can be determined as it has the largest apothecia and sclerotia of the genus. Nevertheless, the spore size shows a considerable range of variation both in length and width (Table 1). The spores of the Austrian specimens are slightly thinner than those of North American ones, but their dimensions are compatible with the other European measurements. Collection 3775 has the thinnest spores. It also had smaller apothecia and smaller sclerotia and grew on the new host, *Carex lasiocarpa*. Probably, these variations may be due to the host species and I think they are well within the ecological variability of the species and does not merit a further taxonomic distinction.

**E c o l o g y:** *Myriosclerotinia caricis-ampullaceae* exclusively grows on *Carex* species, which belong to the family Cyperaceae. The host species hitherto known are *Carex aquatilis* Wahlenb., *C. aquatilis* var. *altior* (Rydb.) Fern. and *C. rostrata* (Schumacher and Kohn 1985). *Carex lasiocarpa*, the host of one Austrian collection adds a further species to this list. Altogether *M. caricis-ampullaceae* prefers wet habitats, mostly bogs with *Carex* and *Sphagnum* species, once it was found on *Carex*

*rostrata* in a sphagnum-filled World War II bomb crater (Palmer 1988). In both Austrian localities the apothecia raised from sclerotia in submerged overwintered and dead culms of the host. This is typical for all species of the genus (Schumacher and Kohn 1985).

**Distribution:** *Myriosclerotinia caricis-ampullaceae* occurs in the northern hemisphere. It is known in North America (USA, Canada), in the former USSR (northern Ural), in Europe (Finland, Sweden, Belgium and in Czechoslovakia) (see Schumacher and Kohn 1985, Palmer 1988). Recently a new locality in the Czech Republic was presented by Tondl (1992). There, the fungus grew on *Carex rostrata* in a Caricion fuscae of a peat bog in SW Bohemia, c. 1050 m s. m., where it was recorded in two subsequent years, on June 26, 1991 and on June 18, 1992. The Austrian collection sites up to now are the two southernmost localities in Europe.

**Conservation aspects:** In Central Europe, both species, *M. caricis-ampullaceae* and *Lanzia henningsiana* are highly endangered, as they exclusively grow in bogs. In the Alps these habitats are not so much in danger to be exploited for peat extraction, but grazing of cows or sheep is a great problem and quite heavy disturbs these sensible ecosystems. Outside of the Alps in the Lowlands, these wet habitats are steadily vanishing due to draining and subsequent afforestation or conversion into fields and meadows, or are ruthlessly exploited for peat. Thus, in Central Europe both species need to be protected by habitat conservation policy (see also Krisai R. et al. 1991).

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## A preliminary survey of the genus *Phallus* sensu lato

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Kreisel, H. (1996): A preliminary survey of the genus *Phallus* sensu lato. – Czech Mycol. 48: 273–281

Applying a broad generic and a narrow species concept, the nearly cosmopolitan genus *Phallus* L.: Pers. sensu lato (incl. *Dictyophora* Desv., *Aporophallus* A. Möller, *Itajahya* A. Möller, *Echinophallus* P. Henn. and *Endophallus* Zang et R.H. Petersen) is recognized with 31 species. The genus is articulated in 5 subgenera and 5 sections. Several new combinations, one new name are proposed.

**Key words:** *Phallus*, *Dictyophora*, *Aporophallus*, *Itajahya*, *Echinophallus*, *Endophallus*, distribution, taxonomy.

Kreisel H. (1996): Předběžný přehled rodu *Phallus* sensu lato. – Czech Mycol. 48: 273–281

Je rozlišeno 31 druhů kosmopolitního rodu *Phallus* L.: Pers. s.l. (inkl. *Dictyophora* Desv., *Aporophallus* A. Möller, *Itajahya* A. Möller, *Echinophallus* P. Henn. a *Endophallus* Zang et R.H. Petersen), při uplatnění širokého rodového pojetí a úzkého druhového pojetí.

### INTRODUCTION

Although the family Phallaceae belongs to the most striking representants of larger fungi on all continents, few attempts have been made to establish a synopsis of the family or at least of its most conspicuous genus, *Phallus* sensu lato (Ventenat 1798, Fischer 1888 – 1905, Lloyd 1909, Fischer 1933). But there is a lot of information scattered in floras and papers from all over the world which justifies a new approach to summarize the present knowledge of this genus.

In the genus *Phallus* Hadr. Jun. ex L.: Pers. sensu lato, at least 147 names on specific range and 27 names of infraspecific taxa have been published hitherto. A part of these names refers to species excludenda which actually are combined with genera as *Helvella*, *Gyromitra*, *Leotia*, *Morchella*, *Mutinus*, and *Rhizina*. Other names apparently or supposedly are synonyms. The author, applying a rather narrow species concept and a broad generic concept, recognizes 31 species within *Phallus* sensu lato.

The distribution of *Phallus* s.l. is nearly cosmopolitan, but the genus is not recorded from temperate South America, New Zealand, the arctic and subarctic Europe, Iceland, Greenland, Faer Oer, Shetland and Orkney Islands, and Hebrides. The distribution in Siberia is unknown. On the other hand, the genus is represented on rather remote islands as Hawaii, Tahiti, and Tasmania.



From the 31 recognized species, 3 are limited to the New World, 18 to the Old World, and 10 are known from both hemispheres, although in a few cases (*Ph. rugulosus*, *Ph. merulinus*) the actual wide distribution may be due to introduction by man. The center of diversity is in China incl. Taiwan, and South East Asia, with 21 recognized species, many of them endemic to that area. A minor diversity with only few endemic species is known from the South Pacific (Indonesia, Papua New Guinea, etc.) and from tropical Africa, each of these regions with 9 species. No endemic species are known from Europe, Middle East, Japan, and Australia. Of course, surprising discoveries still are possible nowadays and may modify the present biogeographic picture if this genus.

Important morphological criteria for the infrageneric taxonomy of *Phallus* are shape and surface configuration of the pileus (glabrous, granulate, rugose, reticulate, wig-like; apex perforate or imperforate), yellow to red pigments (carotenoids) in receptaculum (but loss of pigment components by mutation seems to be not rare), pinkish to violet discoloration in volva and mycelial strand. Moreover, the smell of mature gleba is variable (fetid, bread-like, flowery, etc.).

The importance of an indusium for the taxonomy of the group has been overestimated by most authors in the past. Species without and with indusium may be closely related (*Ph. hadriani* - *Ph. indusiatus*; *Ph. lauterbachii* - *Ph. echinovolvatus*), and one species may have receptacula without or with indusium or with a rudimentary indusium hidden under the pileus (*Ph. impudicus* var. *impudicus*, var. *pseudoduplicatus*, var. *obliteratus*).

#### GENERIC CONCEPT

*Phallus* Hadr. Jun. 1562 ex L. 1753 : Pers. 1801 sensu lato

Typus generis: *Phallus impudicus* L. 1753 : Pers. 1801

#### Synonyms

= <i>Dictyophora</i> Desvaux 1809	<i>Ph. indusiatus</i>
= <i>Satyros</i> Bosc 1811	<i>S. rubicundus</i>
= <i>Hymenophallus</i> Nees 1816	<i>Ph. indusiatus</i>
= <i>Dictyopeplos</i> Kuhl et Van Hasselt 1824	<i>D. elegans</i>
= <i>Sophronia</i> Pers. in Gaudichaud 1826	<i>S. brasiliensis</i>
= <i>Dictyophallus</i> Corda 1842	<i>Ph. aurantiacus</i>
= <i>Kirchbaumia</i> S. Schulzer 1866	<i>K. imperialis</i>
= <i>Omphalophallus</i> Kalchbr. 1883	<i>O. muellerianus</i>
= <i>Ithyphallus</i> (Fr. 1823) E. Fischer 1886 non <i>Ithyphallus</i> S. F. Gray 1821 (= <i>Mutinus</i> Fr. 1849, nom. cons.)	<i>Ph. impudicus</i>
= <i>Aporophallus</i> A. Möller 1895	<i>A. subtilis</i>

#### Type species

= <i>Itajahya</i> A. Möller 1895	<i>I. galericulata</i>
= <i>Cryptophallus</i> Peck 1897	<i>C. albiceps</i>
= <i>Alboffiella</i> Speg. 1898	<i>A. argentina</i>
= <i>Echinophallus</i> P. Henn. 1898	<i>I. lauterbachii</i>
= <i>Clautriavia</i> (Pat. 1998) Lloyd 1909	<i>D. irpicina</i>
= <i>Jaczevska</i> Mattirollo 1913	<i>J. phalloides</i>
= <i>Endophallus</i> Zang et R. H. Petersen 1989	<i>E. yunnanensis</i>

**1. *Phallus* subgenus *Aporophallus* (A. Möller 1895) Kreisel, stat. nov.**

Basionym: *Aporophallus* A. Möller, Brasilische Pilzblumen p. 145, 1895.

Pileus campanulate, imperforate, surface glabrous. No indusium. Receptaculum without pigments. Type species: *A. subtilis* A. Möller 1895.

*Phallus subtilis* (A. Möller 1895) C.G.Lloyd 1909

Subtropical South America (Brazil, endemic).

**2. *Phallus* subgenus *Itajahya* (A. Möller 1895) Kreisel, stat. nov.**

Basionym: *Itajahya* A. Möller, Brasilische Pilzblumen p. 148, 1895.

Pileus campanulate or wig-like, with flat and edged apex, imperforate. No indusium. Receptaculum without pinkish or without pigments. Type species: *Itajahya galericulata* A. Möller 1895.

*Phallus glutinolens* (A. Möller 1895) O. Kuntze 1898

Subtropical South America (Brazil, North Argentina).

*Phallus galericulatus* (A. Möller 1895) Kreisel, comb. nov.

Basionym: *Itajahya galericulata* A. Möller, Brasilische Pilzblumen p. 148, 1895.

= ? *Alboffiella argentina* Speg. 1898 (Argentina)

Tropical and subtropical South America, Caribbean, southern USA, South Africa.

*Phallus roseus* Delile 1813 (Egypt)

= *Itajahya rosea* (Delile) E. Fischer 1929

Mediterranean, North Africa, Pakistan, India.

The taxonomic relations of *Phallus roseus* Delile, *Itajahya galericulata* A. Möller, and *Alboffiella argentina* Speg. require further study. They have been discussed by Malencon (1953), but no additional data have been reported since.

**3. *Phallus* subgenus *Endophallus* (Zang et R. H. Petersen) Kreisel, stat. nov.**

Basionym: *Endophallus* Zang et R.H.Petersen, Mycologia 81: 488, 1989.

Pileus campanulate, apex perforate, surface reticulate. Indusium rudimentary. Receptaculum with basal disc, nearly not extending. No pigments. Type species: *E. yunnanensis* Zang et R. H. Petersen 1989.

*Phallus yunnanensis* (Zang et R. H. Petersen 1989) Kreisel, comb. nov.

Basionym: *Endophallus yunnanensis* Zang et R. H. Petersen, Mycologia 81: 488, 1989.

Southern China (Yunnan, endemic).

4. *Phallus* subgenus *Satyryus* (Bosc 1811) Kreisel, stat. nov.

Basionym: *Satyryus* Bosc, Mag. Ges. Naturf. Freunde Berlin 5: 86, 1811.

Small species of *Mutinus* habitus. Pileus campanulate, acute or obtuse or truncate, granulate or rugulose or meruloid. No indusium. Receptaculum with yellow, orange, or red pigments. Type species: *Satyryus rubicundus* Bosc 1811.

*Phallus rugulosus* (E. Fischer 1886) O. Kuntze 1891 (Japan)

= ? *Ithyphallus aurantiacus* var. *pusillus* Pat. 1890 (Vietnam)

Temperate to subtropical East Asia (China, Japan, Vietnam): probably introduced recently to USA (New Jersey) and Spain (1991 Cáceres).

*Phallus nanchangensis* Z. Z. He 1989

Southern China (Jianxi, endemic).

*Phallus taibeiensis* Liu and Bau 1982

= *Ph. formosanus* Lee 1957, non Kobayasi 1938

Southern China (Taiwan, endemic)

*Phallus rubicundus* (Bosc 1811) Fr. 1823 (USA, Carolina)

= *Ph. canariensis* Mont. 1840 (Canary Islands)

= *Ph. aurantiacus* Mont. 1841 (Southern India)

= *Ithyphallus balansae* Pat. 1890 (Vietnam)

= *Ph. celebicus* P. Henn. 1900 (Celebes)

= *Ph. coralloides* (Cobb 1906) C. G. Lloyd 1910 (Hawaii)

Canarian Islands, tropical and subtropical Africa, Celebes, Java, Australia, Hawaii, southern USA (Texas, Upper Carolina).

A widespread pantropic species, characterized by the rounded pileus, often covered by fragments of the volva.

*Phallus novae-hollandiae* Corda 1854 (Australia, N. S. Wales)

= *Ph. sanguineus* P. Henn. 1901 (Cameroon)

= *Ph. gracilis* (E. Fischer 1890) C. G. Lloyd 1907 sensu Lloyd (Australia), non Lloyd 1909 (= *Ph. corallinus* = *Ph. rubicundus*, see above; Hawaii).

Tropical and subtropical Africa, Australia. The records from Tasmania (Cunningham 1944) possibly belong here.

The species is characterized by a broadly truncate apex of pileus. A similar arrangement in the *Phallus rubicundus* group was suggested by Dring and Rayner (1967, p. 14), but no definite solution was communicated, and the concept was changed by Dring and Rose (1976).

*Phallus caliendricus* Dring and Rayner 1967

Tropical Africa (Mt. Kenya, endemic).

**5. *Phallus* subgenus *Phallus***

Pileus campanulate to conical with perforate apex. Indusium absent or present. Pigments pinkish to violet or yellow/orange/red or lacking.

**5a. *Phallus* sect. *Granophallus* Kreisel, sect. nov.**

Receptaculum cum superficie pilei granulosa, sine indusio, disco basali instructo. Funiculus mycelialis rubescens vel violascens. Species typica: *Phallus ravenelii* Berk. and Curt. 1873.

Pileus surface granulose. No indusium. Receptaculum with basal disc. Pinkish to violet pigments in the mycelial strand.

*Phallus ravenelii* Berk. et Curt. 1873 (USA, S. Carolina)

= *Ithyphallus cucullatus* Pat. 1890 (USA, Massachusetts)

Temperate North America (Canada, USA, Mexico: Morelos).

This species endemic to North America stands rather isolated within the genus. The characteristic flat basal disc of receptaculum remembers of *Ph. (Endophallus) yunnensis* from China (cf. Zang and Petersen 1989).

**5b. *Phallus* sect. *Clautriavia* (Pat. 1898) Kreisel, stat. nov.**

Basionym: *Dictyophora* subgenus *Clautriavia* Patouillard, Bull. Soc. Myc. France 14: 190, 1898.

Pileus surface rugulose to meruloid. Indusium present or absent. Volva may be provided with echinate protuberances. Receptaculum not pigmented. Type species: *Dictyophora irpicina* Pat. 1898.

*Phallus lauterbachii* (P. Henn. 1894) Kreisel, comb. nov.

Basionym: *Echinophallus lauterbachii* P. Henn., Englers Bot. Jahrb. 18, Beibl. 44: 36, 1894. (Papua New Guinea, Kaiser-Wilhelmsland).

= *Echinophallus dahlii* P. Henn. 1898, nomen provis. (same loc.)

= *Echinophallus papuanus* E. Horak in litt. (same loc.)

South Pacific (Papua New Guinea, endemic).

*Phallus echinovolvatus* (Zang et al. 1988) Kreisel, comb. nov.

Basionym: *Dictyophora echinovolvata* Zang, Zheng and Hu, Mycotaxon 33: 146, 1988 (China, Hunan).

Southern China (Hunan, Kweichow, endemic).

*Phallus merulinus* (Berk. 1866) C. G. Lloyd 1907 (Indonesia, Java)

= *Ph. irpicinus* (Pat. 1898) C. G. Lloyd 1907 (Indonesia, Java)

Southern China, tropical Asia from Pakistan to South Pacific, Australia; Carribbean (Tobago, possibly introduced).

5c. *Phallus* sect. *Flavophallus* Kreisel, sect. nov.

Receptaculum pileo superficie reticulata instructum, cum vel absque indusio, pigmentis flavis, aurantiacis vel rubris coloratum. Species typica: *Ithyphallus tenuis* E. Fischer 1886.

Pileus surface reticulate. Indusium present or absent. Yellow, orange, or red pigments in receptaculum and/or indusium.

*Phallus flavocostatus* Kreisel, nom. nov.

= *Ithyphallus costatus* Penzig, Ann. Jard. Bot. Buitenzorg 16: 147, 1899.

= *Phallus costatus* (Penzig 1899) C. G. Lloyd 1909 (Indonesia, Java), non *Ph. costatus* Ventenat 1798

Southern China, Japan, subtropical and tropical Asia, Indonesia (Java). Sri Lanka.

The new name is required for the earlier homonym *Phallus costatus* Ventenat, Diss. genre Phallus p.510, 1798 = *Morchella costata* (Vent.) Pers.

*Phallus tenuis* (E. Fischer 1886) O. Kuntze 1891 (Indonesia, Java)

= ? *Ph. sulphureus* H. Lohwag 1937 (China, Yunnan)

Temperate and southern China, Japan, Indonesia (Java), Sri Lanka, tropical Africa (Tanzania; F. D. Calonge pers. comm.)

*Phallus formosanus* Kobayasi 1938 (Taiwan)

= *Ithyphallus roseus* Sawada 1929 (Taiwan), non *Ph. roseus* Delile 1813

Southern China (Taiwan, endemic).

*Phallus callichrous* (A. Möller 1895) C. G. Lloyd 1907 (Brazil)

= *Dictyophora chlorocephala* De Seynes 1897 (Congo)

Tropical and subtropical Africa and Asia, Australia and South America (Brazil).

*Phallus multicolor* (Berk. et Br. 1883) C. G. Lloyd 1907 (Australia, Queensland)

= *Ph. daemon* Rumphius 1743 ex Fr. 1823 (Indonesia, Amboin)

= ? *Ph. tahitensis* Schlechtendal 1861/62 (Tahiti)

= *Ph. quadricolor* Berk. et Br. 1883 (Australia, Queensland)

= *Dictyophora echinata* P. Henn. et Nyman 1900 (Indonesia, Java)

Tropical and subtropical Africa and Asia (including temperate China: Hunan), South Pacific, Australia.

*Phallus cinnabarinus* (Lee 1957) Kreisel, comb. nov.

Basionym: *Dictyophora cinnabarina* Lee, Mycologia 49: 156, 1957

Southern China (Taiwan, endemic).

*Phallus spec.*

= *Dictyophora indusiata* f. *lutea* Kobayasi

Japan. A taxon which needs further study.

5d. *Phallus* sect. *Dictyophora* (Desvaux 1809) Kreisel, stat. nov.

Basionym: *Dictyophora* Desvaux, Journ. Bot. (Paris) 2: 92, 1809.

Pileus surface reticulate. Indusium absent or present. Pinkish or violet pigments present in volva, mycelial strand and partly in receptaculum. Type species: *Phallus indusiatus* Ventenat 1798 : Pers. 1801.

*Phallus hadriani* Ventenat 1798 : Pers. 1801 (Netherlands)

= *Ph. iosmus* Berk. 1836 (England)

= *Ph. imperialis* (S. Schulzer 1866) S. Schulzer 1873 (Hungary)

= *Ph. purpuratus* Cragin 1895 (USA, Kansas)

= *Ithyphallus impudicus* var. *carneus* Lemmermann 1901 (Germany, Juist island)

= *Ph. impudicus* var. *americanus* E. Ulbrich 1932 (North America)

= *Ph. arenarius* Kallenbach 1936, nomen nudum (Germany, Darmstadt)

Temperate and mediterranean Europe, central Asia, China, Japan, North America (Alberta, USA, Mexico). Records from Seychelles (Dring and Rayner 1967) and South Africa (Pearson 1948) need confirmation.

*Phallus macrosporus* Liu, Li et Du 1980

Temperate NE. China (Liaoning, endemic).

*Phallus duplicatus* Bosc 1811 (USA, Upper Carolina)

= *Ph. togatus* (Kalchbr. 1884) Farlow 1885 (USA, Massachusetts)

= *Ph. impudicus* var. *togatus* (Kalchbr. 1884) Cost. and Dufour 1895

= *Ph. mauritianus* C. G. Lloyd 1909 (Mauritius)

Temperate North America (USA), Mauritius, tropical Africa, South Africa. All records from Europe, China and Japan are erroneous (see *Ph. impudicus*).

A rather strange distribution pattern which suggests the existence of an additional taxon in the Paleotropis.

*Phallus indusiatus* Ventenat 1798 : Pers. 1801 (Surinam)

= *Dictyophora phalloides* Desvaux 1809 (Surinam)

= ? *Sophronia brasiliensis* Pers. in Gaudichaud 1826 (Brazil)

= ? *Dictyophora campanulata* Nees in Lév. 1827 (Indonesia, Java)

= ? *Dictyophora speciosa* Meyen 1843 (Philippines)

= ? *Dictyophora bicampanulata* Mont. 1848 (Tahiti)

= ? *Phallus brasiliensis* Schlecht. 1861/62 (Brazil)

Tropical and subtropical Africa and Asia, temperate China, Japan, South Pacific, Australia, South America.

- var. *roseus* C. G. Lloyd 1909 (French Guyana)

= *Hymenophallus roseus* Ces. 1879 (Borneo)

Tropical Africa (Cameroon), South Pacific (Borneo), tropical South America.

*Phallus rubrovolvatus* (M. Zang et al. 1976) Kreisel, comb. nov.

Basionym: *Dictyophora rubrovolvata* M. Zang, Ji et Liu, Acta Bot. Yunnanica 2: 11, 1976.

Southern China (Yunnan, endemic).

**5e. *Phallus* sect. *Phallus***

Pileus surface reticulate. Indusium absent or present. Receptaculum, volva, and mycelial strand not pigmented.

*Phallus impudicus* L. 1753: Pers. 1801 (Sweden, Smaland)

= *Ph. vulgaris* Micheli 1729 (Italy)

= *Ph. volvatus* Rothman 1742 ex Batsch 1783 (Sweden, Smaland)

= *Ph. foetidus* Sow. 1801 (England)

= *Ph. impudicus* f. *reticulatus* E. Ulbrich 1932 (Germany)

Temperate to mediterranean Europa, Middle East, Central and Eastern Asia, Japan, North and South Africa, Canary Islands; in North America only documented from Eastern Canada (Ontario, Schalwijk-Barendsen 1991), possibly introduced by man.

- var. *obliteratus* (Malencon 1957) Kreisel, comb. nov.

Basionym: *Dictyophora duplicata* var. *obliterata* Malencon, Bull. Soc. Nat. Oyonnax 10/11: 66, 1957 (Morocco)

= *Ph. impudicus* f. *subindusiatus* Pilát 1958 (Bohemia)

Temperate Europe, North Africa (Morocco).

This variety has a rudimentary indusium hidden under the pileus, and is easily overlooked for this reason.

- var. *pseudoduplicatus* O. Andersson 1989 (Sweden, Skane)

Pseudonyms:

= *Ph. duplicatus* / *Dictyophora duplicata* sensu auct., europ., non Bosc 1811

= *Ph. impudicus* var. *togatus* (Kalchbr.) Cost. and Dufour sensu Pegler et al. 1995, non Kalchbrenner 1884

Temperate Europe, North Africa, Asia incl. Japan.

This is the so-called "*Dictyophora duplicata*" of European and Asiatic authors. The arguments of Andersson (1989) are fully accepted and supported. Apparently the true *Phallus indusiatus* Bosc has never been introduced to Europe, as it was emphasized by Ulbrich (1932) and many subsequent authors. Recently, Pegler et al. (1995) used the name *togatus* Kalchbr. 1884 for the European taxon which is equally erroneous, because Kalchbrenner's taxon has a type from Massachusetts, North America, and the iconotype agrees clearly with that of *Phallus duplicatus* Bosc.

*Phallus amurensis* (Jaczewski 1911) Pilát 1958  
Temperate Eastern Asia (Amur district; endemic ?).

*Phallus fragrans* Zang 1985 (China, Xizang)  
Southern and continental China.

*Phallus favosus* (Penzig 1899) E. Fischer (Indonesia: Java)  
South Pacific (Higher mountains of Sumatra and Java; endemic).

*Phallus moelleri* C. G. Lloyd 1909 (Brazil)  
= *Dictyophora phalloidea* sensu A. Möller 1895  
Tropical Africa, China, Japan, subtropical South America (Brazil).

This taxon is distinguished from *Ph. indusiatus* by its indusium which is inserted somewhat beneath the apex of receptaculum, so that it does not touch the margin of pileus – moreover by lack of pinkish/violet pigments in volva and mycelial strand, and, possibly, by stronger fetid smell (the smell of *Ph. indusiatus*, as the author has observed in Cuba, is less aggressive, nearly bread-like, and remembers that of *Ph. hadriani*). *Ph. moelleri* is typified by Möller's classic, frequently reproduced illustration named *Dictyophora phalloidea* (Möller 1895, pl. 1).

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## What is in fact *Nemecomyces mongolicus* Pilát?

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Holec J. (1996): What is in fact *Nemecomyces mongolicus* Pilát? – Czech Mycol. 48: 283–294

Revision of the type material of *Nemecomyces mongolicus* Pilát 1933 (Ann. Mycol. 31: 54–55) has showed that this fungus is identical with *Pholiota populnea* (Pers.: Fr.) Kuyp. et Tjall., as suggested earlier by F. Kotlaba and Z. Pouzar in 1963. This fact is demonstrated by the agreement of macro- and microcharacters of these two species. Problematic characters as habitus of the fruitbodies, presence or absence of cheilocystidia and terrestrial growth of *Nemecomyces mongolicus* are discussed together with the possibility of occurrence of *Pholiota populnea* in northwestern Mongolia. This analysis confirmed conspecificity of *N. mongolicus* and *Pholiota populnea* too. The author prefers to include *P. populnea* and the closely related species *P. heteroclita* and *P. comosa* into the subgenus *Hemipholiota* Sing. ex Sing. because this position corresponds well to the real situation in the genus *Pholiota* s.l. This solution also prevents undesirable new combinations because when treated as members of a separate genus, the all aforementioned species should be transferred to *Nemecomyces* Pilát 1933. This name is older than the recently published generic name *Hemipholiota* (Sing.) Romagn. ex Bon 1986.

**Key words:** *Nemecomyces mongolicus*, revision, taxonomy, *Pholiota populnea*, subg. *Hemipholiota*, Agaricales

Holec J. (1996): Co je ve skutečnosti *Nemecomyces mongolicus* Pilát? – Czech Mycol. 48: 283–294

Revize typového materiálu druhu *Nemecomyces mongolicus* Pilát 1933 (Ann. Mycol. 31: 54–55) ukázala, že tato houba je totožná s druhem *Pholiota populnea* (Pers.: Fr.) Kuyp. et Tjall. K témuž závěru došli už v roce 1963 F. Kotlaba a Z. Pouzar, ale nepublikovali ho. Oba druhy mají shodné jak makroskopické, tak mikroskopické znaky. Problematické znaky druhu *Nemecomyces mongolicus*, jako charakter a konzistence plodnic, přítomnost či nepřítomnost cheilocystid a růst na zemi, jsou diskutovány spolu s možností výskytu *Pholiota destruens* v severozápadním Mongolsku. Rozbor všech těchto znaků rovněž potvrzuje identitu *Nemecomyces mongolicus* a *Pholiota populnea*. Autor preferuje zařazení druhu *P. populnea* a blíže příbuzných druhů *P. heteroclita* a *P. comosa* do podrodu *Hemipholiota* Sing. ex Sing., protože toto zařazení dobře vystihuje skutečné vnitrorodové vztahy v rodu *Pholiota* s.l. Toto řešení také zabraňuje dalším nomenklatorickým změnám, protože v případě zařazení výše zmíněných druhů do samostatného rodu by pak musely být nově kombinovány do rodu *Nemecomyces* Pilát 1933. Toto jméno je sice málo známé, ale mnohem starší, než rodové jméno *Hemipholiota* (Sing.) Romagn. ex Bon 1986, pod které zařadil výše zmíněné druhy M. Bon.

### INTRODUCTION

In 1933, Dr. Albert Pilát described a new genus of brown-spored agarics – *Nemecomyces* g.n. (Pilát 1933a, named after the important Czech botanist and physiologist Prof. B. Němec). The description was based on two dried fruitbodies

sent to him by Prof. K. E. Murashkinski from Omsk (Russia). The fruitbodies were collected by the Russian botanist Prof. P. A. Baranov on soil in the district Kobdo (northwestern Mongolia) during an expedition to Mongolia in 1930. Pilát (1933a) described the fungus as *Nemecomyces mongolicus* sp.n. and considered it a steppe or desert inhabitant ("Fungus hic habitu suo maxime admirabilis characterem deserticum evidenter ostendit"), mainly on the basis of its leathery-fleshy ("crasse coriaceo-carnosa") fruitbodies with bone-hard context (when dried). In the discussion, Pilát (1933a) states that *Nemecomyces mongolicus* habitually resembles *Armillaria imperialis* (= *Catathelasma imperiale* (Quél.) Sing.) at first sight. He assumes that his new genus differs from all genera of brown-spored agarics summarized or described in Heim's general account of this group of fungi (Heim 1931). In his Latin-written work Pilát (1933a) considers *Nemecomyces* to be very different from *Hebeloma*, *Rozites* and *Pholiota*. However, in a parallel Czech-written description (Pilát 1933b) he places *Nemecomyces* close to *Hebeloma* and *Pholiota*, especially on the basis of the spore colour. In the same year Pilát (1933b) described a second species of *Nemecomyces* - *N. genezareticus*. Revisions of the type material showed, that this is undoubtedly an *Agaricus* species (Kotlaba et Pouzar - revision card; Singer 1975, 1986).

The type specimen of *Nemecomyces mongolicus* was revised by Horak in December 1965, who classified this fungus among the *Pholiotoideae* (Imai) Sing. (Horak 1968). According to him the main diagnostic features of the species are absence of cheilocystidia (see also Pilát 1933a), size of fruitbodies and growth on soil. Horak believes that if these characters were not considered, the fungus could easily be denominated as *Pholiota destruens* (Brond.) Gill.

The opinion that *Nemecomyces mongolicus* is *Pholiota destruens* was originally expressed by F. Kotlaba and Z. Pouzar, who studied the type material 14th Oct. 1963 (2 years before Horak). Unfortunately, the results of their revision were not published and written on a revision card only.

In a discussion on *Nemecomyces mongolicus*, Singer (1951: 583, 1962: 652) writes that he "has seen nothing quite similar to this in his travels in Central Asia" and "Imai thinks that this is probably identical with *Tricholoma mongolicum*... which is common in Mongolia". Based on this speculation, Singer (1951: 218, 1962: 246) placed the genus *Nemecomyces* into the synonymy of *Tricholoma* (Fr.) Staude (with a question mark).

During his stay in Czechoslovakia in 1974, Singer studied the type material of *Nemecomyces mongolicus* too. He accepted the opinion of F. Kotlaba and Z. Pouzar and in the third and fourth edition of his book (Singer 1975: 546, 1986: 576) writes: "The type belongs in *Pholiota* sect. *Hemipholiota*" (sect. *Destruentes*, Singer 1986) "as was suggested by Svrček, Kotlaba and Pouzar and by type studies (PR) by this author. The type specimen does have cheilocystidia". On page 578 he adds (Singer

1986) that *N. mongolicus* is either identical or very close to *Pholiota destruens* or another species of the sect. *Hemipholiota*.

On the ground of all these facts we can summarize that *Nemecomyces mongolicus* belongs to the genus *Pholiota* s.l. (e.g. ss. Kühner 1980, Singer 1986, Jacobsson 1990). However, the identity of this fungus on the species level remained unresolved, especially with respect to a contradiction between Horak's and Singer's data on the absence or presence of cheilocystidia. Also the habitat – soil, which is quite unusual for this group of fungi – needs discussion and careful consideration.

The aim of my study is to make the specific position of *Nemecomyces mongolicus* more accurate (or confirm older opinions). This paper represents a part of my work on the taxonomy of the genus *Pholiota*.

#### MATERIAL STUDIED

Holotypus: *Nemecomyces mongolicus* Pilát, Mongolia, distr. Kobdo, ad terram, 15. 9. 1930, leg. Prof. Baranov, PRM 156136. There are no other herbarium specimens of *Nemecomyces mongolicus* in PRM (and probably also in any other herbaria). The holotypus consists of two well preserved fruitbodies (Fig. 3). The envelope contains three revision cards (Fig. 2):

- 1) F. Kotlaba et Z. Pouzar, 14. X. 1963, det. as *Pholiota destruens*
- 2) E. Horak, vidi XII. 1965
- 3) M. Bon, 18. VII. 1990, det. as "a phaeosporous species (not *Tricholomataceae*) cf. *Pholiota* close to *Hemipholiota destruens*"

Concerning priority of description (Pilát 1933a – in Latin or Pilát 1933b – in Czech), the date of effective publication of Čas. Čs. Houb., Vol. 12, No. 9–10 (with Czech description) must have been later than 10th March 1933, although the year of publication on front cover is 1932. This date is mentioned on page 156 (5th line from the bottom) as a day when fruitbodies of a *Collybia* species were brought to an editor of the journal. Consequently, the issue 9–10 of Čas. Čs. Houb. could not have been published before 10th March 1933. On the other hand, Ann. Mycol., Vol. 29, No. 1–2, where a Latin description of *Nemecomyces mongolicus* is given, was effectively published on 25th January 1933. Therefore, the Latin description in Ann. Mycol. has priority.

#### RESULTS

Macroscopic characters: included in the thorough original Latin description (Pilát 1933a), a Czech translation and photographs (Pilát 1933b), English excerpt based on the original description (Singer 1951, 1962), and a German description based on a study of the type specimen (Horak 1968).

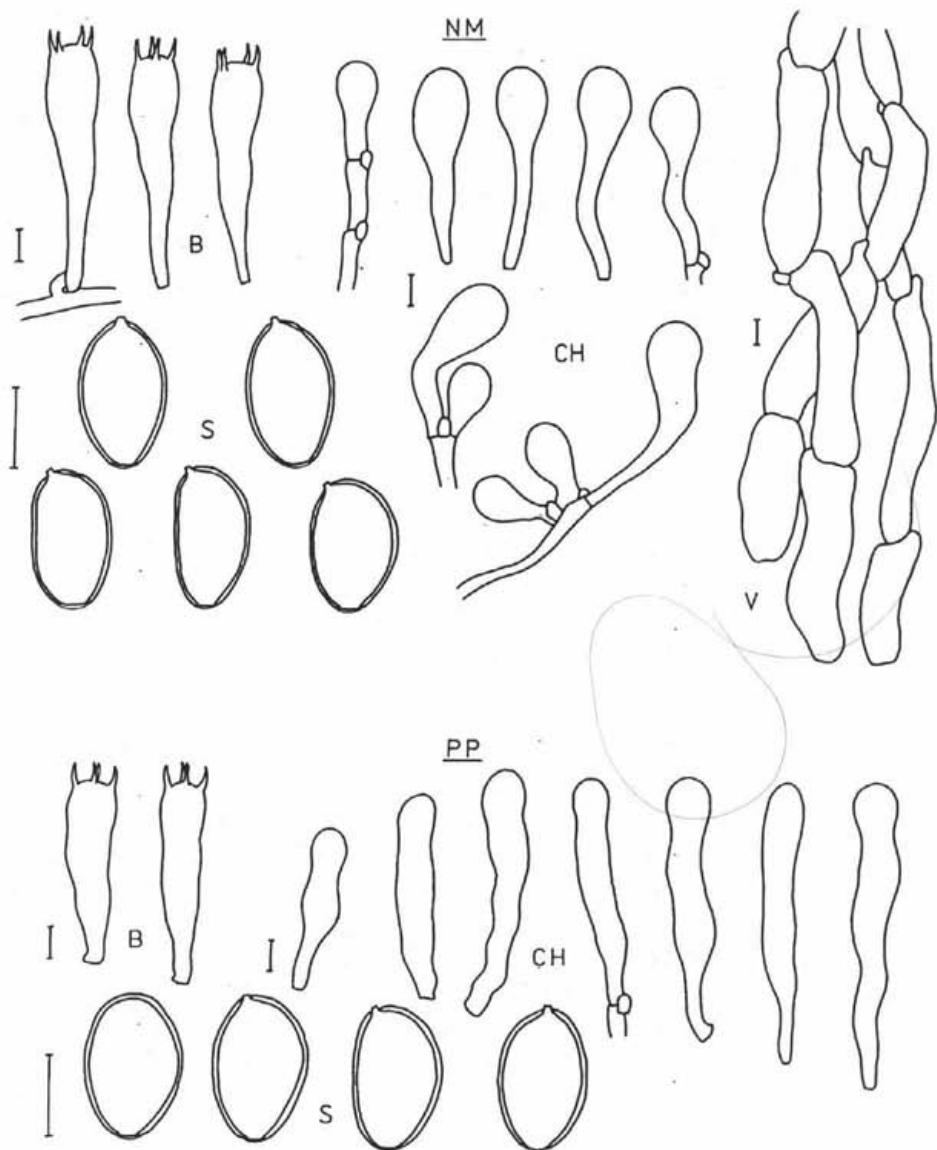


Fig. 1 NM: *Nemecomyces mongolicus*, holotype, young fruitbodies, PP: *Pholiota populnea*, Czech Republic, Libický luh near Poděbrady, *Populus nigra* (herb. J. Holec 334/94), mature fruitbodies. B: basidia, CH: cheilocystidia, S: spores, V: velum, hyphae from scales on the pileus surface. Scale bar: 5  $\mu$ m. Note difference between size of cheilocystidia from young (NM) and mature (PP) fruitbodies. (del. J. Holec)

Short description based on the author's study of the type specimen (see also Fig. 3):

Pileus 5–5,5 cm broad, thick, plano-convex with involute margin, the ground colour ochre brown or light ochre, the surface divided into angular fields as a result of drying, centre of these fields brown, cap covered by scarce but large, 0,3–0,5 cm broad tomentose scales that are appressed or slightly flaring, whitish to light ochre, at the margin fibrillar-tomentose rests of velum.

Lamellae: crowded, with lamellulae, adnate, ochre-brown, edge even.

Stipe: 3,4–4,0 × 1,8–2 cm, central, broadly cylindrical to slightly ovoid, solid, with fissile ring-like zone, glabrous and light ochre above it, below ochre but almost entirely covered with whitish or light alutaceous tomentose scales that are large and almost appressed.

Context: whitish. Smell of dried fruitbodies none.

Microscopic characters: described in the original work by Pilát (1933a) and later by Horak (1968, including line-drawings).

Description based on the author's study of the type specimen (see also Fig. 1):

Spores (7,3)8–9(9,2) × 4,9–5,5 μm (20 spores), oblong to ellipsoid, in frontal view sometimes slightly phasaeoliform, glabrous, with small lateral hilar appendix, wall moderately thick (ca. 0,5 μm), brown with ca. 1,3–1,8 μm broad germ-pore of the so called "pseudoporus" type (Clémencon 1974; Holec 1994, 1995). Consequently, under a light microscope the apex seems to be slightly truncate and the flattened apical epispodium is covered by a fine convex cap (see Fig. 1) visible after careful observation under a good light microscope. Colour yellow-ochre in 5 % KOH. Inamyloid, acyanophilic.

Basidia: 27–40 × 7–8 μm narrowly clavate, thin-walled, colourless, 4-spored, clamped, sterigmata 3–4 μm long.

Basidioles: 21–32 × 6,5–8 μm narrowly clavate to cylindrical, broadening upwards.

Cheilocystidia: present, inconspicuous but abundant, 20–27 × 7–9 μm, obovoid when young, at maturity narrowly clavate, lower cylindrical part often curved to flexuous, thin-walled, colourless, clamped at base. Edge of lamellae sterile, with cheilocystidia only.

Pleurocystidia: absent.

Hymenophoral trama: regular, in medium part slightly subregular and made up of 4–8 μm thick hyphae, in lateral parts the hyphae are thinner, 2–3 μm broad, hyphae densely crowded, not gelatinous, thin-walled, with numerous clamp connections. Subhymenium 4–8 μm thick, made up of densely crowded branched hyphae, not gelatinous.

Pileipellis: a cutis composed of two layers, upper layer about 70–100 μm thick, not gelatinous, consisting of densely crowded parallel to slightly interwoven 3–8 μm thick hyphae, thin-walled, clamped, in water strongly yellow-brown incrustated, the

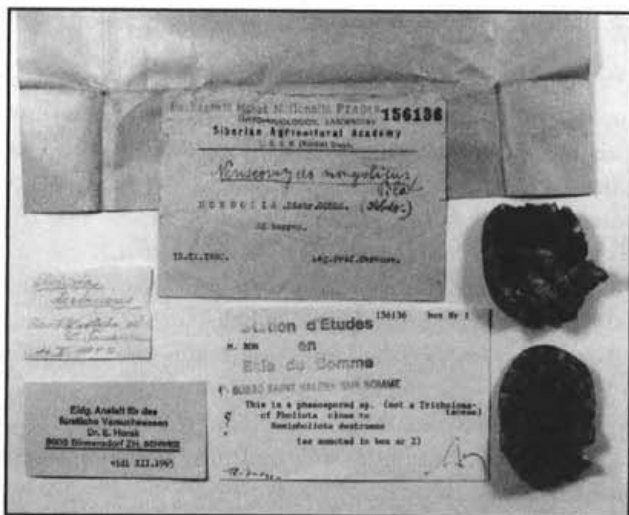


Fig. 2 Herbarium specimen (holotypus) of *Nemecomyces mongolicus*. The envelope contains two fruitbodies and three revision cards. The envelope with label originates from Omsk (Russia), the number (156136) was added in National Museum, Prague (herbarium PRM). The name *Nemecomyces mongolicus* is written by A. Pilát. (photo J. Holec)

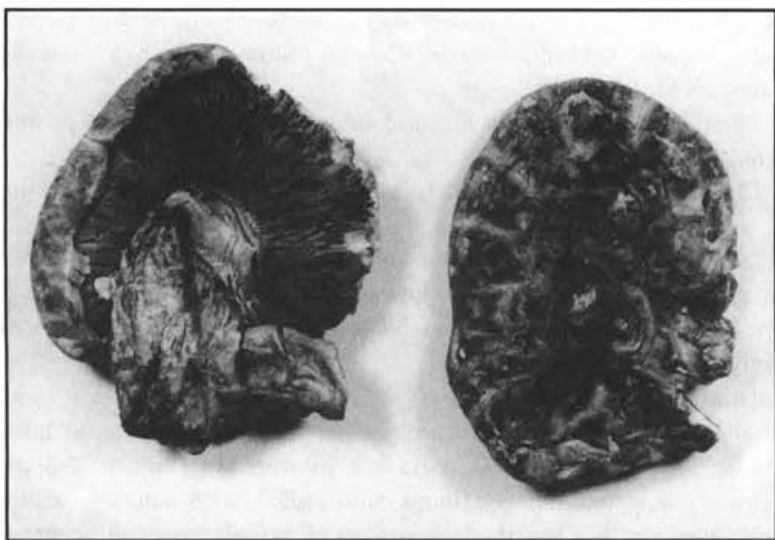


Fig. 3 Fruitbodies of *Nemecomyces mongolicus* (holotypus) in detail (photo J. Holec). A. Pilát published photos of the same fruitbodies in his Czech-written article (Pilát 1933b) which is, however, hardly accessible for foreign mycologists.

pigment soluble in 5 % KOH, lower layer about 30–50  $\mu\text{m}$  thick, slightly gelatinous, made up of similar but loosely arranged hyphae. The pileipellis is sharply divided from the context of the pileus.

Context: irregular, composed by relatively densely arranged, colourless, thin-walled, clamped hyphae that are 4,5–12  $\mu\text{m}$  thick.

Hyphae of velum: parallel to interwoven, made up of cylindrical to slightly barrel-shaped cells (20–80  $\times$  6–12  $\mu\text{m}$ ), clamped, not gelatinized, thin-walled, colourless.

In my opinion, both macroscopic and microscopic characters show that the fungus named *Nemecomyces mongolicus* is really identical with *Pholiota populnea* (Pers.: Fr.) Kuyp. et Tjall. (= *P. destruens* (Brond.) Gill.), as had been suggested by F. Kotlaba and Z. Pouzar (see Introduction).

#### DISCUSSION

The following problematic points concerning the conspecificity of *Nemecomyces mongolicus* and *Pholiota populnea* need discussion: 1) some macro- and microcharacters (habitus of the fruitbodies, presence of cheilocystidia), 2) relations to other species of the subg. *Hemipholiota* Sing. ex Sing. 1961, section *Hemipholiota* (= sect. *Destruentes* Konr. et Maublanc 1948), 3) possibility of the occurrence of sect. *Hemipholiota* species in Mongolia, 4) terrestrial growth as given by Prof. Baranov, the collector of *N. mongolicus*, and its "steppe or desert character" supposed by Pilát (1933a, b).

#### 1) Macro- and microcharacters

As annotated by Pilát (1933a), the fruitbodies of *N. mongolicus* are extremely hard in dried stage. Pilát attributed it to the "steppe or desert character" of this fungus (see Introduction) and assumed that with exception of some species of the genus *Pholiota* (! Pilát 1933b: 3) this character is unusual in brown-spored agarics. My own experience with herbarium specimens of *Pholiota populnea* and other species of the section *Hemipholiota* is that their fruitbodies can be very hard, especially when collected in young stage. The fruitbodies of *N. mongolicus* are relatively young too, as is demonstrated by the small diameter of the pileus and the presence of velum remnants on the pileus margin. Moreover, the given "steppe or desert character" of *N. mongolicus* is problematical (see point 4).

The presence of cheilocystidia in *Nemecomyces mongolicus* is quite obvious. This fact is also confirmed by Singer (1975, 1986). The cheilocystidia are present on the edge of the lamellae in great number (with no basidia associated) but their size is similar to that of the basidioles. This could be the reason why Horak (1968) did not recognize them. However, the cheilocystidia are more clavate (with swollen apex and cylindrical lower part) when compared with the upwards gradually broadening to

almost oblong basidioles. It is true that cheilocystidia can reach lengths of up to 40–50(60)  $\mu\text{m}$  in *Pholiota populnea*, as given by Horak (1968), but only in quite mature fruitbodies (own results, see e.g. Fig. 1), whereas the fruitbodies of *Nemecomyces mongolicus* are relatively young. Thus, the small size of its cheilocystidia (Fig. 1) can be explained by the immaturity of the fruitbodies.

## 2) Relations to other species of the section Hemipholiota

There are two, three or four species classified in this section, depending on the opinion of various authors: *Pholiota populnea* (Pers.: Fr.) Kuyp. et Tjall. (= *P. destruens* (Brond.) Gill.), *P. heteroclita* (Fr.) Orton, *P. comosa* (Fr.) Quél. (often considered as a synonym of *P. populnea*), and *P. dissimulans* (Berk. et Br.) Sacc..

*Pholiota dissimulans* can be excluded because it is much smaller and slender fungus with different macrocharacters (see e. g. Cooke, Table 371) than *Nemecomyces mongolicus*.

*Nemecomyces mongolicus* and *Pholiota heteroclita* are not conspecific owing to differences in the type of the germ pore. In *N. mongolicus*, there is a typical "pseudoporus" whereas *P. heteroclita* has a germ pore formed by apical attenuation of the epispodium and exospodium. This character proved to be quite reliable in distinguishing *P. populnea* and *P. heteroclita* (Holec 1994, 1995).

*P. comosa* was described by Fries (1838) as a species growing on *Fagus*-stems and having a fulvous cap covered by appressed scales. Recently, Orton (1969) published a thorough description of this rare fungus from beech in Great Britain. He believes that *P. comosa* is a good species characterized mainly by its host preference (*Fagus*), absence of a distinct smell and the cap becoming tinged tawny-honey or date or chocolate brown (but creamy-buff or wood coloured and then ochraceous buff when young). I have seen no material of this fungus. At present, the general opinion is that *P. comosa* is either closely related to or even identical with *P. populnea* (it has e.g. the same microcharacters as *P. populnea*). The colour of pileus in *N. mongolicus* (young fruitbodies!) fits both *P. populnea* and *P. comosa*, the odour is unknown. Thus, the solution of the identity of *Nemecomyces mongolicus* lies in the discussion of the host preference (see below).

## 3) Possibility of the occurrence of *Pholiota populnea* and *P. comosa* in Mongolia

*P. populnea* is known from Europe, Asia – e.g. the former USSR (e.g. Kazakhstan (Samgina 1985), Jakutsk region (Lebedeva 1949)), and China (Samgina 1985) and North America (Smith and Hesler 1968). The species seems to be distributed throughout the whole temperate to subtropic zone of the northern hemisphere. Thus, from a mycogeographical viewpoint, its occurrence in Mongolia is highly probable. The world distribution of *P. comosa* is unknown.



The second important condition for the distribution of lignicolous fungi is the presence of their host tree species. *P. populnea* is known from the wood of the following trees: various species of *Populus*, in Europe e.g. *P. nigra* L., *P. × canadensis* Moench (own data from the Czech Republic and Slovakia), *P. × petrowskiana* Schroeder (Kreisel et al. 1987), in North America e.g. on *P. balsamifera* L. and *P. deltoides* Marsch. (Smith and Hesler 1968). All these species belong to *Populus* subg. *Populus*, no records are known from *Populus tremula* (subg. *Leuce* Duby). In literature and herbaria finds are mentioned on *Salix* and *Malus* (Tjallingii-Beukers 1987, herbarium PRM), *Ulmus* (Kreisel et al. 1987) and data such as "on various deciduous trees" other than *Populus* (Overholts 1927, Smith et Hesler 1968, Lebedeva 1949). The latter data may also include *Pholiota comosa* or some undescribed species. *P. comosa* should have a preference for *Fagus* (Fries 1838, Orton 1969) or Fagales (Bon 1994, but without giving any supporting data).

Neither *Fagus* nor other members of the order Fagales occur in Mongolia (Grubov 1955). Thus, the presence of *Pholiota comosa* s. str. in Mongolia is not possible. Concerning *P. populnea*, the genus *Populus* as the main host is represented by several species (Grubov 1955). In northwestern Mongolia, where *Nemecomyces mongolicus* was collected, *Populus densa* Kom., *P. laurifolia* Lab., and *P. pilosa* Rehder occur. *Pholiota populnea* is further reported from *Salix*, a genus also represented by several species in northwestern Mongolia. Both *Populus* and *Salix* species occur mostly on river and stream banks. All species of *Populus* mentioned belong to the subgenus *Populus*.

Consequently, the occurrence of *P. populnea* in northwestern Mongolia is highly probable both mycogeographically and from the viewpoint of substrate specificity.

#### 4) Terrestrial growth given by Prof. Baranov, the collector of *Nemecomyces mongolicus*, and "steppe or desert character" of this fungus supposed by Pilát (1933a, b)

It is quite obvious that *N. mongolicus* is a member of *Pholiota* section *Hemipholiota*. All members of this section are strictly lignicolous fungi. There are no data on their terrestrial growth in literature. Thus, Baranov's statement on the herbarium envelope ("ad terram", see Fig. 2) seems to be doubtful. Prof. P. A. Baranov (1892-1962) was an important Russian botanist who studied among others the flora of Central Asia as a leader of numerous expeditions. It is very likely that Baranov himself or another member of his research team collected fruitbodies growing on woody debris or a piece of wood (poplar wood?!) hidden in the soil. Not being a mycologist, Baranov may not have been very careful in observing the real substrate of his fungus. This is supported by the fact that the basal part of the stipes on both fruitbodies is missing (Pilát 1933a, own observation) which is common in non-professional fungi collecting.

Concerning the "steppe or desert character" of *Nemecomyces mongolicus*, the geography and vegetation of the district of Kobdo (=Cobdo: old transliteration, more recent form: Chobdo, present-day form: Chovd) must be discussed. It is not easy to determine the area where Baranov really collected *N. mongolicus* more exactly. On the maps from the beginning of the 20th century (e.g. Scobel 1913), Kobdo is an area in northwestern Mongolia between the lakes Uvs Nuur and Chövsgöl Nuur, covered by numerous mountain ranges and river valleys. After the foundation of the Mongolian People's Republic (1924), the administrative district Chovd is situated partly in the Basin of the Big Mongolian Lakes (e. g. Char Us Nuur) and partly in the Mongol Altaj mountains. All these areas must be taken into consideration because of the broadly cited locality.

The Basin of Big Lakes (ca. 700–1200 m a.s.l.) is covered by steppe-desert to xerophilous steppe vegetation. The prevailing vegetation of the Mongol Altaj mountains (2000–4362 m a.s.l.) is xerophilous mountain steppe. The region between lake Uvs Nuur, lake Chövsgöl Nuur, and the Changai mountains (ca. 2000–3500 m a.s.l.) is covered by steppe to forest-steppe vegetation and the area south of the Russian border is covered by coniferous forests (taiga). The river and stream valleys in the whole area described here are accompanied by *Populus* and *Salix* species (!). All data on vegetation are from Grubov (1955).

This analysis shows that it was exaggerated to say that *Nemecomyces mongolicus* has exclusively "steppe or desert character" without knowledge of its exact locality and habitat in the area with so many vegetation types.

#### CONCLUSION

We can conclude that *Nemecomyces mongolicus* Pilát is certainly identical with *Pholiota populnea* (Pers.: Fr.) Kuyp. et Tjall. in all macro- and microcharacters, as was suggested by F. Kotlaba and Z. Pouzar. Analysis of the geographic distribution and ecological requirements of *Pholiota populnea* showed that its occurrence in northwestern Mongolia, where *Nemecomyces mongolicus* was collected, is possible. The terrestrial growth given by the collector, Prof. Baranov, is highly improbable and can be explained by inattention to the gathering of the fruitbodies. Thus, the name *Nemecomyces mongolicus* can be included into the synonymy of *Pholiota populnea*.

#### NOMENCLATORIC CONSEQUENCES

If the subgenus *Hemipholiota* Sing. 1951 ex Sing. 1961, *Sydowia* 15: 70, is considered as a genus of its own (Romagnesi 1980; Bon 1986, 1994) and if we accept that *Nemecomyces mongolicus* is in fact *Pholiota populnea*, then the generic name

*Nemecomyces* Pilát 1933 is older than *Hemipholiota* (Sing.) Romagn. ex Bon 1986. This means that by strict application of nomenclatural rules *Pholiota populnea* (and all species of sect. *Hemipholiota*) should be transferred to *Nemecomyces*, because the generic name *Nemecomyces* has priority.

The whole situation is rather unfortunate. Pilát described the genus *Nemecomyces* at the beginning of his interest in agarics as a result of overvaluation of fruitbody habitus. This fact is clearly demonstrated by his including of two phylogenetically different fungi – a *Pholiota* (*Nemecomyces mongolicus*) and an *Agaricus* (*N. genezareticus*) – in one genus. Moreover, both Pilát's *Nemecomyces* species are described after dried fruitbodies, each from only single herbarium specimen. Thus, his knowledge of the newly published genus was very limited.

In such a case, it is unpleasant to strictly apply the nomenclatural rules and accept the generic name *Nemecomyces* for species mentioned above. However, it is unavoidable if the subgenus *Hemipholiota* is considered as a separate genus. Nevertheless, also the rejection of the name *Nemecomyces* can be proposed to conserve the name *Hemipholiota*, a better known name among mycologists.

I think that it is premature to apply such a "drastic" solution. I prefer to consider *Hemipholiota* a subgenus of *Pholiota* s. l. (ss. Kühner 1980, Jacobsson 1990). In my opinion, this solution corresponds better to the real situation in the genus *Pholiota*. On the subgeneric level, the position of *Hemipholiota* corresponds very well to the position of other subgenera of *Pholiota*, e.g. *Flavidula* Smith et Hesler 1968 which also has no chryso- and pleurocystidia and a very distinct habitus. The distance between subg. *Hemipholiota* and the typical subg. *Pholiota* seems to be similar as in the case of subg. *Flavidula* or subg. *Flammula* Sing. ss. Jacobsson 1990.

#### A c k n o w l e d g e m e n t s

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## Einige neue Agaricales aus Böhmen (Tschechische Republik)

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Svrček M. (1996): Several new species of Agaricales from Bohemia (Czech Republic).—  
Czech Mycol. 48: 295–308

One new species of the genus *Conocybe*, and five new species of the genus *Cortinarius* subgen. *Telamonia* are described from the Czech Republic. There are: *Conocybe herinkii*, *Cortinarius niveo-stipitatus*, *C. ostrovecensis*, *C. sulphureo-myceliosus*, *C. salicis-rosmarinifoliae*, and *C. sarkae-ferocis*. The full descriptions in Latin and German as well as notes are given.

**Key words:** *Conocybe herinkii*, *Cortinarius niveo-stipitatus*, *C. ostrovecensis*, *C. sulphureo-myceliosus*, *C. salicis-rosmarinifoliae*, *C. sarkae-ferocis*, new species, taxonomy, Agaricales, Czech Republic.

Svrček M. (1996): Několik nových druhů lupenatých hub (Agaricales) z Čech. – Czech Mycol. 48: 295–308

Je popsáno celkem šest nových druhů lupenatých hub nalezených v Čechách. Jsou to *Conocybe herinkii* a pět druhů pavučinců z podrodu *Telamonia*: *Cortinarius niveo-stipitatus*, *C. ostrovecensis*, *C. sulphureo-myceliosus*, *C. salicis-rosmarinifoliae* a *C. sarkae-ferocis*. K podrobným popisům jsou připojeny taxonomické poznámky.

### EINLEITUNG

Während meiner langjährigen mykologischen Tätigkeit habe ich zahlreiche interessante Blätterpilze (Agaricales) festgestellt, die ich als unbestimmbare ablegen musste. Die Belege wurden als Exsikkaten aufbewahrt und mit ausführlichen Beschreibungen dokumentiert. Für diesen Beitrag wählte ich einige Arten, vor allem der Gattung *Cortinarius* subgen. *Telamonia*, weil diese artenreiche und taxonomisch schwierige Pilzgruppe noch ungenügend bekannt ist, und von böhmischen Mykologen ziemlich vernachlässigt wurde. Die letzten grösseren *Cortinarius*-Studien veröffentlichte in den Jahren 1920–1947 J. Velenovský und in den 50.–60. Jahrzehnten A. Pilát. Ich bin überzeugt, dass es besser interessante Funde rechtzeitig publizieren, als diese ohne weitere Bearbeitung liegen lassen. Ähnlich wie alle Mykorrhizapilze sind Cortinarien durch ungünstige Einflüsse der Umwelt stark bedroht. Um so mehr verdienen die Aufmerksamkeit der Mykologen.

*Conocybe herinkii* Svrček, spec. nov.

Pileo 12–15 mm diam., convexo, dein subplano, non umbonato, parum hygrophano, udo albido tinctu cinereo, medio pallide cinereo-brunneo, sicco pallido,

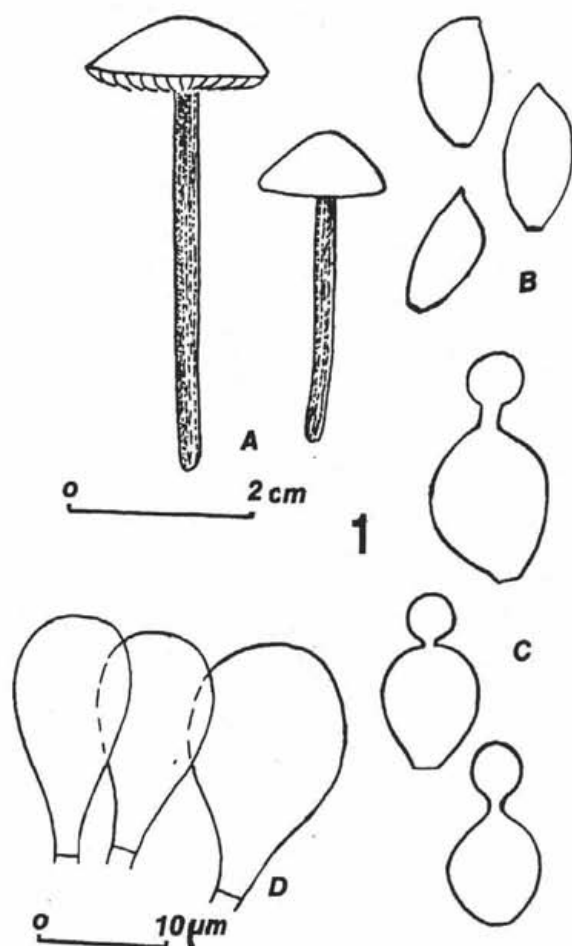


Fig. 1 *Conocybe herinkii* Svr.: A. Fruchtkörper. - B. Sporen - C. Cheilocystiden. - D. Huthautzellen.

laevi, sub lente subtiliter atomato usque albo-pulveraceo, lamellis non pellucidis. Stipite 20-30 × 3 mm, unacum pileo conspecte firmo, pure albo sed vulnerato parte inferiore luteobrunnescente, toto distincte striato et albo-floccoso. Lamellis distantibus, emarginato-adnatis, 2-3 mm latis, dilute ochraceo-flavis, acie albis subtiliterque flocculosis. Carne pilei 1,5 mm crassa, alba, inodora. Pulvis sporarum ferrugineo-flavus. Pileocutis cellulis 35-40 × 12-22 μm, pyriformibus vel subglobosis, pileocystidiis nullis. Cheilocystidiis 20-25 × 10-12 μm, lecythiformibus, stipite clavuligero 1-2,5 μm longo, 1,5-2 μm crasso, nonnumquam subnullo, clavulo 5-6 μm diam. Pleurocystidiis nullis. Caulocystidiis lecythiformibus, usque ad 35 × 17 μm, clavulo ad 6,5 μm diam. Hyphis fibulatis. Basidiis 4-sporis. Sporis 8-11 ×

4,5–6  $\mu\text{m}$ , ellipsoideis, latere uno subapplanatis, apiculo distincto, poro germinativo 1,3–1,5  $\mu\text{m}$  diam., tenuiter tunicatis, laevibus, in aqua pallide luteis. Crystallis acicularibus in solutione ammoniaci nullis observatis.

Bohemia centralis, Zadní Kopanina apud Pragam, area tuta Radotínské údolí, ad terram nudam silvae mixtae frondosae (*Quercus*, *Carpinus betulus*, *Acer campestre*), solo calcareo, 8. X. 1991, leg. et det. M. Svrček (holotypus PRM).

Hut 12–15 mm breit, konvex, später konvex-flach, nicht gebuckelt, feucht weisslich, grau getönt, inmitten grau-bräunlich, trocken blass, samtig-bereift bis weiss-gepudert, glatt, nicht gerieft, ziemlich fleischig und fest. Stiel 20–30  $\times$  3 mm, auffällig fest, rein weiss, stark gerieft und bereift bis flockig, im unteren Teil an Druckstellen gelbbraunlich. Lamellen entfernt, 2–3 mm breit, ausgebuchtet-angewachsen, lebhaft ockergelb, später mehr rostocker, Schneide weiss und feinflockig. Fleisch im Hut weiss, 1,5 mm dick, geruchlos. Sporenpulver rostocker. Pileocutis hymeniform, aus birnförmigen bis kugeligen, 35–40  $\mu\text{m}$  langen und 12–22  $\mu\text{m}$  breiten Zellen, ohne Pileocystiden oder Haaren. Cheilozystiden lecythiform, 20–25  $\times$  10–12  $\mu\text{m}$ , kurzhalbig mit runden Köpfchen (5–6  $\mu\text{m}$ ), Hals 1,5–2,5  $\mu\text{m}$  lang, 1, 5–2  $\mu\text{m}$  dick. Keine Fazialzystiden. Der Stiel nur mit Capitatae-Zystiden (ähnlich der Cheilozystiden) dicht besetzt, aber noch grösseren, bis 35  $\times$  17  $\mu\text{m}$ , Köpfchen bis 6,5  $\mu\text{m}$  breit. Basidien 4-sporig. Sporen 8–11  $\times$  4,5–6  $\mu\text{m}$ , ellipsoidisch, seitlich abgeflacht und leicht mandelförmig, glatt, im Wasser blassgelb, dünnwandig, mit deutlichem Keimporus (1,3–1,5  $\mu\text{m}$  breit). Keine Kristalle in der Ammoniaklösung beobachtet.

Fundort: Böhmen (Čechy), Tschechische Republik, Zadní Kopanina, Naturschutzgebiet Radotínské údolí unweit von Praha, auf nackten Boden im Laubmischwald (*Quercus*, *Carpinus betulus*, *Acer campestre*) auf Kalk, einzeln, 8.X.1991, leg. et det. M. Svrček (holotypus PRM).

Die Art gehört zu der Sektion *Conocybe*, Stirps *Conocybe* (im Sinne Watling's 1982) und steht wahrscheinlich der *C. macrocephala* (Kühner ex) Kühner et Watling nahe, ist aber durch gänzlich verschiedene Farbe des nichtgerieften Hutes, die negative Reaktion der Lamellen in der Ammoniaklösung und kulzhalsigen Cheilozystiden ausgezeichnet. Auffällig ist auch eigentümliche, für *Conocybe* feste Konsistenz der Fruchtkörper.

Diese neue Art ist Herrn MUDr. Josef Herink zu seinem Lebensjubiläum gewidmet.

#### *Cortinarius (Telamonia) niveo-stipitatus* Svrček, spec. nov.

Pileo 12–20 mm diam., primum campanulato, dein plano-convexo, obtuse umbonato, denique explanato, tenuiter carnosio, parum hygrophano, udo pallide brunneo, sicco brunneolo, pallido, glabro, nudo, cortina haud distincta. Stipite 20–40  $\times$  2–3 mm, cylindrico, aequaliter crasso, basi non radiciformiter attenuato, toto

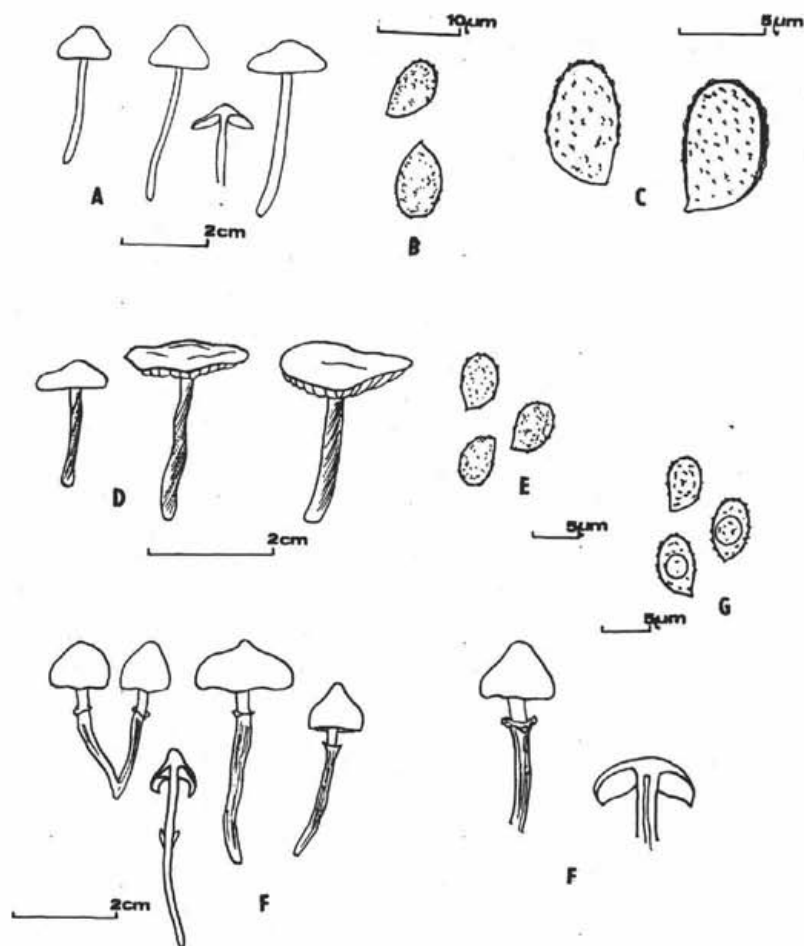


Fig. 2 *Cortinarius (Telamonia) niveo-stipitatus* Svr.: A. Fruchtkörper. – B. Sporen (600x). – C.– Sporen (1200x). – *Cortinarius (Telamonia) ostrovecensis* Svr.: D. Fruchtkörper. – E. Sporen. – *Cortinarius (Telamonia) salicis-rosmarinifoliae* Svr.: F. Fruchtkörper. – G. Sporen.

immutabiliter pure albo, subtiliter albo-fibrilloso, cingulo nullo. Lamellis distantibus, latis, emarginatis, primum pallide brunneolis, denique saturate ferrugineobrunneis, acie albidis. Carne albida, siccatione brunnescenti et odore sat conspecto (ut tubera viva secta *Solani tuberosi*) olenti. Pileocutis maxima e parte cellulis late ellipsoideis vel globosis, usque ad  $40\ \mu\text{m}$  diam., tenuiter tunicatis, subhyalinis, atque hyphis longe cylindraceutis, tenuibus. Hyphae tramales usque ad  $22\ \mu\text{m}$  crassae, parietibus pigmento luteofusco coloratae. Hyphae subhymeniales  $3\text{--}4\ \mu\text{m}$  crassae, ecoloratae, fibulatae, tenuiter tunicatae. Cellulae aciei lamellarum late clavatae vel subcylindraceutae,  $15\text{--}20 \times 5\text{--}10\ \mu\text{m}$ , tenuiter tunicatae, hyalinae. Basidia  $20\text{--}$



25 × 7–8 μm, 4-sporae. Sporae 6–8(-8,5) × 4–5 μm, ellipsoideae, apiculo parvo, subtiliter asperulae, luteolae, sed in solutione KOH saturate ferrugineae et distincte verrucosae, parietibus usque ad 0,8 μm incrassatis.

Habitat: Bohemia centralis, montes Brdské hřeben, Všenory, in convalle rivuli Všenorský potok, in foliis deiectis in *Carpino-Querceto* secus viam publicam, solo schistaceo, 2. VI. 1983, leg. et det. M. Svrček (holotypus PRM).

Hut 12–20 mm breit, glockenförmig, später ausgebreitet, dünnfleischig, nur schwach hygrophan, nicht gerieft, hellbraun (Moser A-7, A-6), trocken hell bräunlich (Moser B-4, B-5) und blass, glatt, kahl, Velum-Resten nicht erkennbar. Stiel 20–40 × 2–3 mm, schlank, gleichdick, unten nicht wurzelnd, rein weiss, feinsidig überfaserter, ohne Velum-Spuren. Lamellen entfernt, bauchig, ausgebuchtet-angeheftet, blass bräunlich, zuletzt satt rostbraun, mit weisslicher Schneide. Fleisch weisslich, durch Austrocknung braun gefärbt und unangenehm nach rohen Kartoffeln riechend, mild. Pileocutis grösstenteils aus isodiametrischen, breit ellipsoidisch oder kugeligen, bis 40 μm breiten, dünnwandigen Zellen sowie langen Hyphen bestehend. Tramalhyphen bis 22 μm dick, gelbbraun gefärbt. Subhymenialhyphen 3–4 μm dick, farblos, dünnwandig, mit Schnallen. Basidien 20–25 × 7–8 μm, 4-sporig. Basidiolen auf der Lamellenschneide eine zusammenhängende Reihe bildend, 15–20 × 5–10 μm, breit keulig oder fast zylindrisch, farblos. Sporen 6–8(-8,5) × 4–5 μm, ellipsoidisch, fein warzig, gelblich, in KOH-Lösung dunkel rostfarbig und grobwarzig.

Fundort: Böhmen (Čechy), Tschechische Republik, das Hügelland Brdské hřeben, Všenory unweit von Praha, in einem azidophilen Laubwald unter *Carpinus* und *Quercus*, in moderndem Laub, einzeln, 2. VI. 1983, leg. et det. M. Svrček (Holotypus PRM).

Die Art ist charakteristisch durch die Kleinheit, rein weissen, faserigen Stiel ohne gürtelartige Cortina, nur schwach hygrophanen, hell bräunlichen Hut, breite bräunliche Lamellen und weisslichen Fleisch. Auch das Vorkommen im Frühjahr im *Carpino-Quercetum* scheint spezifisch zu sein. Sie gehört in die Gruppe 3.11.7.6.10 im Sinne Moser's (1983), stimmt aber mit keiner dort eingereichten Spezies. Sie hat nur gewisse Ähnlichkeit mit *Cortinarius hoeftii* Weinm. in Fr. sensu J. E. Lange (1935–40, Tab. 103 A; cf. auch Kreisel et al., 1987). die fast rundlichen Sporen hat. Bei Kühner und Romagnesi (1953) wurde *C. hoeftii* in die Gruppe *Sphaerospori* eingereiht. *Cortinarius (Telamonia) scandens* Fr., abgebildet und beschrieben in Michael-Hennig-Kreisel (4: No. 138, 1985) ist etwas ähnlich, aber anders gefärbt und wächst im Nadelwald (bisweiligen vielleicht unter Erle und Eiche). Es ist dieselbe Art, wie im Sinne von Ricken (1915) dessen Beschreibung in Michal-Hennig-Kreisel gänzlich übernommen wurde. Nach Ricken soll *C. scandens* den Stiel mit einer gürtelartigen Cortina, sattolivgelb, schliesslich olivfuchsig gefärbte Lamellen und rostfuchsiges Fleisch haben.

**Cortinarius (Telamonia) ostrovecensis** Svrček, spec. nov.

Pileo 10–20 mm diam., late campanulato, dein explanato, obtuse lateque umbonato, tenuiter crasso, conspecte hygrophano, udo vivide melleo-ochraceo, lamellis pellucidis, sicco albido, centro margineque ochraceo, primum sub lente minutissime albo-fibrilloso, centro subpulverulento denique nudo, laevi, cortina nulla. Stipite 20–30 × 2–4 mm, aequaliter crasso, cylindraceo, flexuoso, pallide ochraceo, toto fibrillis argenteo-nitidis saepeque tortuosis tecto, cingulo nullo, basi mycelio albo inconspicuo. Lamellis distantibus, late adnatis, parum emarginatis, primum pallide dein saturate melleo-ochraceis, acie minute denticulatis pallidoribusque. Carne pileo atque stipite pallide ochraceo, pressa immutabili, subinodora, sapore miti paulisper raphanina. Sporis in cumulo ferrugineo-ochraceis. Pileocutis hyphis 7–25  $\mu\text{m}$  crassis, cylindraceis, tenuiter tunicatis, subhylinis, in strato brunneis, nudis. Hyphae tramales 5–10  $\mu\text{m}$  crassae, cylindraceae, fibulatae, brunneae, sparse granulato-incrustatae, tenuiter tunicatae. Hyphae cortinae fibulatae, 5–8  $\mu\text{m}$  crassae, tenuiter tunicatae, nudaе. Cheilocystidia non observata. Basidia 18–25 × 7–8  $\mu\text{m}$ , 4-spora, sterigmatibus 3–3,5 × 0,8–1  $\mu\text{m}$ , basi fibulatae. Sporae 5–6(-7,5) × 4–4,5(-5)  $\mu\text{m}$ , conspecte parvae, late ovoideae, subtiliter verrucosae, pallide ferrugineo-luteae.

Habitat: Bohemia meridionalis, Ostrovec apud Písek, ad terram humidam, muscosam, in *Piceeto* nudo ad marginem viae silvaticae, gregarie, 24. VII. 1965, leg. et det. M. Svrček (collectio 134/65; PRM 610012 – holotypus).

Hut 10–20 mm breit, glockig, schliesslich ausgebreitet, stumpf gebuckelt, dünnfleischig, stark hygrophan, lebhaft honig-ocker, von den durchscheinenden Lamellen gerieft, trocken weisslich, in der Mitte und in der Randzone ockergelb, zuerst fein bestäubt, schliesslich kahl und glatt. Stiel 20–30 × 2–4 mm, gleichdick, verbogen, auf ocker Grundfarbe mit silbrigen, oft verbogenen Fasern bedeckt, ungegürgelt, am Grunde mit nur spärlichen weissen Myzelhyphen. Lamellen entfernt, schwach ausgebuchtet, hellgelblich, später dunkel honig-ocker, Schneide fein gezähnt und heller. Fleisch hell ockerfarben, unveränderlich, geruchlos, Geschmack mild, rettichartig. Sporenpulver rostockerfarben. Pileocutis aus zylindrischen, 7–25  $\mu\text{m}$  breiten, dünnwandigen, farblosen, in der Schicht hellbraun gefärbten Hyphen. Tramalhyphen 5–10  $\mu\text{m}$  dick, mit Schnallen, braungefärbt, spärlich körnig-inkrustiert. Cortinahyphen mit Schnallen, 5–8  $\mu\text{m}$  dick, dünnwandig, glatt. Cheilozystiden nicht gefunden. Basidien 18 – 25 × 7–8  $\mu\text{m}$ , 4-sporig, unten mit Schnallen. Sporen 5–6(-7, 5) × 4–4,5(-5)  $\mu\text{m}$ , auffallend klein, breit eiförmig, fein warzig, hell rotgelb.

Fundort: Böhmen (Čechy), Tschechische Republik, Ostrovec unweit von Písek, auf feuchtem Boden zwischen Moosen in einem Fichtenwald, gesellig, 24. VII. 1965, leg. et det. M. Svrček (PRM 610012, Holotypus).

Die Art gehört in die Sektion *Laeti* (Moser 1983), ist aber von vier dort geschriebenen Arten gänzlich verschieden. Auch bei den anderen Autoren fand ich

keinen ähnlichen Pilz. Nach den Beschreibungen scheinen zwei durch die kleinen Sporen etwas ähnlliche *Hydrocybe*-Arten, und zwar *Hydrocybe decembrina* Velen. (1939–1940) und *H. naucoriaeformis* Velen. (1922). Die Revision des Typusmaterials von *H. decembrina* zeigte eine durch die grossen Sporen gänzlich verschiedene Spezies (PRM 153877: Bohemia centr., Menčice prope Mnichovice, in *Piceeto calido*, 20. XII. 1934, leg. et det. J. Velenovský; Sporen 8–11(-13) × 5–6,5 μm) und bestätigte die falsche Angaben der Sporengrösse, die in der Originaldiagnose viel kleiner angeführt wurden. Das Typus der zweiten Art, *H. naucoriaeformis*, existiert nicht mehr. Diese Spezies ist aber durch büschelige (zu 10 bis 20) Fruchtkörper ausgezeichnet, sowie durch den braun gefärbten Hut und die gut entwickelte Cortina die bisweilen als ein "falscher" Ring (cingula) ausgebildet ist in dem unteren Teil des gelblichen Stieles, sowie durch kugeligen Sporen 5–7 μm gross. *Hydrocybe naucoriaeformis* wurde noch einmal von Velenovský nach dem neueren Fund wiedergeschrieben (1947). In dem kurzen lateinischen Text wird der Stiel als ohne Cortina erwähnt und die kugeligen Sporen noch kleiner (4–6 μm) zitiert. Auch dieser Herbarbeleg existiert im PRM nicht.

**Cortinarius (Telamonia) sulphureo-myceliosus** Svrček, spec. nov.

Pileo 25–50 mm diam. (plerumque 30–40 mm), subconvexo, late campanulato, centro umbonato vel obtuse conico, margine saepe undulato-flexuoso, hygrophano, lamellis non pellucidis, udo obscure fusco, sicco pallide sordide brunneo centro obscuriore, laevi, nudo vel solum sub lente subtiliter filamentoso, primum zona marginali angusta fibrillis pure albis cortinae tectis, modice carnoso. Stipite 45–100 × 5–10 mm, cylindraceo, recto vel flexuoso, aequaliter crasso vel basi parum dilatato, toto dilute brunneo, albo-fibrilloso nonnumquam minutissime rimoso, absque ocrea cingulaque, basi mycelio sulphureo-colorato, interdum tentum tinctu luteo vel viridulo, raro albido sed presso semper sulphureo-lutescenti, secto anguste tubuliformi. Lamellis distantibus (L=40–44, l=3–5), latis (5–9 mm), ventricosis, profunde emarginatis, denticulo adnatis dein subliferis, primum brunneolis, denique suturate cinnamomeo-fuscis, acie pallidior, denticulatis, laevibus. Carne pileo stipiteque brunnea, pressa immutabili, insapora, odore ut tubera *Solani tuberosi* olenti, marcescente paulum ut *Hygrophorus cossus*. Carposomatibus singularibus vel fasciculatis. Sporibus in cumulo ferrugineo-fuscis. Hyphae mycelii e basi stipitis 2–4 μm crassis, fibulatis, septatis, tenuiter tunicatis, hyalinis, nudis, strato luteolis, solutione aquoso NH<sub>4</sub>OH (10%) dilute subviolascensibus. Epicute pilei hyphis tenuibus, 3–7 μm crassis, dense intricatis, subhyalinis, parietibus saepe minutissime granulosis, hypodermate cellulis magnis (usque ad 50 μm diam.), late ellipsoideis vel subglobosis, vesiculosis, interdum angulatis. Superficies stipitis hyphis 7–16 μm crassis, longe cylindraceis, tenuiter tunicatis, raro fibulatis, saepe subtiliter granulosis, subhyalinis vel brunneolis. Hyphae tramales 10–24 μm crassae, fibulatae,

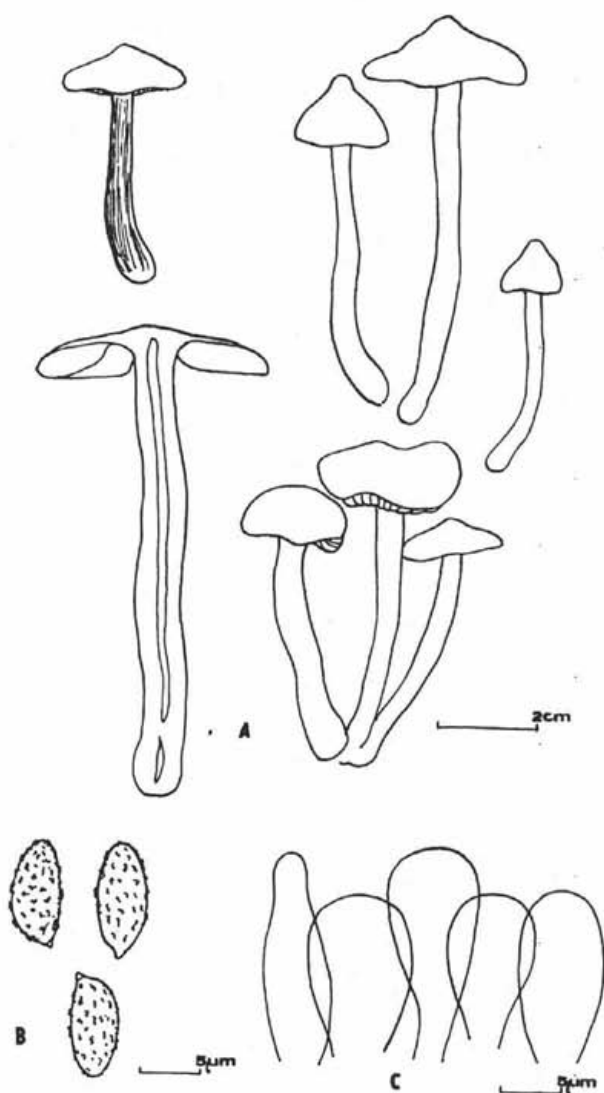


Fig. 3 *Cortinarius (Telamonia) sulphureo-myceliosus* Svr.: A. Fruchtkörper. - B. Sporen. - C. Cheilozystiden und Basidiolen.

tenuiter tunicatae, hyalinae. Basidia 4-spora,  $25-30 \times 8-10 \mu\text{m}$ . Sporae  $7,5-10 \times 4,5-5 \mu\text{m}$ , oblongo-ellipsoideae vel subamygdaliformes, apiculo distincto, grosse verrucosae, ferrugineo-brunneae. Cheilocystidia  $35-40 \times 4-6 \mu\text{m}$ , fusiformiter-lageniformia, obtusa, inter cystidiolis numerosis, subglobosis vel clavatis, cca  $20 \times 7-10 \mu\text{m}$  diam. dispersa.

Habitat: Bohemia occidentalis, area tuta Lopata apud Štáhlavice, in foliis deiectis sub *Tilia* (in silva mixta frondosa), gregariae, 31. V. 1981, leg. et det. M. Svrček (holotypus PRM).

Fruchtkörper einzeln oder zu einigen (bis 4) büschelig. Hut 25–50 mm breit (meistens 30–40 mm), gewölbt verflacht, breitglockig, am Rand oft wellig geschweifet, inmitten stumpf gebuckelt bis kegelig, hygrophan, feucht nicht gerieft, glatt, kahl, sonst unter Lupe sehr fein faserig, feucht dunkelbraun (Moser A-11) weisse Cortina-Fasern bilden eine schmale Randzone, trocken blass schmutzig bräunlich (Moser C-9), am Buckel dunkler. Stiel 45–100 × 5–10 mm, zylindrisch, gleichdick oder unten etwas verdickt, bisweilen verbogen, innen röhrenförmig, hell bräunlich (Moser B-13), gänzlich seidig weissfaserig und meistens mit zerrissenen Fasern, nicht gestieft, am Grunde mit schwefelgelbem oder grünlichem, selten nur weisslichem Myzel, das sich aber an Druckstellen auch schwefelgelb färbt. Lamellen entfernt (L 40–44, l 3–5), breit (5–9 mm), bauchig, tief ausgebuchtet angewachsen, glatt, bräunlich (Moser B-7), schliesslich satt zimtbraun (Moser B-8), Schneide blass, unregelmässig gekerbt oder gesägt. Fleisch blass bräunlich (Moser C-10 oder heller), frisch ziemlich unangenehm (nach rohen Kartoffeln) riechend, welkend schwach wie die Weidenbohrraupe (ähnlich wie *Hygrophorus cossus*). Myzel an der Stielbasis in NH<sub>4</sub>OH (10% wässrige Lösung) in der Schicht beobachtet schwach hellviolet gefärbt, einzeln farblos, 2–4 µm dick, mit Schnallen dünnwandig, in H<sub>2</sub>O meistens fein körnig. Keine Farbänderung im Melzer's Reagens. Pileocutis aus Hyphen 3–7 µm dick, dicht verflochten, fast farblos, oft kleinkörnig (epimenbranäres Pigment), Hypoderm aus grossen isodiametrischen, breit ellipsoidischen, rundlichen oder blasenförmigen, bisweilen fast Zellen. Die Oberfläche des Stieles besteht aus zylindrischen, 7–16 µm dicken, dünnwandigen, oft kleinkörnigen, bräunlichen farblosen Hyphen mit spärlichen Schnallen. Tramalhyphen 10–24 µm breit, mit Schnallen, farblos. Basidien 4-sporig, 25–30 × 8–10 µm, Cheilocystiden 35–40 × 5–6 µm, stumpf spindel- bis flaschenförmig, einzeln unter den zahlreichen, fast kugeligen Zystidiolen (cca 20 × 7–10 µm) zerstreut. Sporen 7,5–10 × 4,5–5 µm, ellipsoidisch bis mandelförmig, deutlich bis grob warzig, rostbraun.

Fundort: Böhmen (Čechy), Tschechische Republik, Westböhmen, Naturschutzgebiet Lopata unweit Štáhlavice, in moderndem Laub unter Linden (*Tilia cordata*) in einem Laubmischwald, gesellig, 31.V.1981, leg. et det. M. Svrček (gesammelt während der Exkursion mit meinem mykologischen Freunden S. Holec, F. Míka und Z. Hájek jr. aus Plzeň).

Die Art ist vor allem durch ds gelbe Myzel, die Cheilozystiden, die Hutfarbe sowie das Vorkommen unter Liden im Frühjahr ausgezeichnet. Das manchmal büscheliges Wachstum könnte auch artspezifisch sein. Die welkenden Fruchtkörper sind durch braune Färbung, welche an die ausgereiften *Fagus*-Samen (Bucheichel) erinnern, charakteristisch, sowie durch den eigentümlichen Glanz des Hauthutes und stark faseriges Stieles, der bloss unter den Lamellen heller bleibt, gedrückt

verfärbt sich trübe purpurbaun. Dieser *Cortinarius* gehört zur Gruppe *Uracei* sensu Kühner et Romagn. (1953) sect. *Uracei* Kühner et Romagn. ex Melot (im Sinne Brandrud et al. 1994, 1995), wo auch einige im Frühjahr wachsende Spezies (*Cortinarius fulvoisabellinus* C. Henry, *C. isabellinus* (Batsch:Fr.) Fr., *C. uraceus* Fr. sensu R. Henry, *C. crassifolius* (Velen.) Kühner et Romagn.) eingereiht wurden, ist aber von allen diesen Arten genügend verschieden.

***Cortinarius* (*Telamonium*) *salicis-rosmarinifoliae* Svrček, spec. nov.**

Pileo 10–20(-27) mm diam. (plerumque 10–15 mm), primum obtuse conico, campanuato, rare semigloboso, obtuse vel acute umbonato, denique subexplanato, tenuiter carnosio, hygrophano, udo saturate melleo-fusco, coffeaceo-brunneo vel ferrugineo-brunneo, lamellis non pellucidis, sicco e centro sordide luteolo vel ochraceo, margine fracto cortina abundanti alba fibrillosa tecto. Stipite 30–60 × 2–3 mm, cylindraco, aequaliter crasso vel basi parum attenuato, saepe modice flexuoso, intus anguste canaliculato, primum toto tinctu coeruleo vel violaceo sed hoc colore mox evanescente, dein pallide ochraceo vel ochraceo-brunneo, presso rubrolutescente, subtiliter albo-fibrilloso, sericeo-nitido, parte superiore (1/3–1/4) ocrea distincta patula (usque ad 1 mm lata) denique appressa, cingulis nullis. Lamellis modice distantibus, 2–5 mm altis, subreticosis, laevibus, emarginato-adnatis, primum dilute coffeaceo-brunneolis, dein croceo-ferrugineis, denique saturate ferrugineo-brunneis, acie concoloribus, subintegris. Carne pileo 1–2 mm crassa, tota dilute fuscillo-luteola, inódora, pressa immutabile. Pileocutis hyphis cylindracois, 3–4 µm crassis, hypodermate cellulis crasse cylindracois (12–25 µm) usque vesiculosus (usque ad 40 × 30 µm), hyalinis, strato dilute brunneolis. Cortina hyphis 4–7 µm crassis, crebre fibulatis, ramosis, hyalinis, tenuiter tunicatis, nudis. Basidia 4-spora, 18–22 × 6–7 µm. Sporae 6–7,5(-8,5) × 4–5 µm, ellipsoideae, subcrasse denseque verrucosae, saturate rubrobrunneae. Cheilocystidia nulla observata.

Habitat: Bohemia meridionalis, Sudoměřice apud Bechyně, loco paludoso "Bahna" dicto, ad terram udam humosam sub *Salice rosmarinifoliae*, 13. X. 1995 leg. F. Kotlaba (holotypus PRM); ibidem loco 30. IX. 1994 et 17. IX. 1995, leg. F. Kotlaba, det. M. Svrček (PRM).

Hut 10–20(-27) mm breit, meistens 10–15 mm, stumpf oder zugespitzt gebuckelt, zuletzt ausgebreitet, dünnfleischig, hygrophan, feucht satt honigbraun (Moser B-7) bis rotbraun, nicht gerieft, trocken am Scheitel schmutzig gelblich bis ockergelb (Moser D-6, A-6, A-5), Rand mit zahlreichen weissen Cortina-Fasern bedeckt, geknickt. Stiel 30–60 × 2–3 mm, zylindrisch, gleichdick oder unten schwach verdickt, innen röhrenförmig, zuerst leicht blau- oder violett getönt, bald hell ocker oder ockerbräunlich, weissfaserig, seidig-glänzend, im oberen Teil (1/3–1/4) deutlich ringförmig gestieft, mit faserigem, bis 1 mm abstehtendem, später angedrücktem Ring, unten ohne gürtelförmige Velumresten, an Druckstellen rostgelb. Lamellen mässig

entfernt, 2–5 mm breit, bauchig, ausgebuchtet-angewachsen, hell kaffeebräunlich, bald fast safranrost, später satt rostbraun, Schneide gleichfarbig. Fleisch im Hut 1–2 mm dick, hell braungelblich (Moser B-4, B-5), unveränderlich, laut des Sammlers frisch schwach nach Zedernholz oder ein wenig ölartig bis harzig riechend. Pileocutis aus zylindrischen, 3–4  $\mu\text{m}$  dicken Hyphen, Hypoderm aus breit zylindrischen (12–25  $\mu\text{m}$ ) bis blasenförmigen (bis  $40 \times 30 \mu\text{m}$ ) farblosen, in der Schicht bräunlichen Zellen. Cortinahyphen 4–7  $\mu\text{m}$  dick, verzweigt, mit Schnallen, dünnwandig, glatt, farblos. Keine Cheilozystiden gefunden. Basidien 4-sporig,  $18\text{--}22 \times 6\text{--}7 \mu\text{m}$ . Sporen  $6\text{--}7,5\text{--}(8,5) \times 4\text{--}5 \mu\text{m}$ , ellipsoidisch, ziemlich grob und dicht warzig, rotbraun.

Fundort: Böhmen (Čechy), Tschechische Republik, Sudoměřice unweit von Bechyně (Südböhmen), "Bahna", auf sumpfigem Boden unter *Salix rosmarinifolia*, 13. X. 1995, leg. F. Kotlaba (Holotypus, PRM); schon früher 30. IX. 1994 und 17. IX. 1995 von dieselbem Sammler gefunden.

Dieser *Cortinarius*, wahrscheinlich mykorrhizisch mit *Salix rosmarinifolia* gebunden, ist durch die Farbe der Lamellen und Stieles, deutlichen Velumresten sowie ziemlich kleinen, grobwarzigen Sporen charakteristisch. Die Spezies gehört vielleicht in die Gruppe *Pulchelli* sensu Moser (1983) = sect. *Pulchelli* Kühner et Romagn. ex Melot (nach Brandrud et al. 1994–1995) in die Verwandtschaft von *Cortinarius pulchripes* Favre und *C. sertipes* Kühner. Unter den Cortinarien subgen. *Telamonia* die auch aus den *Salix*-Beständen geschrieben waren, scheint ähnlich *Cortinarius (Telamonia) croceolamellatus* Arnold et Schmid-Heckel (1987) aus dem Nationalpark Berchtesgaden, in der Nähe von *Salix retusa* und *Dryas octopetala* (2130 m ü. M.), ist aber besonders durch anders gefärbten, nicht gestiefelten Stiel und grössere Sporen verschieden.

#### *Cortinarius (Telamonia) sarkae-ferocis* Svrček, spec. nov.

Pileo 15–40 mm diam., late campanulato, obtuse vel subconico, distincte umbonato, hygrophano, udo obscure castaneo, rubrobrunneo, lamellis non pellucidis, umbone obscuriore, sicco dilute rubrobrunneo, centro obscuriore, tenuiter carnosio, denique explanato, margineque recurvato, cortina marginali alba, subtiliter fibrillosa, fugativa. Stipite 40–60  $\times$  3–6 mm, cylindraceo, aequaliter crasso, parte inferiore cingulo distincto, patulo, pure albo, tomentosio, dein appresso, toto albo-fibrilloso, dilute brunneo sed etiam tinctu subroseolo, subnitido, presso immutabili. Lamellis distantibus, latis (usque ad 6 mm), adnatis, modice emarginatis, primum dilute coffeaceo-brunneis dein saturate cacaino-brunneis, acie pallidioribus atque – praesertim carposomatibus adultis – irregulariter denticulato. Carne dilute sordido-brunneo, nonnumquam tinctu roseolo, inodora, insapora. Sporis in cumulo dilute ferugineo-brunneis. Mycelium hyphis hyalinis, crebre ramosis, flexuosis, fibulatis, nudis, 3–4  $\mu\text{m}$  crassis. Hyphae tramales usque ad 19  $\mu\text{m}$  crassae, hyalinae, subincrustatae vel subnudaе. Basidia 4-spora. Cheilocystidia 35–60  $\times$  8–10  $\mu\text{m}$ ,

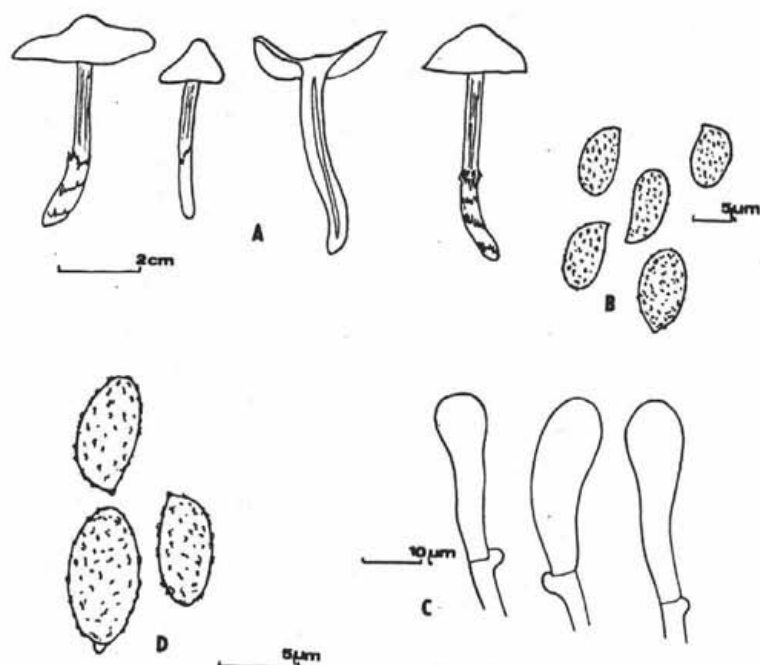


Fig. 4 *Cortinarius (Telamonia) sarkae-ferocis* Svr.: A. Fruchtkörper. – B. Sporen. – C. Cheilocystiden. – *Hydrocybe decembrina* Velen.: D. Sporen.

clavato dilatata, basi fibulata, tenuiter tunicata, hyalina. Sporae 10–12 × 6–6,5 (–7)  $\mu\text{m}$ , ellipsoideae vel cylindraco-ellipsoideae, minutissime sed distincte dense verrucosae, sectione optica subnudae, dilute cinnamomeo-brunneae.

Habitat: Bohemia centralis, Praha 6-Nebušice, area tuta Divoká Šárka, inter gramina foliaque deiecta sub *Betulis pendulis* ad marginem silvae Purkrabský les dictae, et agri, gregaria, 18. X. 1994, leg. et det. M. Svrček (holotypus PRM).

Hut 15–40 mm breit, glockig, stumpf gebuckelt oder kegelig-gewölbt mit spitzem Buckel, schliesslich ausgebreitet mit aufgebogenem Rand, dünnfleischig, hygrophan, feucht dunkel kastanienbraun (Moser A-11, D-13), rotbraun, nicht durchscheinend gerieft, mit dunklerem Buckel (Moser B-7, B-8, A-11), trocken hell rotbraun (Moser B-7, C-7), am Scheitel dunkler, nur am Rand weissseidig-faserig, später gänzlich kahl. Stiel 40–60 × 3–6 mm, zylindrisch, gleichdick, unten deutlich beringt-gestieft, hell bräunlich (Moser C-6, C-7), manchmal fast rosa-farbig angehaucht, fein weissfaserig überkleidet. Lamellen entfernt, breit (bis 6 mm), angewachsen, hell kaffeebraun, später satt kakaobraun, Schneide blass und gezähnt. Fleisch hell schmutzig-bräunlich (Moser C-6, C-7), nicht selten rosa-getönt, berührt nicht verfärbend, geruch- und geschmacklos. Sporenpulver hell rostbraun. Myzelhyphen 3–4  $\mu\text{m}$  dick, mit vielen Schnallen, wellig, farblos, dünnwandig, glatt. Tramalyphen



bis zu 19  $\mu\text{m}$  breit, farblos, fein körnig oder glatt. Basidien 4-sporig. Cheilozystiden 35–60  $\mu\text{m}$  lang, keulig (oben 8–10  $\mu\text{m}$ ), unten stielartig verengt und mit Schnallen. Sporen 10–12  $\times$  6–6,5(–7)  $\mu\text{m}$ , ellipsoidisch bis zylindrisch-ellipsoidisch, fein und dicht warzig, im Umriss fast glatt, hell zimtfarben bis rostbraun.

Fundort: Böhmen (Čechy), Tschechische Republik, Praha 6-Nebušice, Naturschutzgebiet Divoká Šárka, auf dem Boden zwischen Gräsern und faulem Laub unter jungen Birken (*Betula pendula*) am Waldrand, gesellig, 18. X. 1994, leg. et det. M. Svrček (Holotypus PRM).

Die Art gehört in die Gruppe *Brunnei* sensu Kühner et Romagn. (1953) ex Melot, und zwar in die Verwandtschaft der vollkommen unklaren *Cortinarius punctatus* Fr., "groupe encore insuffisamment débrouillé" (nach Kühner et Romagnesi 1953). Diese Art *C. punctatus* ist auch nach Kreisel et al. (1987), sowie Dennis et al. (1960) "eine ungenügend bekannte, in neueren Literatur nicht anerkannte Art". Bei Moser (1983) finden wir diese Spezies gar nicht. Unter kleinen Telamonien mit weiss gegürteltem braungefärbtem Stiel habe ich oben beschriebenes Taxon in der Literatur erfolglos gesucht. Es ist besonders durch Hut- und Stielfarbe, deutlich beringt-gestieften Stiel, farbloses Velum sowie auch Mikromerkmalen ausgezeichnet. Die Art wurde nach der Lokalität Divoká Šárka (lateinisch: Sarka ferox) benannt, vereinigt mit einer Sage aus der Zeit der slawischen Besiedelung dieser Gegend.

#### D a n k s a g u n g

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## Gymnopus herinkii spec. nov.: a critical review of the complex of Agaricus porreus and A. prasioismus

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Antonín V. and Noordeloos M. E. (1996): *Gymnopus herinkii* spec. nov.: a critical review of the complex of *Agaricus porreus* and *A. prasioismus*. – *Czech Mycol.* 48: 309–313

The taxonomic and nomenclatural problems considering *Agaricus porreus* and *A. prasioismus* are discussed. As a result both names must be considered *nomina dubia*. The new species *Gymnopus herinkii* Antonín and Noordel. is described to replace "*Collybia*" *porrea* sensu auct.

**Key words:** Basidiomycetes, Tricholomataceae, *Gymnopus*, *Collybia*, *Marasmius*, nomenclature, taxonomy

Antonín V. and Noordeloos M. E. (1996): *Gymnopus herinkii* spec. nov.: kritický přehled komplexu *Agaricus porreus* a *A. prasioismus*. – *Czech Mycol.* 48: 309–313

V článku jsou diskutovány taxonomické a nomenklatorické problémy komplexu *Agaricus porreus* a *A. prasioismus*. Na základě této diskuse jsou obě jména považována za *nomen dubium*. Jako náhrada za „*Collybia*“ *porrea* sensu auct. je popsán nový druh *Gymnopus herinkii* Antonín and Noordel.

During our studies on the genera *Marasmius* and *Collybia* s.l. in Europe, it became apparent that the rather complex taxonomic and nomenclatural situation around two taxa with onion smell which figure in older literature as *Agaricus* (*Collybia*) *porreus* and *Agaricus* (*Marasmius*) *prasioismus* had to be solved.

In its original concept, *Agaricus porreus* represents a *Mycena* species exuding reddish latex, and having an alliaceous smell. It is obvious also from Persoon's comments that he did not know the species from personal observation. With disregard to the smell it could be close to or identical with the current concept of *Mycena crocata*. Fries (1818) accepted *Agaricus porreus* Pers. exclusive of the mentioned synonyms, and ranged it close to *A. prasioismus*. Later, Fries (1821) placed it in a group of species together with *Agaricus terginus*, *A. fuscopurpureus*, and *A. putillus*, which we now should call a typical *Gymnopus* ("*Collybia*") as well. However, from the descriptions it is not at all clear whether Fries in both works was able to distinguish both species. In the *Epicrisis* (Fries 1838) the author writes that he had become aware of the fact that he confused both taxa in his earlier works. He there describes *Marasmius prasioismus* in the concept that has been in current use by later mycologists, indicating that *Agaricus porreus* of his earlier works (Fries 1818, 1821) is probably the same species. The concept of *Marasmius porreus* in

Fries (1838, 1849 and later works) is another species, strictly bound to *Betula* leaves. This taxon does not seem to be the same as what is currently understood by modern authors as "*Collybia porrea*". Huhtinen (1985) who studied original notes and coloured plates of both taxa in the Fries estate in the Herbarium of Stockholm also came to the conclusion that *Agaricus porreus* in its original concept is probably a synonym of *A. prasioemus*. The concept of *Agaricus prasioemus* has, however, also been changed many times. Fries (1818, 1821) referred to a fungus close to *Agaricus crocatus* (= *Mycena crocata*) with coloured latex but with a garlic smell. As pointed out above, Fries got in later years acquainted with his own species from personal observations, and in the Epicrisis (Fries 1838) *Marasmius prasioemus* is identical with the current concept.

As a conclusion the present authors strongly recommend to consider both *Agaricus prasioemus* and *A. porreus* in the sanctioning work (Fries 1821) as nomina dubia, also following the suggestion made by Huhtinen (l.c.). For *Marasmius prasioemus* in the sense of Fries (1838) we introduced the use of *Marasmius querceus* Britz. (Antonín and Noordeloos 1993), which leaves us to create a solution for *Collybia porrea* in the sense of modern authors. Therefore, we describe a new species, *Gymnopus herinkii* Antonín and Noordeloos in the present paper, conform the use of the generic name *Gymnopus* in the second part of our European Monograph of Marasmioid and Collybioid fungi (Antonín and Noordeloos 1996, in press).

***Gymnopus herinkii* Antonín & Noordel., spec. nov.**

Pileo 15 - 30 mm diam., convexo, applanato vel leviter umbonato, hygrophano, ad marginem pellucide striato, brunneo, deinde pallidiore, glabro. Lamellis subdistantibus vel distantibus, L = 14-17, l = 2-3, adnatis, angustis, pallidis, dein pallide brunneolis. Stipite 40-50 mm longo, 2-3 mm crasso, albo pruinato, purpureo-brunneo. Sapore et odore fortiter alliaceo. Sporis 6.5-9.0(-9.5) × 3.5-4.5 μm, E = (1.6)-1.7-2.2, Q = 2.0, ellipsoideis vel sublacrymoideis. Cheilocystidiis nullis, cellulis cheilocystidiis irregularibus. Epicute pilei ex hyphis cylindraceutis, cum projectionibus, structura dryophiloidea absente. Caulocystidiis cylindraceutis, moniliformibus.

Holotypus: Czech Republic, Bohemia, Lenora, "Boubín", 4 Oct. 1952, J. Kubička & J. Herink (PRM 707189).

Pileus 15-30 mm broad, convex, quickly expanding to applanate, sometimes slightly depressed at centre, with inflexed margin, hygrophanous, when moist translucently striate, brown, on drying pallescent to pale brown (leather-colour), ochraceous-brown, smooth, glabrous. Lamellae rather distant, L = 14-17, l = 2-3, rounded-adnate, narrow, pallid to pale brown. Stipe 40-50 × 2-3 mm, purplish

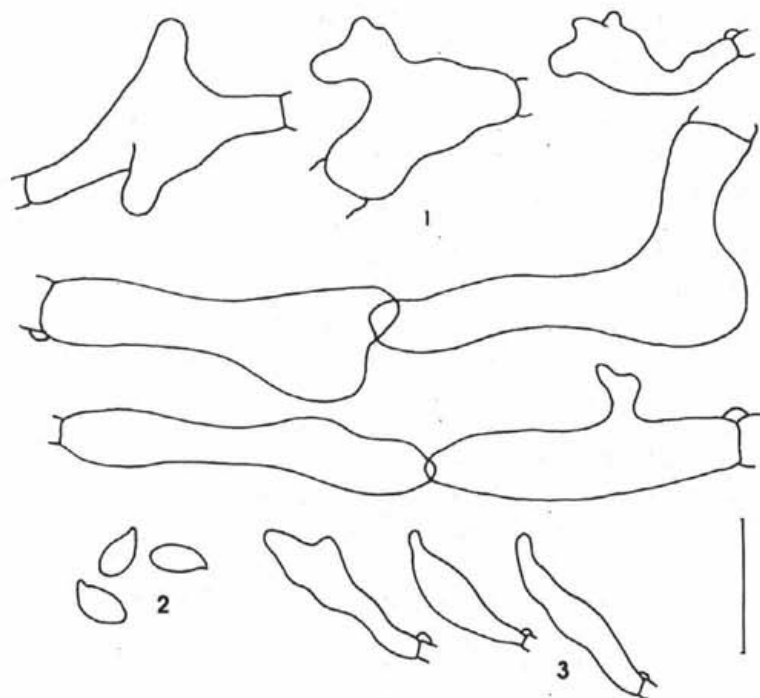


Fig. 1. *Gymnopus herinkii* (holotype): 1. pileipellis elements, 2. spores, 3. cheilocystidioid elements. Scale bar = 20  $\mu\text{m}$ .

brown, entirely white pruinose, white tomentose at base. Smell and taste strong, like that of onions.

Spores 6.5–9.0(–9.5)  $\times$  3.5–4.5  $\mu\text{m}$ ,  $E = (1.6\text{--})1.7\text{--}2.2$ ,  $Q = 2.0$ , ellipsoid to sublacrymoid. Basidioles 12.5–31  $\times$  2.5–7.5  $\mu\text{m}$ , subcylindrical. Basidia 23–33  $\times$  6.2–8.0  $\mu\text{m}$ , 4-spored, clavate. Lamella edge fertile. Well-developed hymenial cystidia absent, but lamella edge provided with some scattered, irregular elements, not projecting beyond other hymenial elements. Pileipellis a cutis of cylindrical to slightly inflated, up to 12  $\mu\text{m}$  wide, thin-walled, smooth or minutely incrustated hyphae, often with lateral projections, terminal elements cylindrical to clavate, often irregularly lobed or with projections, up to 85  $\mu\text{m}$  long, with smooth or minutely incrustated walls. Stipitipellis a cutis of parallel, slightly thick-walled, cylindrical, up to 7  $\mu\text{m}$  wide hyphae, with slightly thick-walled, smooth or minutely incrustated hyphae, incrustations seem to be at least partly dextrinoid. Caulocystidia up to 45  $\times$  3.0–5.5  $\mu\text{m}$ , cylindrical, flexuous, sometimes moniliform with obtuse apex, thin-walled. Clamp-connections abundant.

Chemical reactions: no part of basidiocarp amyloid, dextrinoid or metachromatic in cresyl blue.

Holotype: Czech Republic, Bohemia, Lenora, "Boubín", 4 Oct. 1952, J. Kubička & J. Herink (PRM 707189).

*Gymnopus herinkii* grows saprotrophically in raw humus and on leaves in woods especially under *Fagus*, less frequently at forest margins in thermophilic vegetation under *Pinus sylvestris*, with *Berberis vulgaris*, *Prunus insititia*, *Rosa canina*, on both calcareous and acid soil.

Collections examined: Czech Republic, Bohemia, Koněprusy, "Chobotov", 13 June 1985, R. Fellner SUCH 85/81 (BRNM); Lenora, "Boubín", 4 Oct. 1952, J. Kubička & J. Herink (PRM, holotype).

*Gymnopus herinkii* is a rather rare fungus, characterized by the rather distant lamellae, brown, hygrophanous pileus, strong smell like onion, absence of true cheilocystidia, pileipellis without developed "dryophila-structure" or coralloid elements and the habitat on leaves or raw humus. Its distribution is very poorly known because it is often overlooked and/or confused with species like *Gymnopus impudicus* and *Marasmius querceus*. The descriptions of *Gymnopus herinkii* (as *Marasmius porreus*) by Ricken (1915) and Cléménçon (1981) closely agree with our concept.

*Gymnopus brassicolens* (Romagn.) Antonín & Noordeloos seems to be its closest relative, differing by a larger, differently coloured pileus, more close lamellae, darker stipe, and smell like rotten cabbage; microscopically in having smaller spores ( $5.5-7.5 \times 2.5-4.0 \mu\text{m}$ ), and more distinctly developed cheilocystidia. *Gymnopus brassicolens* var. *pallidus* Antonín & Noordel. (Antonín & Noordeloos 1996, in print) differs moreover in having distinctly paler basidiocarps and by growing on needles. *Gymnopus impudicus* (Fr.) Antonín & Noordel. differs especially in having differently coloured carpophores, and an unpleasant smell like rotten cabbage, and by its growing on humus or small twigs, and smaller spores. Very closely related also seem to be some North American species placed by Halling (1983) in the sect. *Subfumosae*, viz. *Collybia dichrous* (Berk. & Curt.) Gilliam which differs especially in having a distinct tuberculate knob at the stipe base, larger spores ( $9.8-11.8 \times 3.2-4.4 \mu\text{m}$ ), and saccate to fusoid cheilocystidia; *Collybia polyphylla* (Peck) Sing. ex Halling which differs by having white, sometimes forked lamellae, a usually cylindrical, pallid stipe, and scattered and differently formed cheilocystidia; *Collybia dysodes* Halling differing by a smell like old onion or garlic, a distinctly plicate to sulcate pileus, a cylindrical stipe, that is sometimes broadened towards base, and narrowly cylindrical to flexuous cheilocystidia. *Collybia bififormis* (Peck) Sing. differs by the absence of a distinct smell and by the cylindrical stipe.

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## Notes on some species of genera *Ceriporia* and *Ceriporiopsis* (Polyporaceae)

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Vampola P. and Pouzar Z. (1996): Notes on some species of the genera *Ceriporia* and *Ceriporiopsis* (Polyporaceae). – *Czech Mycol.* 48: 315–324

The new species *Ceriporia herinkii* Vampola of the group of *Ceriporia purpurea* (Fr.) Donk is described. This probably thermophilous species differs from *C. purpurea* s.s. mainly in the strikingly smaller spores. It has so far been found in the Czech Republic, Slovakia and a territory of the former Yugoslavia till now but it is elsewhere probably overlooked or confused with *C. purpurea*. *Ceriporia mellita* (Bourd.) Bond. et Sing. is incorrectly placed in the synonymy of *Ceriporia purpurea* (Fr.) Donk. by some mycologists. In fact both species are distinct and especially the different basidiospore size and shape provide a very good diagnostic feature. *Ceriporia metamorphosa* (Fuckel) Ryv. et Gilberts. has sometimes incorrectly been regarded as a form of *Ceriporiopsis aneirina* (Sommerf.) Domaň., from which it differs especially in the simple-septate hyphae and the ability to form an imperfect state. The new combination *Ceriporiopsis cremea* (Parm.) Vampola et Pouz. is proposed. *Ceriporiopsis balaenae* Niemelä is reported from the Czech Republic (Central Europe) for the first time and the variability of its hymenophores is discussed. *Ceriporiopsis jelicii* (Tortić et David) Ryv. et Gilberts. is for the first time reported from Slovakia (Central Europe). The classification of *Ceriporiopsis rivulosa* (Berk. et Curt.) Gilberts. et Ryv. within the genus *Ceriporiopsis* is regarded as rather problematic, and the previously published classification in *Rigidoporus* and the recent combination into *Physisporinus*, however, remain a subject for a detailed future study, especially of the hyphal systems.

**Key words:** *Ceriporia*, *Ceriporiopsis*, Polyporaceae, taxonomy

Vampola P. a Pouzar Z. (1996): Poznámky k některým druhům rodů *Ceriporia* a *Ceriporiopsis* (Polyporaceae). – *Czech Mycol.* 48: 315–324

Z příbuzenstva *Ceriporia purpurea* (Fr.) Donk – pórnatky purpurové je popsán nový druh *Ceriporia herinkii* Vampola – pórnatka Herinkova. Tento pravděpodobně teplomilný druh se od typické *C. purpurea* liší hlavně nápadně menšími výtrusy. Dosud byl nalezen v České republice, Slovenské republice a na území bývalé Jugoslávie, jinde však je pravděpodobně přehlížený nebo spojovaný s *C. purpurea*. *Ceriporia mellita* (Bourd.) Bond. et Sing. – pórnatka medová – je některými mykology nesprávně kladena do synonymiky *Ceriporia purpurea* (Fr.) Donk – pórnatky purpurové. Ve skutečnosti jsou oba druhy rozdílné a zvláště velikost a tvar výtrusů jsou velmi dobrými diagnostickými znaky. *Ceriporia metamorphosa* (Fuckel) Ryv. et Gilberts. – pórnatka měnlivá – byla v minulosti někdy nesprávně považována za formu *Ceriporiopsis aneirina* (Sommerf.) Domaň. – pórnatky klamné, od které se však liší mimo jiné jednoduchými přehrádkami hyf a schopností tvořit imperfektní stádium. Je navržena nová kombinace *Ceriporiopsis cremea* (Parm.) Vampola et Pouz. *Ceriporiopsis balaenae* Niemelä – pórnatka jemná – je poprvé uváděna z České republiky a současně je diskutována variabilita hymenoforu tohoto druhu. *Ceriporiopsis jelicii* (Tortić et David) Ryv. et Gilberts. – pórnatka Jeličova – je poprvé uváděna ze Slovenské republiky. Zařazení *Ceriporiopsis rivulosa* (Berk. et Curt.) Gilberts. et Ryv. – pórnatky kubánské – v rodě *Ceriporiopsis* je považováno za poněkud problematické, avšak zařazení do rodu *Rigidoporus* nebo nedávná kombinace do rodu *Physisporinus* budou vyžadovat ještě další detailní studium, zejména hyfových systémů.



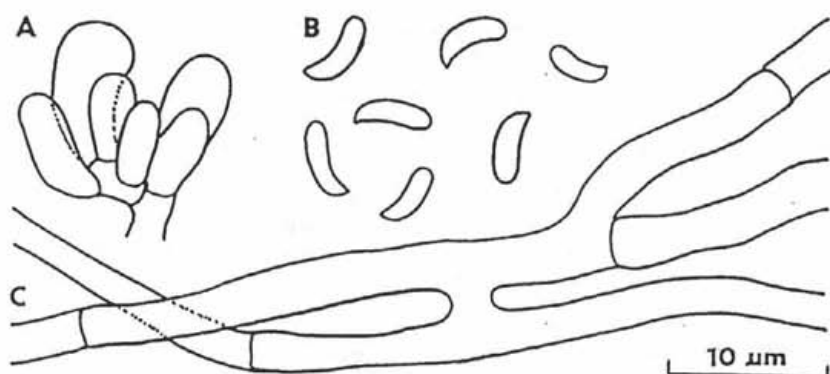


Fig. 1 *Ceriporia herinkii* Vampola. – A) fragment of hymenium, B) spores, C) hyphae.  
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*Ceriporia herinkii* Vampola spec. nov.

Carposomata annua, resupinata, *Ceriporiae purpureae* (Fr.) Donk similes. Systema hypharum monomiticum, cum hyphis generativis hyalinis, tenuiter tunicatis, sine fibulis. Hymenium solum e basidiis et basidiolis constat. Basidiosporae  $4,5-5,5(6) \times 1,3-1,8(2) \mu\text{m}$ , cylindratae, subcurvatae, hyalinae. Ad ligna decorticata arborum frondosarum.

Holotypus: Bohemia, Nový Hradec Králové, in clivo collis "Kopec sv. Jana", s. m. ca 275 m, *Prunus* sp. ? – ad truncum decorticatum iacentem, 8. IX. 1994, leg. P. Vampola, in herbario Musei Nationalis Pragae asservatur (PRM 842 926).

Carpophores of this new species are very similar and macroscopically sometimes almost indistinguishable from carpophores of *Ceriporia purpurea* (Fr.) Donk. They form thin, irregular and in colour quite varied coatings on fallen, mostly decorticoïd trunks and branches of hardwoodtrees. Young carpophores can be pure white, pinkish or yellowish, later becoming honey coloured or with a pinkish tint, the older and dried ones are darker, however mostly without a vinaceous or dark purple hue, typical of *C. purpurea*. Tubes thick-walled when fresh, with entire and very finely ciliate edges. Pores round to somewhat angular, 3–5 per mm.

Hyphal system monomitic, generative hyphae thin-walled, branched, mostly slightly encrusted, simple-septate,  $2-4 \mu\text{m}$  in diam. Basidia tetrasterigmatic, clavate,  $8-14 \times 4-5 \mu\text{m}$ , simple-septate at the base. Basidiospores cylindrical, curved, smooth, hyaline,  $4,5-5,5(6) \times 1,3-1,8(2) \mu\text{m}$ . As mentioned above, *C. herinkii* is very similar to *C. purpurea* and both species can only be distinguished microscopically. While the spores of typical *C. purpurea* are larger and varied in size ( $6-8(9) \times 1,5-2,2(2,5) \mu\text{m}$ ), the spore size of *C. herinkii* is more constant and spore length never exceeds  $6 \mu\text{m}$ .

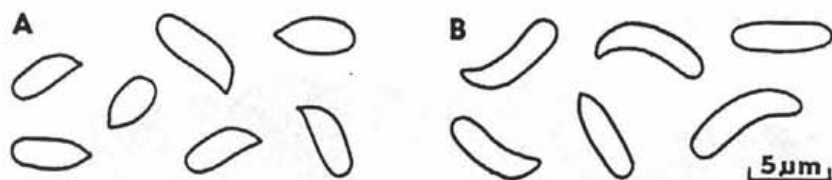


Fig. 2 Spores: A) *Ceriporia mellita* (Bourd.) Bond. et Sing., B) *Ceriporia purpurea* (Fr.) Donk. Del. P. Vampola

With regard to microfeatures, *Ceriporia spissa* (Schw.:Fr.) Rajch. is very similar as well; it differs, however, in the incrustation of the hyphae reddish in KOH. In addition, the pore surface of *C. spissa* is bright orange when fresh and the pores are smaller (7–9 per mm).

As for distribution, *C. herinkii* is so far known from 7 localities in the Czech Republic, Slovakia and a territory of the former Yugoslavia. It is certain, however, that this species occurs in other countries as well but is overlooked there or confused with *C. purpurea*.

The new species is named after the prominent and renowned Czech mycologist MUDr. Josef Herink.

*Ceriporia mellita* (Bourd.) Bond. et Sing., Ann. Mycol., 39: 50, 1941; *Poria mellita* Bourd., Myc. Not. (red. Lloyd) 40 (Mycol. Writ. 4):543, 1916.

This species originally described from France has by some authors (e.g. Ryvarden 1976, Jülich 1984, Ryvarden and Gilbertson 1993) been placed in the synonymy of *Ceriporia purpurea* (Fr.) Donk and only exceptionally been accepted as an independent species (e.g. Pilát 1936–42, Domański 1972, Donk 1974, David and Lecot 1990, Lowe 1966). It should be admitted that *Ceriporia purpurea* is highly variable and probably represents a complex of two or more very similar and with difficulty distinguishable species. However, *C. mellita* is strikingly different both macro- and microscopically. Macroscopically it differs in permanently honey coloured tubes and a very wide thin sterile whitish margin which, on a dark woody surface, can look like a violet cobweb. This sterile mycelium is rarely intertwined with the thin and at most 0.4 mm wide mycelial cordons (rhizoids) of a surface layer of the substrate. Microscopically *C. mellita* differs from *C. purpurea* especially in spore size and shape. Spores of *C. mellita* are almost straight or only slightly curved, ellipsoid to cylindrical with a rather sharply pointed apiculus, according to our measurements  $(4)4.4\text{--}6.3 \times 1.7\text{--}2.2 \mu\text{m}$ ,  $Q = 2.1\text{--}3.2$  (Fig. 2A). Spores of *C. purpurea* are distinctly larger, cylindrical and always strikingly curved,  $6\text{--}8 \times 1.5\text{--}2.2 \mu\text{m}$ ,  $Q = 3\text{--}4$  (Fig. 2B).

*C. mellita* could possibly be mistaken for *C. camaresiana* (Bourd. et Galz.) Bond. et Sing., because both species have more or less the same distribution area

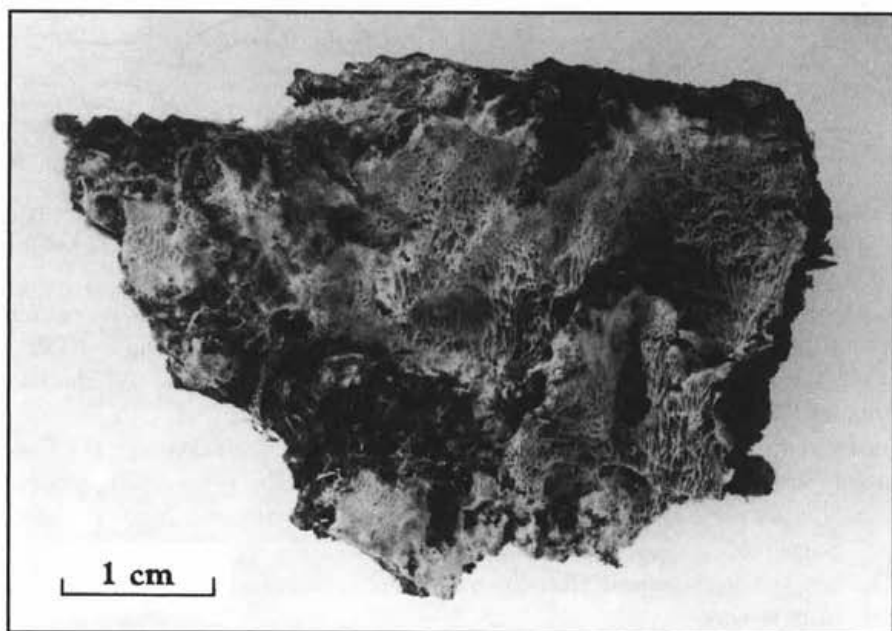


Fig. 3 *Ceriporia mellita* – Belgium, Ardennes, *Fagus sylv.*, 21. IX. 1956 (PRM 715747).

and are rather similar especially microscopically. By the presence of fine rhizoids *C. mellita* approaches *Ceriporia davidii* (= *Riopa davidii* Reid) but differs from it in the rather small size of the pores and narrower spores.

*C. mellita* grows on wood of deciduous trees and was previously known from France only. The new locality of *C. mellita* from Belgium is presented below.

Belgium: Ardennes, ad ligna *Fagi sylv.*, 21. IX. 1956, leg. A. Pilát ut *Poria* sp., rev. P. Vampola 12. I. 1993 (PRM 715747).

***Ceriporia metamorphosa*** (Fuck.) Ryv. et Gilberts. *European Polypores* 1: 185, 1993; *Polyporus metamorphosus* Fuckel, *Jahrb. Nassau. Ver. Naturk.* 27–28: 87, 1873.

Until recently this very rare species known only from Europe was regarded as a form of *Ceriporiopsis aneirina* (Sommerf.) Domań. (Bourdot and Galzin 1928, Domański 1972) with the only exception of Wakefield (1952), who correctly recognized its taxonomic position. This certainly independent species differs from *Ceriporiopsis aneirina* not only microscopically by its simple-septate hyphae, more narrow spores and the presence of conidia, but ecologically too. The only hosts of *C. metamorphosa* are various species of oak (*Quercus*) and most collections date from the summer season (probably only Romell's collection from Ekybyholm near Stockholm from November 1917 is an exception – see Romell 1926). On the other

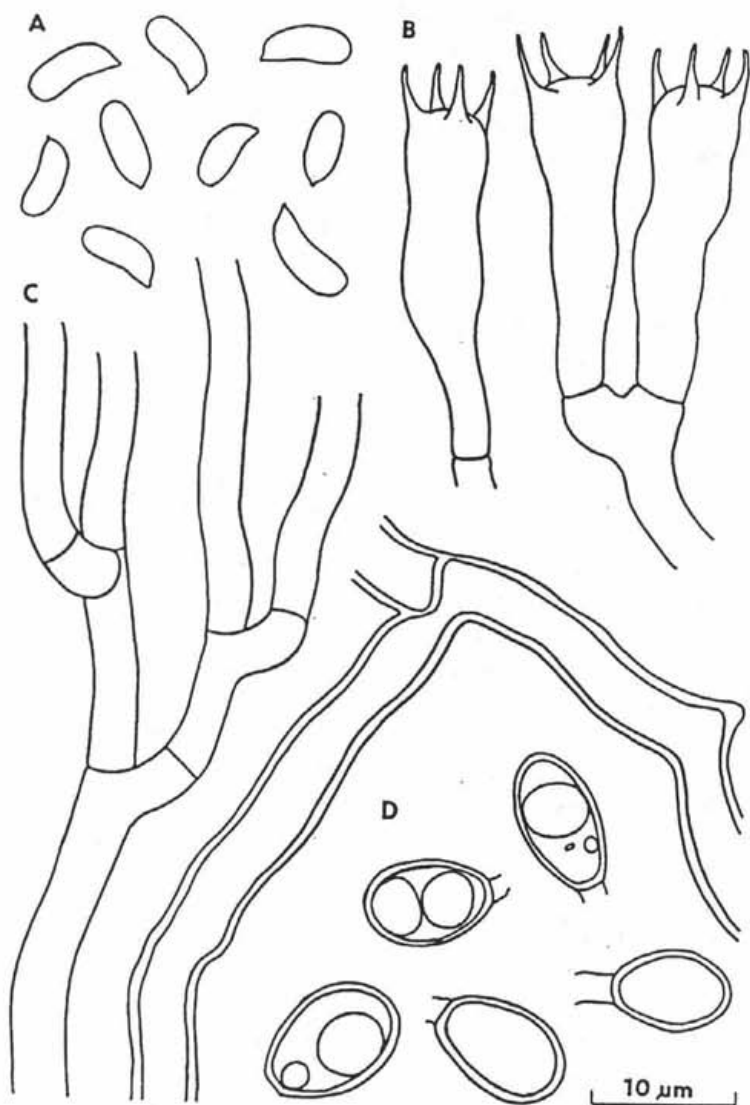


Fig. 4 *Ceriporia metamorphosa* (Fuckel) Ryv. et Gilberts. – A) spores, B) basidia, C) hyphae, D) conidia.

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hand, the most frequent hosts of *C. aneirina* are various species of poplar (*Populus*) and most of the collections have been made in late autumn, winter or early spring.

For a comparison of both species the following exsiccate collection can be used: P. Vampola: Polyporales exsiccati Čechoslovaciae, Fasc. I (1991), no. 19 – *Ceriporiopsis aneirina*, Fasc. IV. (1993), no. 90 – *Poria metamorphosa*.

In this paper we accept the classification of *Poria metamorphosa* (Fuckel) Cooke in the genus *Ceriporia* Donk, but we are aware of the considerable isolation of this species. Especially by the existence of an imperfect state – which Donk (1974) identified with the hyphomycete *Sporotrichum aureum* Link – this fungus differs from other species of that genus.

A significant character of *C. metamorphosa*, which could be used in separating it from other species, is the amyloidity of the walls of the basal hyphae. This reaction is stable and sufficiently strong, hence making no difficulties observing it.

New localities of *Ceriporia metamorphosa*:

Moravia: *Silva virginea* "Ranšpurk" apud Lanžhot, distr. Břeclav, s. m. 150 m, ad truncum iacentem *Quercus roboris*, 5. X. 1988, leg. et det. Z. Pouzar (PRM 870326, 870339, 870340, 870341, 871894, 871865, MJ 1628); ibid. 7. VII. 1990, leg. et det. P. Vampola (ed. in Polyporales Exsiccati Čechoslovaciae, no. 90, PRM 877454, MJ 3293);

Slovakia: In colle "Táborisko" apud Čabrad prope Cerovo (vicinitas Levice); loco saxoso stepposo insolato, ad truncum iacentem *Quercus cerris*, 23. IX. 1984, leg. et det. Z. Pouzar (PRM 871784);

Germania: Dahlen, distr. Oschatz, ad codicem putridum arboris frondosae, VI. 1967, leg. V. Bergstädt, det. Z. Pouzar 1. VIII. 1991 (PRM 871885);

Polonia: Augustów, loco "Kozi Rynek", in codice *Quercus roboris*, IX. 1974, leg. et det. Z. Pouzar (PRM).

***Ceriporiopsis balaenae*** Niemelä, *Naturaliste canad.*, 112:449, 1985.

A very interesting species, described from Québec (Canada) only eleven years ago (Niemelä 1985) and recently recorded from North Europe, too (Niemelä et al. 1992, Ryvar den and Gilbertson 1993). This resupinate polypore, however, also occurs in the Czech Republic (Central Europe) and has repeatedly been collected here at one site since 1968. The collections, however, have earlier not been identified or have incorrectly been regarded as *Ceriporiopsis cremea* (Parm.) Vampola et Pouz. – comb. nov.; basionymum: *Fibuloporia cremea* Parmasto, *Issl. Prirody Dalnego Vostoka*, 1: 255, 1963, – a species described from the peninsula of Kamchatka more than 30 years ago. Only when the specimen of *Ceriporiopsis balaenae* collected by the author of this species in Finland (Inarin Lappi, Utsjoki, Kevo Subarctic Station, on standing, dead trunk of *Salix*, 5. IX. 1970 leg. T. Niemelä – 408 b) was sent to the National Museum in Prague in 1993, we found our collections to be identical with that species; for this reason we have been regarding *C. balaenae* a synonym of *C. cremea*. Dr. Niemelä, however, has recently had the opportunity to study many specimens of *C. cremea* from the Russian Far East and after his comparative study he kindly imparted to us that *C. cremea* and *C. balaenae* are really two different species.

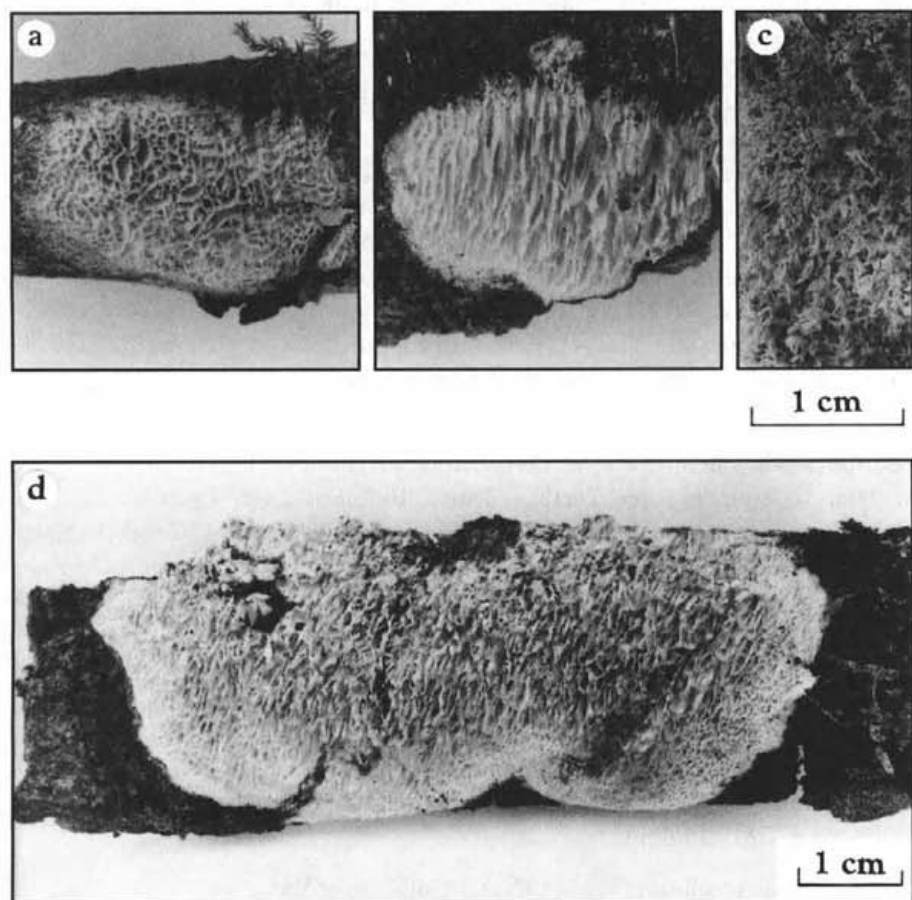


Fig. 5 *Ceriporiopsis balaenae* Niemelä - Examples of the variability of the hymenophore - a) poroid, b) raduloid, c) coralloid, d) fruitbody with both poroid and raduloid hymenophore.

Photo: P. Vampola

The detailed description of *C. balaenae* can be found in Niemelä's work (Niemelä 1985). It is necessary, however, to note that the macroscopic features of this species are highly variable and especially the hymenophore can be variously formed. We have studied this variability on a large number of collections. A poroid hymenophore prevails in most of the fruitbodies but some fruitbodies can have a raduloid or coralloid hymenophore, too (Fig. 5). In our opinion the variability of the hymenophore is a typical feature of some species. As another typical and well known example *Sistotrema muscicola* (Pers.) Lund. in Lund. et Nannf. 1947 could be mentioned. The specimens No. 1415a (with a poroid hymenophore) and No. 1415b (with a hydroid hymenophore) included in the exsiccate collection *Fungi exsiccati*

Suecici in our opinion represent one homogenous, though even very variable species, too.

New locality of *Ceriporiopsis balaenae*:

Bohemia: "Borkovická (Soběslavská) blata", 8 km occ.-mer.-occ. versus Soběslav, distr. Tábor, s. m. 420 m, ad ramum siccum *Salicis cinereae*, 8. IX. 1968, leg. Z. Pouzar, det. P. Vampola 1993 (PRM 879873), ibid. 26. VIII. 1983, leg. J. Vlasák, 15. II. 1993 det. P. Vampola ut *Fibuloporia cremea* (herb. J. Vlasák 8308/46, MJ), ibid. 27. XI. 1982, 8. XII. 1984, 8. XI. 1986 et 5. XI. 1989, leg. J. Vlasák, det. J. Vlasák 1994 (herb. J. Vlasák 8211/57, 8412/9 - 10, 8611/6, 8911/2 - 3), ibid. 2. XII. 1992, 17. IX. et 21. X. 1993, 31. VIII. 1994, leg. et det. P. Vampola (MJ 315/92, 455/93, 608/93, 274/94), ibid. ad ramum emort. *Salicis auritae*, 10. III. 1995, leg. F. Kotlaba, det. Z. Pouzar (PRM 883419); ib., 31. III. 1995, leg. et det. F. Kotlaba (PRM 883717).

*Ceriporiopsis jelicii* (Tortić et David) Ryv. et Gilberts. European Polypores 2: 641, 1994; *Skeletocutis jelicii* Tortić et David, Bull. Soc. Linn. Lyon 50: 217, 1981.

Besides the former Yugoslavia (Tortić and David 1981) and Finland (Kotiranta 1984, Kotiranta and Niemelä 1993) this very rare species grows also in Slovakia, where it was found in Nízke Tatry Mountains more than 30 years ago; it was, however, not identified at that time. The Slovak specimen is the first evidence of its occurrence in Central Europe and it probably represents the oldest record of this species in general.

New locality of *Ceriporiopsis jelicii*:

Slovakia: Montes Nízke Tatry, in the valley of "Trangoška" dicta, s. m. 900 - 1400 m, *Abies alba*, 3. VIII. 1954, leg. M. Svrček et J. Svrčková, det. P. Vampola 10. II. 1993 (PRM 814 627).

*Ceriporiopsis rivulosa* (Berk. et Curt.) Gilberts. et Ryv.

North Am. polypores, 1: 109, 1986; *Poria rivulosa* (Berk. et Curt.) Cooke, Grevillea 14: 109, 1886; *Physisporinus rivulosus* (Berk. et Curt.) Ryv., Mycotaxon 20: 353, 1984.

This interesting species described from Cuba is, according to Gilbertson and Ryvarden (1986), rare in the eastern states of North America and more common in the western ones. In Europe it was for the first time published from France (David 1971), later from the former Yugoslavia (Tortić 1980), Italy and Austria (Bernicchia 1986, 1990) and quite recently from Finland, too (Niemelä 1993). This species has a strange position in the genus *Ceriporiopsis* due to its almost globose spores and numerous spindle formed cystidioles in the hymenium (Fig. 6). These exemption at characters could be the reason why this species has previously been placed in *Rigidoporus* by David (1971) and by Ryvarden (1984) has recently been combined in *Physisporinus*. The taxonomic justification of these classifications, however, should be confirmed by another detailed study of the hyphal systems of this fungus.

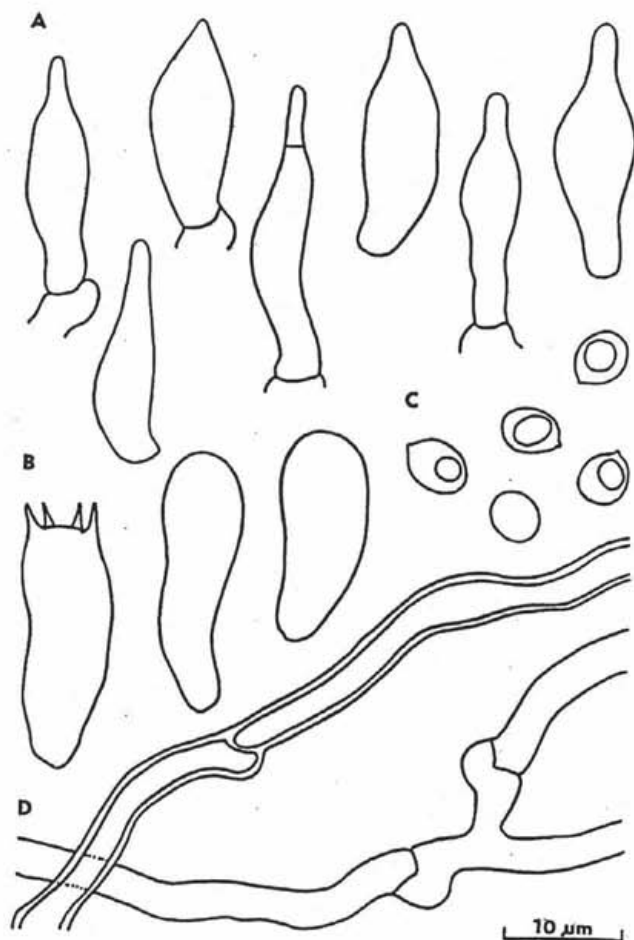


Fig. 6 *Ceriporiopsis rivulosa* (Berk. et Curt.) Gilberts. et Ryv. – A) cystidioles, B) basidia, C) spores, D) hyphae.

Del. P. Vampola

New locality of *Ceriporiopsis rivulosa*:

Belarus: Provincia Brest, Ivanovskij rajon, district Zavišče, ad ramum *Pinus sylvestris*, 1. IX. 1958, leg. E. Komarova, det. P. Vampola 1992 (PRM 872429 – dupl. ex MSK).

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