

## *Hemimycena longipilosa* (Agaricales), a new species from Germany

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A new species, *Hemimycena longipilosa*, found in Germany, is described. Its macro- and microscopical characters are given in detail, and differences from similar taxa are discussed.

**Key words:** *Hemimycena longipilosa*, Agaricales, Basidiomycota, new species, taxonomy.

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Je popsán nový druh, *Hemimycena longipilosa*, nalezený v Německu. Jsou podrobně uvedeny jeho makroskopické i mikroskopické znaky a jsou diskutovány rozdíly oproti podobným taxonům.

### INTRODUCTION

The genus *Hemimycena* Singer is a small genus with about 50 species (Kirk et al. 2008), but its systematic position is not fully settled. Traditionally, it was included in the family *Tricholomataceae* R. Heim ex Pouzar, tribus *Mycenae* (e.g. Singer 1986). Redhead (1987) transferred it to *Xerulaceae* Jülich based on the presence of sarcodimitic tissues. Moncalvo et al. (2002) placed *Hemimycena*, together with *Calyprella* Quél., into the clade *Hemimycena*, but Matheny et al. (2006) remarked that *Hemimycena* [together with *Pleurotopsis* (Henn.) Earle] may form a special lineage within the marasmioid clade. According to Kirk et al. (2008), it belongs to *Mycenaceae* Overeem.

Because of the mostly tiny basidiocarps, *Hemimycena* species have often been overlooked or neglected by many mycologists. Available data about the European taxa known to date were summarised by Antonín & Noordeloos (2004; see there for a detailed history of studies in this group). They considered this publication the basis for further studies of this little known and taxonomically complicated genus. Moreover, the variability of macro- and microscopic characters is poorly known in many taxa. Since that time, only Malysheva & Morozova (2009),

publishing *Hemimycena* taxa from the European part of Russia, have distinctly contributed to the knowledge of this genus. It is to be expected that more than the 38 taxa recorded by Antonín & Noordeloos 2004 and Malysheva & Morozova 2009 will eventually be known from Europe. The new species described here is a good example that even in a rather well-known area such as Central Europe new species can be found.

#### MATERIAL AND METHODS

The macroscopic description of the collected specimens is based on fresh basidiocarps and has been made by the first author. The photo was obtained using a Olympus C5060 WZ camera.

Microscopic features are described from dried material mounted in KOH, Melzer's reagent and Congo Red using an Olympus BX-50 light microscope (magnification of 1000×), and with the aid of a Zeiss Lumival microscope. The line drawing was processed using the Adobe-Photoshop software (2001 Adobe Systems Inc., San Jose, CA, USA).

For basidiospores, the factors E (quotient of length and width in any one spore) and Q (mean of E-values) are used. For lamellae, L means the number of entire lamellae from the stipe to the pileus margin. Authors of fungal names are cited according to the International Plant Names Index Authors website (<http://www.ipni.org/ipni/authorsearchpage.do>).

#### RESULTS

##### ***Hemimycena longipilosa* Miersch & Antonín sp. nov.**

Figs. 1–2

(Mycobank MB 804330)

**Diagnosis latina.** Pileo 1–5 mm lato, hemisphaerico, centro umbonato, sulcato, leviter hirsuto, albo. Lamellis distantibus, decurrentibus, albidis. Stipite 9–17 × usque 0.5 mm, cylindraceo hirsuto, albido. Basidiosporis 7.5–9.5(10) × (3.7)4.5–5.3(6.0) µm, nucleiformibus vel lacrimiformibus. Basidiis tetra-, raro bisporis. Cheilocystidiis 18–37 × 2.5–6.0 µm, subfusiformibus, subcylindraceis, tenuitunicatis. Pileipellis ex hyphis cylindraceis, tenuitunicatis, laevis vel disperse diverticulatis, cum pilis usque 213 × 1.5–5.0 µm longis, cylindraceis, ad basin leviter crassitunicatis, et pileocystidiis 22–87 × 2.5–5.0 µm longis, clavatis, cylindraceis. Caulocystidiis (1) 23–64 × 6.0–10 µm, leviter clavatis, subfusiformibus, tenuitunicatis, et (2) pilis 28–90 × 2.0–3.0(4.0) µm latis, cylindraceis, tenuitunicatis. Hyphis fibulatis.

**Holotypus.** Germania, Saxonia-Anhalt, Sangerhausen prov., ad locum Kriegsholz prope Großleinungen, 22. VII. 2011 leg. Armin Hoch (exs. Miersch 1158); holotypus in herbario Universitatis Halensis asservatur (HAL 2590 F), isotypus in herbario Musei Moraviae Brno (BRNM 747481).

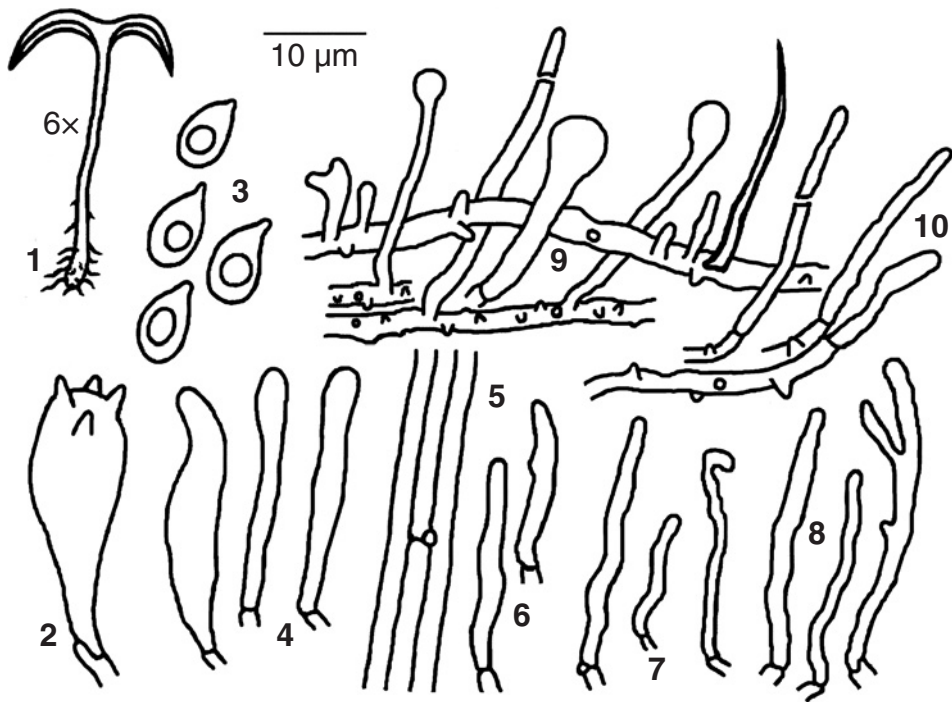
**Etymology.** Derived from lat. “longus” – long and “pilosus” – hairy, pilose.



**Fig. 1.** *Hemimycena longipilosa*. Germany, Sachsen-Anhalt, near Großleinungen, Kriegsholz, 22 July 2011 (HAL 2590 F and BRNM 747481). Photo by Jürgen Peitzsch.

**Description.** Pileus 1–5 mm broad, hemispherical, depressed at centre (umbilicate), sulcate up to 3/4 of diam., finely pruinose to minutely hairy, white. Lamellae well-developed or reduced and vein-like, all reaching the pileus margin, decurrent, distant,  $L = 7\text{--}12$ , narrow, with sometimes straight to slightly convex, but mostly concave edge, white. Stipe  $9\text{--}17 \times$  up to 0.5 mm, cylindrical with bulbous base, pruinose at apex, densely hairy below, white, with pruinose to shortly hairy base. Smell and taste indistinct.

Basidiospores  $7.5\text{--}9.5(10) \times (3.7)4.5\text{--}5.3(6.0) \mu\text{m}$ , average  $8.7 \times 4.8 \mu\text{m}$ ,  $E = 1.45\text{--}1.89$ ,  $Q = 1.68$ , pip-shaped to lacrimoid, sometimes apically curved, sometimes sublimoniform, thin-walled. Basidia  $(15)18\text{--}31(35) \times (7.5)8.5\text{--}10(14) \mu\text{m}$ , 4-spored or rarely 2-spored, clavate. Basidioles up to  $29 \times 10 \mu\text{m}$ , clavate, subfusoid. Cheilocystidia scattered,  $18\text{--}37 \times 2.5\text{--}6.0 \mu\text{m}$ , subfusoid, subcylindrical, thin-walled. Pleurocystidia absent. Pileipellis a cutis composed of cylindrical, thin-walled,  $2.5\text{--}8.0 \mu\text{m}$  wide hyphae, smooth or with scattered diverticules; with long cylindrical terminal elements (“hairs”), up to  $213 \times 1.5\text{--}5.0 \mu\text{m}$  in size, mostly slightly thick-walled in basal part, mixed with clavate, cylindrical pileocystidia,  $22\text{--}87 \times 2.5\text{--}5.0 \mu\text{m}$  in size, sometimes capitate (up to  $12.5 \mu\text{m}$ ) at apex,  $\pm$  thin-walled, with up to  $75 \times 2.5\text{--}4.0 \mu\text{m}$ , subulate, slightly thick-walled, brown pigmented hairs.



**Fig. 2.** *Hemimycena longipilosa*. 1 – cross section of basidiocarp (magnification 6×), 2 – basidium, 3 – spores, 4 – cheilocystidia, 5 – cortical layer of stipe, 6 – hairs at stipe apex, 7 – hairs at stipe centre, 8 – hairs at stipe base, 9 – hyphae of epicutis with warty and hairy elements, 10 – terminal cells of epicutis. Scale bar for microscopic elements = 10 µm. Drawings by Jürgen Miersch.

*Stipitipellis* a cutis of cylindrical, parallel, thin-walled, smooth, 2.0–4.0 µm wide hyphae. Caulocystidia 23–64 × 6.0–10.0 µm, narrowly clavate, subfusoid, thin-walled, mixed with 28–90 × 2.0–3.0(4.0) µm, cylindrical, thin-walled, rarely furcate hairs. Clamp connections present in all tissues.

**Chemical reactions.** No parts of basidiocarps dextrinoid or amyloid.

**Ecology.** On wood of *Larix decidua*.

**Material studied**

Germany. Sachsen-Anhalt, Sangerhausen Prov., Kriegsholz near Großleinungen, Central European mapping grid 4533/1, 22 July 2011, leg. Armin Hoch, exs. Miersch 1158 (holotype HAL 2590 F, isotype BRNM 747481).

## DISCUSSION

*Hemimycena longipilosa* is characterised in having an umbilicate, sulcate, pruinose to minutely hairy pileus, both well-developed and venose, decurrent lamellae reaching the pileus margin, an entirely hairy stipe with a small basal bulb, moderately large, fusoid to lacrimoid basidiospores, mostly 4-spored basidia, scattered subfusoid or subcylindrical cheilocystidia, smooth or scatteredly diverticulate pileipellis hyphae with long, cylindrical, mostly basally thick-walled hairs, mixed with clavate, cylindrical, sometimes capitate cystidia, and slightly thick-walled, brown pigmented hairs, smooth stipitipellis hyphae, well-developed narrowly clavate or subfusoid caulocystidia mixed with cylindrical hairs, and presence of clamp connections.

*Hemimycena cephalotricha* (Joss. ex Redhead) Singer, often having limoni-form basidiospores, differs particularly by possessing (sub)capitate pileo-, caulo- and hymenial cystidia; *H. substellata* (Kühner) Antonín & Noordel. also has long, flagelliform or subulate elements in the pilei- and stipitipellis, but has distinctly smaller basidiospores ( $5.0\text{--}7.5 \times 2.7\text{--}4.0 \mu\text{m}$ ), and shortly diverticulate pileipellis hyphae. Hymenial cystidia and caulocystidia with a rather long neck can also be found in *H. subglobispora* Aronsen. This species, however, is characterised in having subglobose to globose basidiospores, and a different shape of cheilo- and caulocystidia (Antonín & Noordeloos 2004). *Hemimycena globulifera* E.F. Malysheva & O.V. Morozova, recently described from the Leningrad Region, Russia, has a partly similar pileipellis structure, but lacks long hairs on pileus and stipe and its basidiospores are cylindrical to narrowly fusoid and distinctly larger [ $10.3\text{--}12(13) \times 2.7\text{--}3.9 \mu\text{m}$ ] (Malysheva & Morozova 2009). According to the original description (Singer 1969) *H. nothofagi* Singer, described from Argentina and characterised by the presence of long hairs (up to  $150 \mu\text{m}$ ) on pileus and stipe surface, seems to be very close to our fungus. It differs from *H. longipilosa* in the pileus sometimes becoming very pale brownish when drying out, a black-brown or fuliginous stipe towards base, slightly narrower ( $6.5\text{--}9 \times 3\text{--}5 \mu\text{m}$ ), ellipsoid or oblong basidiospores, subulate, sometimes furcate hymenial cystidia, and by growing on *Nothofagus* wood, rarely on wood of *Myrtaceae*.

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