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First record of *Xeromphalina cauticinalis* (Basidiomycota, Agaricales) in the Czech Republic

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ANTONÍN V. & BĚŤÁK J. 2013: First record of *Xeromphalina cauticinalis* (Basidiomycota, Agaricales) in the Czech Republic. *Acta Musei Moraviae, Scientiae biologicae* (Brno) **97(1):** 99–104. – This paper publishes the first record of *Xeromphalina cauticinalis* in the Czech Republic. This fungus was found in Podyjí National Park (southern Moravia). A detailed description based on the collected specimens is given, including a photograph and drawings of microscopic characters. Related taxa are discussed.

Key words. Moravia, Podyjí National Park, new record.

Introduction

The genus *Xeromphalina* Kühner et Maire includes a small group of fungi with only nine European species (ANTONÍN & NOORDELOOS 2004, ESTEVE-RAVENTÓS *et al.* 2010). Its taxonomic position is somewhat unclear. MATHENY *et al.* (2006) placed it in the hygrophoroid clade, whereas MONCALVO *et al.* (2002) put it in the xeromphalinoid clade, SINGER (1986), KÜHNER (1980) and KIRK *et al.* (2001) in *Tricholomataceae* R. Heim ex Pouzar, and REDHEAD (1987) in *Xerulaceae* Jülich. According to the main databases, Index Fungorum and MycoBank, it belongs in *Mycenaceae* Overeem.

Only one *Xeromphalina* species, the very common *X. campanella* (Batsch: Fr.) Kühner et Maire, was previously known from the Czech Republic. KLÁN (1984) published two collections of *X. cauticinalis* from the former Czechoslovakia, but both occurred on the territory of recent Slovakia. Our find, therefore, represents the first record for the Czech Republic.

Material and methods

The macroscopic descriptions of specimens collected are based on fresh basidiocarps. The colour abbreviations follow KORNERUP & WANSCHER (1983). The authors of the names of fungi are cited according to the International Plant Names Index website, "authors" (http://www.ipni.org/ipni/authorsearchpage.do). Microscopic features are based upon dried material mounted in H_2O, KOH, Melzer's reagent and Congo Red, examined with an Olympus BX-50 light microscope at a magnification of 1000×. For basidiospores, the factors E (quotient of length and width in any one spore) and Q (mean of E-values) are employed. The collection described in this paper is preserved in the herbarium of the Department of Botany, Moravian Museum, Brno, Czech Republic (BRNM).

Fig. 1. *Xeromphalina cauticinalis*. Basidiocarps (Podyjí National Park, Mašovice, Mločí údolí Valley, 31 Aug. 2012, BRNM 745968). Photo Jan Běťák.

Results

Xeromphalina cauticinalis (Fr.) Kühner et Maire Figs 1–2

= *Xeromphalina fellea* Maire et Malenç.
= *Xeromphalina amara* E. Horak et J. Peter
= *Xeromphalina fulvobulbillosa* (R. E. Fr.) Maire

(For a detailed taxonomic discussion see Antonín & Noordeloos 2004: 219–220.)
Description. Basidiocarps single or in groups of two to three. Pileus 8–17 mm broad, convex, with ± plane centre in very young specimens, soon depressed, with inflexed then ± straight margin, hygrophanous, not or only slightly translucently striate, entirely (but most distinctly at margin) finely tomentose when young, then glabrescent, almost innately radially fibrillose when older, light brown (6–7D6) at centre, light yellow (3–4A4) towards margin. Lamellae distant, L = 21–23, l = 2–3(4), broadly adnate to shortly decurrent, arcuate, intervenose at base when older, pale yellow (2–3A3), with

(slightly) paler, sometimes almost whitish, finely pubescent edge. Stipe 28–45 × 1–2 mm, cylindrical or slightly laterally compressed, clavate at base, pubescent in upper part, almost pubescent-tomentose in lower part, concolorous with lamellae at apex, via a narrow orange zone dark brown (7–8F6); basal tomentum yellow-brown. Context thin, yellowish in pileus, dark (red-)brown in stipe, without any distinct smell, taste bitter.

Basidiospores 4.5–6.0(6.5) × (2.5)2.75–3.25 µm, average 5.2 × 3.0 µm, E = 1.41–2.00, Q = 1.73, (narrowly) ellipsoid, thin-walled, amyloid. Basidia 19–26 × 4.5–6.5 µm, 4-spored, (narrowly) clavate or with slight median constriction. Basidioles 12–23 × 2.5–5.0 µm, narrowly clavate, cylindrical, subfusoid. Cheilocystidia infrequent, 22–30 × 3.5–6.0 µm, ± cylindrical or narrowly fusoid, usually irregular or with apical projections, rarely simple, thin-walled. Pleurocystidia absent. Trama hyphae cylindrical, thin- to slightly thick-walled, smooth or incrusted, up to 10 µm wide. Pileipellis an ixocutis composed of ± cylindrical, mostly incrusted, up to 6.0(10)-µm-wide hyphae; terminal cells 41–95 × 4.5–6.0 µm, ± adpressed to suberect, cylindrical, attenuated towards apex, diverticulate to subcoralloid, thin-walled. Circumcystidia (pileus margin cystidia) 30–80 × 4.0–7.0 µm, ± cylindrical, diverticulate to coralloid, sometimes branched, ± thin-walled. Stipitipellis a cutis of cylindrical, parallel, slightly thick-walled, incrusted, up to 6.0 µm wide hyphae with brownish yellow walls in H_2O and KOH. Caulocystidia (15)34–80 × 3.0–6.0 µm, cylindrical, irregular, branched or coralloid, obtuse, thick-walled, mixed with up to 160 × 5.0 µm large, thick-walled, simple hairs; walls brownish yellow in H_2O and KOH. Clamp connections present in all tissues.

Ecology. Terrestrial, under *Fraxinus excelsior*, *Acer campestre* and *Alnus glutinosa* in wet alluvium of a stream. The Mločí údolí Valley is one of the most interesting localities in the Podyjí National Park. Some other interesting saprotrophic fungi have been collected at the same locality during the past few years, among them *Entoloma incarnatofuscescens* (Britzelm.) Noordel., *Grandinia pilaecystidiata* (S. Lundell) Jülich, *Limacella ochraceolutea* P.D. Orton, *Meottomyces dissimulans* (Berk. et Broome) Vizzini, *Psathyrella narcotica* Kits van Wav., and *Tulasnella calospora* (Boud.) Jülich (Antonín & Vágner 2000, Běťák 2011).

Material studied. Czech Republic, southern Moravia, Podyjí National Park, near the village of Mašovice, Mločí údolí Valley, between Andělský mlýn and Čertův mlýn ["Angel Mill" and "Devil Mill"], 48°51′10″ N, 15°59′44″ E, alt. 310 m, 31 Aug. 2012 leg. J. Běťák and V. Antonín (Antonín 12.155, BRNM 745968; herb. J. Běťák JB12/480).

Discussion

The collection published herein is the typical variety of this species (var. *cauticinalis*) characterized by its bitter taste, small basidiospores, branched or coralloid caulocystidia and stipitipellis and stipe medulla hyphae remaining brown-yellow in KOH, and its growth on soil. *Xeromphalina cauticinalis* var. *subfellea* Bon differs in stipe hyphae becoming distinctly reddish in KOH.

Xeromphalina fraxinophila A.H. Sm. and *X. cornui* Quél. may be confused with *X. cauticinalis*. The former species differs especially in its more robust basidiocarps (pileus

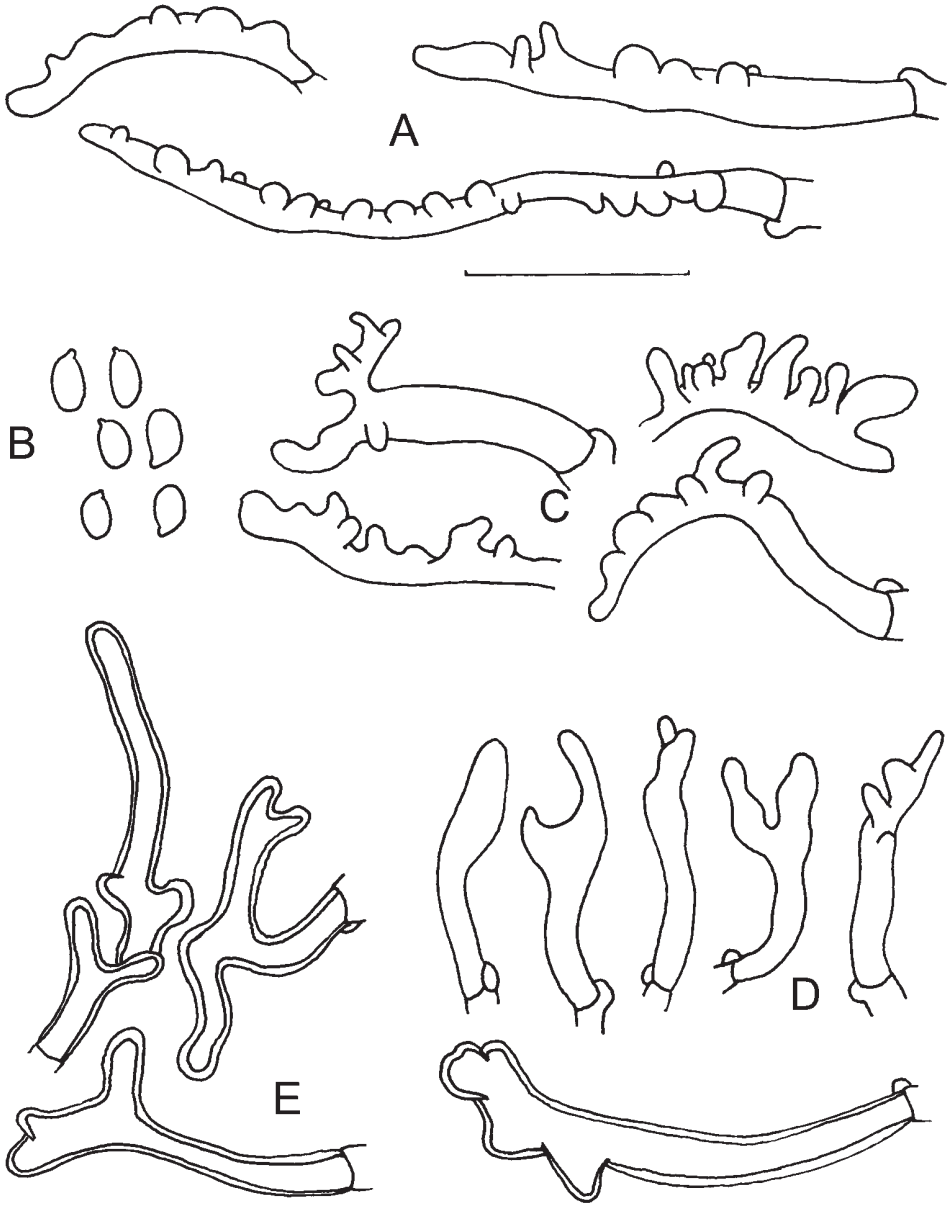

Fig. 2. *Xeromphalina cauticinalis* (BRNM 745968). A – pileipellis terminal cells, B – basidiospores, C – circumcystidia, D – cheilocystidia, E – caulocystidia. Scale bar = 20 µm.

up to 30 mm broad, stipe 20–70 × 1–3.5 mm), a distinctly pubescent stipe, often inconspicuous, ± simple cheilocystidia (but with distinct, 22–75 × 4.5–6.0 µm large, branched to coralloid cheilocystidia in var. *macrocystidiata*), a mild taste, and its growth on the wood of broadleaved trees. The latter taxon has a mild taste and grows on conifer litter in damp, grassy forests and *Sphagnum* bogs (Antonín & Noordeloos 2004, Noordeloos 2012). The recently described *X. setulipes* Esteve-Rav. et G. Moreno, known to date only from its type locality in Spain (Esteve-Raventós *et al.* 2010), is also macroscopically similar. It has, however, a dark red-brown to chocolate-brown pileus, tobacco-brown lamellae, a dark purplish brown stipe, hyphae turning dark reddish-brown in KOH, and ± simple, not coralloid caulocystidia.

Xeromphalina cauticinalis var. *cauticinalis* occurs in various types of habitat throughout Europe. It is found on raw humus in coniferous and mixed forests and, in northern Europe, also in subalpine *Betula* forests among mosses and lichens, often on damp soils (Noordeloos 2012). In Europe the species has been collected in both near-natural and intensively managed forests. It is thus difficult to specify its exact preference for a certain degree of naturalness in forest stands (Holec 2008). However, it seems that *Xeromphalina cauticinalis* prefers places with a degree of anthropogenic influence (Antonín & Noordeloos 2004 and authors' observations).

Xeromphalina cauticinalis is a widely distributed fungus in the boreal and montane zones of Europe. To date, *X. cauticinalis* var. *cauticinalis* has been collected in Austria, Germany, Hungary, Poland, and Slovakia in Central Europe (Antonín & Noordeloos 2004, Enderle 2004, Klán 1984, Krieglsteiner 2001, Rimóczi 1994). Our record now completes the range of Central European countries from which it is known.

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