

New, rare and less-known macromycetes in Moravia (Czech Republic) – VIII

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ANTONÍN V. & VÁGNER A. 2008: New, rare and less-known macromycetes in Moravia (Czech Republic) – VIII. *Acta Musei Moraviae, Scientiae biologicae* (Brno) 93: 135–152. – The authors give descriptions of macro- and microfeatures of 12 rare or less-known macromycetes collected in Moravia (Czech Republic). *Macowanites messapicoides*, *Entoloma inusitatum*, and probably also *Xerula causesi* are recorded for the first time, and *Hygrophoropsis aurantiaca* var. *robusta* for the second time in the Czech Republic. *Agaricus devoniensis*, *Clavulinopsis subtilis*, *Geastrum floriforme*, *Hygrocybe fornicata*, *Lactarius romagnesii* and *Pleurotus calyptratus* are very rare to rare fungi included in the Red List of fungi (macromycetes) of the Czech Republic. *Bovista acuminata* and *Gymnopus pubipes* var. *pallidopileatus* also represent rare taxa.

Key words. Basidiomycetes, *Agaricus*, *Bovista*, *Clavulinopsis*, *Entoloma*, *Geastrum*, *Gymnopus*, *Hygrocybe*, *Hygrophoropsis*, *Lactarius*, *Macowanites*, *Pleurotus*, *Xerula*, Moravia, Czech Republic

Introduction

Several rare or interesting macromycetes has been found in the course of field mycological research in various parts of Moravia (the eastern part of the Czech Republic). Some of them are published in this paper.

Macro- and microscopic descriptions are always based on material collected by the authors. Microscopic characters are described from material mounted in Melzer's reagent, Congo-red, c. 5% KOH, and H₂O. For the basidiospores, Ø represents the average size. In lamellae, L represents the number of lamellae and l the number of lamellulae tiers between two complete lamellae.

Authors of fungal names are cited according to KIRK & ANSELL (1992), colour abbreviations after KORNERUP & WANSCHER (1983) and herbarium abbreviations follow HOLMGREN & HOLMGREN (1998). Herbarium specimens of the described fungi are preserved in the Herbarium of the Dept. of Botany of the Moravian Museum in Brno, Czech Republic (BRNM).

Agaricus devoniensis P. D. Orton

(Figs 1–2)

Description. Basidiocarp single (only one found). Pileus 42 mm across, broadly conical with truncate centre, inflexed at margin with a cutis exceeding pileus margin by c. 1 mm, whitish with (greyish) brown margin (\pm 7E4), except for the extreme margin, which is covered with membranaceous-finely fibrillose white velum. Lamellae close, L = c. 110, l = 3–4, \pm free, horizontal, grey-brown (8C–D3), with concolorous, finely denticulate, finely tomentose edge. Stipe 45×12 mm, cylindrical, bulbous (14 mm broad) with one

“rhizoid” at base, finely tomentose, white, becoming pale ochraceous-yellow on handling, covered with concolorous, adpressed, fibrillose-floccose velar remnants below annulus; velum forms adpressed volva-like elements at stipe base. Annulus placed at about 1/3 of the stipe length, double, distinctly striate in upper part, intermediate layer smooth, pale cream coloured, lower part smooth. Context whitish, slightly brownish above lamellae, becoming very slightly reddish after some time, with faint fungoid smell, turning slightly carbolic (?) with time.

Basidiospores 6.0–7.0×4.5–5.5 μm , $\text{\O} = 6.5 \times 4.9 \mu\text{m}$, broadly ellipsoid or subglobose, thick-walled (walls up to 0.5 μm), smooth, black in KOH. Basidia 26–35×8.0–10 μm , 4-spored, clavate, clampless. Basidioles 12–30×4.0–10 μm , clavate to cylindrical, clampless. Cheilocystidia 17–30×6.0–15 μm , clavate, subcylindrical, thin-walled, clampless. Pleurocystidia absent. Trama hyphae cylindrical, thin-walled, clampless, up to 10 μm wide. Pileipellis a cutis consisting of cylindrical, \pm thin-walled, clampless, smooth or minutely incrustated, up to 8.0 μm wide hyphae; terminal cells adpressed to suberect, cylindrical or narrowly clavate, thin-walled. Annulus hyphae cylindrical, hyaline, clampless, branched, smooth or incrustated, 2.0–6.0 μm wide; terminal cells clavate to subcylindrical, obtuse, sometimes irregular. Stipitipellis a cutis of cylindrical, parallel, clampless, slightly thick-walled, \pm smooth, up to 5.0 μm wide hyphae; terminal cells adpressed to suberect, clavate, fusoid, \pm slightly thick-walled.

Habitat. On sandy soil under *Tilia*, *Quercus robur* and *Fraxinus* in a park.

Locality. Lednice, castle park, alt. c. 160 m, coord. N 48°48'50", E 16°48'38", 2 Aug. 2002 leg. V. Antonín (02.63) and H. Deckerová, det. V. Antonín (BRNM 709982).

Remarks. *Agaricus devoniensis* is characterised by moderately large basidiocarps with white pileus, less developed, sometimes double annulus, the presence of volva-like velar remnants at stipe base, moderately large basidiospores and the presence of cheilocystidia. Our description agrees with those of CAPELLI (1984) and MEUSERS (1986), except for the longer cheilocystidia (36–50×10–13 μm) mentioned by Meusers. The presence of the velar remnants covering the pileus surface is a rather atypical character, probably due to dry conditions.

In the Red List of fungi (macromycetes) of the Czech Republic (HOLEC & BERAN 2006), the species is classified among the critically endangered species, with only two recently-known localities (the Stromovka park in Prague, Bohemia, and the Rendezvous National Nature Reserve near Valtice, Moravia). Therefore, the record published here represents the third recent locality, not far (c. 7 km) from the last-mentioned.

Bovista acuminata (Bosc) Kreisel

(Fig. 3)

Description. Basidiocarps up to 10 mm high and 8 mm wide, oblong-ovoid, subacute at apex, minutely floccose-echinulate, cream-coloured when young, then grey-brown. Gleba white, then umbra brown. Subgleba absent; very thin fibrillose layer present at base.

Basidiospores 3.5–5.0 μm , $\text{\O} = 4.2 \mu\text{m}$, globose, thick-walled, minutely verruculose-echinulate in oil immersion, without sterigmata or less frequently with up to

1.0- μm -long remnants, dark brown in H_2O . Capillitium of the *Lycoperdon*-type, of infrequently branched, cylindrical hyphae usually with acute terminal parts, thick-walled (up to 0.75 μm), with minute pores, with thin septa, sometimes irregular, up to 7.0(–8.0) μm wide.

Habitat. On a calcareous stone covered with the moss *Hypnum cupressiforme* in a thermophilic *Querceto-Carpinetum* stand.

Locality. Moravian Karst Protected Landscape Area, Ochoz u Brna, Velký Hornek Nature Reserve, alt. 300–430 m, coord. N 49°13'45", E 16°42'45", 27 Sept. 2001 leg. et det. A. Vágner (BRNM 709985). Moravian Karst Protected Landscape Area, Křtiny, U výpustku Nature Reserve, alt. 370–470 m, coord. N 49°17'28", E 16°43'12", 18 July 2008 leg. et det. D. Dvořák (BRNM).

Remarks. *Bovista acuminata* is especially characterised macroscopically by small, rather ovoid-conical basidiocarps with basal rhizomorphs. Ripe basidiospores seen in our collection were finely but distinctly verruculose-echinulate viewed under oil immersion; the unripe ones are apparently smooth. However, ŠMARDÁ (1958, as *Lycoperdon pyriforme* var. *acuminatum*) and KREISEL (1967, as *Bovista acuminata*) referred to the basidiospores as smooth and slightly smaller (3–4 μm). In contrast, SARASINI (2005) describes basidiospores as smooth but finely dotted under oil immersion and 3.0–4.5 μm large. However, revision of three specimens from the BRNM herbarium (see below for list) and the Šmarda monograph (ŠMARDÁ 1958) showed ornamentation of mature basidiospores as described in the specimen published here.

Bovista acuminata is a rare fungus in Moravia. Only three other Moravian specimens, all very old, were found in the BRNM herbarium: Hradčany, forest known as Sokolí, on soil with mosses *Hypnum cupressiforme* and *Plagiomnium cuspidatum*, 19 Sept. 1941 leg. J. Šmarda, det. F. Šmarda (BRNM 93390); Znojmo, in the Dyje valley, on soil with moss *Brachythecium populeum*, 28 Oct. 1954 leg. J. Pleva, det. F. Šmarda (BRNM 235388), and Biskoupky, near Templštýn castle ruins, on soil with moss *Dicranum scoparium*, Sept. 1949 leg. J. Pleva, det. F. Šmarda (BRNM 93373).

Clavulinopsis subtilis (Pers.: Fr.) Corner

(Photo 1)

Syn. *Ramariopsis subtilis* (Pers.: Fr.) R.H. Petersen

Description. Basidiocarps single or in groups, up to 25 mm high, indistinctly divided into sterile and fertile parts. Fertile part cylindrical or slightly broadened, sometimes slightly laterally compressed, simple, furcate or branched at apex, with obtuse tops, finely pruinose, white to pale cream. Stipe (sterile) part smooth, lustrous, dirty whitish.

Basidiospores (3.4–)4.3–5.0 \times 3.2–4.0 μm , $\text{O} = 4.4\times 3.4$ μm , broadly ellipsoid or globose, smooth, with *c.* 1.0 μm long apiculus, with one large or several smaller guttula. Basidia 21–32 \times 6.5–8.0 μm , 4-spored, clavate or subfusoid, clamped. Basidioles 12–30 \times 3.0–7.0 μm , clavate, cylindrical, clamped. Hyphae \pm cylindrical, \pm thick-walled, smooth, clamped, up to 9.0 μm wide.

Habitat. On soil in unmown former pasture (open grassland with scattered single trees of *Quercus petraea*).

Locality. White Carpathian Mts., Bílé Karpaty Protected Landscape Area, Suchov, Búrová National Nature Monument, alt. 460–520 m, coord. N 48°54'08", E 17°33'00", 13 Sept. 2007 leg. V. Antonín 07.272, det. O. Jindřich (BRNM 706812) and 10 Oct. 2007 leg. et det. V. Antonín 07.367 (BRNM 707120).

Remarks. *Clavulinopsis subtilis* is especially characterised by small, ± white basidiocarps, mostly branched at apex, broadly ellipsoid or globose basidiospores with less than 1.0 µm long apiculus and clamped hyphae and basidia bases.

In the Czech Republic, the species has recently been collected in the vicinity of Dobrá Voda near České Budějovice, on Doubravská hora Hill near Teplice (both Bohemia, JINDŘICH *in litt.*), and in the Kokořínsko Protected Landscape Area (HOLEC & ADAMČÍK 2008). PILÁT (1958) published three collections from Bohemia and one (Slavkov, 1949) from Moravia, and PILÁT (1971) one record from the Ždánický les Mts. (1960). However, it is listed as a probably extinct (?EX) species in the Red List of fungi (macromycetes) of the Czech Republic (HOLEC & BERAN 2006); this should be corrected in the next edition of the Red List.

***Entoloma inusitatum* Noordel., Enderle et H. Lammers** (Figs 4–5, photo 2)

Description. Basidiocarps single or in groups after 2–3. Pileus 35–70 mm broad, plano-conical, with a distinct conical ± obtuse umbo at centre and with inflexed, then uplifted margin, distinctly hygrophanous, translucently striate only at margin when moist, smooth, glabrous, slightly radially striate-rugulose when old, dirty (grey) brown (7E5) when moist, drying out up to dirty ochraceous. Lamellae moderately close, $L = c. 40$, $l = 3–4$, emarginate with a small tooth, ventricose, broad, pink-brown, with concolorous, then slightly paler, finely pubescent edge. Stipe up to 60×7 mm, cylindrical, longitudinally fibrillose, lustrous, watery dirty whitish. Context with slightly musty smell on cutting, after a while mildly farinaceous.

Basidiospores 8.0–10.5(–12)×(6.0–)7.0–9.5 µm, $\text{Ø} = 9.4 \times 7.7$ µm, (5–)6–7-angular, rather thick-walled, non-dextrinoid, mostly with one guttula. Basidia 25–40×10–14 µm, 4-spored, clavate or subfusoid, clamped; crassobasidia present. Basidioles 12–40×5.0–15 µm, (broadly) clavate, clamped. Cheilocystidia mixed with basidia, 29–50×10–18 µm, clavate, fusoid, subtutritiform, thin-walled, clamped. Trama hyphae of short, cylindrical, fusoid or ellipsoid, thin-walled, clamped, non-dextrinoid, up to 25(–30) µm wide cells. Pileipellis a cutis consisting of radially arranged, cylindrical, ± thin-walled, clamped, up to 8.0 µm wide hyphae; pigment incrusting or intracellular, pale brown in KOH; terminal cells ± adpressed, cylindrical to clavate, obtuse, up to 11 µm wide. Stipitipellis a cutis of cylindrical, parallel, slightly thick-walled, clamped, non-dextrinoid, up to 5.0 µm wide hyphae. Caulocystidia absent.

Habitat. On soil, in a pasture under *Salix caprea*.

Locality. White Carpathian Mts., Bílé Karpaty Protected Landscape Area, Strání, Javořina National Nature Reserve, alt. c. 950 m, N 48°51'30", E 17°40'26", 9 Oct. 2007 leg. et det. V. Antonín 07.351, rev. M.E. Noordeloos (BRNM 707106).

Remarks. *Entoloma inusitatum* is especially characterised by its dark coloured pileus, the presence of both incrusting and intracellular pigment of pileipellis, and the presence

of cheilocystidia. Our collection agrees well with the descriptions and photos by ENDERLE (2004) and NOORDELOOS (2004).

This is a rare fungus in the whole of Europe, known only from Austria, Germany, Italy and the Netherlands (NOORDELOOS 2004). The find published here represents the first record in the Czech Republic. However, NOORDELOOS (2004) mentioned that it may be more widely spread in Europe, and is mostly confused with *E. sordidulum* (Kühner et Romagnesi) P. D. Orton, which differs in the absence of cheilocystidia and the presence of only incrusting pigment in the pileipellis.

Geastrum floriforme Vittad.

Description. Expanded basidiocarps found. Basidiocarps strongly hygroscopic, up to 10 mm in diameter when dry and when rays entirely cover the endoperidium. Exoperidium opened in 6–9 acute rays. Endoperidium globose or slightly depressed, sessile, with conical fibrillose ostiolum without delimitation.

Basidiospores (5.7–)6.0–7.2 μm , $\text{Ø} = 6.6 \mu\text{m}$, globose, thick-walled, verruculose, without sterigmata or rarely with up to 1.0 μm long remnants, with brown walls and verrucula in H_2O , with translucent pale ground among verrucula. Capillitium cylindrical, thick-walled (up to 2.0 μm), with small pores, often with obliterated lumen, pale brown in H_2O , up to 5.0 μm wide.

Habitat. On bare soil among grass in a xerothermic grassland on base-rich soil.

Locality. Miroslav, Miroslavské kopce National Nature Monument, alt. 240–250 m, coord. N 48°55'53", E 16°18'13", 7 Nov. 2004 leg. et det. V. Antonín 04.332, rev. V. Zíta (BRNM 693625).

Remarks. *Geastrum floriforme* is characterised by small, strongly hygroscopic basidiocarps with a sessile endoperidium with a smooth fibrillose ostiolum without delimitation.

Until the late 1950's, the species was known from only five localities in Moravia (STANĚK 1958). After this time, it was found in only one new Moravian locality (Starý Poddvorov, Zlodějský háj, 1964, BRNM 235170), no more recent one is known (ZÍTA *in litt.*). Therefore, it was and still is a rare fungus growing in endangered xerotherm grassland localities. In the Red List of fungi (macromycetes) of the Czech Republic (HOLEC & BERAN 2006), it is included among the vulnerable species.

Gymnopus pubipes var. *pallidopileatus* Antonín, A. Ortega et Esteve-Rav.

(Figs 6–9)

Description. Basidiocarps single. Pileus 13–26 mm broad, low-convex or conical-convex, then applanate or with slight central depression in which a small umbo may appear, with involute, later inflexed to straight margin, glabrous, smooth or slightly radially rugulose, brown with slight pinkish tinge when young, then pale ochraceous (similar to *Gymnopus dryophilus*). Lamellae moderately close, L = 30–35, l = 2–3, slightly emarginate and attached with tooth, slight brownish tinge when young, then pale

brown, with concolorous, finely tomentose edge. Stipe up to 60×3 mm, cylindrical, slightly enlarged above, entirely tomentose-pubescent, pale brown but tomentum leads it to appear whitish; with brown basal tomentum. Context without distinct smell or taste.

Basidiospores 6.0–8.0×3.0–4.0 μm, Ø = 7.1×3.7 μm, oblong-ellipsoid to sublacrimoid, smooth, hyaline. Basidia 20–25×5.0–7.0 μm, 4-spored, clavate, clamped. Basidioles 15–25×3.0–7.0 μm, cylindrical to clavate, clamped. Cheilocystidia 23–42×7.5–11 μm, clavate, cylindrical to fusiform, sometimes irregular to subcoralloid, sometimes septate, clamped. Pleurocystidia absent. Trama hyphae cylindrical to subfusoid, thin-walled, smooth, non-dextrinoid, clamped, up to 10 μm wide. Pileipellis with typical *Dryophila*-structure of cylindrical to inflated, smooth or incrustated hyphae, with lobate to coralloid terminal elements; pileipellis cells turning green with KOH. Stipitipellis a cutis of cylindrical, parallel, slightly thick-walled, up to 5.0 μm wide, non-dextrinoid hyphae. Caulocystidia 22–65×4.0–9.0 μm wide, cylindrical, clavate or sublageniform, sometimes branched, obtuse, regular to irregular, thin- or slightly thick-walled, clamped.

Habitat. On decaying leaves and detritus of *Carpinus betulus* at the margin of a thermophilic *Querceto-Carpinetum* forest on calcareous soil.

Locality. Mokrá u Brna, Mokerský les Forest, at the margin of a quarry site, alt. c. 440 m, N 49°14'15", E 16°45'30", 8 June 2007 leg. et det. V. Antonín 07.18 (BRNM 706713).

Remarks. *Gymnopus pubipes* var. *pallidopileatus* is characterised by a brown or ochraceous-brown pileus, a strongly pubescent to velutinous stipe, a *Dryophila*-type pileipellis, clavate, cylindrical to fusiform, sometimes irregular cheilocystidia and a green reaction of pileipellis to KOH. It represents a ± thermophilic species which is rare but fairly widely distributed in southern Moravia (ANTONÍN & NOORDELOOS 2009).

Gymnopus pubipes has been often identified as *Collybia* (or *Gymnopus*) *benoistii* Boud. (MORENO *et al.* 1990; ANTONÍN & NOORDELOOS 1997) or *Marasmius terginus* f. *benoistii* (Boud.) Malençon et Bertault (MALENÇON & BERTAULT 1975). However, the true *Collybia benoistii* Boud. represents a different species (for details see ANTONÍN & NOORDELOOS 2009).

Hygrocybe fornicata (Fr.) Singer

(Fig. 10, photo 3)

Description. Basidiocarps single. Pileus 35–45 mm broad, up to 25 mm high, (broadly) conical with rather distinct umbo and straight or inflexed, later reflexed irregular margin, hygrophanous, slightly greasy to the touch, radially innately fibrillose, never translucently striate or only at margin when old, sometimes slightly scaly cracking or lacerate at margin, glabrous to finely tomentose (old basidiocarps), light brown to (dark) brown (6D–F4–5), paler, brownish to pale brownish grey (5C2), towards margin. Lamellae distant, L = c. 40, l = 1–2, emarginate and attached with tooth, rather thick, broad (up to 5 mm), paler cream coloured, with concolorous smooth edge. Stipe 55–95×6–9 mm, cylindrical with cylindrical or slightly attenuated base, pruinose at apex, longitudinally fibrillose elsewhere, dry to slightly greasy, white, brownish (± pileus colour) scaly on white ground from the middle towards base. Context watery whitish,

with brownish tinge under pileus surface, stuffed in stipe, with slightly stale (*Cystoderma carcharias*-like) or chemical smell.

Basidiospores (5.5–)6.5–8.0×3.5–4.5(–5.0) μm , $\text{Ø} = 7.3 \times 4.3$ μm , ellipsoid, cylindrical-ellipsoid, oblong, sometimes slightly constricted, thin-walled, inamyloid. Basidia 39–50×7.0–8.0 μm , 4-, less frequently 2-spored, clamped. Basidioles up to 60×3.0–8.0 μm , clavate or cylindrical, clamped. Cheilo- and pleurocystidia absent. Hymenophoral trama subregular; trama hyphae cylindrical to inflated, \pm thin-walled, non-dextrinoid, up to 20 μm wide. Pileipellis an ixocutis consisting of cylindrical, \pm thin-walled, smooth or minutely incrustated, clamped, up to 6.0 μm wide hyphae; terminal cells adpressed to suberect, cylindrical, thin- to slightly thick-walled. Stipitipellis a cutis of cylindrical, parallel, slightly thick-walled, clamped, non-dextrinoid, up to 5.0 μm wide hyphae with yellowish contents in Melzer's reagent. Caulocystidia absent.

Habitat. On an acid soil among grass in a former pasture.

Locality. White Carpathian Mts., Bílé Karpaty Protected Landscape Area, Strání, Javořina National Nature Reserve, alt. c. 950 m, N 48°51'30", E 17°40'26", 13 Sept. 2007 and 9 Oct. 2007 leg. et det. V. Antonín 07.266 and 07.357 (BRNM 706810 and 707111).

Remarks. *Hygrocybe fornicata* is characterised by having rather fleshy basidiocarps with brown, radially innately fibrillose pileus, \pm dry, cylindrical, in lower part scaly, white stipe.

This is a widespread fungus in Europe, growing in grasslands, fixed dunes and deciduous forests on rich soils (BOERTMANN 1995, CANDUSSO 1997).

In the Red List of fungi (macromycetes) of the Czech Republic (HOLEC & BERAN 2006), this fungus is included among critically endangered species with four recent localities in the Czech Republic (only one of them in Moravia). The Javořina National Nature Reserve, therefore, represents the new locality.

Hygrophoropsis aurantiaca var. *robusta* Antonín

Description. Basidiocarps fleshy, single. Pileus up to 90 mm broad, conical-convex with obtuse centre when young, then infundibuliform with distinctly depressed centre, with involute, slightly crenulate, later also undulate margin, smooth or finely tomentose when young, distinctly tomentose towards margin, finely rugulose, hygrophanous, entirely deep orange (5–6A7) when young, then orange or brownish orange (6A–C8) at centre and rather orange-yellow (4–5A5) toward margin. Lamellae moderately close, $L = c. 45$, $l = 1–2$, decurrent, \pm narrow and thick, furcate, orange (5–6A6), with smooth, concolorous edge. Stipe 60–70×20–25 mm, cylindrical, attenuated towards base, laterally irregularly compressed, leathery to finely tomentose, concolorous with lamellae or more distinct orange (5–6A7), with white basal mycelium. Context whitish to watery orange-ish (especially under pilei- and stipitipellis), with a mild taste, astringent on further mastication, and a spicy smell (Maggi®, *Levisticum*).

Basidiospores 6.5–7.5(–8.0)×4.2–5.0 μm , $\text{Ø} = 7.0 \times 4.6$ μm , ellipsoid, cylindrical-ellipsoid, slightly thick-walled, dextrinoid, smooth. Basidia 30–45×9.5–12 μm , 4-spored, clavate, clamped. Basidioles 15–45×4.0–12 μm , clavate, cylindrical, clamped. Cheilo-

and pleurocystidia absent. Trama hyphae cylindrical, \pm thin-walled, clamped, finely incrusted, non-dextrinoid, up to 15 μm wide. Pileipellis a cutis consisting of cylindrical, minutely incrusted, clamped, slightly gelatinised, up to 12 μm wide hyphae; terminal cells adpressed to erect, cylindrical, narrowly clavate, obtuse, thin-walled. Stipitipellis a cutis composed of cylindrical, parallel, thick-walled, minutely incrusted, clamped, non-dextrinoid hyphae. Caulocystidia numerous, 27–95 \times 5.0–8.0 μm , adpressed to (sub)erect, \pm cylindrical, regular to slightly irregular, thin-walled, obtuse.

Habitat. On soil next to the stump of a broadleaved tree in a forest park with mixed coniferous and broadleaved trees.

Locality. Brno-Žabovřesky, Wilsonův les, alt. c. 250–340 m, N 49°13'20", E 16°33'58", 27 Sept. 2006 leg. L. Pokorná, det. V. Antonín (BRNM 709937).

Remarks. *Hygrophoropsis aurantiaca* var. *robusta* is a very distinct taxon, which especially differs from var. *aurantiaca* in its robust and rather hard-fleshy basidiocarps with a pleasant spicy smell and different ecology – growing at the bases of broadleaved trees (ANTONÍN & ŠKUBLA 2000).

This find represents the second collection of this variety in the Czech Republic and Moravia.

Lactarius romagnesii Bon

(Figs 11–13, photos 4–5)

Description. Basidiocarps single or in groups. Pileus 45–90 mm broad, applanate with slightly depressed centre and involute margin, finely rugulose, tomentose, distinctly crenulate at margin, dark brown (7–8F8), sometimes with paler, ochraceous or whitish brownish stains. Lamellae distant, $L = c. 50$, $l = 2–3$, broadly adnate or shortly decurrent with tooth, rather broad, white to pale cream coloured when young, then pale cream ochraceous, with concolorous edge. Stipe up to 90 \times 20 mm, cylindrical to clavate, sometimes laterally irregularly compressed, finely pruinose at apex, entirely brown (7E4–6), with whitish to pale brownish base, becoming red-brown on handling. Context whitish, brownish under pileipellis, becoming pale pinkish red c. 10 minutes after cutting. Milk acrid, watery white, slowly becoming (brownish) red after some time after cutting, almost unchanged or very pale reddish out of context.

Basidiospores 8.5–10.5 \times (6.5–)7.0–8.0 μm , $\text{Ø} = 9.3 \times 7.6$ μm , broadly ellipsoid to subglobose, thin-walled, with distinct high (up to 2.0 μm) ridges mixed with irregular warts, amyloid. Basidia 48–56 \times 17–20 μm , 4-spored, clavate to fusoid, clampless. Basidioles 20–50 \times 9.0–20 μm , clavate, cylindrical-clavate, clampless. Cystidia (paracystidia) 43–65 \times 6.0–9.0 μm , cylindrical, narrowly fusoid, regular or irregular, thin-walled, often with slightly thick-walled apex. Trama hyphae of cylindrical or fusoid, thin-walled, up to 10 μm wide, non-dextrinoid, clampless cells. Pileipellis a trichoderm consisting of chains of globose or ellipsoid cells, often brown pigmented in upper layer (KOH), with cylindrical, \pm slightly thick-walled, often slightly irregular, obtuse, up to 50 \times 6.0 μm terminal cells. Stipitipellis a cutis of cylindrical, parallel, slightly thick-walled, non-dextrinoid, clampless, up to 6.0 μm wide hyphae. Caulocystidia

18–35×7.0–9.0 µm, cylindrical, clavate, sometimes submoniliform, ± thin-walled, mostly with brown contents in KOH, based on cylindrical or ellipsoid cells.

Habitat. On acid soil under *Abies* and *Fagus* in a montane forest with *Fagus*, *Picea* and *Abies* (Salajka Reserve) and *Fagus* with *Fraxinus excelsior* and *Picea* (Javořina Reserve).

Locality. Moravskoslezské Beskydy Mts., Beskydy Protected Landscape Area, Bílá, Salajka National Nature Reserve, alt. c. 800 m, N 49°24'05", E 18°25'10", 11 Aug. 2005 leg. V. Antonín (05.86), D. Janda and M. Graca, det. V. Antonín (BRNM 695603). – White Carpathian Mts., Bílé Karpaty Protected Landscape Area, Strání, Javořina National Nature Reserve, alt. c. 850 m, N 48°51'30", E 17°40'26", 18 Aug. 2000 leg. et det. V. Antonín 00.100 (BRNM 652861).

Remarks. *Lactarius romagnesii*, belonging to sect. *Fuliginei*, is especially characterised by its dark brown pileus with distinctly crenulate margin, brown stipe, milk becoming red after some time on context and almost unchanging outside context and basidiospores with high ridges. HEILMANN-CLAUSEN *et al.* (1998) consider it a species growing under *Fagus* on calcareous soil. Although both collections were made in a montane forest under beech and undoubtedly represent this species, none of them were on calcareous soils. However, BASSO (1999) published records from an acid substrate. Moreover, she mentioned smaller basidiospores (7–8×6.5–7.5 µm).

In the Red List of fungi (macromycetes) of the Czech Republic (HOLEC & BERAN 2006), the species is classified as data deficient (DD).

***Macowanites messapicoides* Llistos. et J. M. Vidal** (Figs 16–17, photo 6)

Description. Basidiocarp semihypogeous, ± ellipsoid, 20×10×13 mm. Peridium thin, dry, finely granulose, cream white and orange or rusty at base, becoming yellow-orange (apricot) after touching and when drying out. Gleba of labyrinthiform pale yellow-orange cells, deeply yellow-orange on drying; columella poorly developed.

Basidiospores 8.5–12×7.5–9.0 µm, Ø = 10.4×8.4 µm, broadly ellipsoid to subglobose, ± thin-walled, with up to 1.5 µm high ridges, verruculose, amyloid. Basidia 30–41×13–18 µm, 4-spored, broadly clavate, clampless. Basidioles up to 45×10–18 µm, broadly clavate, pyriform or pedicellate and capitate, clampless. Hymenial cystidia scattered, 52–65×9.0–10 µm, fusoid or sublageniform, rostrate, obtuse, thin-walled, clampless. Trama hyphae non-dextrinoid.

Habitat. Partly (c. 1/3 of the basidiocarp) under the soil surface under *Carpinus betulus* (*Quercus petraea* at a distance) in a thermophilic *Querceto-Carpinetum* stand on calcareous soil.

Locality. Mokrý u Brna, Mokerský les Forest, quarry area, alt. c. 440 m, N 49°14'15", E 16°45'30", 10 Aug. 2007 leg. et det. A. Vágner, rev. S. Valda (BRNM 709986).

Remarks. *Macowanites messapicoides* is characterised by semihypogeous, often irregular, stipitate basidiocarps with a dry peridium, sweetish smell, only scattered hymenial cystidia, and basidiospores with distinct ornamentation. Studies by MARTÍN *et al.* (1999) showed that overall correspondence of RFLP between *Russula messapica*

Sarnari and *M. messapicoides* suggests the possibility that this *Macowanites* species is recently derived from *R. messapica*.

This species was described by LLISTOSELLA & VIDAL (1995) from the Mediterranean area in Catalonia, Spain, growing under *Quercus ilex* in clayed basaltic soils. So far, it is known only from Spain (MONTECCHI & SARASINI 2000). Therefore, the collection published here represents a new record for the Czech Republic and Central Europe.

***Pleurotus calyptratus* (Lindblad: Fr.) Sacc.**

(Figs 14–15)

Description. Pileus laterally attached, 45–60 mm broad, reniform, convex, shortly involute at margin, glabrous, slightly radially rugulose-striate at margin, beige to whitish, with yellowish tinge towards margin. Lamellae moderately close, $L = 14$, $l = 4–5$, decurrent to pileus attachment point, slightly emarginate and adnate with tooth, \pm horizontal, whitish to pale cream, with yellowish tinge when drying out, with concolorous, uneven or minutely denticulate, pubescent edge. Velar remnants present at pileus margin. Stipe absent. Context white, with slight fungoid smell and mild taste.

Basidiospores $9.0–13 \times 4.2–6.0 \mu\text{m}$, $\text{Ø} = 11.1 \times 5.1 \mu\text{m}$, ellipsoid or cylindrical-ellipsoid, thin-walled, hyaline, non-dextrinoid. Basidia $28–33 \times 10–11 \mu\text{m}$, 4-spored, clavate, clamped. Basidioles $13–31 \times 5.0–11 \mu\text{m}$, clavate or subcylindrical, clamped. Cheilocystidia $19–30 \times 8.0–12 \mu\text{m}$, clavate, fusoid, mostly rostrate, thin-walled, clamped. Pleurocystidia absent. Trama hyphae cylindrical to subinflated, thin- to slightly thick-walled, smooth or minutely incrustated, clamped, up to $15 \mu\text{m}$ wide; mixed with cylindrical, thick-walled, obtuse, up to $7.0 \mu\text{m}$ wide hyphae. Pileipellis covered with up to $320\text{-}\mu\text{m}$ -long and up to $8.0 \mu\text{m}$ wide obtuse hyphae (hairs) with up to $1.5 \mu\text{m}$ thick walls.

Habitat. On dead standing stem of *Populus tremula* (shrub in the former Porážky pasture) and *Populus* cf. *nigra* (riverine forest Plačkův les).

Locality. White Carpathian Mts., Bílé Karpaty Protected Landscape Area, Suchov, Porážky National Nature Reserve, alt. c. 300 m, N $48^{\circ}53'15''$, E $17^{\circ}37'25''$, 1 June 2005 leg. et det. V. Antonín 05.17 (BRNM 695471). – Ivaň, Plačkův les Nature Reserve, alt. c. 170 m, N $48^{\circ}56'39''$, E $16^{\circ}35'37''$, 20 Apr. 2000 leg. et det. A. Vágner (BRNM 652972).

Remarks. *Pleurotus calyptratus* is especially characterised by laterally attached basidiocarps with well-developed velum; its occurrence is limited to *Populus* species as hosts.

Its distribution in the Czech Republic is summarised by HROUDA (2001). He, as well as LUDWIG (2001), described cheilocystidia as being absent. However, Ludwig (l.c.) mentioned the inconstant presence of marginal cells with digitate projections in his characteristics of the genus *Pleurotus*.

In the Red List of fungi (macromycetes) of the Czech Republic (HOLEC & BERAN 2006), it is classified as an endangered species.

Xerula caussei Maire

(Figs 18–21)

Syn. *Xerula nigra* (Dörfelt) Dörfelt; *Oudemansiella nigra* Dörfelt

Description. Carpophores single. Pileus 30–65 mm broad, broadly conical to plano-conical, with broad, obtuse central umbo, inflexed at margin, radially rugulose except for a smooth centre, dry, finely tomentose, becoming glabrous from centre, greyish brown (6C–F3) at centre, greyish brown to light brown (6–7D–E3–4) towards margin. Lamellae rather distant, L = 45–60, l = 2–3, emarginate and attached with a tooth, ventricose (up to 6 mm broad), yellowish white (3A2–3), with concolorous, entire, ± finely pubescent edge. Stipe 80–100×4–13 mm, cylindrical, slightly broadened at apex and fusoid, 8 mm broad at base and prolonged in a long rhizoma, slightly laterally depressed and with a groove in lower part, entirely white pubescent, up to hairy-pubescent at base, whitish at apex, greyish brown (6–7E3–4) towards base. Context without any distinct smell and with mild taste.

Basidiospores 8.0–12×6.0–8.0 μm, Ø = 9.5×6.7 μm, broadly ellipsoid(-fusoid) to subglobose, thin-walled, hyaline, non-dextrinoid. Basidia 41–45×11–12 μm, 4-spored, clavate, clamped. Basidioles up to 50×4.0–11(–14) μm, clavate, (sub)cylindrical or (sub)fusoid, clamped. Cheilo- and pleurocystidia 52–71×11–19 μm, fusoid or sublageniform, sometimes subcapitate or rostrate at apex, thin-walled, clamped. Trama hyphae cylindrical or irregularly inflated, thin-walled, clamped, smooth, branched, non-dextrinoid, up to 20 μm wide. Pileipellis a hymeniderm consisting of 30–56×14–31 μm, (broadly) clavate, pyriform, subvesiculose, fusoid or capitate and pedicellate, thin- to slightly thick-walled, smooth, clamped cells. Pileipellis setae 100–280×8.0–15 (base)×3.5–5.0 (apical part) μm, fusoid at base, subulate, thick-walled (up to 1.0 μm), acute or subacute, hyaline. Stipitipellis a cutis of cylindrical, parallel, slightly thick-walled (up to 1.0 μm), non-dextrinoid, clamped, up to 8.0 μm wide hyphae with pale brownish walls in KOH. Caulosetae 135–300×12–21 (base)×6.0–8.0 (rostrum) μm, lageniform or subulate, thick-walled (up to 1.0 μm), mostly acute or subacute, hyaline.

Habitat. On calcareous soil in an alluvial stand with mixed forest, under *Carpinus betulus*.

Locality. Moravian Karst Protected Landscape Area, Velký Hornek Nature Reserve, alluvium of the Řička rivulet, alt. c. 400 m, N 49°13'45", E 16°42'45", 8 Aug. 2001 leg. et det. V. Antonín 01.191 (BRNM 670700).

Remarks. *Xerula caussei* is characterised by having a rather small, pubescent, pale to dark greyish brown or brown pileus, a rooting, at base grey-brown stipe, well-developed, large cheilo- and pleurocystidia, a hymeniform pileipellis and well-developed pileo- and caulosetae. It grows on calcareous soil.

According to BOEKHOUT (1999), it represents a widespread but rare fungus in Europe. According to BOEKHOUT & BAS (1986) it was known only from Belgium, France, Germany, Great Britain and Switzerland. However, it is certainly more widely distributed.

No specimens from the Czech Republic were found in the our main herbaria. Therefore, this find may represent the first record in Moravia and in the Czech Republic. In the Red List of fungi (macromycetes) of the Czech Republic (HOLEC & BERAN 2006), it is classified in the data deficient (DD) category.

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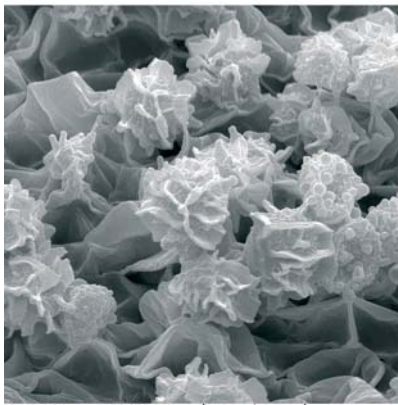
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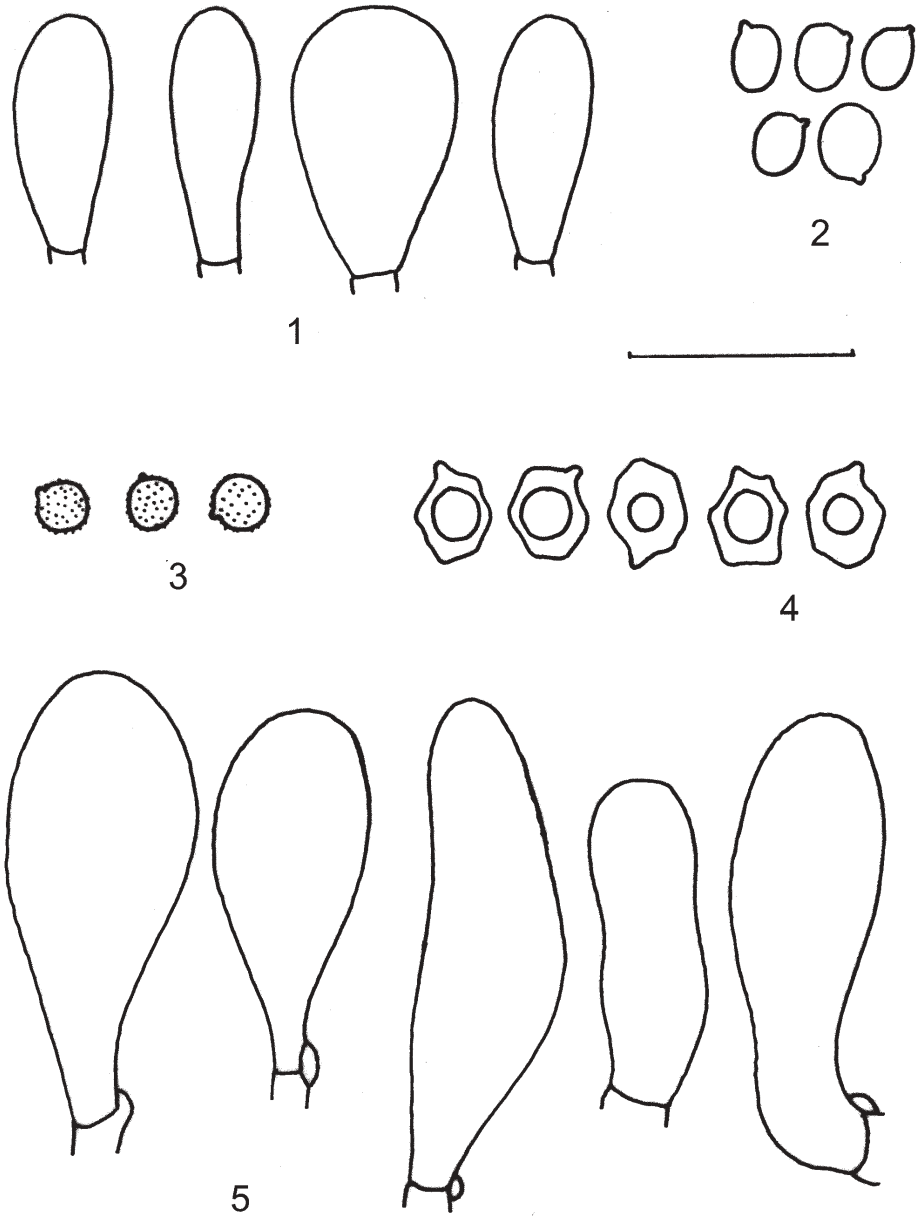
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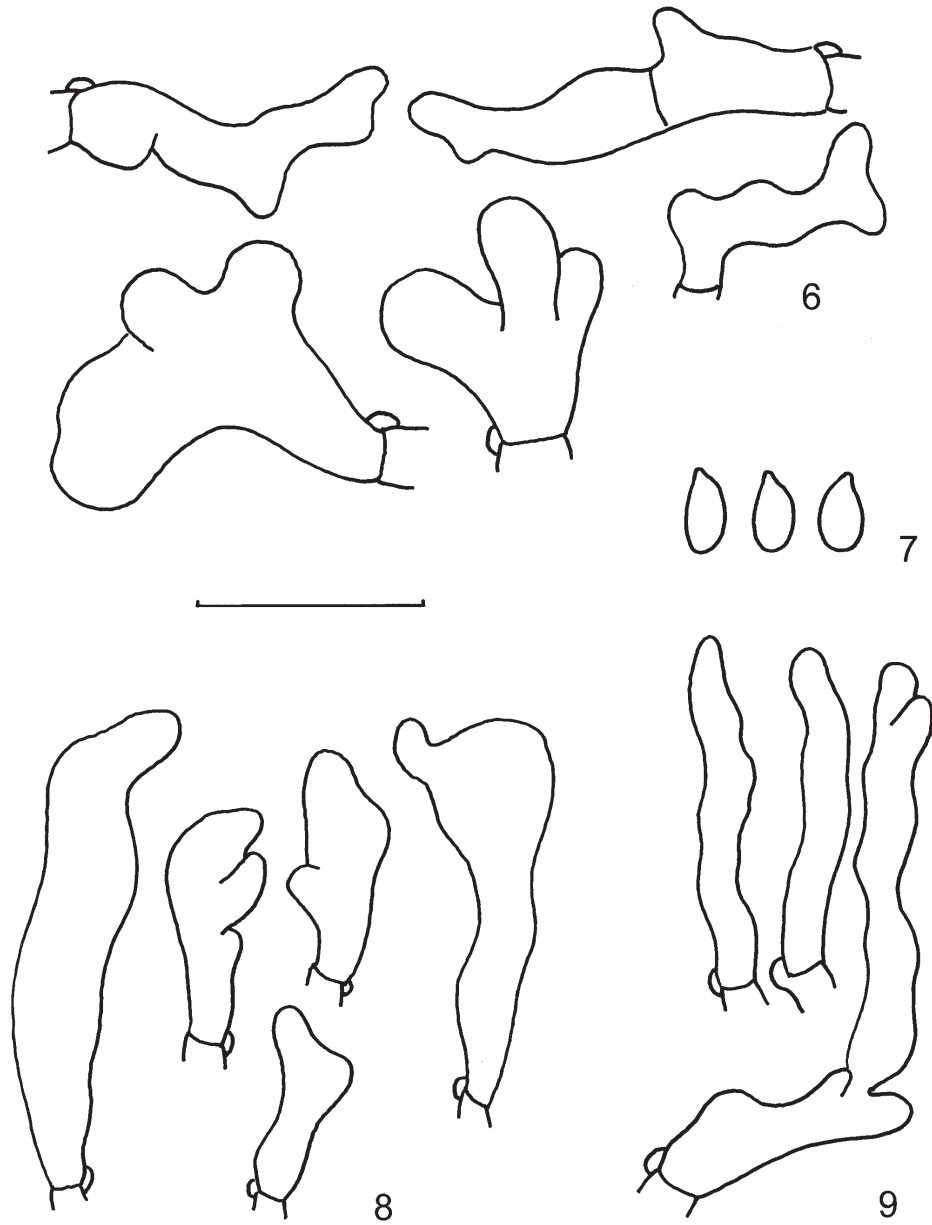
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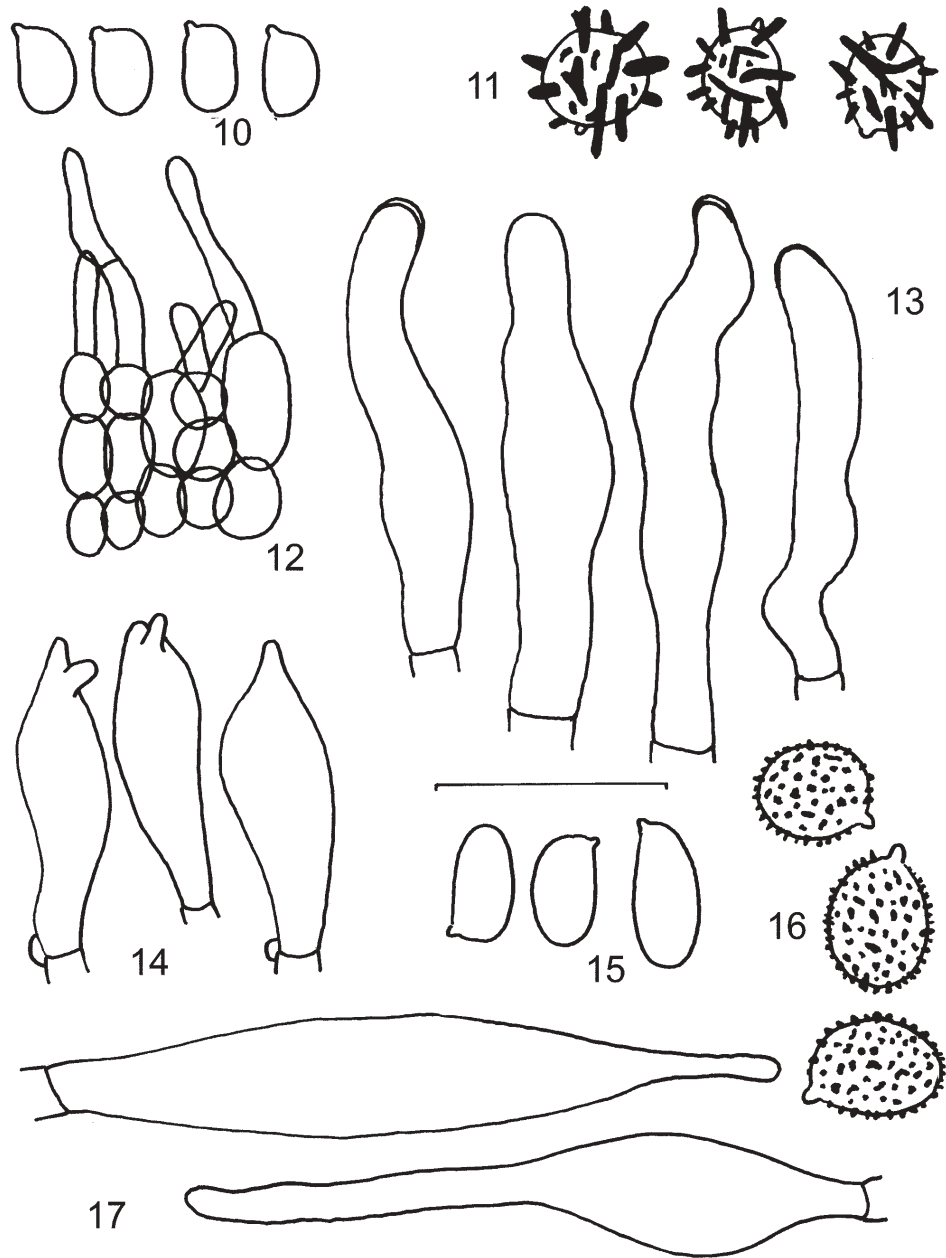
Photographs 1–6. 1 – *Clavulinopsis subtilis*. White Carpathian Mts., Búrová, 13 Sept. 2007, BRNM 706812. 2 – *Entoloma inusitatum*. White Carpathian Mts., Javořina, 9 Oct. 2007, BRNM 707106. 3 – *Hygrocybe fornicata*. White Carpathian Mts., Javořina, 13 Sept. 2007, BRNM 706810. 4 – *Lactarius romagnesii*. Moravskoslezské Beskydy Mts., Salajka, 11 Aug. 2005, BRNM 695603. (All photos V. Antonín.) 5 – *Lactarius romagnesii* (BRNM 695603). 6 – *Macowanites messapicoides* (BRNM 709986). (SEM photomicrographs of basidiospores.)



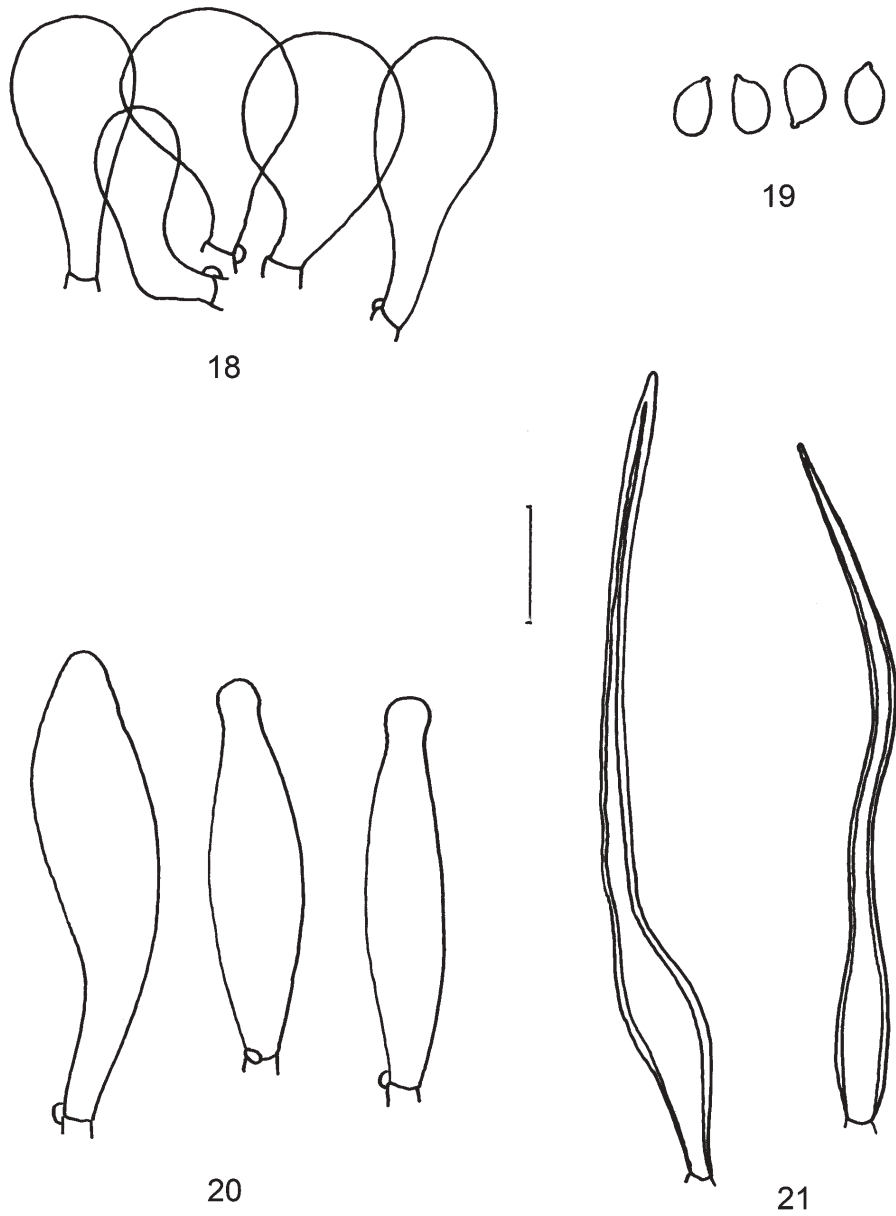
Figs 1–5. *Agaricus devoniensis*: 1 – cheilocystidia, 2 – basidiospores. *Bovista acuminata*: 3 – basidiospores. *Entoloma inusitatum*: 4 – basidiospores, 5 – cheilocystidia. Scale bar = 20 μ m.



Figs 6–9. *Gymnopus pubipes* var. *pallidopileatus*: 6 – pileipellis cells, 7 – basidiospores, 8 – cheilocystidia, 9 – caulocystidia. Scale bar = 20 μ m.



Figs 10–17. *Hygrocybe fornicata*: 10 – basidiospores. *Lactarius romagnesii*: 11 – basidiospores, 12 – pileipellis structure, 13 – paracystidia. *Pleurotus calyptratus*: 14 – cheilocystidia, 15 – basidiospores. *Macowanites messapicoides*: 16 – basidiospores, 17 – hymenial cystidia. Scale bar = 50 μ m for Fig. 12, 20 μ m for other figures.



Figs 18–21. *Xerula causseii*: 18 – pileipellis cells, 19 – basidiospores, 20 – cheilo- and pleurocystidia, 21 – pileosetae. Scale bar = 20 μ m.