

A revision of selected material of lignicolous *Lachnum* species from the Czech Republic with a note on graminicolous material of the *Lachnum pygmaeum* complex

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Suková M. (2005): A revision of selected material of lignicolous *Lachnum* species from the Czech Republic with a note on graminicolous material of the *Lachnum pygmaeum* complex. – Czech Mycol. 57(3–4): 183–219.

Selected material of lignicolous species of the genus *Lachnum* from the Czech Republic was studied. *Lachnum impudicum* and *Lachnum subvirgineum* (nom. prov.) are published for the first time from the Czech Republic. These taxa were not distinguished in earlier Czech literature. *Lachnum crataegi*, *Lachnum corylinum*, *Lachnum fasciculare*, *Lachnum fulvellum* and *Lachnum piceum* are lectotypified here. *Lachnum fulvellum* is a synonym of *Lachnum fasciculare*, and *Lachnum piceum* of *Lachnum pygmaeum*. *Lachnum impudicum* as well as *Lachnum corylinum* are close (possibly synonyms) to *Lachnum pubescens* (type specimen of *L. pubescens* examined). *Lachnum crataegi* is close to *Lachnum fasciculare*. One specimen from authentic material of *Lachnum grande* is designated a lectotype and *Lachnum grande* is synonymised with *Lachnum pygmaeum*. *Lachnum pygmaeum* was found to be a variable taxon. In the studied set of material, lignicolous specimens of *Lachnum pygmaeum* show wider and somewhat more protruding paraphyses than non-lignicolous specimens. *Lachnum rhizophilum* seemed to be the earliest possible name for the non-lignicolous taxon (with asci arising from croziers). The type of *Lachnum rhizophilum*, however, is a fungus with asci arising from simple septa.

Key words: J. Velenovský, Bohemia, Moravia, taxonomy, nomenclature

Suková M. (2005): Revize vybraného materiálu lignikolních druhů rodu *Lachnum* z České republiky s poznámkami ke graminikolnímu materiálu z okruhu *Lachnum pygmaeum*. – Czech Mycol. 57(3–4): 183–219.

Byly studovány lignikolní druhy rodu *Lachnum* (chlupáček) na vybraném materiálu z území České republiky. Poprvé jsou z území České republiky publikovány druhy *Lachnum impudicum* a *Lachnum subvirgineum* (nom. prov.). V dřívější české literatuře nebyly odlišovány. Byly stanoveny lektotypy druhů *Lachnum crataegi*, *Lachnum corylinum*, *Lachnum fasciculare*, *Lachnum fulvellum* a *Lachnum piceum*. *Lachnum fasciculare* a *Lachnum fulvellum* jsou synonyma. *Lachnum piceum* patří do synonymiky druhu *Lachnum pygmaeum*. Druh *Lachnum impudicum* a z jiného hlediska i druh *Lachnum corylinum* jsou blízké (možná synonyma) druhu *Lachnum pubescens* (typový materiál *L. pubescens* revidován). Druh *Lachnum crataegi* je blízký druhu *Lachnum fasciculare*. Jedna položka z autentického materiálu *Lachnum grande* je stanovena lektotypem a *Lachnum grande* patří do synonymiky *Lachnum pygmaeum*. Bylo zjištěno, že druh *Lachnum pygmaeum* je variabilní. U materiálu z dřevních substrátů byly zaznamenány širší a z hymenia více vyčnívající parafýzy než u materiálu z ostatních substrátů. Jméno *Lachnum rhizophilum* bylo nalezeno v literatuře jako možné nejstarší pojmenování pro nelignikolní taxon, ale ukázalo se, že typový materiál druhu *Lachnum rhizophilum* má vrůstající z jednoduchých sept, což nesouhlasí.

INTRODUCTION

Studying discomycetes has a long tradition in the Czech Republic. Collections of *Lachnum* s.l. in the herbaria PRM and BRNM are rich. Most material has been collected by M. Svrček and J. Velenovský (PRM), F. Šmarda (BRNM), and many specimens were collected by V. Vacek, J. Kubička and F. Kotlaba (PRM). Velenovský's specimens are unfortunately often in poor condition. Many of Velenovský's types were already revised by M. Svrček, in about 1978, who arranged them into envelopes and wrote labels using brief information noted directly in the specimens and information from Velenovský's manuscripts. Only some important collections were revised by H.O. Baral using modern methods of observation under a light microscope.

In the modern taxonomy of *Hyaloscyphaceae* and *Lachnaceae* the ascus basis provides an important character as well as presence of guttules in the living ascospores, paraphyses or hairs (see e.g. Haines 1989, Huhtinen 1990, Baral 1992 and Raitviir 2004). Since no living material was studied, the presence of hyaline refractive vacuolar bodies in hairs and paraphyses (Baral 1992) was not observed. Their presence, however, can be recognised in herbarium specimens by a brownish coloration of the cytoplasm (Baral 1992). This was observed in e.g. old collections of *Lachnum fasciculare* and *Lachnum fulvellum*. Dark coloured discs were observed also in *Lachnum crataegi*. Further important characters in the modern taxonomy of *Lachnum* are the character of hair apices (capitate, clavate, cylindrical) and the difference between the length of marginal hairs and the length of flank hairs (see e.g. Baral in Baral and Krieglsteiner 1985: *Lachnum subvirgineum*, *L. impudicum*).

MATERIAL AND METHODS

Material from herbarium specimens was prepared under a Olympus SZ-61 stereomicroscope using tap water as a mountant by putting a piece of apothecium into a drop of 3% KOH on a slide, where it was cut using a pin and a blade. Freshly made slides in KOH were used for measurements and drawings of microcharacters. The term "warted" is used in the sense of Leenurm et al. (2003) as an equivalent to the earlier widely used terms "incrustate" or "encrusted". The term "paraphyses protruding" (Baral 2003) is an equivalent of "paraphyses exceeding the asci". Amyloidity of the ascoapical apparatus was observed in Melzer's reagent mostly after pretreatment in 5% KOH (marked KOH/MLZ). Ascus bases and croziers were studied mostly in KOH at a magnification of 1000x or 2000x using an oil-immersion lens on an Olympus BX-51 microscope. Other characters were studied at magnifications of 1000x (measurements) and 2000x (drawings). Colours of dried apothecia are in some cases provided with codes referring

to a lexicon of colours (Kornerup and Wanscher 1981), e.g. '4-A5' means tab. 4, colour A5. Abbreviations used in the drawings are: 'h.' = hairs, 'fh.' = flank hairs, 'mh.' = marginal hairs, 'e.' = paraphyses exceeding the asci, 'a.' = asci, 'p.' = paraphyses, 's.' = ascospores. Selected material from the herbaria PRM and BRNM was revised. Localities, substrata and dates from labels of important old collections are cited outside square brackets. Explanatory information or additional information from Velenovský's manuscripts is added in square brackets. Published records of studied species from the Czech Republic are listed. In case specimens of these were studied, the results of the revision are given. Czech generic and specific names are proposed or follow earlier Czech literature.

RESULTS

Key to the examined species based on studied material

In the following key, characters observed on dried material and in slides in KOH from dried material are used unless stated otherwise.

1a Asci ≥ 60 μm frequent, some shorter asci may also be present in the same apothecium (dried apothecia long stalked, 1–5 mm high, asci arising from croziers or rarely from simple septa).

2a Growing directly on wood (mostly coniferous, but also deciduous), paraphyses (2.2–)3–5 μm wide, hairs up to 70 μm long. – *Lachnum pygmaeum* s. str.

2b On other substrata (rhizomes of grasses or *Cyperaceae*, soil, sometimes only freely attached to deciduous wood), paraphyses (1.7–)2–3(–3.3) μm wide, hairs up to 60 μm long.

3a Asci arising from croziers. – *Lachnum* sp. (see under *L. pygmaeum*).

3a Asci arising from simple septa. – *Lachnum rhizophilum* (see under *L. pygmaeum*).

1b Asci ≤ 55 (–63) μm (asci arising from croziers or simple septa).

4a Hairs ≤ 70 μm .

5a Paraphyses stout, 2.8–5.3(–6) μm wide, protruding by (7–)11–23(–31) μm . – *Lachnum pudibundum* (asci arising from simple septa, on deciduous wood and also conifers, discs brownish orange to dark reddish brown).

5b Paraphyses narrower and less protruding, 2–3.8(–4) μm wide, protruding by ≤ 13 μm .

6a On conifers. – *Lachnum papyraceum* (apothecia becoming brown on drying).

6b On deciduous wood.

7a Asci arising from simple septa, ascospores (2-)2.3-3 µm wide. - *Lachnum brevipilosum*.

7b Asci arising from croziers, ascospores up to 2 µm wide.

8a(a-c) Ascospores (4.5-)4.8-6.3(-6.6) × 1.2-1.8 µm, paraphyses narrowly lanceolate, (2.1-)2.4-3.1(-3.3) µm wide. - *Lachnum impudicum* (probably synonym of *L. pubescens*).

8b Ascospores (6.1-)6.6-8.1(-9.3) × (1.4-)1.5-1.8(-2.1) µm, paraphyses narrowly lanceolate to lanceolate, (2-)2.3-3.3(-4) µm wide. - *Lachnum pubescens*.

8c Ascospores (4.7-)6-7.5(-8.6) × 1.3-1.8 µm, paraphyses lanceolate, (2.3-)3-4.1(-4.5) µm wide. - *Lachnum corylinum* (possibly synonym of *L. pubescens*).

4b Hairs longer than 70 µm present.

9a Discs dark coloured (dark brown or dark blackish vinaceous brown).

10a Paraphyses 3-5 µm wide, protruding by 11-31(-35) µm. - *Lachnum crataegi* (perhaps synonym of *L. fasciculare*).

10b Paraphyses 2.2-4.2 µm wide, 5-17(-20) µm protruding. - *Lachnum fasciculare*.

9b Discs paler (whitish or with pale orange, brown or beige-brown tint; up to beige-brown with slight reddish tint).

11a Marginal hairs up to 60(-63) µm long, flank hairs up to 80 µm long. → **8**.

11b Marginal hairs as well as flank hairs ≥ (55-)65 µm, up to 95 or 120(-160) µm long.

12a Hairs up to 95 µm, apex distinctly capitate. - *Lachnum subvirginium*.

12b Hairs up to 120(-160) µm, apex cylindrical or slightly subclavate. - *Lachnum virginium*.

Selected publications useful for identification: Rehm (1893), Dennis (1949), Raitviir (1970), Dennis (1981), Baral (in Baral and Krieglsteiner 1985), Vesterholt (2000), Baral (2003).

***Lachnum* Retz. - chlupáček**

Lachnum Retz., Fl. Scand. Prodr., p. 256, 1779. Type species: *L. agaricinum* Retz. [= *L. virginium* (Batsch: Fr.) P. Karst. fide Gray (1821: 671), Fries (1822: 90), Karsten (1871: 169), Nannfeldt (1932: 260)].

Syn.: *Dasyscyphus* (Nees) ex Gray, Nat. Arrang. Brit. Pl., 1: 670, 1821. Type species: *D. virgineus* (Batsch: Fr.) Gray, lectotype designated by Korf (1954).

Note: Svrček in Svrček et al. (1976) introduced the Czech name "chlupáček" for *Dasyscyphus*. *Dasyscyphus* is a synonym of *Lachnum* and has been understood as its synonym in atlases and floristic literature in our country, although

there have been various opinions on the typification and content of the genus *Dasyscypha* in the world (see Suková 2005). Therefore the name "chlupáček" began to be used for *Lachnum* (e.g. Hagara et al. 1999, Papoušek 2004). The earlier Czech name "huňočíška", which was proposed by Opiz (1852) for *Lachnum*, is archaic, therefore I prefer "chlupáček" for *Lachnum* rather than "huňočíška".

Lachnum brevopilosum Baral ss. Baral – chlupáček krátkochlupý Fig. 1, 2.

Lachnum brevopilosum Baral sensu Baral in Baral et Krieglst., Beih. Z. Mykol. 6: 74, 1985, nom. nov. [= *Dasyscypha brevipila* Le Gal, Rev. Mycol. (Paris) 4: 26, 1939 sensu Baral in Baral et Krieglst., Beih. Z. Mykol. 6: 74, 1985; non *Lachnum brevipilum* (Höhn.) Nannf., Nova Acta Regiae Soc. Sci. Upsal. [Ser. 4], 8(2): 262, 1932.]

Description (incl. PRM 901967). Dried apothecia stipitate, 0.4–0.9(–1.1) mm high, 0.25–0.9(–1.1) mm in diam., cup-shaped (not flattened), discs pastel yellow (2–A4), outer surface of the same colour, but covered with short, white hairs. Hairs hyaline, warted, mostly with slightly enlarged apices, 2–3-septate, 35–53(–63) × 3.7–4.5 µm. Asci arising from simple septa, 45–52 × 4–5 µm, KOH/MLZ+. Ascospores fusiform, 6.9–10.5 × (2–)2.3–3 µm. Paraphyses narrowly lanceolate, (2–)2.2–3.2(–3.7) µm wide, exceeding the asci by 5–10 µm.

Comments. Species characteristic by asci arising from simple septa and narrower and less exceeding paraphyses than in *Lachnum pudibundum*. *Lachnum pudibundum* differs also by its discs becoming reddish brown to dark brown on drying.

An earlier homonym of *Dasyscypha brevipila* combined to *Lachnum* would be *Lachnum brevipilum* (Höhn.) Nannf., a fungus occurring on herbaceous stems, similar to *Cistella grevillei* (Berk.) Raitv. Therefore the new name *Lachnum brevopilosum* Baral (in Baral and Krieglsteiner 1985) was necessary for *Dasyscypha brevipila* Le Gal. The type of *Dasyscypha brevipila* Le Gal was revised later, by Baral (2003: HB 6872). He described and illustrated the microcharacters, identified the substrate as *Fraxinus* and the fungus as *Lachnum brevopilosum*, but noted that *Lachnum pudibundum* could also be considered. Moreover, Baral (2003: keys) proposed that *Dasyscypha brevipila* Le Gal and *L. brevopilosum* ss. Baral are perhaps different taxa. According to his revision, paraphyses of the type (observed in KOH + Congo Red) are 2–3 µm wide and exceed by 3–10 µm, ascospores are 6.5–8.8 × 1.9–2.3 µm large and discs of dried apothecia deep brown. The paraphyses could indicate *Lachnum brevopilosum*, but the deep brown discs do not agree. Such dark disc colour is known from Czech collections of *Lachnum pudibundum*, whereas it was not observed in *Lachnum brevopilosum*. Also the ascospore width of the type agrees with Czech collections of *Lachnum pudibundum*. The length of paraphyses could depend on maturity of the apothecium. The asci illustrated by Baral (although containing ascospores) and the note that free ascospores were rare, seem

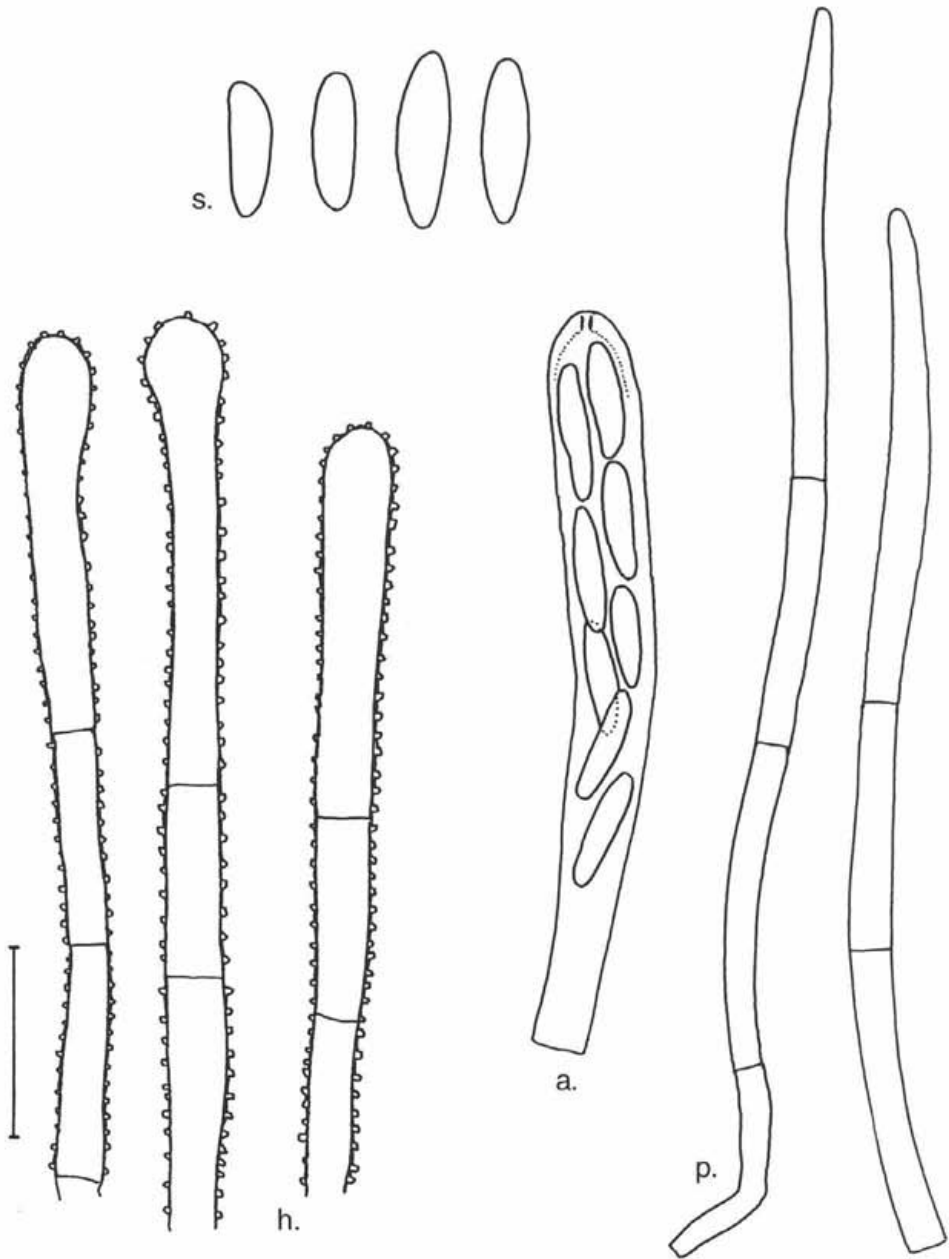


Fig. 1. *Lachnum brevipilosum* Baral ss. Baral, PRM 901967. Scale bar = 10 μ m.

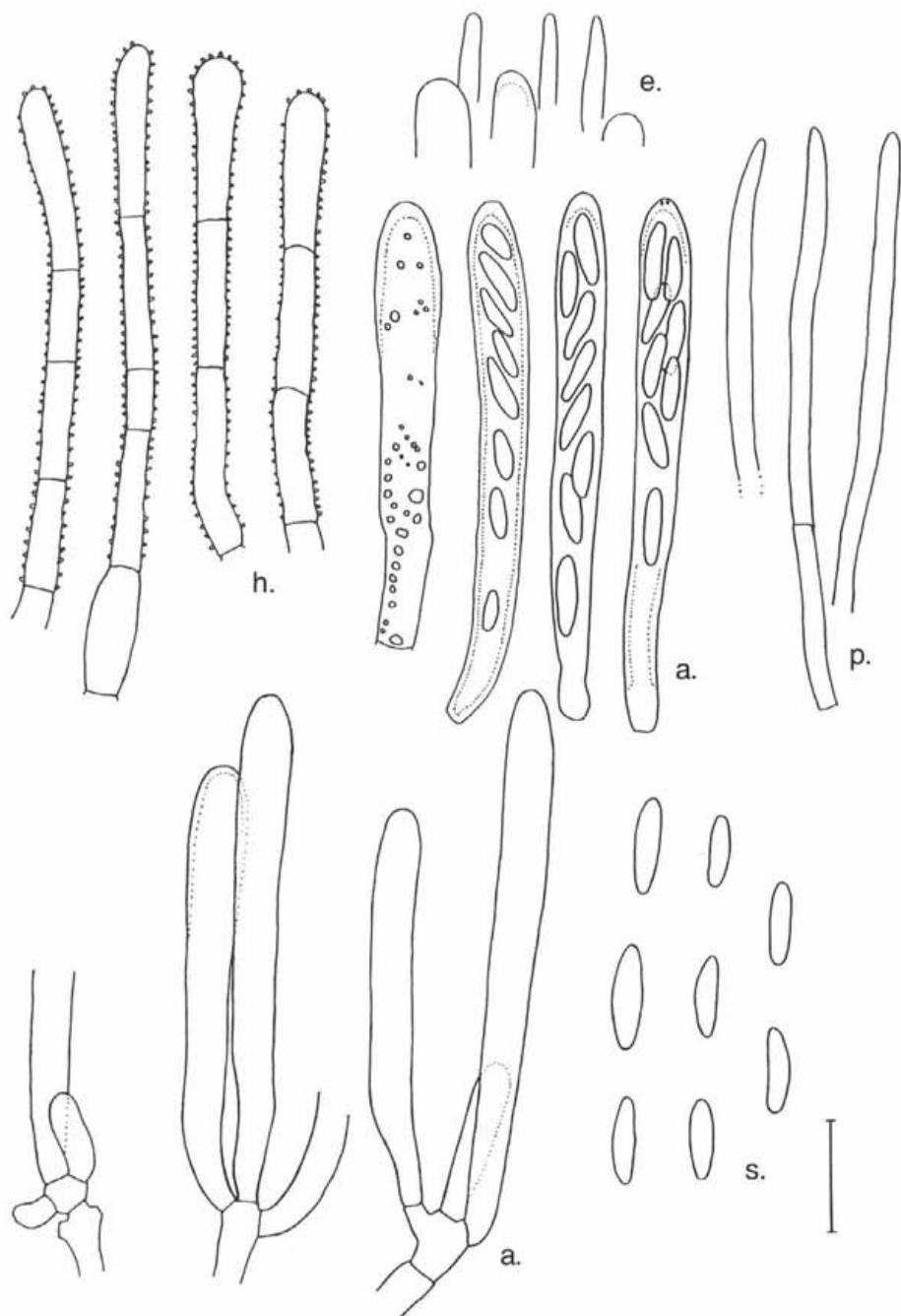


Fig. 2. *Lachnum brevipilosum* Baral ss. Baral, PRM 901973. Scale bar = 10 μ m.

to indicate rather immature material. I agree with Baral (2003) that the type of *Dasyscypha brevipila* is rather different from *L. brevipilosum* ss. Baral. However, since no other name has so far been found for the taxon (see also discussion under *Lachnum pubescens*), I have kept the studied Czech and Polish collections provisionally under the name *Lachnum brevipilosum* Baral ss. Baral (in Baral and Krieglsteiner 1985).

Published records: Svrček 1978: 77 (as *Dasyscyphus brevipilus*, Southern Bohemia: Třeboň, pond Svět, on *Tilia*; Soběslavská blata). – Papoušek 2004: 44–45 (as *Lachnum brevipilum* erroneously cited as *L. brevipilum* '(Höhn.) Nannf.', Southern Bohemia, Novohradské hory Mts., Žofinský prales, on wood of *Fagus sylvatica* – revision of the ascus basis character would be necessary to confirm the identification).

Material revised: Central Bohemia: Jevany, on decaying wood of *Fagus sylvatica*, November 1923, leg. et det. J. Velenovský (as *Lachnum microsporum* Velen. in herb., non *L. microsporum* Velen., Mon. Disc. Bohem., p. 260, 1934 published from leaves of *Vaccinium myrtillus*), PRM 149633. – Central Bohemia: Studený vrch hill near Stříbrná Skalice, Ve Studeném nature reserve c. 1.5 km ESE of the village of Samechov, on decaying upper part of lying log of *Acer cf. platanoides*, 17 October 2004, leg. L. Edrová et M. Suková, det. M. Suková, PRM 901973. – Southern Bohemia: Cetoraz near Pacov, by Vlček pond, on twig of *Alnus*, 2 August 1962, leg. J. Kubička, det. M. Svrček, PRM 568558. – Třeboň, by the pond Svět, on bark of *Tilia*, 9 December 1957, leg. V. Ježek, det. M. Svrček, PRM. – Třeboň, by Svatojánský rybník (pond), on *Salix caprea*, 29 October 1958, leg. et det. M. Svrček, PRM 617306.

Comparative material from other countries: Eastern Poland, Białowiecki National Park, c. 6.5 km N of the village of Białowieża, quadrat no. 256, alt. c. 150 m, 52° 44' 32" N, 23° 49' 51" E, on wood of *Carpinus betulus*, 7 October 2003, leg. A. Chlebicki et M. Suková, det. M. Suková, PRM 901967.

Lachnum corylinum Velen.

Lachnum corylinum Velen., Novit. Mycol. Noviss., p. 131, 1947.

Description. Dried apothecia c. 2.7 mm high, 1.4–1.9 mm in diam., stalks very long (c. 1.55 mm), distorted, outer surface with scarce (hardly standing out) hairs, cups often collapsed, discs as well as outer surface of cups beige brown, orange brown or beige-brown with reddish tint, stalks mostly pale beige. Hairs hyaline, warted, cylindrical, rarely enlarged or pointed, mostly 4-septate, (30–)40–72(–83) × 3–3.8 µm, in lower parts up to 4.7 µm wide, marginal hairs sometimes smooth in lower parts. Asci arising from croziers, (40–)43–53 × (3.2–)3.5–4.3 µm. Ascospores one-celled, (4.7–)6–7.5(–8.6) × 1.3–1.8 µm. Paraphyses lanceolate, with acute tips (to subacute in younger hymenium), (2.3–)3–4.1(–4.5) µm in diam., exceeding the asci by (6.6–)8.8–13.7 µm.

Comments. While *Lachnum pygmaeum* s. str. and *Lachnum* sp. have dried apothecia which are cup-shaped with circular discs of various deep colours, *Lachnum corylinum* resembles in shape a rather helotiaceous fungus, the stipe is gradually widened towards the usually collapsed cup. Asci of *Lachnum corylinum* are short and hairs are scarce in macroscopical view.

The taxonomic position of *Lachnum corylinum* is still poorly known. *Lachnum grande* described earlier by Velenovský (1934) cannot be conspecific with *L. corylinum*, despite its being described from deciduous wood, because *L. grande* has long asci as is typical of the *Lachnum pygmaeum* complex.

The shape of apothecia of *Lachnum corylinum* is similar to *Lachnum fasciculare* (syn. *L. fulvellum*). In the lectotype of *Lachnum fulvellum* (PRM 150122, see under *L. fasciculare*) there are present: A. small, but long and slender stalked, brown, hair-rich apothecia (probably younger, shape the same as in *L. fasciculare*), B. two big, hair-rich apothecia, externally brown, but with dark blackish wine-brown coloured discs strongly resembling *Lachnum pudibundum* (probably not young), and C. apothecia with scarce hairs and collapsed cups. The apothecia characterised under A. and B. and probably also C. belong to one taxon. The third ones although very similar (collapsing, less hairy) differ from *Lachnum corylinum* in having the dark coloured discs (visible also from the outer surface).

In microcharacters (mainly cylindrical hairs and size of ascospores), *Lachnum corylinum* is close to *Lachnum pubescens*. *Lachnum pubescens* differs in its apothecia not becoming so coloured and cups not collapsing on drying. On the other hand, the discs of *L. corylinum* are not dark brown and perhaps their colour is in the range of variability of *L. pubescens*. Also the second character (collapsing cups) appeared to have no taxonomic value, which is demonstrated e.g. under *Lachnum rhizophilum* in this paper and in the case of *Lachnum fulvellum* above. *Lachnum corylinum* has in comparison with *Lachnum pubescens* somewhat bigger apothecia, scanty, mostly 4-septate hairs and paraphyses up to 4.1(–4.5) μm wide.

Type studies and comments on revised type material. There are two specimens of *Lachnum corylinum* in the herbarium PRM. As label data of both specimens (PRM 151434, 151582) agree with the ambiguous information given in the protologue, the specimens are syntypes. The specimen PRM 151582 has the following characters: apothecia beige brown when dried, about 2.7 mm high, 1.4–1.9 mm in diam., stalks very long (about 1.55 \times 0.2 mm), distorted, cups collapsed, outer surface with scarce (hardly standing out) hairs; hairs hyaline, warty, marginal hairs sometimes smooth in lower part, cylindrical or upper cell slightly pointed, mostly 4-septate, 59–71(–83) \times 3–3.6 μm ; asci arising from croziers, 40–45(–53) \times 3.5–4 μm ; ascospores one-celled, (4.7)5.7–7.8(–8.6) \times 1.3–1.7 μm ; paraphyses lanceolate, with acute tips, 3.2–4.3 μm in diam., exceeding the asci by 9–13.5 μm .

The studied piece of the specimen PRM 151434 contained younger material of the same species. Hairs on the outer surface were often only one-celled, immature; paraphyse tips not so acute; asci with young, short spores; excipulum textura prismatica, cells about 21 \times 4.5 μm ; hairs cylindrical (mostly slightly gradually tapered towards tip), 40–54 \times (3.5–)3.8–4.8 μm ; asci arising from croziers, 45–53 \times (3.2–)3.5–4.3 μm ; ascospores (6.2–)6.5–7.3(–7.9) \times (1.4–)1.7–1.8 μm ; paraphyses lanceolate, with sub-acute tips, (2.9–)3.2–4.1(–4.5) μm in diam., exceeding the asci by (6.5–)8–13.7 μm .

The material in both syntypes is conspecific and agrees well with the original description of *L. corylinum*. The size of apothecia and short hairs indicate *Lachnum pygmaeum*. Only the asci are, also in agreement with the protologue, shorter than in *Lachnum pygmaeum*. Both specimens contain several apothecia. The specimen PRM 151434 was indicated by Velenovský in herb. as "origin." and is designated here a lectotype.

Published records: Velenovský 1947: 131 (vicinity of Mnichovice, on decaying trunks of *Corylus avellana* - revised, see Type studies).

Material revised: [Central Bohemia, Mnichovice], "Lehman - in dumetis", on trunk of *Corylus [avellana]*, 25 July 1940, leg. et det. J. Velenovský, PRM 151434 (lectotype of *Lachnum corylinum*). - [Central Bohemia, Mnichovice], "Brožek", on trunk of *Corylus [avellana]*, August 1940, leg. J. Velenovský et V. Vacek, det. J. Velenovský, PRM 151582 (syntype of *Lachnum corylinum*).

***Lachnum crataegi* Velen.**

Fig. 3.

Lachnum crataegi Velen., Monogr. Discom. Bohem., p. 248, 1934.

Description. Dried apothecia mostly of similar shape as *L. pudibundum* (stalk as long as apothecium diam.), 0.45-0.95(-1.8) mm high, 0.45-1.25 mm wide, sometimes disc flattened and folded in marginal part (then apothecia 0.5-0.6 mm high and 1.3-1.65 mm wide). Outer surface dark brown, very densely covered with white, rarely pastel white-brown, medium long hairs (only when too old already in the field then hairs brown). Discs dark brown. Hairs hyaline (only rarely secondarily becoming brown), warted (also apices), apically capitate or less frequently slightly clavate or cylindrical or rarely attenuated towards apex, 49-83 × (3-3.5-5.7) µm. Asci arising from croziers, 41.5-58 × 3.7-5.2 µm, KOH/MLZ+. Ascospores fusiform, 6.2-8.8 × 1.5-2.1 µm. Paraphyses lanceolate, 3-5 µm wide, acute with very narrow rounded tips, exceeding the asci by 11-31(-35) µm.

Comments. See discussion under *Lachnum fasciculare*. *Lachnum crataegi* is surely not conspecific with *Lachnum fasciculare* ss. Le Gal, and is more close to *Lachnum fasciculare* in its original sense. Its differences from *Lachnum fasciculare* in its original sense are mainly in characters of dried apothecia observed under a stereomicroscope and in measurements of paraphyses. However, these features are possibly not correlated (see specimen PRM 148663 under Comments on studied type material) and perhaps *Lachnum crataegi* belongs to the synonymy of *Lachnum fasciculare*.

Comments on studied type material. Velenovský (1934) added to the name *L. crataegi* the note "(*L. xanthippae* Vel. in herb.)". The specimen marked "*L. xanthippae*" (PRM 149301) and other specimens agreeing with the habitat given in the protologue are syntypes. The lectotype (PRM 149301, designated here) agrees very well with Velenovský's description and illustration. The other syntypes contain material of various species - e.g. *Lachnum pudibundum* (on *Salix*: e.g. PRM 149158; on *Fraxinus*: PRM 149193), *Dasyascyphella* sp. (on *Quercus*: PRM 148332), and material in poor condition (on *Sorbus*: PRM 152029).

Lectotype of *L. crataegi* Velen. (PRM 149301). Dried apothecia in comparison with "*L. fulvellum*" and specimen PRM 148663 (described below) relatively short-stalked, (0.45-0.6-0.8) mm high, (0.65-1.05-1.25) mm wide and robust (not slender) when 'young' (not opened), 0.5-0.6 mm high and 1.3-1.65 mm wide when opened, discs large, flat, in marginal part often folded, outer surface dark brown, but very densely covered with white or pastel brown, medium long hairs, discs dark brown. Hairs hyaline or secondarily becoming brown, but not pigmented, warted (also apices), mostly capitate, less frequently clavate, rarely cylindrical (all types present in one apothecium), 49-83 × (3.5-4.3-5.7) µm. Asci arising from croziers, 50-58 × 3.7-4.5 µm. Ascospores fusiform, 6.2-8 × 1.6-1.8 µm.

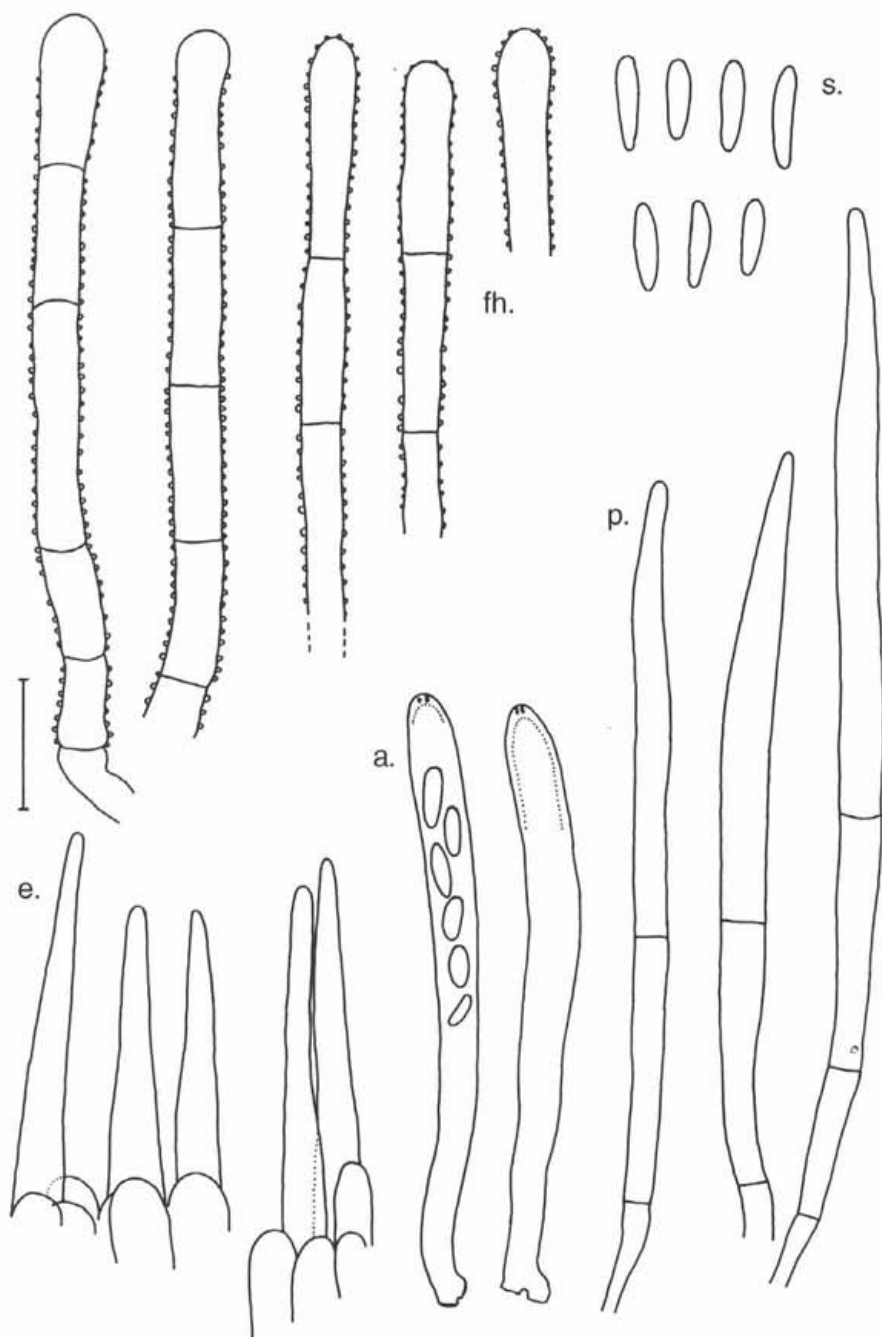


Fig. 3a. *Lachnum crataegi* Velen., PRM 149301 (lectotype). Scale bar = 10 μ m.

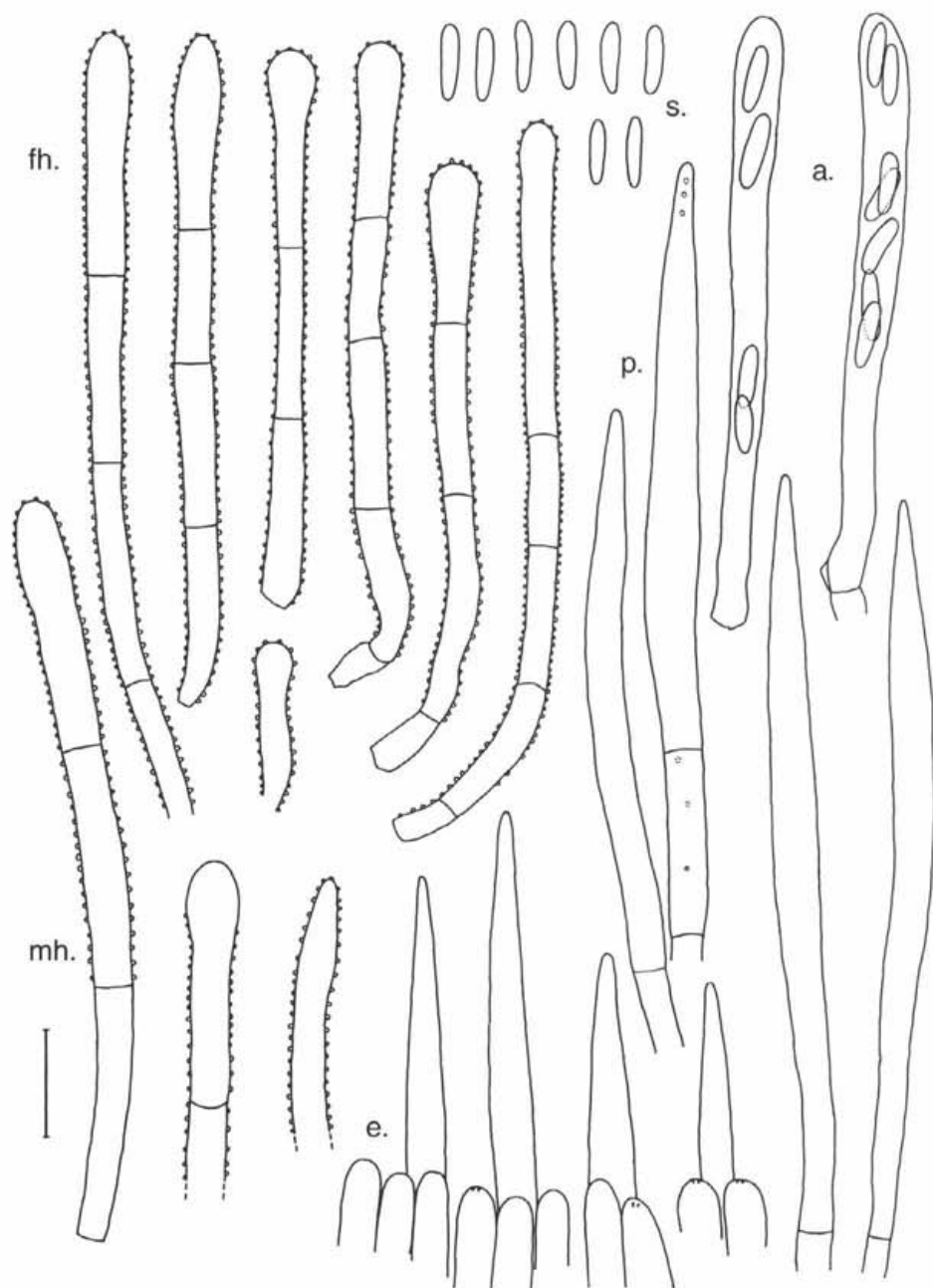


Fig. 3b. *Lachnum crataegi* Velen., PRM 149301 (lectotype). Preparation from a piece of another apothecium. Scale bar = 10 μ m.

Paraphyses lanceolate, acute-shaped, but rounded at the narrow tips, 3.5–4.3(–4.8) μm wide, exceeding the asci by 12.5–29.5 μm .

Specimen PRM 148663 (syntype of *Lachnum alneum* Velen., Monogr. Discom. Bohem., p. 247, 1934; non the true *L. alneum* Velen., l. c. which is *Dasyscyphella* sp.) contained big, robust, not yet opened apothecia, up to 1.8 mm high, up to 1.1 mm in diam., very densely covered with pastel brown, in their upper parts whitish hairs. The apothecia were much more robust and hairy than in the B-type of the lectotype of "*L. fulvellum*" (see comments on *L. corylinum*), but the discs were dark, of the same colour. Hairs warted (also apices), almost regularly capitate, 74–83 \times (3–)3.6–5.2 μm . Asci arising from croziers, 46–57 \times 4.7–5.2 μm . Ascospores fusiform, 6.6–8.8 \times 1.5–2.1 μm . Paraphyses lanceolate, 3–4.3 μm wide, exceeding the asci by (7–)11–17.5 μm . The material resembles *Lachnum crataegi* by robust, rich-hairy apothecia, pastel brown colour of dried hairs and capitate hair apices, but the length of paraphyses is more close to *Lachnum fasciculare* in its original sense described below.

Published records: Velenovský 1934: 248 (as a common species, on wood of *Betula*, *Quercus*, *Sorbus*, *Salix*, *Cornus* and *Crataegus* – most specimens revised, results of revision see under Comments on studied type material).

Material revised: Central Bohemia: Hlásná Třebáň, on hard wood of a deciduous twig, 5 August 1945, leg. et det. M. Svrček, PRM 816351. – [Central Bohemia: Praha–] Kosoř – Choteč, [on piece of wood of *Alnus*,] May 1924, leg. J. Velenovský, PRM 148663 (syntype of *Lachnum alneum*; non *L. alneum*). – [Central Bohemia:] Mnichovice, [on wood of] *Betula*, August 1928, leg. et det. J. Velenovský, PRM 149301 (lectotype of *Lachnum crataegi*).

Lachnum fasciculare Velen. – chlupáček svazčitý

Fig. 4.

Lachnum fasciculare Velen., Monogr. Discom. Bohem., p. 247, 1934.

Syn.: *Lachnum fulvellum* Velen., Monogr. Discom. Bohem., p. 247, 1934.

Description. Dried apothecia mostly relatively long-stalked, brown or flesh coloured, covered with pale beige brown hairs, stalks often distorted, discs dark brown sometimes with wine-red tint. Hairs warted, mostly cylindrical or only slightly capitate, mostly 3-septate, hairs (46–)56–86 \times 3.2–5.6 μm . Asci arising from croziers, 42–54 \times 3.6–5.4 μm , KOH/MLZ+. Ascospores fusiform, 6.2–9.4 \times 1.6–2.2 μm . Paraphyses lanceolate, 2.4–4.2 μm wide, exceeding the asci by 5–17(–20) μm .

Comments. *Lachnum fasciculare* differs from *Lachnum pudibundum* by asci arising from croziers. Differences between *Lachnum fasciculare* and *L. crataegi* are mainly in the length of paraphyses (see key). In comparison with *Lachnum fasciculare*, apothecia of *Lachnum crataegi* are less gregarious and shorter stalked, resembling *Lachnum pudibundum*, but have darker discs than *Lachnum pudibundum*.

Paraphyses with brown internal droplets are given in the literature (Le Gal 1939, Dennis 1949, Vesterholt 2000) for *Lachnum fasciculare* sensu Le Gal (1939). Also Velenovský (1934) described the droplets and illustrated them in a drawing. In the studied, old material of *Lachnum fasciculare* and *L. crataegi* no droplets were found, however, the observed secondary brown-coloured hymenium indicates their presence in fresh material.

In comparison with studied long-paraphysed species from the Czech Republic, *Lachnum fasciculare* ss. Le Gal has shorter hairs than *Lachnum crataegi* and narrower paraphyses than *Lachnum pudibundum*. Information about ascus bases is unfortunately not given. Brown internal droplets in the paraphyses reported for *Lachnum fasciculare* ss. Le Gal indicate rather *L. crataegi* than *L. pudibundum*. I do not presume such conspicuous brown droplets in fresh material of *Lachnum pudibundum*, because the dried discs of *L. pudibundum* are of paler colours than in *Lachnum crataegi* and *Lachnum fasciculare*. Baral (2003: keys) distinguished in *Lachnum fasciculare* two possibly separate species. One with living asci 43–55 µm long, hairs 50–85 µm long, paraphyses 4.5–7 µm broad, protruding by 15–30 µm, and the other one with living asci 48–70 µm long, hairs 70–110 µm long, paraphyses 3–5 µm broad and protruding by 3–20 µm. The characters of the first one indicate *Lachnum fasciculare* ss. Le Gal and the second one (see also Baral 2003: HB 7106) is *Lachnum fasciculare* in its original sense. Hairs in *Lachnum crataegi* are not shorter than in *Lachnum fasciculare* (cf. the key characters by Baral), on the contrary, and they are also not so short as given in the previous literature: 25–60 µm (Le Gal 1939, Dennis 1949, Vesterholt 2000). Also asci in *Lachnum crataegi* are rather larger and not smaller in comparison with *Lachnum fasciculare* (cf. Baral 2003: keys). Therefore *Lachnum crataegi* (though long-paraphysed) is not conspecific with *Lachnum fasciculare* ss. Le Gal, the latter species has not yet been reported from the Czech Republic.

Type studies and comments on studied type material. *Lachnum fasciculare* has two syntypes, both explicitly cited in the protologue. Asci in the specimen PRM 150796 (lectotype indicated by Svřček in herb., proposed by Baral (2003: HB 7184), formally designated here) arise from croziers, in the specimen PRM 151529 (see under *L. pudibundum*) they arise from simple septa. The former is selected as a lectotype because the ascus bases as drawn by Velenovský (1934) indicate that the illustrated material had asci with croziers. From Velenovský's manuscripts it is clear that the description, measurements and drawing come from specimen PRM 150796 (lectotype). Velenovský only combined the width of hairs of both specimens. In his measurements it was 2.5–3 µm for PRM 150796 (*L. fasciculare*), 5 µm for PRM 151529 (*L. pudibundum*) and 2–4 µm in the publication (Velenovský 1934).

Dried apothecia of the lectotype of *L. fasciculare* are mostly relatively long-stalked, brown, densely, but not fully covered with beige-brownish hairs, has stalks which are often somewhat distorted and relatively densely covered with standing out, brownish hairs. Hairs warted, mostly cylindrical or only slightly capitate – apices can be smooth, mostly 3-septate, hairs (46–)56–76 × 3.7–4.6 µm, marginal hairs 50–73 µm long, flank hairs 56–76 µm long. Asci arising from croziers, 42–48 × (3.7–)3.9–4.3 µm, KOH/MLZ+. Ascospores fusiform, 6.2–7.5 × 1.6–2 µm. Paraphyses lanceolate, 2.4–3.2 µm wide, exceeding the asci by 6.9–17 µm.

In the protologue of *Lachnum fulvellum* (Velenovský 1934) four syntypes were cited, which are kept in the PRM herbarium (PRM 150122, 149127, 151619, 147742). The specimens PRM 150122 and 149127 were identified by H.O. Baral as conspecific and agreeing with the protologue of *Lachnum fulvellum*. Substrates of PRM 149127 ('in trunco putrido salicino prope Kosoř' as published by Velenovský 1934) and PRM 150122 were identified by him as *Alnus*. He (Baral, pers. comm.) selected the specimen PRM 150122 (lectotype designated here by H.O. Baral) as lectotype (for description and drawing see Baral 2003: HB 7106), because it contains rich material while the second specimen (PRM

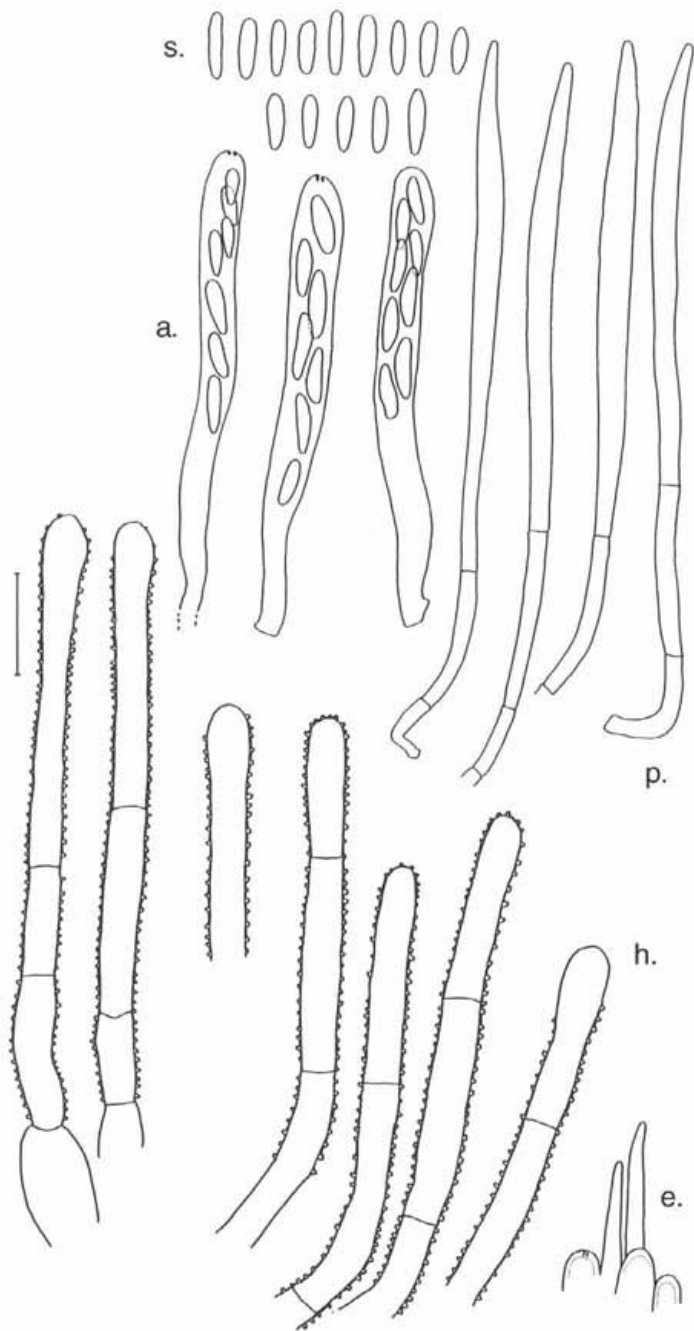


Fig. 4. *Lachnum fasciculare* Velen., PRM 150796 (lectotype). Scale bar = 10 μ m.

149127) contains only 2 strongly overmature apothecia. The substrate of the third type specimen ('in trunco salicino pr. Zdice', PRM 151619) was confirmed by H.O. Baral to be *Salix* and the fungus is, according to him, *Lachnum* aff. *impudicum*, which differs from *L. impudicum* by the form of the ascospores. I recently identified the material as *Lachnum pubescens*. The fourth type specimen (PRM 147742, 'in ramis quercinis prope Mnichovice') contains 10 apothecia of *Lachnum virgineum*.

The largest part of the original description of *Lachnum fulvellum* (Velenovský 1934: 247) and probably also the drawing of an apothecium originated from the specimen 'in trunco putrido salicino prope Kosoř' (PRM 149127) according to Velenovský's manuscript. The drawing of a non-capitate hair belongs to the specimen PRM 151619 (recently identified as *Lachnum pubescens*) and a capitate hair belongs to a collection from *Rubus* under Ondřejov ('na ostružinách pod Ondřejovem VI. 1925, ?', PRM 149703), which Velenovský (1934) left unpublished.

Dried apothecia of the lectotype of *L. fulvellum* (PRM 150122) are very long-stalked, up to 1.5(-2.8) mm high and 1.45 mm in diam. The outer surface of cup and stalk are beigeish flesh coloured and hairy (hairs pale pastel brown), the disc is dark wine brown, stalks are often distorted. Hairs have secondarily become brown (excl. apices); warty; $56-86 \times (2.7-3.2-5.6 \mu\text{m})$; mostly slightly capitate, but also cylindrical hairs and at margin also hairs with pointed apices (then completely warty) present; hair apices mostly (slightly refractive) hyaline and smooth [also Velenovský (1934) demonstrated this feature in an illustration]. Hymenium have also secondarily become brown. Asci arising from croziers, about $46-54 \times 3.6-5.4 \mu\text{m}$. Ascospores fusiform, $6.2-9.4 \times 1.7-2.2 \mu\text{m}$. Paraphyses lanceolate, with subacute (rounded) apices, $2.4-4.2 \mu\text{m}$ wide, exceeding the asci by $(0.2-5-12(-20) \mu\text{m})$.

Published records: Velenovský 1934: 247 (as *Lachnum fasciculare*: Stránčice, Sv. Anna, *Alnus*; Mnichovice, Velenovský's garden, *Corylus*; as *Lachnum fulvellum*: Kosoř, *Salix*; Ondřejov, *Quercus*; Zdice, *Salix* - revised, see Type studies and comments to studied type material).

Material revised: [Central Bohemia: Stránčice, Sv. Anna, *Alnus* [wood], 31 May 1928, leg. et det. J. Velenovský, PRM 150796 (lectotype of *L. fasciculare*). - [Central Bohemia: Ondřejov, "duby pod Ondřejovem" [oaks under Ondřejov; on wood of *Alnus*, host det. H.O. Baral], 4 June 1924, leg. et det. J. Velenovský, PRM 150122 (lectotype of *Lachnum fulvellum*).

Lachnum impudicum Baral

Fig. 5.

Lachnum impudicum Baral in Baral et Krieglst., Beih. Z. Mykol. 6: 77, 1985.

Description. Dried apothecia cup-shaped, 0.5-1.4 mm high, cups patelliform, 0.2-1.4 mm in diam., discs yellowish orange (dark yellow, 4-A8), outer surface of apothecia pale orange yellow (4-A6), covered with short, white hairs. Hairs hyaline, cylindrical or with only very slightly enlarged apices, marginal hairs $(37-43-55.5(-57) \times 3-3.8 \mu\text{m})$, flank hairs $(41-46.5-68(-74) \times (3-3.2-3.9(-4.1) \mu\text{m})$, up to 3-septate. Asci arising from croziers, $(31-34-43.5 \times (3.3-3.5-4.1 \mu\text{m})$, KOH/MLZ+. Ascospores one-celled, $(4.5-4.8-6.3(-6.6) \times 1.2-1.8 \mu\text{m})$. Paraphyses narrowly lanceolate, with obtuse to subacute ends, $(2.1-2.4-3.1(-3.3) \mu\text{m})$ wide, exceeding asci by 5-11.2 μm .

Comments. The material (PRM 907122) is surely conspecific with *Lachnum impudicum* in its original sense, represented for the purpose of my study by descriptions, drawings and ecological data by Baral (in Baral and Krieglst. 1985) and Baral (2003). However, it seems very probable, that the material is only a younger representative of *Lachnum pubescens*. In comparison with *L. pubescens* it yields only slightly smaller values in all characters. *Lachnum*

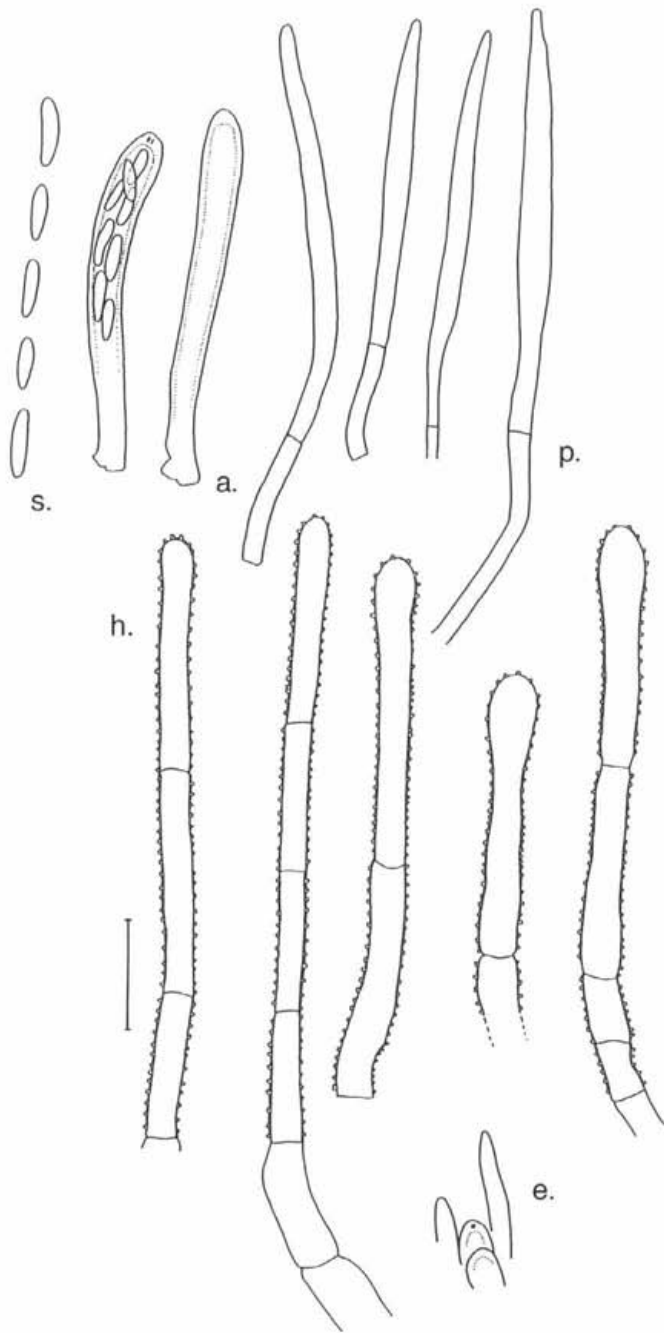


Fig. 5. *Lachnum impudicum* Baral, PRM 907122. Scale bar = 10 μ m.

impudicum possibly belongs to the synonymy of *Lachnum pubescens*. Only the phenology of *L. pubescens* does not agree with data (September – May) given for *Lachnum impudicum* by Baral (in Baral and Krieglsteiner 1985) and Baral (pers. comm.), because I revised also collections of *Lachnum pubescens* from summer.

Material revised: Southern Bohemia: Českomoravská vrchovina, Protected Landscape Area Třeboňsko, 4.3 km ENE of the village of Libořezy, Fabián nature reserve, alt. 590–610 m, on lying log of *Fagus sylvatica*, 18 October 2003, leg. M. Tůmová, det. M. Suková, PRM 907122.

***Lachnum papyraceum* (P. Karst.) P. Karst.**

Peziza papyracea P. Karst., Not. Sallsk. Faun. Fl. Fenn. Förh. 10: 193, 1869. – *Lachnum papyraceum* (P. Karst.) P. Karst., Bidrag Kännedom Finlands Natur Folk 19: 169, 1871.

Description (BRNM 50800). Dried apothecia dark brown, 0.4–0.55 mm in diam., 0.9–1.1 mm high, with not very dense short concolorous to whitish hairs, long-stalked, stalks mostly thin. Hairs hyaline, densely warted, cylindrical, 38–70 × 2.9–4 µm. Asci not observed. Ascospores hyaline, fusoid, 4.6–7.5 × 1.5–1.9(–2.3) µm. Paraphyses narrowly lanceolate, not more than 2 µm wide.

Comments. This species (according to Karsten 1871: 169, Dennis 1949 and Vesterholt 2000) is characteristic by its small ascospores, 4–6 (3–7) × 1–1.5 µm, apothecia becoming brown on drying and its occurrence on coniferous substrata. Apothecia 0.5–3 mm in diam. with 0.7–1 mm long, slender stalks, asci 35–50 × 3–4 µm, hairs 40–50(–80) × 3 (2–4) µm, paraphyses 2 or 3–4 µm wide and exceeding by up to 10 µm are given in the literature. Baral (2003) reported asci arising from croziers and guttules in living hairs and paraphyses. The guttules are responsible for the brown colour of the dried material. *Lachnum pygmaeum* from coniferous wood differs by longer asci.

Published records: Velenovský 1934: 245 (as a common species, on cones of *Pinus*, *Picea* and *Larix*, twigs of *Picea* and *Juniperus*) – revised, one of the revised specimens belongs to *Dasyscypha conicola* (PRM 152023), other specimens to *Lachnum virgineum* (PRM 147696, 148990, 151412, 152056), *Lachnum pudibundum* (PRM 148591) and possibly to *Lachnum* cf. *papyraceum* (PRM 151651).

Material revised: Central Bohemia: Karlštejn, Bubová [Boubová, on cone of *Pinus*], May 1925, leg. et det. J. Velenovský (as *Lachnum conisedum* Velen. in herb.), PRM 151651 (material in poor condition, microcharacters not seen). – Moravia: Lomnice near Tišnov, below Sýkoř hill, valley of Krčalovský potok (brook), *Abieto-Fagetum*, alt. 500 m, on wood of trunk of *Abies*, 18 October 1946, leg. et det. F. Šmarda, BRNM 50800.

***Lachnum pubescens* (Rehm) Svrček – chlupáček pýřitý**

Fig. 6.

Dasyscypha pubescens Rehm, Ascomyceten in Rabenhorst's Krypt.-Fl. Deutschl., Oest. und Schweiz, 1/3: 836, 1893. – *Lachnum pubescens* (Rehm) Svrček, Česká Mykol. 43: 225, 1989.

Description (incl. holotype from herb. S). Dried apothecia stalked, cup-shaped, 0.8–1.4 mm high, 0.4–1.4 mm in diam., discs orange to brick or brownish orange, outer surface of apothecia white with pale beige brown tint or pale orange,

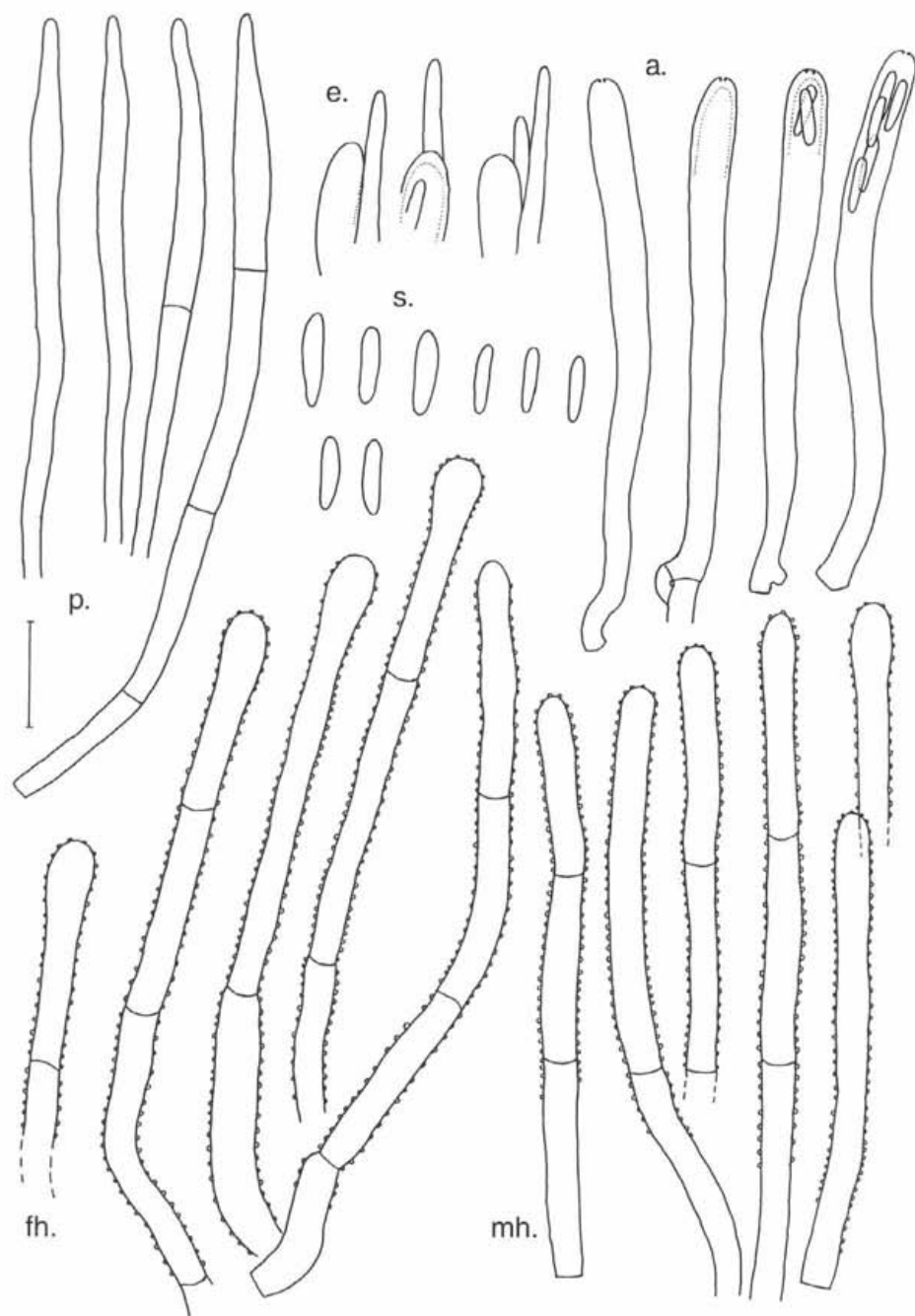


Fig. 6. *Lachnum pubescens* (Rehm) Svrček, Herb. S (as *Dasyscypha pubescens* Rehm), holotype. Scale bar = 10 μ m.

covered with short, white hairs. Hairs hyaline, cylindrical or slightly clavate or slightly capitate, up to 3-septate. Marginal hairs (41.5-)47-60(-63) \times (2.9-)3.2-4.4(-5.0) μm , flank hairs (52.5-)59-76(-80) \times (2.6-)3.2-4.6(-5.1) μm . Asci arising from croziers, 45-51.5(-52.7) \times 3.5-4.7(-5.3) μm . Ascospores one-celled, (6.1-)6.6-8.1(-9.3) \times 1.4-2.1 μm . Paraphyses narrowly lanceolate to lanceolate, (2.0-)2.3-3.3(-4) μm wide, exceeding the asci by 3.3-12.6 μm .

Comments. In the past, *Lachnum pubescens* was not distinguished from *Lachnum brevopilosum*. *Lachnum brevopilosum* differs from it by asci arising from simple septa, wider ascospores, a more constant size of apothecia and a mostly pastel yellow (not orange) colour of discs. Macroscopically, dried *Lachnum pubescens* is somewhat similar to *Lachnum* sp. (see under *Lachnum pygmaeum*) due to the presence of big apothecia and coloured discs. However, it differs from *Lachnum* sp. in occurring directly on wood and from *Lachnum pygmaeum* s. str. in shorter asci and shorter ascospores.

The name, *Dasyscypha pubescens*, was mentioned in literature as a possible earlier synonym of *Lachnum brevopilosum* and *Lachnum impudicum*. Baral (in Baral and Krieglsteiner 1985) suggested that *Dasyscypha pubescens* may be an earlier synonym of *Lachnum brevopilosum*. Svrček (1989) identified his personal collections (see under Published records) with the protologue of *Dasyscypha pubescens* and combined the epithet *pubescens* into *Lachnum*. Svrček (1989) presented in his discussion the idea that *Lachnum brevopilosum* and *Lachnum impudicum* are probably synonyms of *Lachnum pubescens*. Rehm's original description seems to indicate rather *Lachnum brevopilosum* according to spore width (2.5 μm). However, revision of the type specimen of *Dasyscypha pubescens* (see Type study below) showed that *Lachnum pubescens* differs from *Lachnum brevopilosum* by asci arising from croziers and ascospores up to 2 μm wide and, moreover, that it also differs from *Lachnum impudicum*. In comparison with the protologue of *Lachnum impudicum* (Baral in Baral and Krieglsteiner 1985), the type of *L. pubescens* has slightly longer marginal hairs, slightly longer ascospores and wider paraphyses, for all that the protologue is based on characters of fresh material (marginal hairs 40-60 μm , paraphyses 2.5-3.5 μm wide, ascospores 5-7(-8) \times 1.5-2.3 μm). Baral (2003: keys) reported fresh ascospores 5-9 \times 1.5-2.3 μm for *L. impudicum*. Ascospores of *L. impudicum* examined in slides from dried material using KOH measure 4.5-7.5 \times 1.7-2 μm according to Baral (2003: HB 6867, HB 6868) and 4.5-6.6 \times 1.2-1.8 μm according to my description of *Lachnum impudicum*. Baral (in Baral and Krieglsteiner 1985) originally described *Lachnum impudicum* as a species occurring during the winter (October - April) on deciduous wood, most frequently on *Fagus*, but also on *Fraxinus*, *Quercus*, *Alnus*, *Salix*, *Populus* and ?*Robinia*. The type of *Lachnum pubescens* was collected in October on *Salix* and other studied specimens of *Lachnum*

pubescens from the Czech Republic date from June, July and October, and come from *Acer*, *Alnus*, *Carpinus*, *Quercus* and *Salix*.

Type study. *Dasyscypha pubescens* Rehm nov. spec., Rinkerode, on decorticated twig of *Salix* (host det. M. Suková et H.O. Baral), 22 October 1890, leg. G. Lindau, Herb. S (reg. no. F 63/2). The original notes on characters and measurements written in pencil within the type specimen fit well with the protologue (e.g. measurements of ascospores $6-8 \times 2.5 \mu\text{m}$) and indicate that the specimen is really the holotype of *D. pubescens*. The type contains many apothecia, 0.9–1.4 mm high, 0.7–1.4 mm in diam., with short, white hairs, orange discs and paler orange or pale beige outer surface. Description based on studied fragments from two apothecia: Hairs hyaline, not becoming brown, cylindrical or especially flank hairs with very slightly enlarged apices. Marginal hairs $55-63 \times 3.1-3.7 \mu\text{m}$, up to 2-septate, flank hairs $(52-56-76(-80)) \times (3.3-3.7-4.7(-5.1)) \mu\text{m}$, up to 3-septate. Asci arising from croziers, $45-52 \times 3.7-5.3 \mu\text{m}$. Ascospores one-celled, in one apothecium $(6.1-6.4-7.6(-8.2)) \times 1.4-1.8(-1.9) \mu\text{m}$, in the other apothecium $(6.6-7-8.1(-8.7)) \times 1.6-1.9(-2.0) \mu\text{m}$. Paraphyses narrowly lanceolate to lanceolate, 2.3–3.0 μm wide and exceeding by $(3.5-4-8(-10.5)) \mu\text{m}$ in the first apothecium, 2.8–3.8(–4.0) μm wide and exceeding by 6.5–10.5 μm in the second apothecium.

Published records: Svrček 1989: 225 (Central Bohemia, nature reserve Kohoutov near Jablečno, on fallen trunks of *Fagus sylvatica*, 28 September 1988 – not revised, however the published description strongly indicates that it could have been *Lachnum impudicum*; Southern Bohemia, Šumava Mts., Boubínský prales virgin forest, on fallen trunks of *Fagus*, 7 June 1979 – not revised, however the description, except for the presence of numerous crystals resembling those of *Dasyscyphella nivea*, seems to indicate *Lachnum pubescens*).

Material revised (in herbarium mostly as *Dasyscypha brevipila* Le Gal): Central Bohemia: Zdice, on trunk of *Salix* (host rev. H.O. Baral), October 1933, leg. F. Fechtner, det. J. Velenovský (as *Lachnum fulvellum*), PRM 151619 (syntype of *L. fulvellum*). – NE of Rakovník, SSE of Řevničov, NNW of Horní Kráče pond, *Carpinus* forest with *Betula* and *Picea*, on wood of lying decorticated deciduous twigs, 14 October 2005, leg. et det. M. Suková, PRM 907372. – Southern Bohemia: Soběslavská blata (bogs) near Soběslav, on wood of *Acer* sp. (host det. A. Chlebickí), 21 October 1950, leg. F. Kotlaba, PRM 901958 (as *Lachnum pygmaeum*). – Smržov near Lomnice nad Lužnicí, by pond Dvořiště, on radicle of *Quercus*, 3 June 1960, leg. et det. M. Svrček, PRM 522591. – Třeboň, Alnetum "U Jindřů", on *Alnus glutinosa* (host rev. A. Chlebickí), 6 June 1959, leg. M. Svrček, PRM 614081. – Northern Moravia: Rychlebské hory Mts., Račí údolí (valley), wet ground on right bank of Račí potok (brook), stand with *Quercus*, *Carpinus*, *Salix*, *Fraxinus*, alt. 300 m, on dead distorted twigs or roots (cf. *Carpinus*, but wood in poor condition because of lying in mud, rev. A. Chlebickí), 28 July 1961, leg. K. Kříž, PRM 615929 – this specimen contains old apothecia with apically enlarged hairs and a lacking hymenium (only plenty of ascospores $(5.5-7-9(-10.3)) \times 1.2-1.4 \mu\text{m}$) which cannot be identified, and young to mature apothecia of *Lachnum pubescens* with pale orange discs.

***Lachnum pudibundum* (Quél.) J. Schröt.** – chlupáček stydlivý

Fig. 7.

Erinella pudibunda Quél., C. R. Ass. Franç. Av. Sci. (Grenoble) 14(2)[1885]: 452, 1886. – *Lachnum pudibundum* (Quél.) J. Schröt., Krypt.-Fl. Schlesien 3/2: 91, 1908.

Description from deciduous trees and shrubs. Dried apothecia 0.48–1.4 mm high, 0.35–0.85(–1.00) mm in diam., stalked, cup-shaped, discs brownish orange (cf. orange 6–B6 to 6–B7) or pale reddish brown, outer surface concolorous, but not so deeply coloured and densely covered with white or whitish, less frequently brown hairs, cups not collapsing on drying. Hairs hyaline, warted (apices sometimes with scarce warts or smooth), capitate and less frequently cylindrical, $(34-40-63) \times 3-5.7 \mu\text{m}$, (1–)2–4-septate. Asci arising from sim-

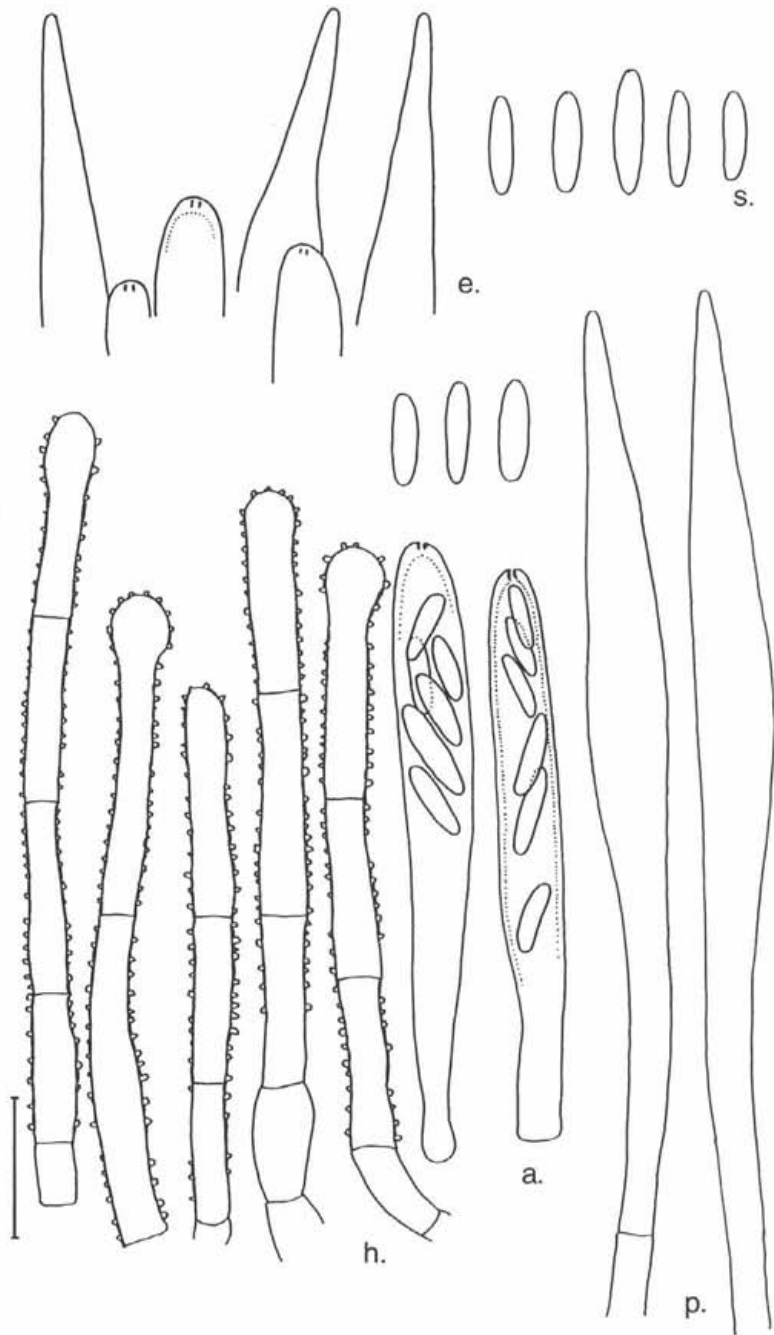


Fig. 7. *Lachnum pudibundum* (Quél.) J. Schröt., PRM 816341. Scale bar = 10 μ m.

ple septa, 39–45.5 × 3.7–5 µm, 8-spored, KOH/MLZ+. Ascospores hyaline, one-celled, narrowly fusoid, 6.6–9.5 × 1.4–2.3 µm. Paraphyses lanceolate with subacute tips, 2.8–5.3(–6) µm wide, exceeding the asci by (7–)11–23(–31) µm.

Description from wood of *Pinus* (PRM 148591). Dried apothecia 0.48–1.1 mm high, 0.35–0.7 mm in diam., long-stalked, cup-shaped, discs dark reddish brown to wine brown, outer surface densely covered with pastel-brownish to whitish hairs, cups not collapsing on drying. Hairs hyaline, incrustate, cylindrical, (42–)59–67 × 4–4.5 µm, (1–)2–4-septate. Asci arising from simple septa, 44–56 × 4–5 µm, 8-spored, KOH/MLZ+. Ascospores hyaline, one-celled, narrowly fusoid, 7.5–10.5 × 1.9–2.2 µm. Paraphyses lanceolate with subacute tips, 2.8–3.8(–4.4) µm wide, exceeding the asci by 9.5–11.5 µm.

Published records: Svrček 1978: 78 as *Dasyscyphus pudibundus* (Qué.) Sacc. (5 localities in Southern Bohemia: Lomnice nad Lužnicí, pond Velký Tisý, on *Salix cinerea*; Třeboň, "U Jindřů", on *Alnus glutinosa*; Cetoraz near Pacov, pond Vlček, on *A. glutinosa* – revised; Nový Dvůr near Čimelice, on *A. glutinosa* – revised; Laziště near Čimelice, pond Tisičky, on *Salix cinerea* – revised). – Svrček 1986: 14 (Western Bohemia, Vladměřice near Manětín, on *Alnus glutinosa*. – Papoušek 2004: 44 (Southern Bohemia, Třeboň, Mokrá vrata, on deciduous twig in virgin willow forest).

Material revised: Central Bohemia: Praha-Zbraslav, Károvské údolí, on twigs of *Ulmus* sp., 3 June 1945, leg. et det. M. Svrček (as *Lachnum crataegi*), PRM. – Zvánovice, "Zvánovické údolí" valley, on wood of *Pinus sylvestris* (coniferous wood, possibly *Pinus*, rev. A. Chlebicki), 5 August 1923, leg. et det. J. Velenovský (as *L. pinicolum* Velen. in herb., publ. as *L. papyraceum*), PRM 148591. – Chocerady, probably on *Salix*, June 1925, leg. et det. J. Velenovský (as *L. minutum* Velen. in herb., publ. as *L. crataegi*), PRM 149158. – Mnichovice, Velenovský's garden, on *Corylus* [possibly a root of *Rosaceae* according to Baral (2003: "*L. pudibundum* 7.29")], July 1929, leg. et det. J. Velenovský (as *Lachnum alneum* Velen. in herb., according to Velenovský's manuscripts syntype of *L. fasciculare*), PRM 151529 [revised and identified as *L. pudibundum* also by H. O. Baral (Baral 2003: "*L. pudibundum* 7.29")]. – Southern Bohemia: Laziště near Čimelice, pond Tisičky, on *Salix* cf. *cinerea*, 27 July 1964, leg. et det. M. Svrček, PRM 613289, 613290. – Nový Dvůr near Čimelice, on fallen decorticated twig of *Alnus glutinosa*, 3 August 1964, leg. et det. M. Svrček, PRM 613292. – Bissingrov near Čimelice, on twigs of *Viburnum opulus*, 12 June 1961, leg. et det. M. Svrček, PRM 613938. – Cetoraz near Pacov, by pond Vlček, on corticated twig of *Alnus*, 2 August 1962, leg. J. Kubička, det. M. Svrček, PRM 568558 pro parte (the wide apothecium). – Třeboň, Alnetum "U Jindřů", on twig of *Alnus glutinosa*, 30 October 1965, leg. M. Svrček, PRM 610216 (as *Dasyscyphus crystallinus*).

Lachnum pygmaeum (Fr.: Fr.) Bres.

Fig. 8, 9.

Peziza pygmaea Fr., Syst. Mycol. 2(1), p. 79, 1822. – *Peziza pygmaea* Fr.: Fr., Syst. Mycol. 2(1), p. 79, 1822. – *Lachnum pygmaeum* (Fr.: Fr.) Bres., Ann. Mycol. 1: 121, 1903.

Syn.: *Lachnum piccum* Velen., Monogr. Discom. Bohem., p. 245, 1934 (= *Lachnum pygmaeum* s. str.).

Description (based on material growing directly on wood; *Lachnum pygmaeum* s. str., Fig. 8). Dried apothecia 1–5 mm high, 0.3–2.5 mm in diam., very long-stalked, stalk often massive, up to 0.3 mm in diam., more or less covered with hairs, discs brownish orange (cf. orange 6–B6 to 6–B7), outer surface pale beige, orangeish to yellowish (pale orange to pale yellow, 5–A5 to 4–A5), covered with short whitish hairs. Hairs warted, cylindrical or gradually widened towards their apical part or with enlarged apices, up to 1–3(–4)–septate, (34–)42–60(–70) ×

(3.5-)3.7-4.9(-5.6) μm . Asci arising from croziers, (50-)53-73(-83) \times (3.8-)4.1-5(-5.9) μm , KOH/MLZ+. Ascospores fusiform to narrowly fusiform, (5.7-)7.3-9.7(-12) \times (1.5-)1.7-2.1(-2.3) μm (average 8.5 \times 1.9 μm). Paraphyses lanceolate, (2.2-)2.9-4.1(-4.9) μm wide (average 3.5 μm), exceeding the asci by (5.5-)8.5-17.5(-25) μm . Very rarely a fine incrustation of paraphyse tips was observed (as frequent as one paraphyse per preparation - PRM 147371, 151997).

Description (based on material from other substrata with asci arising from croziers; *Lachnum* sp.). Dried apothecia 1.0-4.6 mm high, 0.3-2.6 mm in diam., very long-stalked, discs pale orange (5-A5), brownish orange (cf. orange 6-B6 to 6-B7) to wine brown (cf. violet brown, 11-E8), outer surface concolorous or paler, rarely pale yellow (4-A5) or becoming brown on drying, covered with short whitish hairs. Hairs warted, cylindrical or gradually widened towards their apical part, up to 2-3-septate, (16-)25-43(-49.5) \times (3-)3.7-5 μm . Asci arising from croziers, 53-64 \times 3.9-4.7 μm , KOH/MLZ+. Ascospores mostly fusiform, (5.6-)6.6-9.4(-10.5) \times (1.3-)1.7-2.3(-2.5) μm (average 8 \times 2 μm). Paraphyses lanceolate, (1.7-)2-2.9(-3.3) μm wide (average 2.45 μm), exceeding the asci by (2.5-)5.5-12(-14) μm .

Description (based on material from other substrata with asci arising from simple septa, incl. G 52853; *Lachnum rhizophilum* (Fuckel) Velen., basionym *Helotium rhizophilum* Fuckel, Fig. 9). Dried apothecia 3-6 mm high, 0.8-1.4 mm in diam., stalks very long, cups not collapsed, discs pale vermilion red and hairs conspicuous, or cups collapsed, discs and outer surface of cup dark ochraceous and apothecia seemingly glabrous. Hairs warted, cylindrical or slightly enlarged, (28-)30-48(-60) \times 3.6-5.9 μm . Asci arising from simple septa, 65-75(-83) \times 4.4-5.5(-6.2) μm . Ascospores fusiform to narrowly fusiform, (7.4-)9.3-12.5(-13.6) \times (1.4-)1.8-2.2 μm (average 10.9 \times 2 μm). Paraphyses lanceolate, (1.7-)2-2.8(-3.1) μm wide (average 2.4 μm), exceeding the asci by 3.5-16.5 μm .

Comments. *Lachnum pygmaeum* (s. l.) is characteristic by its big apothecia with very long stalks and short hairs on the outer surface of cup and stalk as well as by long asci (asci longer than 60 μm were observed in every specimen, although also shorter asci were usually present). Asci arise from croziers, however rarely also specimens with asci arising from simple septa can be found in the *Lachnum pygmaeum* complex, e.g. PRM 151970 (syntype of *L. piceum*, see Type studies below) from naked soil or HB 5693 reported by Baral (2003) from *Festuca cinerea* or the type of *Lachnum rhizophilum* from basal parts of a grass. The apothecia have cups mostly not collapsed when dried, with deeply ochraceous to wine red discs. The outer surface is covered with short, whitish hairs. The dried apothecia have rarely collapsed cups and scanty, macroscopically invisible hairs. Apothecia occur on various woody or graminoid (*Poaceae*, *Cyperaceae*) substrata which are in contact with soil and were observed also in a moss cushion (PRM 129023), but no connection with moss plants was demonstrable.

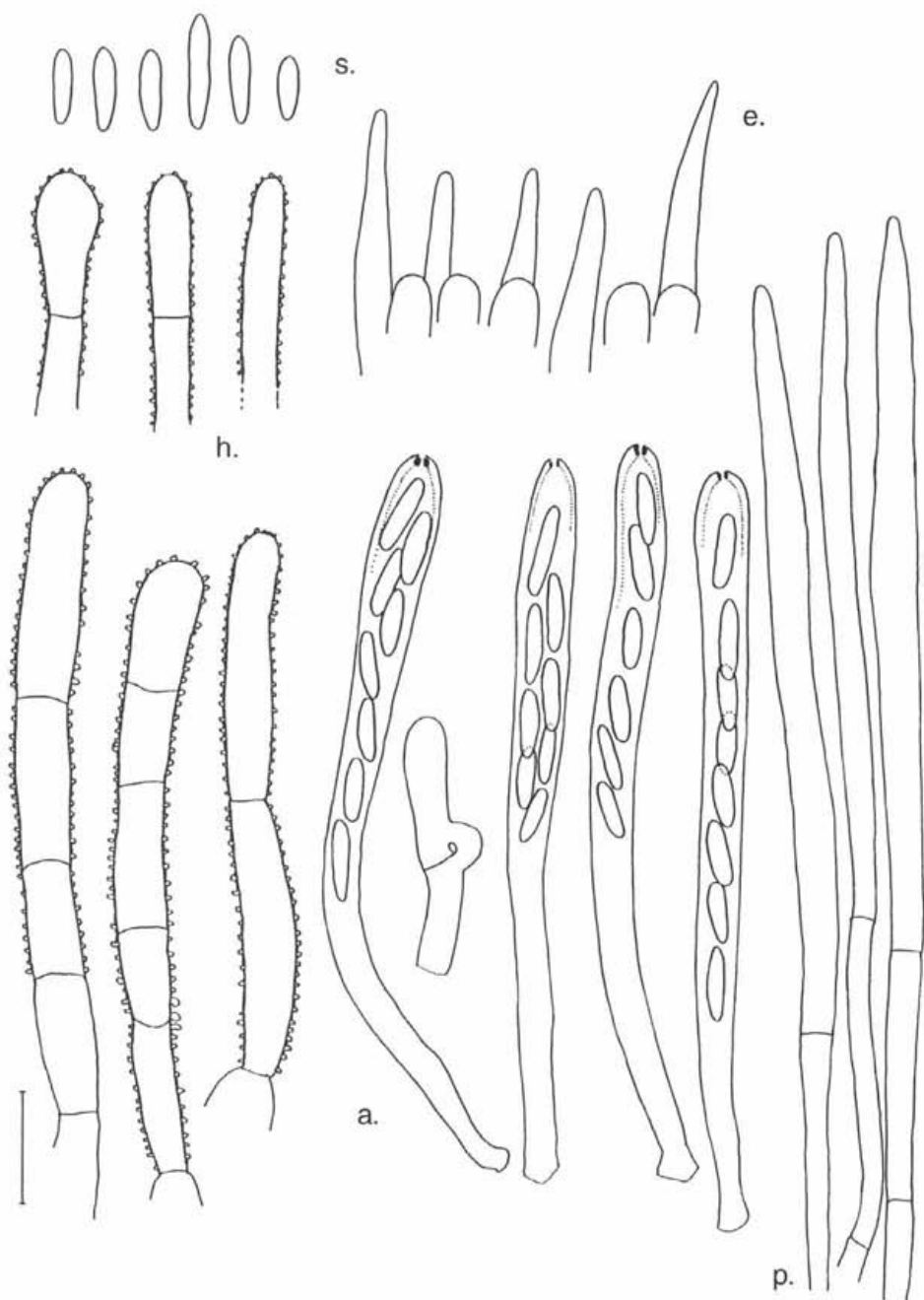


Fig. 8. *Lachnum pygmaeum* (Fr.: Fr.) Bres., PRM 612965. Scale bar = 10 μ m.

In comparison with Vesterholt (2000), who reported paraphyses 4–5 µm broad and exceeding the asci by 15–25 µm, narrower and only slightly protruding paraphyses were observed in many specimens and of mature hymenia. All studied material well fits the description by Dennis (1949), who gave these measurements: paraphyses up to 5 µm broad, up to 25 µm protruding.

During the study of the *Lachnum pygmaeum* complex represented by many specimens in PRM there appeared to be differences between collections from woody substrata and those from non-woody substrata (soil [sometimes freely attached to wood], basal parts of *Poaceae*, *Cyperaceae*). The first group had wider and more exceeding paraphyses, and somewhat longer hairs and asci. The taxon from conifers should be named *Lachnum pygmaeum* (Fr.: Fr.) Bres. The species was described from a decaying trunk of *Picea* [as "ad truncum abiegnum"] (Fries 1822) without any information on microcharacters. The earliest name for the second taxon occurring on non-woody substrata seemed to be *Lachnum rhizophilum*, but the revised type specimen contains material with asci arising from simple septa, whereas for the specimens from non-woody substrata, asci arising from croziers are characteristic. Only one specimen from the Czech Republic with asci arising from simple septa belonging to *Lachnum rhizophilum* was studied.

Survey of names in synonymy of *Lachnum pygmaeum* (Fr.: Fr.) Bres. sensu lato, taken over from Bresadola (1903) and White (1942):

Helotium rhizophilum Fuckel, Fungi rhenani, no. 1598, 1865 – from basal parts of a grass (see Type study below). *Lachnum rhizophilum* (Fuckel) Velen., Monogr. Discom. Bohem., p. 258, 1934.

Helotium affinisimum Peck, Annual Rep. New York State Mus. 33[1880]: 32, 1883 – orig.: "Decaying sticks buried in the ground" (Peck 1883).

Helotium rhizogenum Ellis et Everh., J. Mycol. 4: 100, 1888 – orig.: "On exposed dead roots of *Andropogon*".

Helotium subrubescens Rehm, Ann. Mycol. 7: 524, 1909. – orig.: "In cortice incrassato ramuli terrae infossi putrescentis". This is possibly not a *Lachnum*, because glabrous apothecia are given in its protologue, however hairs are sometimes scanty and hardly observable even under a light microscope.

Lachnum grande Velen. (Velenovský 1934) also belongs to the synonymy of *Lachnum pygmaeum* s. lato. It was originally described from deciduous substrata, but see discussion under Doubtful species below.

Type studies. Results of revision of syntypes of *Lachnum piceum* Velen. PRM 152001: [Central Bohemia, Mnichovice, Boukalova stráň (hillside)] "Mn., Boukal. stráň", spruce needle lying on ground in forest, [11] August 1931, leg. et det. J. Velenovský (as *Lachnum piceum*). The specimen contains no apothecia. – PRM 151970: The specimen contains one apothecium (1.4 mm in diam.) without substratum, along its stipe dirty from soil containing dead pieces of unidentified plants. Hairs are cylindrical or very slightly enlarged, up to 3-septate, 27.5–39 × 3.5–4.5(–6) µm, very abundant at the margin of the apothecium, asci arise from simple septa!, 72–83 × 4.8–5.7 µm,

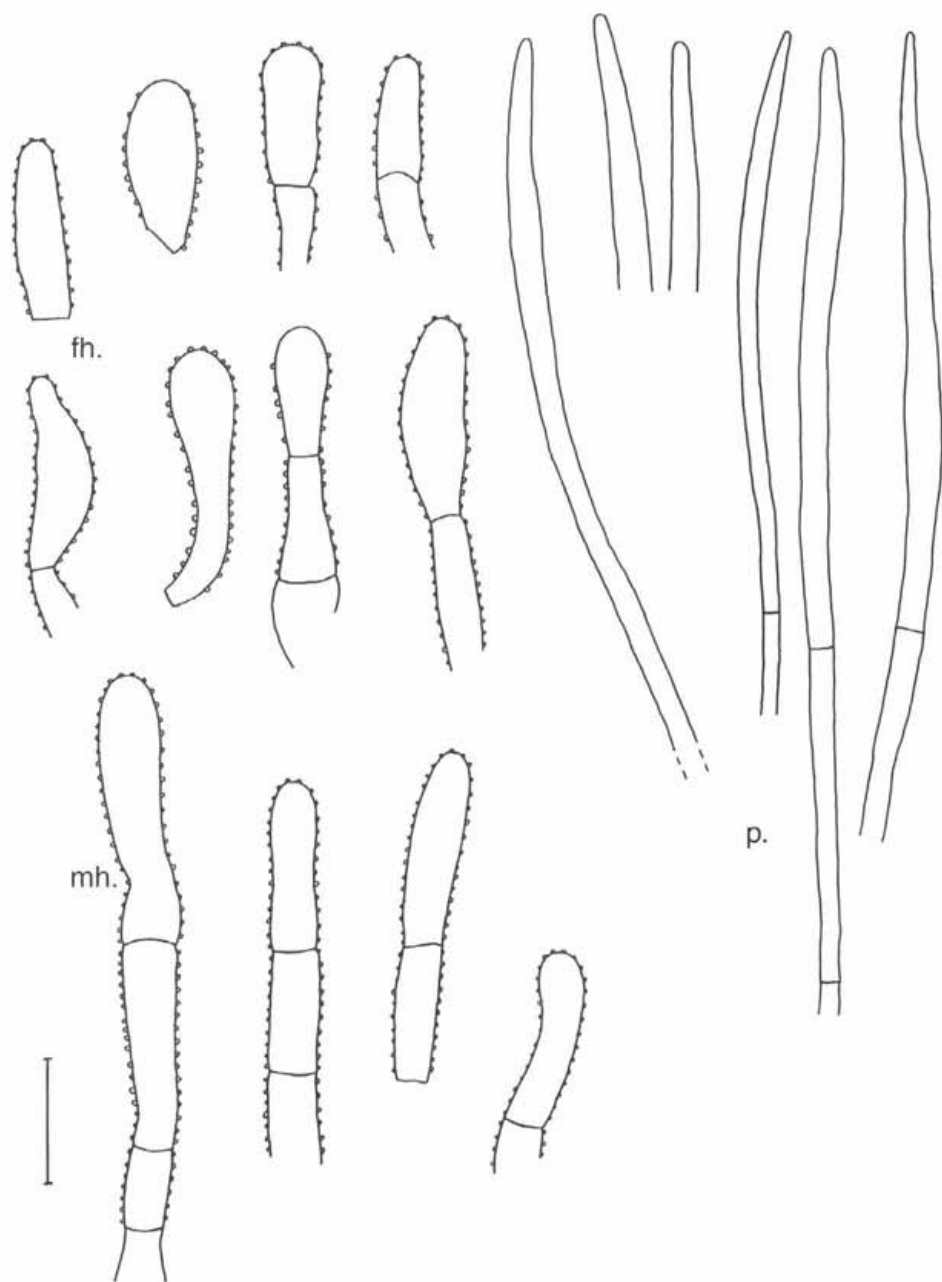


Fig. 9a. *Lachnum rhizophilum* (Fuckel) Velen., G 52853 (as *Helotium rhizophilum* Fuckel), type. Hairs and paraphyses. Scale bar = 10 μ m.

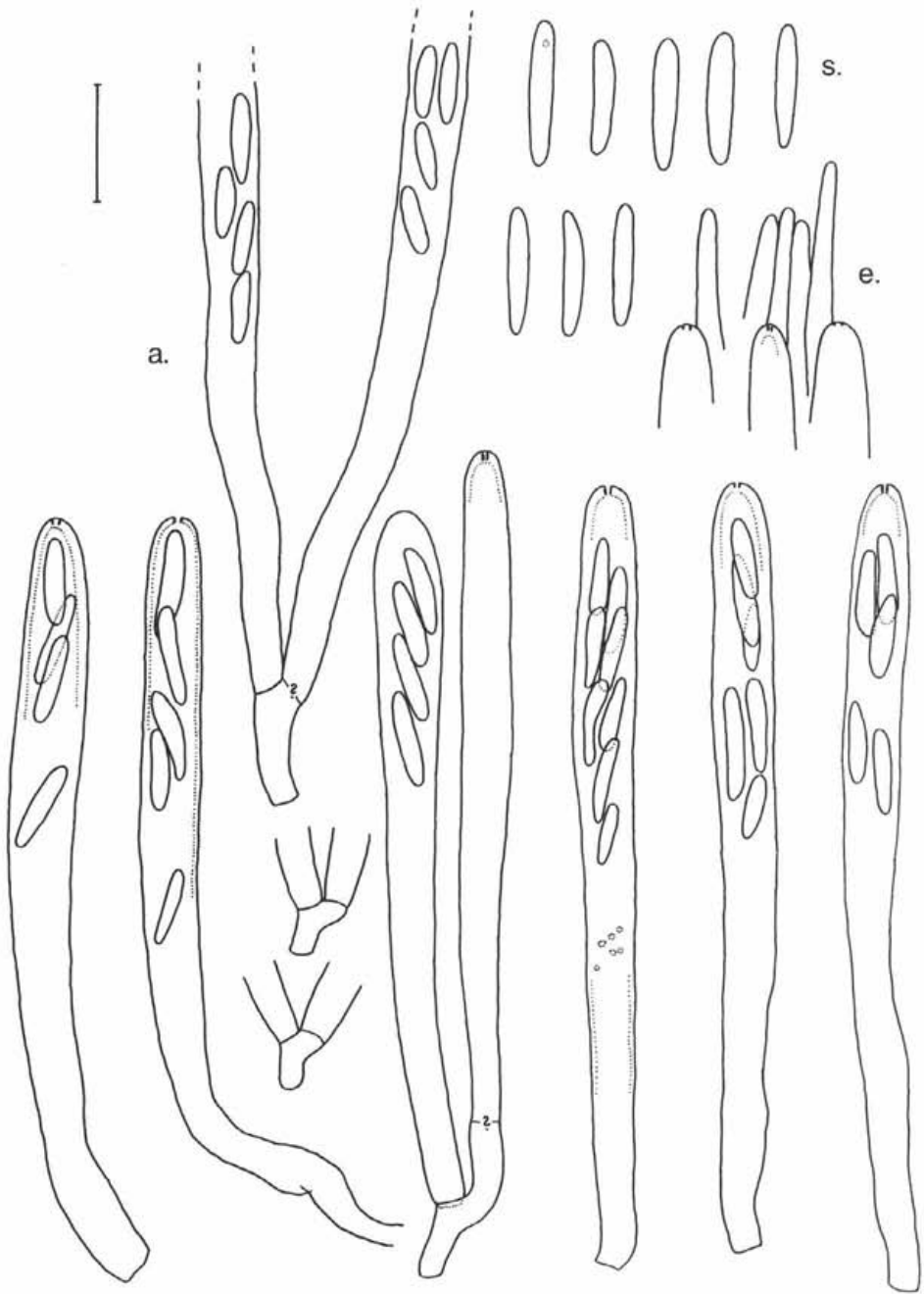


Fig. 9b. *Lachnum rhizophilum* (Fuckel) Velen., G 52853 (as *Helotium rhizophilum* Fuckel), type. Asci, ascospores and paraphyses exceeding the asci. Scale bar = 10 μ m.

ascospores $8.9\text{--}11.3 \times 1.8\text{--}2.2 \mu\text{m}$ and paraphyses $1.9\text{--}2.6 \mu\text{m}$ wide, exceeding the asci by $(3.5\text{--})5\text{--}10.2 \mu\text{m}$. The material belongs to *Lachnum rhizophilum*. The apothecium has the same colour and shape as expected for *Lachnum* sp., however, the microcharacters agree well with *Lachnum rhizophilum*. The specimen is somewhat similar to *Lachnum pudibundum* (PRM 148591, from pine wood) due to the cup not collapsing on drying, a coloured disc (paler, rather orange brown colour) and asci arising from simple septa. However, the longer asci and hairs, narrower and less exceeding paraphyses and probably detritus in soil as a substratum refer to the *Lachnum pygmaeum* complex. – PRM 149414: Lectotype of *Lachnum piceum* (indicated by Svrček in herb., designated here) contains one apothecium 1 mm in diam. with the stalk 0.3 mm in diam. in upper part, hairs $48\text{--}65\text{--}(69) \times 4\text{--}5 \mu\text{m}$, asci $(63\text{--})65\text{--}81\text{--}(83) \times 3.8\text{--}4.9 \mu\text{m}$, ascospores $(6.8\text{--})7.6\text{--}9.3\text{--}(10.6) \times 1.7\text{--}2.3 \mu\text{m}$ and paraphyses $2.9\text{--}3.8\text{--}(4) \mu\text{m}$ wide, exceeding the asci by $8.5\text{--}16 \mu\text{m}$. As the material is slightly overmature, croziers were not seen, but the ascus bases indicating that asci are arising from croziers were observed.

Result of revision of the type of *Lachnum rhizophilum* (G 52853). Dried apothecia c. 3–4 mm high, c. 0.8–1 mm in diam., seemingly non-hairy, stalks very long, white-beige, cups collapsed, outer surface of cup as well as discs dark ochraceous. Hairs warty, cylindrical, often slightly constricted at septa, $30\text{--}60 \times 3.6\text{--}4.7\text{--}(5.3) \mu\text{m}$. Asci arising from simple septa, $65\text{--}70\text{--}(75) \times 4.5\text{--}5.5\text{--}(6.2) \mu\text{m}$. Ascospores fusiform to narrowly fusiform, $(7.4\text{--})10.5\text{--}12.4\text{--}(13.6) \times (1.4\text{--})1.8\text{--}2.2 \mu\text{m}$. Paraphyses lanceolate, $(1.7\text{--})2\text{--}3.1 \mu\text{m}$ wide, exceeding the asci by $7.5\text{--}16.5 \mu\text{m}$.

Published records: Velenovský 1947: 129 as *Dasyscypha pygmaea* Sacc. (Central Bohemia, Praha-Krč, pine, July 1941, leg. V. Vacek – revised, PRM 149954, on deciduous wood according to Svrček in herb., not pine as published by Velenovský, material in poor condition, cups brown, hairs c. 60 μm long, clavate to slightly capitate, asci c. 50 μm , paraphyses more than 2.6 μm wide, ascospores $7.3\text{--}8.5 \times 1.5\text{--}2 \mu\text{m}$, possibly *Lachnum fasciculare*; Božkov, 1941, leg. J. Velenovský – not revised).

Material of *Lachnum pygmaeum* s. str. revised: Western Bohemia: Mariánské Lázně, on bark of *Picea excelsa*, 8 June 1950, leg. et det. M. Svrček, PRM 690215. – Central Bohemia: Praha-Krč, on radicle of *Picea*, 29 May 1945, leg. et det. V. Vacek, PRM 690314. – [Central Bohemia,] Kunice [near Mnichovice], on spruce [*Picea excelsa*], August 1923, leg. et det. J. Velenovský (as *Lachnum piceum*), host rev. A. Chlebickí, PRM 149414 (lectotype of *L. piceum*). – [Central Bohemia, Kunice near Mnichovice, Kunický les forest] “Kunický les”, [on piece of wood of *Pinus*, probably of decorticated branch; host det. A. Chlebickí], July 1931, leg. et det. J. Velenovský (as *Lachnum grande*), PRM 151997 [according to Velenovský's manuscript this specimen is the syntype of *Lachnum grande* Velen., which was published as “prope Kunice” by Velenovský (1934), and contains two apothecia and probably is the only preserved syntype, see also discussion under Doubtful species]. – Kersko near Poříčany, on piece of wood (deciduous wood, substrate det. A. Chlebickí), 15 June 1958, leg. O. Dvořák, det. M. Svrček, PRM 612965. – Southern Bohemia: Chotýčany, valley of Libochovka river, on bark of radicles of *Picea excelsa*, 13 July 1962, leg. et det. M. Svrček, PRM 567993.

Material of *Lachnum* sp. revised (material from radicles of *Quercus* was only attached to them and grew rather from sandy soil): Southern Bohemia: Čimelice near Písek, meadows on bank of Skalice river, on naked soil with pieces of dead grasses, 13 June 1961, leg. et det. M. Svrček, PRM 616113. – Smržov near Lomnice nad Lužnicí, pond Dvořiště, on radicle of *Quercus*, 10 July 1962, leg. M. Svrček et J. Kubička, det. M. Svrček, PRM 567991. – Chotýčany, Velechvinský revír (shooting-ground), at source of Libochovka river, on radicle of *Quercus*, 13 July 1962, leg. et det. M. Svrček, PRM 567992.

Material of *Lachnum rhizophilum* revised (incl. G 52853 from Germany): [Central Bohemia, Mnichovice, on a hill above Myšlín] “Na vřesovin. kopci nad Myšlínem z holé země”, on naked soil, August 1931, leg. et det. J. Velenovský (as *Lachnum piceum*), PRM 151970 (syntype of *L. piceum*). – Germany, Budenheim, Pinetum, on putrid rhizomes of *Koeleria glauca*, autumn, leg. et det. L. Fuckel (as *Helotium rhizophilum*), G 52853 (type, Fungi rhenani, no. 1598).

Lachnum subvirginium Baral nom. prov.

Fig. 10.

Lachnum subvirginium Baral in Baral et Krieglst., Beih. Z. Mykol. 6: 83, 1985, nom. prov.

Description. Dried apothecia very long-stalked and big (1–2 mm high, 0.45–1.35 mm in diam.), becoming whitish only with slight brownish or brown-beige tint on drying. Hairs warted, capitate and less frequently cylindrical, mostly 5-septate and not more than 5-septate, (54–)65–95 × (4.3–)5.4–6.1 µm. Asci arising from croziers, 44–54 × (3.5–)4–4.5 µm, KOH/MLZ+. Ascospores narrowly fusiform, 6–9 × 1.4–1.8 µm. Paraphyses lanceolate, (3–)3.5–4.2(–4.8) µm wide, exceeding the asci by 7–15 µm.

Comments. The features of the apothecia, the wide paraphyses, size of asci and ascospores and long hairs indicate a relation to *Lachnum virginium*, but hairs of *L. subvirginium* are less long, mostly conspicuously apically enlarged (capitate) and apothecia are bigger than in *Lachnum virginium*. *Lachnum subvirginium* differs from *Lachnum pygmaeum*, which also has large, long-stalked apothecia, in having longer hairs and shorter asci. The longer hairs and whitish to (not deep) brownish colour of the apothecia are macroscopically conspicuous under a stereomicroscope. *Lachnum papyraceum* differs from *L. subvirginium* in having narrower paraphyses and smaller ascospores (fide Dennis 1949, Vesterholt 2000). *Lachnum crataegi* differs by more protruding paraphyses and dark coloured discs when dried and *Lachnum pubescens* by shorter, mostly 3-septate hairs.

Material revised: Moravia: Drahonín near Tišnov, gorge, alt. 350 m, on wood of *Picea excelsa* partially immersed in water, 11 July 1941, leg. F. Šmarda, BRNM 50827 (as *Lachnum papyraceum*).

Lachnum virginium (Batsch: Fr.) P. Karst. – chlupáček bělostný

Fig. 11.

Peziza virginea Batsch, Elench. Fung., p. 125, 1783. – *Lachnum virginium* (Batsch: Fr.) P. Karst., Bidrag Kännedom Finlands Natur Folk 19: 169, 1871.

Description. Dried apothecia 0.45–1.3 mm high, 0.25–0.7(–0.9) mm in diam., mostly long-stalked, cup-shaped, covered with long white hairs, outer surface and disc mostly pale yellow (4–A4) to yellow orange (4–A7, rarely 4–A8), cups not collapsing on drying. Hairs hyaline, warted, cylindrical or with slightly (mostly gradually) enlarged apices, 70–120(–160) × 3.7–4.6 µm, mostly 2–5-septate, wall 0.7–0.9 µm thick. Asci arising from croziers, 39.5–53.5 × 3.7–5 µm, KOH/MLZ+. Ascospores fusiform, 6.8–9(–10.2) × 1.4–2 µm. Paraphyses lanceolate with subacute tips, (2.3–)2.9–5.4 µm wide, exceeding asci by 8.5–15.5 µm.

Comments. In literature (e.g. Vesterholt 2000) a width of paraphyses 3–6 µm is stated. The specimen of *Lachnum virginium* (as *Lachnum alnisedum* Velen. in herb., PRM 149560) from female *Alnus* strobiles possessed narrower paraphyses 2.5–3.0 µm in diam. However, e.g. specimen PRM 816369 from the same substratum possessed paraphyses 3–4.6 µm wide. Also specimens from co-

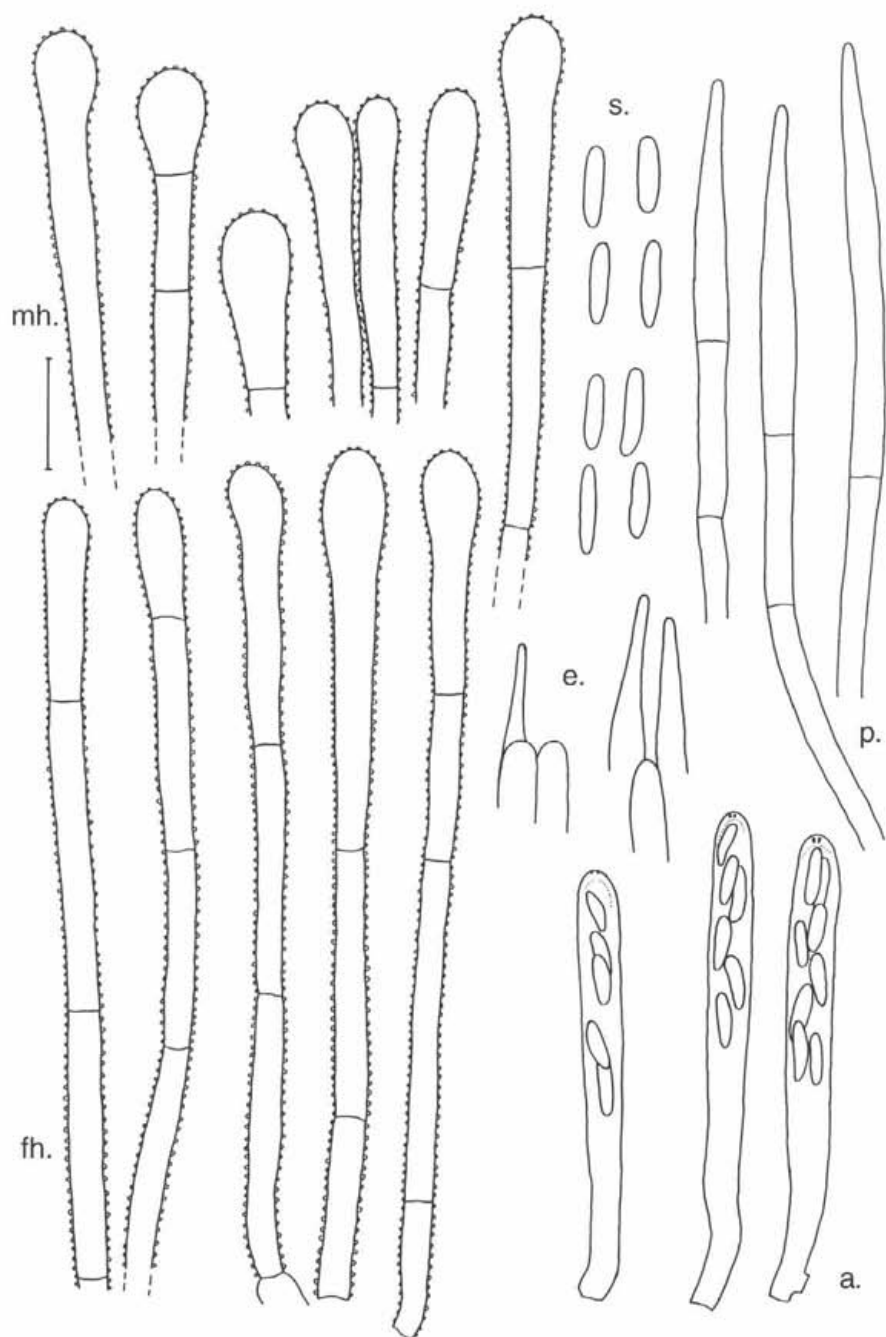


Fig. 10. *Lachnum subvirgineum* Baral (nom. prov.), BRNM 50827. Scale bar = 10 μ m.

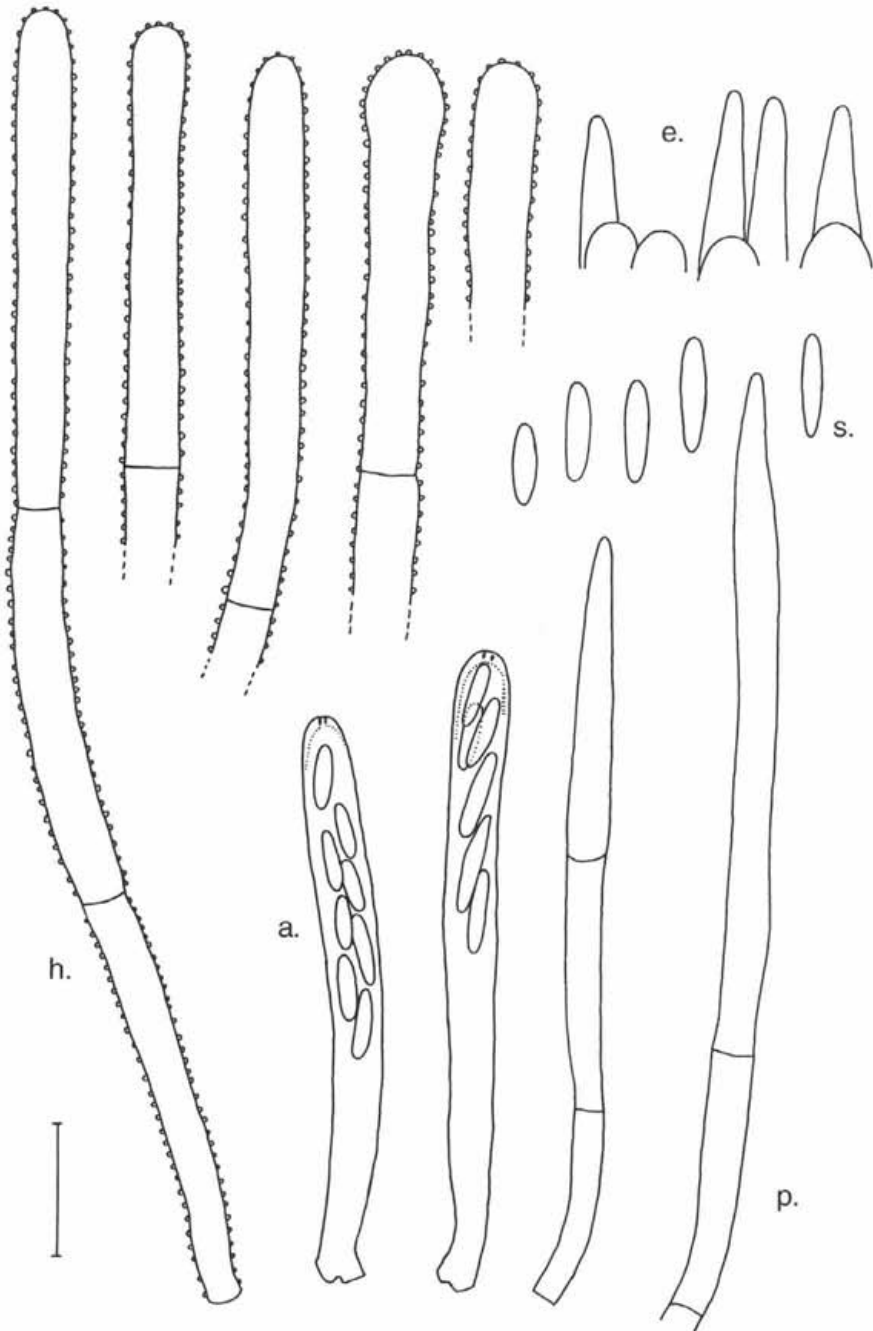


Fig. 11. *Lachnum virgineum* (Batsch: Fr.) P. Karst., PRM 152058 (asci and ascospores), 560428 (hairs), 560561 (paraphyses exceeding the asci and the shorter paraphyse), 816387 (paraphyse). Scale bar = 10 μ m.

niferous cones showed somewhat narrower paraphyses, 2.3–2.6(–4) μm wide (BRNM 50814). However, e.g. specimen BRNM 50818 from the same substratum had paraphyses (2.6–)3–4 μm wide. As broader paraphyses were also seen in other material from female *Alnus* strobiles and coniferous cones, the narrower, probably less mature paraphyses are considered to be in the range of variability of *L. virgineum*.

Published records: Velenovský 1934: 248 (as common species, on *Quercus*, *Carpinus*, *Betula*, *Tilia*). – Svrček 1953: 204 (Central Bohemia, Protected Landscape Area Křivoklátsko, valley of Klíčava brook, on *Carpinus betulus* and on deciduous wood). – Svrček 1953: 207 as *Lachnum virgineum* (Batsch) P. Karst. 'f. *carpophila* Pers.' (Central Bohemia, Protected Landscape Area Křivoklátsko, valley of Klíčava brook, on *Fagus sylvatica*). – Svrček 1986: 13, 14 (Western Bohemia: nature reserve Bělýšov near Chudenice, on cupules of *Fagus sylvatica*; Sedmíhoří, Mezholezy, on *Frangula* and *Alnus glutinosa*; nature reserve Osojno, on cupules of *Fagus sylvatica*; Plzeň, on cupules of *Fagus sylvatica*; nature reserve Bělýšov, on cupules of *Fagus sylvatica*; Defurovy Lažany, on *Alnus glutinosa*; nature reserve Lužany at Lužany, on *Alnus glutinosa*; Western Bohemia, Horomyšlice, on *Quercus*; Plzeň, nature reserve Zábělá, on *Acer pseudoplatanus*). – Prášil 1999: 24 (Hřebeny hills, valley of Moklický potok brook, on *Alnus*, *Quercus*, *Fagus*, and on cupules of *Fagus*). – Rěblová and Prášil 1999: 30 (Western Bohemia, Šumava Mts., Černé jezero lake and Čertovo jezero lake, on *Fagus sylvatica*). – Svrček 2001: 204 (Western Bohemia, Javornická hornatina Mts.: "Zábrdí", on *Alnus glutinosa*).

Material revised: Northern Bohemia: České středohoří hills, NNW of saddle between Lovoš hill and Kybyčka hill, alt. c. 440–460 m, on lying decorticated branch of *Tilia* or *Acer*, 3 May 2005, leg. L. Edrová, det. M. Suková, PRM 907138. – České středohoří hills, valley of Milešovský potok (brook) between Velemín and Opárno, on female strobiles of *Alnus*, 3 May 2005, leg. L. Edrová, det. M. Suková, PRM 907141. – Central Bohemia: Zbečno, valley of Klíčava river, Kovářův luh, on cupules of *Fagus sylvatica*, 28 May 1948, leg. et det. M. Svrček, PRM 816395. – Hřebeny Mts., Dobříš, on cupules of *Fagus sylvatica*, 23 May 1948, leg. et det. M. Svrček, PRM 816387. – Roblín, on spruce [twig of *Picea excelsa*], 16 May 1925, leg. et det. J. Velenovský (as *Lachnum conisedum* Velen. in herb., publ. as *L. papyraceum*), PRM 149293. – NW of village Dobříchovice, Karlické údolí (valley), alt. 250–280 m, on cupules of *Fagus sylvatica*, 25 May 2002, leg. et det. M. Suková, PRM 900753. – Praha-Radotín, on female strobiles of *Alnus* sp., April 1924, leg. et det. J. Velenovský (as *Lachnum alnisedum* Velen. in herb.), PRM 149560. – Mnichovice, Kožený vrch hill, on partially decorticated twig, probably *Quercus*, June 1927, leg. et det. J. Velenovský (as *Lachnum fulvellum*), PRM 147742 (syntype of *L. fulvellum*). – Černý Kostelec, [on cone of *Larix europaea*,] May 1927, leg. et det. J. Velenovský (as *Lachnum conisedum* Velen. in herb., publ. as *L. papyraceum*), PRM 148990. – Hrusice, [on decaying cone of *Pinus*,] [6] April 1927, leg. et det. J. Velenovský (as *Lachnum conisedum* Velen. in herb., publ. as *L. papyraceum*), PRM 147696. – Hrusice, [on decaying cone of *Pinus*,] 20 April 1941, leg. L. Hostáňová, det. J. Velenovský (as *Lachnum papyraceum*), PRM 151591. – Mnichovice, on decaying cone of *Picea excelsa*, May 1934, leg. et det. J. Velenovský (as *Lachnum crystallinum*), PRM 152058. – Mnichovice, on cone of *Larix [europaea]*, 4 May 1929, leg. et det. J. Velenovský (as *Lachnum papyraceum*), PRM 152056. – Kunice near Mnichovice, on spruce [on twig of *Picea excelsa*, to be exact on old (woody) bud involucre], May 1928, leg. et det. J. Velenovský (as *Lachnum papyraceum*), PRM 151412. – Choteč, on female strobiles of *Alnus incana*, 13 March 1949, leg. et det. M. Svrček, PRM 816369. – Southern Bohemia: Šumava Mts., virgin forest Boubínský prales near Horní Vltavice, on cupules of *Fagus sylvatica*, 19 May 1965, leg. et det. M. Svrček, PRM 604108. – Braná near Třeboň, at Fráterský rybník (pond), on a deciduous twig, 17 May 1962, leg. et det. M. Svrček, PRM 560463. – Slepíčí hory Mts., by path to Kohout hill, on cupules of *Fagus sylvatica*, 17 May 1962, leg. et det. M. Svrček, PRM 560428. – Slepíčí hory Mts., Klení, on cupules of *Fagus sylvatica*, 17 May 1962, leg. et det. M. Svrček et J. Kubička, PRM 560561. – Slepíčí hory Mts., Klení, on female strobiles of *Alnus viridis*, 17 May 1962, leg. M. Svrček et

J. Kubička, det. M. Svrček, PRM 560562. – Moravia: Říkonín near Tišnov, valley of Libochovka ("Libochůvka") river, alt. 350 m, on cone of *Picea excelsa*, 22 June 1941, leg. et det. F. Šmarda, BRNM 50818. – Moravia: forest Obora near Veverí, on cupules of *Fagus sylvatica*, 18 May 1969, leg. et det. M. Svrček, PRM 684254. – Krnovec hill near Veverí, on cupule of *Quercus*, 18 May 1969, leg. et det. M. Svrček, PRM 684255.

Doubtful species

Lachnum grande Velen.

Lachnum grande Velen., Monogr. Discom. Bohem., p. 247, 1934.

Comments. In the synonymy of '*Lachnum grande* Velen., sp. n.' Velenovský (1934) quoted *Helotium pileatum* Velen. This indicates that *Lachnum grande* could be considered as a new name for *Helotium pileatum* (*H. pileatum* Velen., České houby, vol. 4-5, p. 850, 1922; non *H. pileatum* (P. Karst.) P. Karst., Bidrag Kännedom Finlands Natur Folk 19: 130, 1871; nec *H. pileatum* Peck, Annual Rep. New York State Mus. 28: 67, 1875). In such a case *Lachnum grande* has the same type as the name which was replaced (*H. pileatum*). In agreement with the protologue (Velenovský 1922), there is a big, non-hairy apothecium in the holotype of *H. pileatum* (PRM 824894). According to Svrček (1984), who revised the holotype, this is *Hymenoscyphus vernus* (Boud.) Dennis.

Svrček (1984) tended to consider *Lachnum grande* a new taxon (which he synonymised with *Lachnum pygmaeum* s. l.) and held the opinion that Velenovský had made a mistake by synonymising *Helotium pileatum* with *Lachnum grande*. In the herbarium we can see that early after the publishing of České houby, vol. 4-5 (Velenovský 1922) Velenovský began with labelling material of true *Lachnum* specimens with the name *Helotium pileatum*. Only one specimen of *H. pileatum*, the holotype, contains material of a *Hymenoscyphus*.

If we consider *Lachnum grande* described from deciduous substrata an independent new taxon (not a new name), it has at least two or three syntypes cited in the protologue, of which only one exists and unfortunately it is the one (PRM 151997) whose substratum is in fact wood of *Pinus*. The specimen (belonging to *Lachnum pygmaeum* s. str.) contains two apothecia, 1.2 and 2.5 mm in diam., with hairs (36-)38-48.5(-52.5) × 3.5-4.5(-4.9) µm, asci arising from croziers, (50-)52-66(-68.5) × 4.3-4.9 µm, ascospores (5.7-)6.6-8.5(-9) × 1.5-2.3 µm and paraphyses (2.2-)2.6-3.6(-3.9) µm wide, exceeding by (5.5-)8.5-18.5(22.5) µm. According to Velenovský's manuscripts, fresh material of this specimen had apothecia 3-6 mm in diam., asci 70-90 × 5-6 µm, ascospores 6-8 µm long. In the published drawing (Velenovský 1934), the two apothecia on the left and the two hairs on the right come from this specimen.

According to his manuscript Velenovský studied 5 specimens [briefly: Struhařov, *Carpinus*, VIII. 1922; Zbuzany, *Alnus* forest, VIII. 1924; Ondřejov, *Carpinus*, VIII 1925; no data, VIII. 1927; Kunice, deciduous twig, no date given, but it was the last find]. He erroneously added information from these to his sheet devoted to his previously published *Helotium pileatum* [by the way, the sheet also includes a nice unpublished drawing of *H. pileatum*]. Therefore such large sizes of apothecia appeared in the original description of *L. grande*. One of the 5 specimens (Kunice, as deciduous twig, in fact *Pinus*, PRM 151997) is discussed above. I found that only one more specimen from the authentic material is preserved in PRM [Struhařov, *Carpinus*, VIII. 1922, PRM 147999, sub *Helotium pileatum*]. The specimen contains several, well preserved apothecia with hairs up to 54 μm long, asci arising from croziers, c. $74 \times 4.2 \mu\text{m}$, ascospores $8.8 \times 2.0\text{--}2.2 \mu\text{m}$, paraphyses 2.3–3 μm (average 2.8 μm) wide, exceeding by 7–10.3 μm .

According to the only specimen formerly appropriate to be a syntype (PRM 151997), *Lachnum grande* would belong to the synonymy of *Lachnum pygmaeum* s. str. However, it is clear that the coniferous substrate of the syntype and also the fungus itself (according to Velenovský's species concept discussed below) conflicts with the protologue of *L. grande*, therefore I do not recommend selecting the specimen as a lectotype. The other studied specimen from *Carpinus* fits the original description better, although it was not cited in the protologue. Consequently, the specimen from *Carpinus* (PRM 147999) is designated here as lectotype (see Note 2 of Art. 9.). *Helotium affinissimum* Peck, described from decaying sticks buried in the ground (Peck 1883) might be conspecific with *Lachnum grande* and would in that case have priority.

I confirm the opinion that *Lachnum grande* is a new species and not only a new name and mentioning the name *Helotium pileatum* as a synonym by Velenovský was a mistake in identification, which however lead to partial confusion in the original description.

As I understand it, the species *Lachnum grande* was described by Velenovský (1934) for material of *Lachnum pygmaeum* s. l. from deciduous woody substrata. Illustrations and protologues of *Lachnum grande* and *Lachnum piceum* (Velenovský 1934) show slightly narrower and less protruding paraphyses in *L. grande*. This fact agrees with my observations: paraphyses 2.9–3.8(–4) μm (average 3.35 μm) wide, exceeding by (8.8–)9.5–14.4(–15.7) μm in the lectotype of *Lachnum piceum* and 2.3–3 μm (average 2.8 μm) wide, exceeding by 7–10.3 μm in the lectotype of *Lachnum grande*. In *Lachnum pygmaeum* s. str., paraphyses are (2.2–)2.9–4.1(–4.9) μm (average 3.5 μm) wide and exceed by (5.5–)8.5–17.5(–25) μm . Only one specimen, which I included into my description of *Lachnum pygmaeum* s. str., comes from deciduous wood (the specimen PRM 612965) and its paraphyse measurements yield large values: paraphyses (2.6–)3–4.2(–4.7) μm (average 3.6 μm), exceeding by 9–17 μm . Therefore the material growing directly

on deciduous wood should not be separated on the basis of smaller paraphyses from the material from conifers and *Lachnum grande* belongs to the synonymy of *Lachnum pygmaeum* s. str.

Material studied: [Central Bohemia, Kunice near Mnichovice, Kunický les forest] "Kunický les", [on piece of wood of *Pinus*, probably of a decorticated branch; host det. A. Chlebicki], VII. 1931, leg. et det. J. Velenovský (as *Lachnum grande*), PRM 151997 (rev. M. Suková as *Lachnum pygmaeum* s. str.). – [Central Bohemia,] Struhařov, *Carpinus* [*betulus*], VIII. 1922, leg. et det. J. Velenovský (as *Helotium pileatum*), PRM 147999 (rev. M. Suková as *Lachnum grande*, synonym of *L. pygmaeum* s. str.), lectotype of *Lachnum grande*.

ACKNOWLEDGEMENTS

The work would not have been possible without plenty of material collected by Dr. M. Svrček and without his work on the arrangement of Velenovský's collection. Recently, colleagues L. Edrová and M. Tůmová assisted by collecting *Lachnum*. Very much appreciated are the keys and drawings by H.O. Baral on his CD from 2003 and his valuable comments to the first draft of the manuscript. The curators of herbaria BRNM, G and S are thanked for arranging loans. I would like to thank Drs. Z. Pouzar and J. Holec for critically reading the manuscript and Dr. A. Chlebicki for identifying wood and providing final versions of some drawings. The work was supported by a grant of the Ministry of Culture of the Czech Republic (projects no. RK04P03OMG010 and MK00002327201).

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