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Hymenochaete and Hymenochaetopsis (Basidiomycota) in Europe

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Fourteen species of *Hymenochaete* and three species of *Hymenochaetopsis* from Europe are treated, including their distribution and hosts characteristics. Four new species are described, viz. *Hymenochaete canescens*, *H. jaapii*, *H. pilatii* and *H. rhododendri*. Two species are new for Europe, viz. *Hymenochaete longispora* and *Hymenochaetopsis laricicola*.

Key words: *Hymenochaete*, *Hymenochaetopsis*, mycogeography, host-variation

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Erast Parmasto (deceased)

Introduction

Hymenochaete Lév. was earlier a part of *Thelephora* Ehrh. : Fr., i.e. aphyllophoralean fungi with a smooth hymenium. The genus was later divided into *Corticium* Pers. and *Stereum* Pers. (resupinate / effused-reflexed). In 1846 Léveillé transferred all the species with setae to a new genus *Hymenochaete*. Patouillard (1900) transferred all brown species with setae and xanthochroic reaction (turning black in KOH) to "*série des Igniaires",* including *Phellinus* Quel., *Cyclomyces* Fr., *Hydnochaete* Bres., *Xanthochrous* Pat. and *Hymenochaete*. Wagner & Fischer (2002) used DNA-sequences to show that *H. tabacina* (Fr.) Lév. was not congeneric with other species in *Hymenochaete*, and they transferred it to *Pseudochaete* T. Wagner & M. Fisch. Their work also showed, that *Hydnochaete* and *Cyclomyces* had to be merged with *Hymenochaete*. The generic name *Cyclomyces* Kunze (1830) is older than *Hymenochaete* Léveillé (1846), so Fischer & Wagner (2001) proposed to conserve *Hymenochaete* against *Cyclomyces*. The genus name *Pseudochaete* is unfortunately a later homonym of the alga *Pseudochaete* West & G.S. West (1903). Yang et al. (2016) therefore proposed the generic name *Hymenochaetopsis* S.H. He & Jiao Yang to replace *Pseudochaete*. At present there are 13 species in *Hymenochaetopsis*, three of which are European. About 120 species of *Hymenochaete* exist, of which 14 are treated in this paper.

Karsten (1882) treated two species from Finland in *Stereum*, one under *Xerocarpus* P. Karst. and one under *Corticium*. Later, he (Karsten 1889) treated four species including *Hymenochatella arida* P. Karst. and *H. laxa* P. Karst. (= *H. cinnamomea*). Rea (1922) included 12 species from Great Britain, of which six were misidentifications, synonyms or not belonging to *Hymenochaete*: *H. boltonii* (Fr.) Cooke (= *Lopharia spadicea*), *H. nigrescens* Cooke ex Massee (= *H. tabacina*), *H. stevensonii* Berk. & Broome (= *Amylostereum laevigatum*). *H. leonina* Berk. & M.A. Curtis may be a misidentification (mostly

an American species, description based on Burt (1918). *H. croceoferruginea* Massee is *H. corrugata* and *H. crassa* (Lév.) Berk. is *Porostereum crassum* (description based on Massee (1890). Bourdot & Galzin (1921, 1928) published seven species, one subspecies and five varieties from France. Later reports include Pilat (1930) from Czechia and Slovakia with eight species, four varieties and nine forms. Skovsted (1950) and Christiansen (1960) reported three species from Denmark each. Kreisel (1961) reported six species from Germany, Jahn (1971) reported seven species and one form from Europe. Ryvarden (1971) reported five species from Norway. Telleria (1980) reported four species from Spain and Jülich (1984) seven species from Central Europe. Breitenbach & Kränzlin (1986) presented seven species from Switzerland. Bondartseva & Parmasto (1986) reported nine species from European part of Russia. Corfixen (1997) reported five species from the five nordic countries, including *H. subfuliginosa* as a synonym of *H. fuliginosa.* Krieglsteiner (2000) reported seven species from Germany. Karadelev & Rusevska (2004) reported six species from Macedonia. Ghobad-Nejhad et al. (2009) reported nine species from Caucasus region and finally Papp (2013) reported five species from Hungary.

Material and methods

This paper covers Europe as delimited by Plant Taxonomic Database Standard No. 2 (Brummitt 2001). Europe is bordered by the Arctic Ocean to the north, the Atlantic Ocean to the west, and the Mediterranean Sea to the south. To the east and southeast by the watershed of the Urals and Caucasus Mountains, the Ural River, the Caspian and Black Seas, and the waterways of the Turkish Straits. Caucasus is included in the article. No records available from the Atlantic islands (Iceland, Svalbard and the Faroe Islands). Most collections are from northern Europe and central Europe. Very few collections are from southeastern Europe.

This paper is based on a study of herbarium specimens in 46 herbaria by the first author (B, BG, BOLO, BPI, BR, BRNM, C, DBN, E, FI, FH, G, GB, H, HBG, JE, K, KRA, L, LD, LE, LISU, LOD, LY, M, MA, NEU, NY, NYS, O, OULO, PC, PDD, PRM, RO, S, TAA, TRH, TROM, TUR, UME, UPS, W, WA, ZA, YAM, and private collections from J.-C. Leger and L. Ryvarden). Nearly 8000 specimens were examined, of these more than 7000 from Europe, including several types. The second author covered the study of several hundred specimens, mostly in TAA. Descriptions are mainly based on European specimens. Colours are mostly coded using Kornerup & Wanscher (1965). Microscopic study is based on free-hand sections in water or 2% aqueous solution of KOH. Measurements were made using eyepiece micrometer (magnifications × 500, × 700 and × 1000). The second author used a Sony CCD Video Camera attached to a Nikon Labophot 2 microscope, and analyzed by Global Lab Image (Data Translation Inc.) software. For statistics, 25 or 30 spores were measured from each specimen. Results of some of these are listed under spore descriptions as (Parmasto: specimens, mean spore size and Q value). All hyphae in species of Hymenochaete and Hymenochaetopsis are simple-septate. We use the term subdimitic in cases where the hyphal system consists of simple-septate, relatively thin-walled generative hyphae and sklerefied, thick walled hyphae which look like skeletals, but are sparingly simple-septate. For further notes on Hymenochaete see Parmasto (2001b). Photos were made using a Canon Power Shot SX20IS and Huawei P9. Drawings were free-hand, digitalized and finished in Photoshop. Synonyms given are mostly European. Geographical names mostly following Brummit (2001), except for Great Britain where the four countries are used.

The Danish collections are found on http://www.daim.snm.ku.dk/svampeherbariet, and further registrations from a “citizen science” project under the Danish Mycological Society https://svampe.databasen.org/search/. Norwegian collections are in the Norwegian mycological database (NMD): http://nhm2.uio.no/botanisk/nxd/sopp/nsd_e.htm and those from Scotland in http://elmer.rbge.org.uk/bgbase/vherb/bgbasevherb.php. Spanish material can be found in http://161.111.170.202/herb/asp/ and Swedish in http://herbarium.nrm.se/.

Hymenochaete – Setae with an acute, non-eroding tip.

Hymenochaetopsis – Setae at first with an acute tip, tips later eroding/collapsing

Key to the European species

1. Basidiomes effused 2
1. Basidiomes effused-reflexed or with elevated margin 12

2. With loose hyphal layer between setal layer ..... 4. *Hymenochaete cinnamomea*
2. Without loose hyphal layer between setal layer 3

3. Hymenium velvety, red to brownish red 4
3. Hymenium not velvety, nor reddish, but ochraceous, brown to grey 5

4. Hymenium red, on *Abies* ..... 5. *Hymenochaete cruenta*
4. Hymenium reddish brown, on deciduous trees ..... 8. *Hymenochaete konradii*

5. Hymenium very thin, ochraceous ..... 3. *Hymenochaete caucasica*
5. Hymenium thicker, brown to grey 6

6. Hymenium dark brown to greyish 7
6. Hymenium light to dark brown, not greyish 9

7. Hymenium irregularly cracking, setae conical, with eroding tips 15. *Hymenochaetopsis corrugata*
7. Hymenium transversely cracking, setae subulate with acute tips 8

8. Setae 80–140 µm ..... 9. *Hymenochaete longispora*
8. Setae 40–65 µm ..... 1. *Hymenochaete canescens* sp.nov.

9. Hymenium dark chocolate brown 10
9. Hymenium light brown to cinnamon brown 11

10. Basidiomes thick, on *Quercus* ..... 13. *Hymenochaete subfuliginosa*
10. Basidiomes thin, on coniferous wood, seldom on *Salix* ..... 6. *Hymenochaete fuliginosa*

11. Hymenium light brown, mostly on *Acer*, setae 50–90 µm long ..... 2. *Hymenochaete carpatica*
11. Hymenium cinnamon, setae 30-65 µm long ..... 7. *Hymenochaete jaapii* sp.nov.

12. Basidiomes woody hard; hymenium reddish brown 13
12. Basidiomes soft to leathery; hymenium greyish brown 14

13. Basidiomes 10–50 mm, on *Quercus* ..... 12. *Hymenochaete rubiginosa*
13. Basidiomes 5–20 mm, on *Ulmus* ..... 14. *Hymenochaete ulmicola*

14. Setae with acute tips 15
14. Setae with eroding tips 16

15. Hymenium greyish brown, with cortex, on *Rhododendron* ..... 11. *Hymenochaete rhododendri* sp.nov.
15. Hymenium yellowish brown, without cortex, on other deciduous trees and bushes ..... 10. *Hymenochaete pilatii* sp.nov.

16. Setae 25–35 µm, on *Larix* ..... 16. *Hymenochaetopsis laricicola*
16. Setae 50–100 µm, on deciduous trees ..... 17. *Hymenochaetopsis tabacina*

Fig. 1. *Hymenochaete canescens*. France, Aveyron, Frigifont pres St. Sernin, on *Calluna vulgaris*, 3.VII.1909 *Galzin* (G 4161=HB 12479, PC). – Photo: P. Corfixen

1. Hymenochaete canescens Corfixen **sp. nova.** – Figs. 1; 19,1; 20,1.

Mycobank no: MB 820907

Hymenochaete corrugata f. *callunae* Bourdot & Galzin, Bull. Soc. mycol. Fr. 38: 185 (1922); Pilát, Hedwigia 71: 127 (1930); Jahn, Westfäl. Pilzbriefe 8: 142 (1971).

As *Hymenochaetopsis corrugata*, but setae fusiform, with narrowly acute and thin tip, without incrustation and not eroding, naked or rarely enmeshed in hyphal sheath, 40–65 × 4-8 µm.

Holotype: **SPAIN. Balearic Islands.** Mallorca, Cala de San Vicente, on *Quercus,* 23.XI.1970 *Macholm & Onsberg* (RMPO 244; C-F-10289, C).

Etymology: Becoming grey.

Basidiome perennial, effused, closely adnate, 5–150 × 50–60 mm, 0.3–1.2 mm thick; hymenial surface even or tuberculate, later cracked in transverse pattern, dark brown, grey brown to grey (K&W 6F76–D2); margin thin, orange brown. *Cortex* 10 µm thick, rust brown, composed of agglutinated hyphae; hyphal layer 10–200 µm thick, hyphae compactly longitudinally arranged; setal layer 40–500 µm thick, composed of overlapping rows of setae. *Hyphal system* subdimitic, solitary tramal setae few 80 × 5 µm. Generative hyphae 2–3.5 µm in diam., subhyaline, thin-walled; sklerefied hyphae 3-5 µm in diam., thick-walled, brown. *Setae* very numerous, 40–65 × 4–8 µm, projecting 20–40 µm, fusiform, with acute and thin tip, without incrustation, naked or rarely enmeshed in hyphal sheath, often with a broken tip. *Hyphidia* numerous, not well differentiated, 1.5–3 µm in diam., thin-walled, subhyaline. *Basidia* 15–25 × 4–6 µm, subclavate, with four thin sterigmata 4–5

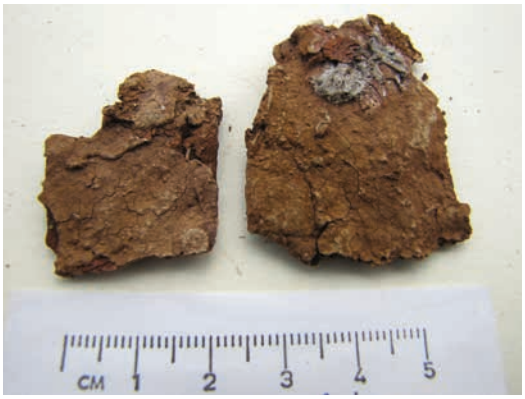

Fig. 2. *Hymenochaete carpatica*. Switzerland, Schwyz, Alpthal, entre Brunni et Holzegg, on *Acer pseudoplatanus*, 28.VI.1987 *Baici* (LY-B-1992, LY). – Photo: P. Corfixen

µm long. Basidiospores 3–4.5 × 1.5–3 µm, ellipsoid. Causes white rot.

Mostly on twigs of *Calluna vulgaris* (24), rarely on other twigs like *Cistus monspeliensis* (3), *Erica arborea* (1), *E. scoparia* (2), *Helianthemum nummularium* (1). Sporadically also found on trees like *Quercus* (2) and *Pinus pinea* (1). So far only recorded from Europe: France (14), Germany (11), Italy (2), Portugal (2), Spain (9), Sweden (1). *Hymenochaete canescens* has a marked southern oceanic-atlantic distribution, following its two main host families Ericaceae (*Calluna* and *Erica*) and Cistaceae (*Cistus* and *Helianthemum*). Four of the six host countries are Mediterranean and include 69 % of the records, but the new species has been found north to the Swedish archipelago near Gothenburg. The small inconspicuous basidiomes occurring in habitats rarely investigated by mycologists may be the reason behind its negligence up to now.

Exsiccata studied: Krieger, Fungi Saxonici Exsiccati 717 (H, HBG, JE, K, M, S), (as *Corticium corrugatum*).

Voucher specimens studied: **FRANCE.** Allier, Les Bramefant, on *Calluna*, 29.III.1906 *Bourdot* (HB.4003, PC); Aveyron, Balzaguet pres St. Sernin, on *Calluna*, 3.VII.1909 *Galzin* (G.4183, PC); Aveyron, Frigifont pres St. Sernin, on *Calluna vulgaris*, 3.VII.1909 *Galzin* (G 4161=HB 12479, PC); Provence-Alpes-Côte d'Azur, Var, Cap Sicié, on *Cistus monspeliensis* 1.IV.1964 *Boidin* (LY 4703, LY). **ITALY. Sardinia.** Oristano, S'Ena Arrubia, on *Helianthemum nummularium,* 17.XI.1983 *Bernicchia* (2101, BOLO). **PORTUGAL. Minho.** Terras de Buoro, Campo do Geres, Via Romana, on *Erica*, 29.IV.1989 *Melo et al.* (3996, LISU). **SPAIN. Huelva.** Alcornoques de las Monjas, on *Erica scoparia,* 25.V.1977 *Telleria et al.* (MA 129, MA). **SWEDEN. Bohuslän.** Resteröd, Ulvön, on *Calluna*, 11.IX.1988 *K-H. Larsson* (7016, GB).

H. canescens is closely adnate to the substrate like *H. fuliginosa* and *H. subfuliginosa*, but the colour is greyish and the setae shorter (40–65 µm). *Hymenochaetopsis corrugata* differs by longer (40–100 µm), conical setae with eroding tips. Many specimens are named *H. cinnamomea, H. corrugata, H. fuliginosa, H. rubiginosa, H. subfuliginosa* and *H. tabacina*.

2. Hymenochaete carpatica Pilát – Figs. 2; 19,2; 20,2.

Mycobank no: MB251289.

Hedwigia 70 (1/2): 124. 1930; Léger, Hymenochaete 81, f. 19, 20 (1998).

Holotype: **SLOVAKIA**. Montes Male Karpathy, Skina, on *Acer pseudoplatanus* (not *A. platanoides*), IV.1926 *Hruby* (PR686734, **examined**).

Icon. Chlebicki (2003): fig. 2; Krieglsteiner (2000): 207. **Web**. http://asco-sonneberg.de/pages/gallery/hymenochaete-carpatica-120104-01xs24671.php

Basidiome perennial, effused, closely adnate, 5–50 × 10–100 mm, 0.050–0.8 mm thick; hymenial surface even, later deep cracked, ochraceous, light brown to grey brown (K&W 5C6 to 6D5–6); margin thin, orange brown. *Cortex* absent or up to 10 µm thick, rust brown; hyphal layer absent or up to 10 µm thick; setal layer 40–800 µm thick, composed of overlapping rows of setae. *Hyphal system* monomitic. Generative hyphae 1–3 µm in diam., subhyaline, thin-walled. Many crystals in hyphal layer and hymenium. *Setae* very numerous, 50–90 × 6–10 µm, project-

ing 25–60 µm, subulate, with acute and thin tip, without incrustation, naked or rarely enmeshed in hyphal sheath. *Hyphidia* absent. *Basidia* 15–25 × 4–5 µm, subclavate, with four thin sterigmata 4–5 µm long. *Basidiospores* 5–7 × 3–4 µm (Parmasto: 1 specimen; 5.61 × 3.20 µm; Q value 1.75), ellipsoid. Causes white rot.

Mostly under bark scales of *Acer pseudoplatanus* (6), but also on *A. platanoides* (4), *Fagus* (1), *Quercus* (7) in Europe, North America, and Asia. In Europe *Hymenochaete carpatica* has a narrow niche in which it is rarely collected: the underside of flaking barkscales of *Acer pseudoplatanus*. This tree has its natural distribution in central and eastern Europe and western Asia, and *H. carpatica* seems to follow the natural distribution of its host tree. In Great Britain *A. pseudoplatanus* is considered as doubtfully native, but *H. carpatica* occurs in all central and eastern European countries. The six records from Sweden are all on oak. In England on *Ulmus* and *Fagus*. In literature the species has been recorded followingly: Russia (Ghobad-Nejhad et al. 2009); Austria (Gerhold 2000); Czechia, Slovakia, Romania, Ukraine, etc. (Tomšovský 2001); Germany (Krieglsteiner 1993, 2000); England (Ainsworth 2004); Hungary (Papp 2013); Poland (Chlebicki 2003, Krieglsteiner & Ławrynowicz 2003).

Voucher specimens studied: **SWEDEN. Uppland**. Ekebyholm near Rimbo, on *Quercus*, 18.XI.1917 *Romell* (1227, S, UPS, W. A fragment of the substrata was checked by P. Wagner, Copenhagen); *Romell* (3017, GB, S, W; specimen from W was identified first as *H. crassa* later *H. corticolor*, det. V. Litschauer). **SWITZERLAND. Glarus.** Braunwald, on *Acer pseudoplatanus*, 15.X.1987 *Baici* (O). **Schwyz.** Alpthal, entre Brunni et Holzegg, on *Acer pseudoplatanus* 28.VI.1987 *Baici* (LY-B-1992, LY).

H. carpatica grows on living trees (under barkscales) like *H. ulmicola* (in bark crevices). Basidiomes resemble *H. subfuliginosa*, but the colour is light brown and the setal layer has small crystals. Some authors have claimed that this species is only found in Europe and only on *Acer pseudoplatanus* (Krieglsteiner 1993: 80). More investigations are needed: see also Kaur et al. (2015), Parmasto (2001b) and Spirin et al. (2015). Specimens on *Acer pseudoplatanus* follow the natural distribution of the host in Central Europe. Some specimens have been named as *H. corticola* or *H. subfuliginosa*.

3. Hymenochaete caucasica Parmasto – Figs. 3; 19,3; 20,3.

Mycobank no: MB 129855

Mikologia i Fitopatol. 20 (5): 375 (1986); Bondartseva & Parmasto, Clavis diagn. fung. URSS. Aphyll. 1: 29 (1986); Bernicchia & Gorjón, Corticiaceae s.l.: 328 (2010), as *H. minuscula* G.H. Cunningham (1957).

Holotype: **GEORGIA. Tshakva District.** Thigeri, on *Buxus colchica*, 28.IX.1963 *Parmasto* (016997, TAA; isotypes in C, LY, **examined**).

Basidiome annual, effused, adnate, suberose, 0.5–2 cm in diam., then confluent and up to 10 cm long, thin (40-120 µm); hymenium smooth, pale to dark ochraceous (K&W 5B–C4 to 5C4–5); margin thin, farinose, concolorous with the hymenium. Tomentum, *cortex* and setal layers absent; hyphal layer composed of densely interwoven hyphae. *Hyphal system* monomitic; setal hyphae absent. Generative hyphae 2.2–3.5 µm in diam., brownish or brown, with thin or thickened walls. *Setae* 28–45(–53) × 4.5–7.5(–9) um, projecting up to 25 µm above the hymenium, subulate, with acute tip. *Hyphidia* few, cylindrical, hyaline or yellowish, thin-walled, 2–3.5 µm in diam. *Basidia* 10–16 × 3.7–5 µm, slightly utriform, with 4 thin sterigmata. *Spores* 4.5–5.6(–6.0) × 2–2.5 µm (Parmasto: 2 specimens; 4.87–4.92 × 2.17–2.25 µm; Q value 2.17–2.27), short-cylindrical, slightly curved.

On fallen twigs and trunks of *Buxus colchica* and *Abies nordmanniana* in Georgia in Caucasus.

Voucher specimen studied: **GEORGIA. Hulo District.** Bakho, on *Abies nordmanniana*, 3.X.1963 *Parmasto* (TAAM 016035, K, LE, LY, TAA).

Léger (1998) synonymized *H. caucasica* with *H. minuscula* G. Cunn. Because of different colour, size of setae, size of spores and different distribution, we prefer to recognize the species as different taxa (Parmasto 2012).

Fig. 3. *Hymenochaete caucasica*. Holotype. – Photo: P. Corfixen

4. Hymenochaete cinnamomea (Pers.: Fr.) Bres. – Figs. 4; 19,4; 20,4.

Mycobank no: MB 224858

I. R. Accad. Agiati Atti III 3: 110 (1897). - Bourdot & Galzin, Bull. Soc. mycol. Fr. 38: 182 (1923) and Hymenomycetes de France: 389. (1927); Pilát, Hedwigia 70: 113 (1930); Skovsted, Compt.-rend. Lab. Carlsberg, Sér. physiol. 25 (17): 413, fig. 14 (1956); Jahn, Westfäl. Pilzbriefe 8: 139, f. 26 (1971); Bondartseva & Parmasto, Clavis diagn. fung. URSS. Aphyll. 1: 29 (1986); Léger, Hymenochaete: 91, f. 23 (1998); Bernicchia & Gorjón Corticiaceae s.l.: 325 (2010). - *Corticium cinnamomeum* (Fr.) Fr. Epicr. Syst. Mycol.: 561 (1838). – *Hymenochaetella arida* P. Karst., Bidr. Nat. Folk 48: 428 (1889). - *H. arida* (P. Karst.) Sacc., Syll. fung. 9: 228 (1891); Bourdot & Galzin, Bull. Soc. mycol. Fr. 38: 181 (1921) and Hyménomycètes de France: 389 (1928); Pilát, Hedwigia 70: 115 (1930); Jahn, Westfäl. Pilzbriefe 8: 140 (1971); Bondartseva & Parmasto, Clavis diagn. fung. URSS. Aphyll. 1: 27 (1986). – *Hymenochaetella laxa* P. Karst., Bidr. Nat. Folk 48: 429 (1889). - *H. spreta* Peck, Ann. Rep. N.Y. Mus. Nat. Hist. 30: 47 (1877) = *H. cinnamomea* subsp. *spreta* (Peck) Parmasto, Folia cryptog. Estonica 37: 62 (2001).

Icon. Breitenbach & Kränzlin (1986): nr. 292. Jahn (1979): f. 130. **Web**. https://svampe.databasen.org/taxon/14930

Basidiome perennial, effused, closely adnate, up to 150 × 60 mm, 0.3–3 mm thick; hymenial surface even, soon cracked, cinnamon brown to chestnut brown (K&W 6D6–8, E7); margin diffuse. Basidiome consist of one to many layers of setae intermixed with hyphal layer, 30–120 µm thick, sometimes missing, hyphae loosely arranged; setal layer 30–500 µm thick, composed of 1-few overlapping rows of setae. *Hyphal system* monomitic. Generative hyphae 2.5–4 µm in diam., subhyaline, thin-walled, branches diverging at a right angle. *Setae* very numerous, 60–120 × 4–9 µm, projecting to 90 µm, straight or curved, fusoid to subulate, with acute and thin tip, without incrustation, mostly enmeshed in hyphal sheath. *Hyphidia* absent, but basidioles may simulate thickwalled hyphidia. *Basidia* 15–30 × 3–6 µm, subclavate, with four thin sterigmata 4.5 µm long. *Basidiospores* 4.5–6.5 × 1.8–2.8 µm (Parmasto: 14 specimens; 4.53–6.74 × 2.17–2.65 µm; Q value 1.91–2.79), cylindrical. Causes white rot.

On basis of trunks and bushes, on fallen branches, on woody debris, mostly on angiosperms, rarely conifers. *Abies* (4), *Acer* (7), *Alnus* (125), *Asplenium* (1), *Betula* (39), *Buxus* (7),

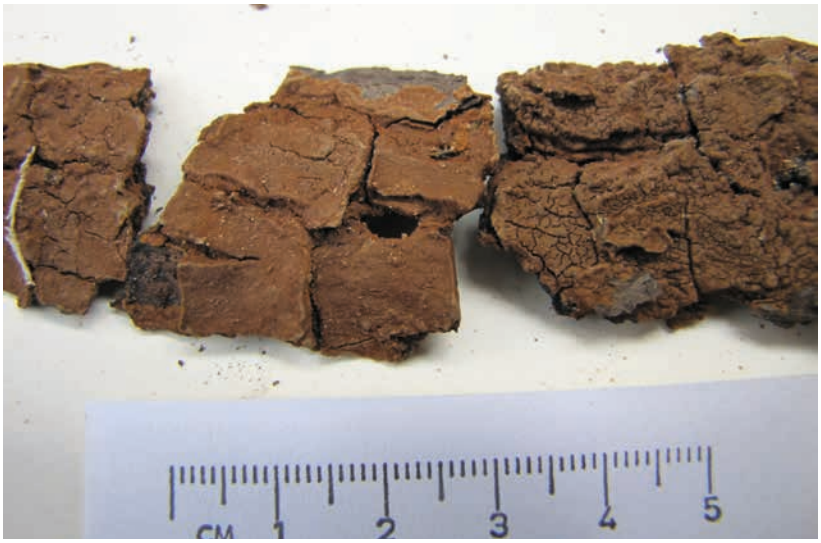

Fig. 4. *Hymenochaete cinnamomea*. Denmark, Korsør Skov, 21.VII.1974 *Hauerslev 4778* (C-F-12874, C) – Photo: P. Corfixen

Calluna (3), *Carpinus* (23), *Castanea* (5), *Cistus* (2), *Clematis* (9), *Cornus* (13), *Corylus* (210), *Crataegus* (4), *Erica* (2), *Eucalyptus* (1), *Euonymus* (1), *Fagus* (107), *Fraxinus* (6), *Genista* (1), *Hippophaes* (1), *Juniperus* (13), *Larix* (1), *Laurus* (1), *Lavendula* (1), *Ligustrum* (6), *Malus* (1), *Matteucia* (1), *Nymphaea* (1), *Picea* (40), *Pinus* (9), *Populus* (11), *Prunus* (56), *Pterocarya* (1), *Pyrus* (1), *Quercus* (70), *Rhamnus* (1), *Rhododendron* (2), *Rosa* (21), *Salix* (73), *Sorbus* (29), *Taxus* (3), *Thymus* (3), *Tilia* (38), *Ulex* (3), *Ulmus* (9), *Vitis* (1)

A **c**osmopolitan species. Found all over Europe and one of the commonest species. The host spectrum is very wide ranging from the preferred deciduous trees like *Corylus*, *Alnus*, *Fagus*, *Salix*, *Quercus*, *Prunus* and several other, through conifers like *Picea*, *Pinus* and *Juniperus* to scattered records on various herbs and ferns. Armenia (3), Austria (51), Azerbaijan (8), Byelarus (8), Belgium (9), Bulgaria (1), Croatia (1), Czechia (74), Denmark (55), England (23), Estonia (78), Finland (78), France (62), Georgia (4), Germany (61), Hungary (5), Italy 9), Latvia (7), Lithuania (1), Luxembourg (1), Macedonia (11), Moldova (8), Montenegro (1), Netherlands (2), Northern Ireland (1), Norway (116), Poland (7), Portugal (3), Russia (39), Scotland (7), Slovakia (32), Spain (39), Sweden (258), Switzerland (15), Ukraine (138), Wales (1). In literature reported from: Armenia, Azerbaijan, Georgia, Russia (Ghobad-Nejhad et al. 2009); Austria (Gerhold 2000); Germany (Krieglsteiner 2000); Hungary (Papp 2013); Macedonia (Karadelev & Rusevska 2004/2005); Spain (Telleria 1990); Switzerland (Breitenbach & Kränzlin 1986).

Exsiccata studied: Brinkmann, *Westfälische Pilze* 54 (S, W), 67 (BPI, HBG, K, L, M, PC, S, W); Fuckel, *Fungi Rhenani Exsiccati* 2613 (HBG, K, M); Libert, *Plantae Cryptogamicae Arduenna* 122 (BR, HBG, K), Litschauer-Lohwag, *Fungi Selecti Exsiccati Europaei* 36 (L, M, PR), 37 (GB, L, M, PC, PR); Lundell & Nannfeldt, *Fungi Exsiccati Suecici Upsalienses* 2233 (C, K, PC, PR, S, W), 2234 (C, K, PC, S, UPS, W); Parmasto, *Mycotheca Estonica* 4 (GB, H, K, L, O, PR, S, TUR); Petrak, *Flora Bohemiae et Moraviae Exsiccata* 1605 (BR, BRNM, C, E, HBG, K, M, S); Pilát, *Fungi Carpatici Lignicoli Exsiccati* 38 (BR, K, W), 40 (BR, K, W), 145 (BPI, BR, K); Saccardo, *Mycotheca italica* 1206 (HBG, L) as *Hypochnus fulvescens*; Smarods, Fungi *Latvici Exsiccati* 567 (PR, W); Weese, *Eumycetes Selecti Exsiccati* 52 (BPI, M, PR, W).

Types studied: *Hymenochaetella laxa*, **FINLAND. Varsinais-Suomi.** Turku, Ruissalo, 1.IV.1861 *Karsten* (1439, H). *Hymenochaetella arida*. **Etelä-Häme.** Tammela, Mustiala, VII.1865 *Karsten* (809, H).

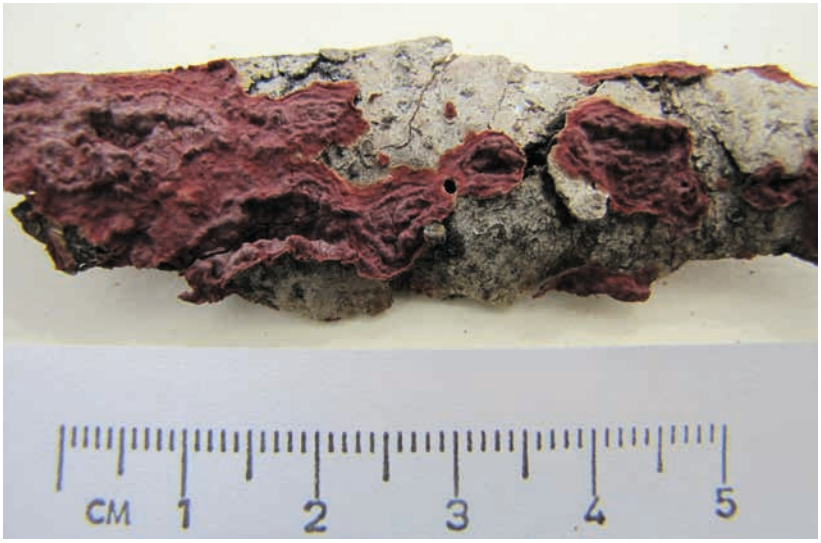

Fig. 5. *Hymenochaete cruenta*. France, Hautes-Savoie, Sixt, on coniferous wood, 7.IX.1957 *Boidin* (LY 2745, LY). – Photo: P. Corfixen

Voucher specimens studied: **DENMARK.** Korsør Skov, 21.VII.1974 *Hauerslev* (KH 4778, C-F-12874, C). **FRANCE.** Ardeche, St. Peray, on *Quercus ilex*, 17.XI.1957 *Boidin* (LY 2832, LY). **ITALY. Latina.** Circeo Nat. Park, Selva de Circeo, on *Eucalyptus*, 22.X.1984 *Hjortstam et al.* (Hjm 14912, O). **NORWAY. Sör-Tröndelag.** Trondheim, Leinesøra, Gaulas utløb, on *Corylus*, 28.VIII.1982 *Ryvarden* (LR 20267, 0). **SPAIN. Asturias.** Sierra de Caniellas, hayedo de Monsterio de Hermo, on *Fagus*, 16.VI.1983 *Brito et al.* (895 MD, MA). **SWEDEN. Uppland.** Alsike sn, Rickebasta träsk, on *Picea*, 26.IV.1933 *Lundell* (1311 UPS).

Typical specimens are easily determined by the loosely arranged hyphae between each layer of hymenium. However, often this layer can be missing and then there can be several hymenium layers between the hyphal layers. This structure is often seen outside the boreal zone. This form was named subsp. *spreta* (Parmasto 2001b: 143). Some specimens can be very light brown to nearly white. This form was earlier called *H. arida*. The long often slender setae mostly enmeshed in hyphal sheaths is a good character. Many specimens named as *H. arida* and *H. spreta*, but also misidentified in herbaria as *H. corrugata, H. fuliginosa, H. subfuliginosa* and *H. tabacina.*

5. Hymenochaete cruenta (Pers.: Fr.) Donk – Figs. 5; 19,5; 20,5.

Mycobank no: MB 332302.

Persoonia 1: 51. (1959); *Thelephora cruenta* Pers., Syn. Fung. 575 (1805); Fr., Syst. Mycol. 1: 444 (1821); Léger, Cryptog. Mycol. 6(2): 145 (1985); *Hymenochaete* 104, f. 27, 28 C. (1998). Parmasto, Czech. Mycol. 52: 308. (2001). Bernicchia & Gorjón, *Corticiaceae* s.l.: 327 (2010). - *Hymenochaete mougeotii* (Fr.) Cooke, Grevillea 8: 147 (1879); Bourdot & Galzin, Bull. Soc. mycol. Fr. 38: 180 (1921) and Hyménomycètes de France: 389 (1928); Pilát, Hedwigia 70: 104 (1930); Jahn, Westfäl. Pilzbriefe 8: 137, f. 24, 42 (1971); Bondartseva & Parmasto, Clavis diagn. fung. URSS. Aphyll. 1: 35 (1986).

Icon. Bernicchia & Gorjón (2010): 839. Breitenbach & Kränzlin (1986): nr. 295. Jahn (1979): f. 127, as *H. mougeotii*. Krieglsteiner (2000): 211. **Web**. http://mycology.su/hymenochaete-cruenta.html.

Basidiome annual, resupinate to effuse-reflexed, closely adnate, up to 100 × 30 mm, 0.2–0.5 mm thick; hymenial surface smooth to slightly tuberculate, brownish red to vinaceous red (K&W 11D8), velvet; margin 1–5 mm, entire, concolo-

Fig. 6. *Hymenochaete fuliginosa*. Spain. Huesca, 11 km N of Hecho, 1100 m, on *Abies*, 10.XI.1977 *Ryvarden 15117* (O). – Photo: P. Corfixen

rous with the hymenium. *Tomentum* up to 100 µm thick; cortex 20–30 µm thick composed of agglutinated hyphae; hyphal layer 100–150 µm thick with compactly longitudinally arranged hyphae; subhymenium with tramal setae; setal layer 40–60 µm thick, normally one-layered. *Hyphal system* monomitic, tramal setae curved, 50–60 × 5–8 µm; hyphae 2–4 µm in diam. *Setae* very numerous, 40–90 × 5–8 µm, projecting up to 60 µm, fusoid, with acute tip, without incrustation. *Dendrophyses* 20–55 µm, with 3–4 branches. *Basidia* up to 20–30 × 4–5 µm. *Basidiospores* 6.5–8.5 × 1.5–2.8 µm (Parmasto: 1 specimen; 6.69 × 2.39 µm; Q value 2.80), cylindric or suballantoid.

More than 400 collections were seen, the overwhelming majority on *Abies alba*; other substrates include *A. cephalonica* (1). *A. grandis* (1), *A. normanniana* (1), *Larix*? (1) and *Picea excelsa* (3). Two collections on *Fagus* may be misidentified or originate from localities with a strong spore-pressure from neighboring *Abies*. The species follows the distribution of *Abies* in Europe and Asia, but also in southern Argentina on an angiosperm tree. In Europe *Hymenochaete crudenta* is narrowly connected to *Abies* as its host. In Europe it is found in all countries where *Abies* has native occurrences, e.g. Austria (45), Croatia (9), Czechia (78), France (66), Germany (116), Greece (1), Italy (9), Montenegro (2), Poland (10), Romania (2), Russia (3), Serbia (1), Slovakia (32), Slovenia (2), Spain (2), Switzerland (26) and Ukraine (1). In literature it has been reported followingly: Austria (Gerhold 2000); Germany (Krieglsteiner 2000); Georgia, Russia (Ghobad-Nejhad et al. 2009); Macedonia (Karadelev & Rusevska 2004/2005). Spain (Telleria 1990); Switzerland (Breitenbach & Kränzlin 1986).

Outside the natural area of *Abies alba*, it has been recorded from Belgium (1), England (10), Ireland (3) and the Netherlands (2). So far it has not been found in the otherwise well investigated Nordic countries, and it is clear that its distribution is not only limited by its host, but also by climatic conditions, avoiding areas with too cold winters.

Exsiccata studied: Allescher & Schnabl, *Fungi Bavarici* 130 & 130b (C, HBG, L, M, NY, S); Krieger, *Fungi Saxonici Exsiccati* 568 (BPI, FI,

H, HBG, JE, K, M, NY, S); *Kryptogamae exsiccatae* 2505 (BPI, BR, C, G, H, JE, K, L, LD, M, MA); Litschauer-Lohwag, *Fungi Selecti Exsiccati Europaei* 81 (GB, L, M, PC, PR); Petrak, *Mycotheca gener*alis 563 (B, BPI, G, K, M, PR); *Plantae graecenses* 258 (B, H, LD, M, PR); Rabenhorst-Winter, *Fungi Europaei* 3639 (BR, C, G, H, HBG, K, L, M, S); *Reliquiae Petrakianae* 513 (B, H, K, M, PR, S); Roumeguère, *Fungi selecti Gallici exsiccati.* 5 (BR, G, HBG, K, NEU, RO), 3705 (BR, DBN, G, K, NY); *Stirpes Cryptogamae Vogeso-Rhenanae* 581 (BR, E, JE, K, W); Thümen, *Fungi Austriaci Exsiccati* 488 (S).

Voucher specimens studied: **CZECH REPUBLIC**. Sobeslav, on *Abies*, VIII.1925 *Vesely* (L). **ENGLAND. Yorkshire.** Barnard Castle, 1.V.1930 *Mason* (K). **FRANCE. Basses-Pyrénées.** Gabas, on *Abies pectinata*, 3.III.1964 *Beller* (LY 4641, LY). **Hautes-Savoie.** Sixt, on coniferous wood, 7.IX.1957 *Boidin* (LY 2745, LY). **GERMANY. Baden.** Schwarzwald by St. Peter, on *Abies alba*, 14.V.1975 *Jahn & Jahn* (LISU). **ITALY. Trient.** Andalo, on *Abies pectinata*, VIII.1896 *Bresadola* (S). **SWITZERLAND. Neuchâtel.** Côte de Chaumont, on *Abies alba*, 23.XI.1969 *Keller (*NEU).

The red colour make this species easy to notice and identify. The sibling species *Hymenochaete sphaericola* Lloyd (= *H. murashkinskyi* Pilát) on *Rhododendron*, *Quercus* and other deciduous trees in South Asia and Australia (Parmasto 2001a) has broader spores. *H. konradii* is red brown and with shorter dendrophyses. Sometimes misidentified in herbaria as *H. tabacina.*

6. Hymenochaete fuliginosa (Pers.) Lév. – Figs. 6; 19,6; 20,6.

Mycobank no: MB 202537

Ann. sci. nat. Bot. III 5: 152 (1846); Bourdot & Galzin, Bull. Soc. mycol. Fr. 38: 184 (1921) and Hyménomycètes de France: 392 (1928); Pilát, Hedwigia 70 (1/2): 121 (1930). Jahn, Westfäl. Pilzbriefe 8 (4-7): 142, f. 29, 33 (1971); Bondartseva & Parmasto, Clavis diagn. fung. URSS. Aphyll. 1: 33 (1986); Léger, *Hymenochaete* 145, f. 48 (1998); Bernicchia & Gorjón, Corticiaceae s.l.: 328 (2010), incl. *H. subfuliginosa*.– *Thelephora fuliginosa* Pers. Mycol. Eur. 1: 145 (1822). Type possible lost. – *Hymenochaetella fusca* P. Karst. Hedwigia 35: 174 (1896).

Icon. Breitenbach & Kränzlin (1986): nr. 294. **Web**. https://artportalen.se/Image/1511620

Basidiome effused, closely adnate, 5–50 × 10–100 mm, 0.05–0.5 mm thick; hymenial surface even, later densely cracked, dark umber or dark chocolate brown (K&W 7E4–5); margin thin, abrupt, light brown when young, later darker than the hymenium. *Cortex* absent; hyphal layer absent; setal layer 40–600 µm thick, composed of overlapping rows of setae. *Hyphal system* monomitic. Generative hyphae 2–4 µm in diam., subhyaline, thin-walled. *Setae* very numerous, 65–100 × 7–11 µm, projecting 25–60 µm, fusoid, with acute and thin tip, without incrustations, naked or rarely enmeshed in hyphal sheath. *Hyphidia* absent. *Basidia* 15–20 × 4–5 µm, subclavate, with four thin sterigmata, 4–5 µm long. *Basidiospores* 4.6–6.4 × 1.8–2.8 µm (Parmasto: 18 specimens; 4.63–6.43 × 2.35–2.92 µm; Q value 1.75–2.52), cylindrical. Causes white rot.

On fallen trunks and branches of all kinds of coniferous trees: *Picea* (215), *Pinus* (48), *Abies* (26), *Juniperus* (24), *Larix* (3) and *Taxus* (1). In northern Europe also on a few deciduous genera, e.g. *Salix* (40), *Alnus* (5) and *Populus* (3). Occurs in North America, Europe, temperate Asia. In Europe mostly in boreal and subalpine zones. Material has been studied from: Austria (48), Belarus (2), Croatia (2), Czechia (41), Denmark (2), Estonia (25), Finland (26), France (7), Georgia (1), Germany (12), Italy (3), Montenegro (1), Macedonia (2), Norway (85), Russia (17), Slovakia (66), Spain (2), Sweden (190), Switzerland (8), Ukraine (15). In literature reproted from: Austria (Gerhold 1998 and 2000); Germany (Krieglsteiner 2000); Georgia, Russia (Ghobad-Nejhad et al. 2009); Hungary (Papp 2013) ; Macedonia (Karadelev & Rusevska 2004/2005); Spain (Telleria 1990); Switzerland (Breitenbach & Kränzlin 1986).

Exsiccata studied: Lundell & Nannfeldt, *Fungi exsiccati Suecici Upsaliensis* 2236 (C, K, PC, PR, S, U, W), 2237 (C, K, PC, PR, S, U); Petrak, *Flora Bohemiae et Moraviae Exsiccata* 2362 (BRNM, C, E, K, M, PR, S); Pilát, *Fungi Carpatici Lignicoli Exsiccati* 93 (BR, K, PR, W).

Fig. 7. *Hymenochaete jaapii*. Holotype. – Photo: P. Corfixen

Type studied: *Hymenochaetella fusca* P. Karst. **FINLAND. Etelä-Häme.** Mustiala, VI.1897 *Lindroth* (1378, H). **SWEDEN.** VIII.1880 *Starbäck* (1635 H).

Voucher specimens studied: **AUSTRIA. Nieder-Österreich.** by Unter-Tullnerbach, on *Abies pectinata*, 4.IX.1932 *Litschauer* (W). **CZECH REPUBLIC.** Jeseniky (Keprnik), VII.1947 *Pilát* (PR). **DENMARK. Møn.** Jydelejefaldet, on *Picea*, 10.X.1994 *Læssøe* (TL-3664, C-F-23834, C). **FINLAND. Satakunta.** Kankaanpää, Vihteljärvi, on *Alnus incana* 28.VIII.1937 *Laurila* (TUR). **GERMANY. Bayern.** Bayerische Alpen, Allgäu, Oberstaufen, on coniferous trees, VIII.1921 *Killermann* (M). **NORWAY. Oppland.** Gausdal, Ormtjernkampen nasjonal park, on *Salix caprea*, 2.VIII.1973 *Ryvarden* (LR 12024, O). **SPAIN. Huesca.** 11 km N of Hecho, 1100 m, on *Abies*, 10.XI.1977 *Ryvarden* (LR 15117, O). **SWEDEN. Jämtland.** Åre sn, Storlien, on *Picea abies*, 28.VIII.1951 *Erksson. & Eriksson* (5445, UPS). **UKRAINE. Carpatorossia.** Velky Bockov, on *Abies alba*, VII.1930 *Pilát* (93, 5950,33, BR).

Most common on coniferous wood. In boreal zones it is also found on deciduous wood especially *Salix*. Specimens on *Quercus* belong to *H. subfuliginosa*, which in addition has smaller spores (4.5–5.5 × 2.7–3.2 µm) and thicker basidiomes. In herbaria some specimens are named *H. cinnamomea* and *H. corrugata.*

7. Hymenochaete jaapii Corfixen **sp. nova** – Figs. 7; 19,7; 20,7.

Mycobank no: MB 820915

Resembling *H. cinnamomea*, but without the layers of loose hyphae, setae 30–65 × 4–8 µm.

Typus: **GERMANY. Brandenburg.** Prignitz, Triglitz, on twig of *Rubus plicatus*, 11.IV. 1906 *Jaap, Fungi selecti exsiccati* 340, sub nom. *H. cinnamomea*, (C-F-13244, C, holotype; isotypi in B, DBN, E, HBG, JE, K, KRA, L, M, O, PC, S, TUR, W.)

Etymology: In honour of the German botanist Otto Jaap (1864-1922), who collected many fungi and made many exsiccates. One of these is the type of the new species.

Basidiome perennial, effused, closely adnate, 5–50 × 5–20 mm, 0.3–1.2 mm thick; hymenial surface even, soon cracked, cinnamon brown to dark brown (K&W 6D5–7); margin thin, concolorous. *Cortex* and hyphal layer absent; setal lay-

er 40–500 µm thick, composed of overlapping rows of setae. *Hyphal system* subdimitic. Generative hyphae 2–3.5 µm in diam., subhyaline, thin-walled; sklerefied hyphae 3–5 µm in diam., thick-walled, brown. *Setae* very numerous, 30–65 × 4–8 µm, projecting 30–40 µm, subulate to fusoid, with acute tip, without incrustations, naked or rarely enmeshed in hyphal sheaths. *Basidia* 15–25 × 4–6 µm, subclavate, with four thin sterigmata, 4–5 µm long. *Basidiospores* 5.0–6.9 × 2.0–2.9 µm, cylindrical. Causes white rot.

On twigs of various angiospermic hosts, rarely on conifers and one collection on mosses. The preferred hosts are both from Rosaceae (*Rubus* (15) and *Rosa* (9)) and other hosts also include small scrubs: *Acer* (4), *Betula* (1), *Carpinus* (2), *Cornus* (4), *Corylus* (4), *Fagus* (1), *Fraxinus* (3), *Ligustrum* (1), *Myrica* (1), *Physocarpus* (2), *Populus* (1), *Prunus* (3), *Quercus* (1), *Rhamnus* (4), *Salix* (2) and *Symphoricarpus* (1). A few records are from conifers: *Abies* (1), *Picea* (1), *Pinus* (1) and one from the moss *Thuidium tamariscinum* (1). Only known from Europe where the distribution covers a wide area, with a center in Czechia (35) and Germany (25), but also known from various other areas: Belgium (3), Denmark (15), England (3), France (1), Italy (1), Scotland (1), Slovakia (2) and Sweden (1).

Exsiccata studied: Brinkman, *Westfälische Pilze* 312 (S) as *H. arida*; Jaap, *Fungi Selecti Exsiccati* 340 (B, C, DBN, E, HBG, JE, K, KRA, L, M, O, PC, S, TUR, W) as *H. cinnamomea*; Klotzschii *Herbarium Mycologicae* 1217 (L, M) as *H. cinnamomea*; Krieger, Fungi Saxonici Exsiccati 1422 (HBG, JE, K, M, S, W) as *H. cinnamomea*.

Voucher specimens studied: **CZECH REPUBLIC.** Radotin, on *Rosa canina*, III.1923 *Pilát* (HBG, K, L). **DENMARK**. Kongelunden, on *Betula*, 21.I.1953 *Christiansen* 2738 (C-F-103340, C); same location and date, on *Abies* (2739, C-F-103341, C). Stubberup, on *Picea*, 24.IX.1977 *Corfixen 3718* (C-F-12901, C). **ENGLAND.** Batheaston, on *Rubus fruticosus*, 30.XII.1863 & 1.III.1869 *Broome* (K). **FRANCE.** Ain, Crémieux, on *Corylus*, 19.IX.1954 *Boidin* (LY 1750 (LY)). **ITALY. Trient.** on *Rubus ulmifolii*, III.1898 *Bresadola* (S). **SWEDEN.** Alingsås, S of Valsjön, on *Pinus*, 22.IV.1968 *Hjortstam* (GB).

H. jaapii has the same appearance as *H. cinnamomea* but differs in having shorter setae and the lack of the intermixed hyphal layer. Skovsted (1950) observed two specimens of *H. cinnamomea* with different characters. These specimens are included in *H. jaapii*. Most specimens in herbaria were named as *H. cinnamomea*, but also as *H. corrugata*.

8. Hymenochaete konradii (Pilát) J.C. Léger – Figs. 8; 19,8; 20,8.

Mycobank no: MB 105376.

Cryptog. Mycol. 6(2): 145 (1985); Léger, Le genre Hymenochaete Léveillé: 169 (1998) - *Hymenochaete tabacina* var. *konradii* Pilát Hedwigia 70: 110 (1931).

Holotype: **CZECH REPUBLIC. Bohemia.** *Konrad* (PR 687122, PR, **examined**)

Basidiome annual, resupinate, closely adnate, circular, up to 15 mm, 0.1–0.2 mm thick; hymenial surface even to verrucose, light brown to reddish (K&W 7D–E8), velvety; margin thin, entire, light grey. *Tomentum* up to 250 µm yellow to brown; cortex 10–70 µm thick, composed of agglutinated hyphae; hyphal layer 90–120 µm thick, hyphae compactly longitudinally arranged; subhymenium with tramal setae; setal layer 30–60 µm thick. *Hyphal system* monomitic, tramal setae curved, 50–60 × 6–9 µm; hyphae 2–4 µm in diam. *Setae* very numerous, 60–80 × 6–8 µm, projecting up to 40 µm, conical fusoid, with acute tip, without incrustations. *Dendrophyses* 10–15 µm, with few branches up to 7 µm long. *Basidia* up to 12 × 4 µm. *Basidiospores* 6–6.5 × 2 µm, cylindric.

On branches of broadleaved trees. Only known from few collections in Eurasia: Czechia and Siberia (Sajan Mts.). Resembles *H. cruenta*, but the colour is brownish and the hyphidia have only a few branches.

Fig. 8. *Hymenochaete konradii*. Russia, Sayan Mts., on Salix, 15.VIII.1932 Krawtzev (PR 687121, PR). – Photo: P. Corfixen

Fig. 9. *Hymenochaete longispora*. Spain, Balearics, Island of Cabrera, on twig of *Erica multiflora ?*, 15.XI.1992 *Roberts 628* (O). – Photo: P. Corfixen

9. Hymenochaete longispora Parmasto – Figs. 9; 19,9; 20,9.

Mycobank no: MB 129857

Mikol. Fitopatol. 20: 375 (1986). Bondartseva & Parmasto, Clavis diagn. fung. URSS. Aphyll. 1: 34 (1986). He & Li, Guihaia 32: 20 (2012).

Holotype: **RUSSIA. Primorsk.** Chugujevski, on *Syringa amurensis*, 11.XI.1975 *Parmasto 47774* (TAA).

Basidiome perennial, effused, closely adnate, 5–60 × 2–10 mm, 0.1–0.3 mm thick; hymenial surface even, soon cracked in transverse pattern, dark brown to grey brown (K&W 6F7–6D3); margin thin, orange brown. *Cortex* 10 µm thick, rust brown, composed of agglutinated hyphae; setal layer 50–200 µm thick, composed of overlapping rows of setae. *Hyphal system* subdimitic. Generative hyphae 2–3.5 µm in diam., subhyaline, thin-walled; sklerefied hyphae 3–5 µm in diam., thick-walled, brown. *Setae* very numerous, 80–150 × 7–13 µm, projecting up to 100 µm, subulate to fusoid, seldom obtuse, with narrowly acute and thin tip, without incrustations, naked or rarely enmeshed in hyphal sheaths, often with a broken tip. *Basidia* 20–28 × 5–7 µm, utriform, with four thin sterigmata, 4–5 µm long. *Basidiospores* 8.5–10.5 × 3.2–4.2 µm, cylindrical, with one side flattened. Causes white rot.

On twigs of *Erica multiflora* (1) and *Alnus incana, Padus racemosa* and *Syringa amurensis* (Parmasto 1986). Has been collected in Europe, Asia (Altay and Primorsk in Russia) and in China (Guangdong Province) (Parmasto 1986, He & Li 2012). In Europe only known from one Spanish record.

Voucher specimens studied: **RUSSIA. Gorno-Altaisk.** Near Teletskoye Lake, Chulyshman, on fallen trunk of *Alnus incana*, 8.IX.1959 *Parmasto* (TAA 7998, C, TAA, K, LY). **SPAIN, Balearics Islands.** Island of Cabrera, on twig of *Erica multiflora?,* 15.XI. 1992 *Roberts* (628, O).

H. contiformis G. Cunn. (1957) has the same size of setae and spores, but the setal layer is full of crystals and basidia are subclavate. Distribution of *H. contiformis* is different, i.e., Brasil, China (Yunnan), Costa Rica, Jamaica, New Zealand, Réunion and Venezuela.

10. Hymenochaete pilatii Corfixen & Parmasto **sp. nova** – Figs. 10; 19, 10; 20,10.

Mycobank no: MB 820918

Hymenochaete tabacina f. *crocata* Bourdot & Galzin, Bull. Soc. mycol. France 38:181 (1921) and Hyménomycètes de France: 389 (1928), incl. f. *effusa*; Pilát, Hedwigia 70: 109 (1930), excl. f. *effusa* (= *H. cinnamomea*); not *Thelephora crocata* Fr., Elench. Fung. I: 173 (1828) and not *Thelephora cerasi* Pers. Myc. Eur. 1: 125 (1822).

Resembling *Hymenochaetopsis tabacina* but without cortex and setae not eroding; two kinds of setae present: 1) fusiform 50–85 × 5–12 µm, projecting up to 30 µm, with acute tip, 2) dome shaped, 35–60 × 6–9 µm, projecting up to 20 µm with obtuse tip.

Typus: **CZECH REPUBLIC**, Radotin, on *Rosa canina*, XII.1922 *Pílat* (PR 687108, PR, holotype; possible isotypes in L, HBG and BRNM).

Etymology: In honour of the eminent Czech mycologist Albert Pilát (1903-1974), who gathered huge collections and is the author of the monograph on European stereoid fungi including *Hymenochaete*.

Basidiome annual, with well developed pilei, effuso-reflexed to resupinate, closely adnate, soft coriaceus, but brittle when dry. Pilei dimidiate on vertical substrate, 5–15 × 5–25 mm, confluent on horizontial substrate, 5–40 × 10–many mm, 0.2–0.6 mm thick; surface radially fibrillose, silky, glabrous when old, with concentric zones, rust brown, greyish or dark brown (6E4–E6); margin thin, entire, golden yellow when young. *Hymenium* smooth, usually concentrically zonated, cracked when old, yellowish brown (6E6). *Tomentum* up to 200 µm thick; cortex absent; hyphal layer 70–120 µm thick, hyphae compactly longitudinally arranged; setal layer up to 50 µm thick, composed of one row of setae. *Hyphal system* subdimitic. Generative hyphae 2–3.5 µm in diam., subhyaline, thin-walled; sklerefied hyphae 3–5 µm in diam., thick-walled, brown.

Fig. 10. *Hymenochaete pilatii*. Sweden, Skåne, Båstad, Paulins Udde, on *Prunus padus*, 24 III.1948 *Eriksson & Eriksson 2432* (GB). – Photo: P. Corfixen

Setae numerous, of two kinds: 1) 50–85 × 5–12 µm, projecting up to 30 µm, fusiform to subulate with acute tip, 2) domeshaped 35–60 × 6–9 µm, projecting up to 20 µm with obtuse tip. *Hyphidia* numerous, not well differentiated, 1.5–3 µm in diam., thin-walled, subhyaline. *Basidia* 15–25 × 3–5 µm, clavate or subclavate, with four thin sterigmata, 4–5 µm long. *Basidiospores* 5.3–6.1 × 2.3–3 µm, cylindrical, slightly curved. Causes white rot.

Mostly on deciduous scrubs: *Alnus* (4), *Amelanchier* (2), *Cerasus* (1), *Cistus* (1), *Corylus* (8), *Crataegus* (3), *Cytisus* (1), *Frangula* (1), *Lonicera* (1), *Prunus* (23), *Ribes* (3), *Rosa* (17), *Salix* (3), *Sorbus* (2), *Spiraea* (4), *Symphoricarpus* (1) and *Syringa* (1). More rarely also on deciduous trees: *Acer* (1), *Betula* (1), *Fagus* (1) and *Ulmus* (1). Only one record from conifers: *Picea* (1). Only known from Europe where the records come from a wide range from Norway to Italy and from the Atlantic to Russia. A possible center could be in Central Europe, but may be obscured by the many collections of Pilat are in Czechia: Austria (2), Belgium (1), Czechia (45), Denmark (2), France (7), Germany (26), Italy (1), Norway (4), Russia (2), Scotland (1), Slovakia (1), Sweden (4), Switzerland (2), Ukraine (2).

Exsiccata studied: Petrak, *Flora Bohemiae et Moraviae Exsiccata* 1362 (BR, BRNM, E, HBG, K, PR, S); Roumeguère, *Fungi Selecti Gallici Exsiccati* 6743 (G); Sydow, *Mycotheca Marchica* 4414 (B, HBG, K, S); all as *H. tabacina*.

Voucher specimens studied: **AUSTRIA. Tirol.** Pitztal, Wenns, 20.VIII.1921 *Litschauer* (M, W). **DENMARK.** Halskov, 15.IV.1961 *Hauerslev* (C-F-13207, C). **FRANCE.** Allier, St. Priest, on *Corylus*, 30.X.1910 *Bourdot* (HB 12571, PC, as *H. tabacina* f. *juvenile*). **GERMANY.** Triglitz in der Prignitz, 5.XI.1910 *Jaap* (HBG); **ITALY. Trient.** 1886 *Bresadola* (M). **NORWAY. Hedmark.** Grue, Smiden gård, 1.XI.1929 *Jørstad* (O). **RUSSIA. Petrograd District.** *Ganeschin* (174896, LE). **SCOTLAND. Morayshire.** Forres, on *Prunus padus*, *Keith* (K). **SWEDEN. Skåne.** Båstad, Paulins Udde, on *Prunus padus*, 24.III.1948 *Eriksson & Eriksson* (2432, GB).

H. pilatii has the same appearance as *Hymenochaetopsis tabacina*, but the colour of the hy-

Fig. 11. *Hymenochaete rhododrendri*. Austria, Tyrol, Ötztaler Alpen, Kraunertaler Gletcherstrasse, 2070 m, on *Rhododendron ferrugineum*, 3.VI.2005 *Gerhold* (C-F-102286, C). – Photo: P. Corfixen

menium is more yellowish brown and missing the cortex layer. Job & Keller (1988) observed the two kinds of setae in a collection from Switzerland and named it *H. attenuata* (Switzerland, Jura, Forêt près de Develier, on *Alnus*, 18.X.1987 *Keller*, JK 4212, NEU). The first author has examined this specimen and found it different from *H. attenuata*, but with the same characters as *H. pilatii*. Most specimens in herbaria were named *H. tabacina*, especially f. *crocata*, but also *H. cinnamomea* and *H. corrugata*.

11. *Hymenochaete rhododendri* Corfixen & Parmasto **sp. nova** – Figs. 11; 19, 11; 20,11.

Mycobank no: MB 820920

Hymenochaete tabacina f. *rhododendri* Rehm in Thümen, Fungi austriaci 1211 (not valid publication). Pilát Hedwigia 70: 110 (1931), Poelt, Ber. Bayer. Bot. Ges. 33: 97 (1960), Jahn, Westfäl. Pilzbriefe 8: 137 (1971), Léger, *Hymenochaete*: 274 (1998); Gerhold, Ber. Nat. Med. Verein Innsbruck 86: 21 pp (1999).

Resembling *Hymenochaetopsis tabacina*, but setae smaller (45–75 × 8–14 µm), with only slightly eroding tips; spores smaller (4.5–4.9 × 1.5–1.8 µm); on *Rhododendron* and allied plants.

Typus: **AUSTRIA. Tyrol.** Ötztaler Alpen, Kraunertaler Gletcherstrasse, 2070 m, on *Rhododendron ferrugineum*, 3.VI.2005 *Gerhold* (holotype, C-F-102286, C).

Etymology: The *Hymenochaete* of *Rhododendron*.

Basidiome annual, effused-reflexed, closely adnate, soft coriaceous, but brittle when dry. Pilei dimidiate on vertical substrate, up to 5 × 20 mm, confluent on horizontal substrate up to 10 mm diam., up to 0.3 mm thick, surface radially fibrillose, silky, glabrous when old with concentric zones, dark brown (6E5–E7); margin thin, entire, light brown when young. *Hymenium* smooth, usually concentrically zonate, cracked when old, greyish brown (6D3). *Tomentum* up to 80 µm thick; cortex up to 25 µm thick, composed of agglutinated hyphae; hyphal layer up to 80 µm thick, hyphae compactly longitudinally arran-

ged; setal layer up to 120 µm thick, composed of one row of setae. *Hyphal system* subdimitic, solidary tramal setae occasionally present, up to 150 × 6–8 µm, thick-walled, with acute tip. Generative hyphae 2–3 µm in diam., subhyaline, thin-walled; sklerefied hyphae 3-4 µm diam., thick-walled, brown. *Setae* numerous, 45–75 × 8–14 µm, fusiform to subulate, with acute tips, often with short tip, naked or slightly eroding. *Basidia* 15 × 5 µm, subclavate. *Basidiospores* 4.5–4.9 × 1.5–1.8 µm (Parmasto: 4 specimens; 4.56–4.82 × 1.52–1.75 µm; Q value 2.60–3.07), cylindrical.

On *Rhododendron ferrugineum*, *R. sichotense*, *Ledum* (=*Rhododendron*) sp. Only known from alpine sites in Europe (Austria, Germany, Italy and Switzerland) and Russian Far East.

Exsiccata studied: Rabenhorst-Winter, *Fungi Europaei* 2932 (BR, H, HBG, K, L, M, NEU, S, W), Thümen, *Fungi austriaci Exsiccati* 1211 (DBN, K, PR, RO,W).

Voucher specimens studied: **AUSTRIA. Tirol.** Ötzaler Alpen, inner Pitztal, 1720 m, on *Rhododendron ferrugineum,* 28.IV.2005 *Gerhold* (TAA 189307, TAA). **ITALY.** Riva Valdobbia, on *R. ferrugineum*, 6.V.1863 *Carestia* (262, S). **SWITZERLAND.** Wallis, Törbel near Stalden, 2000 m, on *R. ferrugineum*, VIII.1947 *Pilát* (687084, PR).

This new species is well known as a form of *H. tabacina* on *Rhododendron*. Setae are smaller, 45–75 × 8–14 µm, versus *H. tabacina*, 52–100 × 7–18 µm; tips only slightly eroding versus *H. tabacina*, strongly eroding. Spores are smaller, 4.5–4.9 × 1.5–1.8 µm, versus *H. tabacina*, 4.8–6.7 × 1.6–2.6 µm.

12. Hymenochaete rubiginosa (Dicks.) Lév. – Figs. 12; 19,12; 20,12.

Mycobank no: MB 215861

Léveillé, Ann. Sci. Nat. Bot. III 5: 151 (1846); Bourd. & Galz., Bull. Soc. mycol. Fr. 38: 183 (1921) and Hyménomycètes de France: 390 (1928); Pilát, Hedwigia 70: 117 excl. var. *subfuliginosa* and f. *minuta* (1930); Skovsted, Compt.-rend. Lab. Carlsberg, Sér. physiol. 25 (17): 414, fig. 15. (1956); Jahn, Westfäl. Pilzbr. 8: 135, fig. 2, 21; Abb. 5 (1971); Bondartseva & Parmasto, Clavis diagn. fung. URSS. Aphyll. 1: 37 (1986); Léger, Hymenochaete 242, f. 92 (1998); Bernicchia & Gorjón, Corticiaceae s.l.: 328 (2010). – *Helvella rubiginosa* Dicks. Plant. Crypt. Brit. 1: 20 (1785). – *Hymenochaete ferruginea* (Bull.: Fr.) Massee, J. Linn. Soc. Bot. 27: 103 (1890).

Fig. 12. *Hymenochaete rubiginosa*. Denmark, Annebjerg Skov, on *Quercus*, 27.II.1977 *Corfixen 3693* (C-F-12914, C). – Photo: P. Corfixen

Type. Possibly lost (see Parmasto 2001b).

Icon. Bernicchia & Gorjón (2010): 839. Breitenbach & Kränzlin (1986): nr. 296. Jahn (1979): f. 126. Krieglsteiner (2000): 213. Ryman & Holmåsen (1984):198. **Web**. https://svampe.databasen.org/taxon/14934

Basidiome perennial, with well developed pilei or effuso-reflexed, woody hard, attached to the substratum with an umbonate point, sometimes effused with slightly elevated margins. Pilei single or a few imbricate, dimidiate, 5–35 × 5–50 mm, 0.3–2 mm thick; surface concentrically sulcate and zonate, velutinous to tomentose, reddish brown to dark brown, later glabrous and dark rust brown to blackish (K&W 6D6–F3). Margin thin or thick, entire or lobate, lighter coloured than

pileal surface (ochraceous brown), later concolorous. *Hymenium* smooth or with scattered hemisphaerical tubercles, usually not cracked, reddish brown, brown or blackish brown (K&W 6E4, 7D3–E6). Effused basidiomes up to 50 mm long, adaxial surface concentrically sulcate, tomentose. *Tomentum* up to 250 µm thick, darker than hyphal layer; cortex 30–55 µm thick, rust brown, composed of agglutinated hyphae; hyphal layer 100–600 µm thick, hyphae compactly longitudinally arranged; setal layer 70–500 µm thick, composed of overlapping rows of setae. *Hyphal system* subdimitic, setal hyphae absent. Generative hyphae 2–3.5 µm in diam., subhyaline, thin-walled; sklerefied hyphae 3–5 µm in diam., thick-walled, brown. *Setae* very numerous, 40–80 × 7–10 µm, projecting 30–60 µm, fusoid, some with slightly curved upper part, with acute tips, without incrustations, naked or rarely enmeshed in a hyphal sheath. Hyphidia numerous, not well differentiated, 1.5–3 µm in diam., thin-walled, subhyaline. *Basidia* 15–25 × 4–6 µm, subclavate, with four thin sterigmata, 4–5 µm long. *Basidiospores* 3.5–5.5 × 2–3 µm (Parmasto: 14 specimens; 3.59–5.14 × 2.11–2.83 µm; Q value 1.54–1.99), elongate ellipsoid.Causes white pocket rot.

On fallen trunks, branches and especially on stumps of Cupuliferae. In northern Europe almost exclusively on *Quercus*, in southern Europe also on *Castanea*: *Castanea sativa* (2), *Q. castaneifolia* (2), *Q. canariensis* (1), *Q. cerris* (2), *Q. faginea* (6), *Q. iberica* (5), *Q. ilex* (4), *Q. macranthera* (2), *Q. petraea* (= *Q. sessilis* and *Q. sessiliflora*) (26), *Q. pubescens* (5), *Q. pyrenaica* (9), *Q. robur* (= *Q. pedunculata*) (213), *Q. rubra* (1), *Q.* sp. (appr. 1000 collections seen). Other substrates according to the labels are: *Abies*, *Acacia*, *Acer*, *Alnus*, *Betula*, *Carpinus*, *Corylus*, *Eucalyptus*, *Fagus*, *Fraxinus*, *Ilex*, *Juniperus*, *Larix*, *Olea*, *Picea*, *Pinus*, *Prunus*, *Robinia*, *Salix*, *Sorbus* and *Ulmus*, but all those the first author were able to check were *Quercus*, so far there are no collections outside the Cupuliferae. *H. rubiginosa* grows mainly in oak or mixed forests, in mountains up to 1600 m (Armenia).

The species is cosmopolitan. In Europe it follows several *Quercus* species throughout their European distribution, in the North to the Hemiboreal zone, in the south to the Mediterranean macchia shrubland an in the southern part of Europe also on *Castanea*, a close relative of *Quercus*: Armenia (5), Austria (75), Azerbaijan (7), Belgium (42), Bulgaria (4), Belarus (4), Chechnya (2), Croatia (7), Czechia (129), Denmark (390), England (85), Estonia (38), Finland (82), France (108), Georgia (9), Germany (253), Greece (1), Hungary (3), Ireland (6), Italy (30), Latvia (14), Lithuania (3), Luxembourg (2), Macedonia (9), Moldova (4), Netherlands (6), Norway (94), Poland (41), Portugal (27), Romania (39), Russia (33), Scotland (6), Slovakia (28), Slovenia (1), Spain (78), Sweden (281), Switzerland (53), Ukraine (35), Wales (8). In literature it has been reproted from Armenia, Azerbaijan, Georgia, Russia (Ghobad-Nejhad et al. 2009); Austria (Gerhold 2000); Germany (Krieglsteiner 2000); Hungary (Papp 2013); Macedonia (Karadelev & Rusevska 2004/2005). Spain (Telleria 1990); Switzerland (Breitenbach & Kränzlin 1986).

Type studied: *H. rubiginosa* (not *Helvella rubiginosa* Dicks.: Fr.!): **USA. Ohio.** Lloyd Herb. 3910 (FH; neotype designated by DeFigio, published by Job 1990: 39).

Exsiccata studied: Allescher & Schnabl, *Fungi Bavarici* 224 (C, M, HBG, NY); Brinkman, *Westfalische Pilze* 42 (HBG, K, M); *Cryptogamae exsiccatae Vindobonensi* 3335 (B, BR, C, G, H, K, LD, M, MA, NY, PR, S, W); Desmazières, *Plantes Cryptogames Nord France* 413 (DBN, FI, G, K), 821 (K, RO); *Erbario Crittogamico Italiano* 293 (B, K, RO); *Flora Lusitanica exsiccata* 1711 (C, LISU, S), 1754 (LISU); *Flora Moldaviae Dobrogeae exsiccate* 4 (BR, H, JE, M, TUR, WA); Fuckel, *Fungi Rhenani Exsiccati* 1319 (BR, G, HBG, K, M, W); *Fungi Fenniae exssiccati* 915 (K); *Herbarium Mycologicum Romanicum* 691 (G, K, KRA, M, PC), 2904 (B, BR, C, G, H, JE, K, KRA, M, PC); Jaap, *Fungi Selecti Exsiccati* 823 (B, C, H, HBG, JE, K, M, S, TUR) as *H. ferruginea*; *Kryptogamae exsiccatae* 1307 (BR, C, G, H, HBG, JE, K, KRA, LD, M, PC, PR, S); Kunze, *Fungi selecti exs.* 203 (B, BPI, DBN, G, H, JE, K, M, NEU, NY, RO); Libert, *Plantae Cryptogamicae Arduenna* 1289 (BR, K, M, RO); Litschauer-Lohwag, *Fungi Selecti Exsiccati Europaei* 10 (M, PC, PR, W); Lundell & Nannfeldt, *Fungi exs. Suecici* 170 (C, K, PC, PR, S), 2235 (C, K, PC, PR, S, U); Parmasto, *Mycotheca Estonica* 5 (GB, H, LY, PR, TAA, TUR, UPS); Petrak, *Flora Bohemiae et Moraviae Exsiccata* 642 (BR, BRNM, DBN, E, HBG, K, LD,

PR, S); Pilát, *Fungi Carpat. lignicoli exs*. 94 (BR, K, PR, W), 144 (BPI, BR, K); Rabenhorts-Klotzschi, Herb. vivum myc. 212 (BPI, BR HBG, K, M, PR, RO); Rabenhorst-Winter, *Fungi Europ*. 2823 (BR, H, HBG, K, M, NEU, NY, W); Rabenhorst, *Herb. Myc.* 811 (BR, M, PR, RO); Roumeguère, *Fungi selecti Gallici exs.* 106 (G, HBG, K, NEU, RO), 858 (BR, G, HBG, K, NEU), 3502 (BR, K, NY); Saccardo, *Mycotheca Veneta* 33 (K, RO, W); Săvulescu, *Herb. mycol. Romanicum* 691 (BPI, G, K, KRA, M, PC), 2904 (B, BR, C, G, H, JE, K, KRA, M, PC); Schroeter, *Pilze Schlesien* 789 (C, HBG); Siemaszko, *Fungi Bialowiezensis Exsiccati* 103 (K, KRA, PR, W) as *H. tabacina*; Smarods, *Fungi Latvici Exsiccati* 469 (PR, W); *Stirpes Cryptogamae Vogeso-Rhenanae* 394 (E, JE, K); Sydow, *Mycoth. Marehica* 2820 (B, BPI, HBG, K, NY); Torrend, *Fungi selecti exsiccate* 246 (S); Wartmann-Winter, *Schweizerische Kryptogamen* 815 (B, G, K, M); Weese, *Eumycetes Selecti Exsiccati* 145 (M, PR).

Voucher specimens studied: **AUSTRIA. Nieder-Österreich.** Lainzer Tiergarten by Wien, on *Quercus*, 12.VIII.1922 *Litschauer* (2 coll., W). **DENMARK.** Suserup Skov, on *Quercus*, 16.XI.1975 *Knudsen* (C-F-13012, C). Annebjerg Skov, on *Quercus*, 27.II.1977 *Corfixen 3693* (C-F-12914, C). **FINLAND. Varsinais-Suomi.** Turku, Katariinanlaakso, on *Quercus robur*, 8.V.1936 *Laurila* (H). **ITALY.** Torino, Cumiana, on *Robinea pseudoacacia*, 4.II,1984 *Gaj* (2287, BOLO). **LATVIA**. Vidzema, Vestiena, on *Quercus robur*, 28.VIII.1935 *Starcs* (3268, B). **POLAND.** Białowiéza, on *Quercus*, 8.X.1984 *Corfixen 3928* (C-F-12826, C). **SPAIN**. Caceres, San Martin de Trevijo, on *Castanea sativa*, 30.III.1977 *Navarro et al.* (243/77 MT, MA). **SWEDEN**. Stockholm, Djurgården, on *Quercus*, 1.V.1904 *Romell* (12070, S).

Basidiomes of this species resemble *H. ulmicola* which differs in their small, umbonately attached basidiomes, 2–5 × 3–10 mm, and ellipsoid, bigger spores, 5.5–7.5 × 3–4 µm. *H. ulmicola* grows on the lateral sides of bark scales (in bark fissures) of old living *Ulmus* trees. Many specimens are misnamed *H. ferruginea*, a few as *H. tabacina*.

13. Hymenochaete subfuliginosa Bourdot & Galzin – Figs. 13; 19,13; 20,13.

Mycobank no: MB 279207

Bull. Soc. mycol. Fr. 38: 184 (1921) and Hyménomycètes de France: 391 (1928) as subspecies; Pilát, Hedwigia 70 (1/2): 120 (1930) as variety; Jahn, Westfäl. Pilzbriefe 8 (4-7): 142, f. 29, 33 (1971); Bondartseva & Parmasto, Clavis diagn. fung. URSS. Aphyll. 1: 33 (1986); Léger, Hymenochaete 145 (1998) as „forma“.

Lectotype: **FRANCE.** Aveyron, Vignoles, on *Quercus* in house, 12.VI.1914 *Galzin 15666* = *Bourdot 15372* (Parmasto 2000: 64).

Icon. Jahn (1979): f. 131.

Basidiome perennial, effused, closely adnate, 5–50 × 10–100 mm, 0.1–1 mm thick; hymenial surface even, later densely cracked, dark umber or dark chocolate brown (K&W 7E4–5); margin thin, abrupt, light brown when young, later darker than the hymenium. *Cortex* absent; hyphal layer absent; setal layer 50–1000 µm thick, composed of overlapping rows of setae. *Hyphal system* monomitic. Generative hyphae 2–4 µm in diam., subhyaline, thin-walled. *Setae* very numerous, 65–100 × 7–11 µm, projecting 25–60 µm, fusoid, with acute and thin tip, without incrustations, naked or rarely enmeshed in hyphal sheaths. *Hyphidia* absent. *Basidia* 15–20 × 4–5 µm, subclavate, with four thin sterigmata, 4–5 µm long. *Basidiospores* 4.5–5.5 × 2.7–3.2 µm (Parmasto: 14 specimens; 4.11–5.86 × 2.30–2.91 µm; Q value 1.62–2.38), oblong ellipsoid. Causes white rot.

On branches and wood of *Quercus*, seldom on other deciduous wood: *Acer* (1), *Carpinus* (3), *Cornus* (1), *Fagus* (5), *Fraxinus* (1), *Quercus* (117), *Tilia* (1), also on construction timber.

Only known from Europe but found throughout. Mainly on *Quercus* with a few confirmed records on other deciduous hosts in: Austria (1), Belarus (2), Bulgaria (2), Czechia (15), Denmark (2), Estonia (25), Finland (3), France (16), Georgia (1), Germany (1), Macedonia (3), Norway (2), Poland (2), Russia (13), Scotland (2), Slovakia (42), Spain (8), Sweden (36), Switzerland /2), Ukraine (2). Reported in literature from: Azer-

Fig. 13. *Hymenochaete subfuliginosa*. Sweden, Uppland, N. Warleda near Rånäs, 35 km E of Uppsala, *Quercus robur*, 7.VIII.1970 *Jahn & Jahn* (LY 6580, LY). – Photo: P. Corfixen

baijan, Georgia, Russia (Ghobad-Nejhad et al. 2009); Greece (Polemis et al. 2013: 309; as *H. fuliginosa*); Germany (Krieglsteiner 2000; notes under *H. fuliginosa*); Macedonia (Karadelev & Rusevska 2004/2005); Spain (Telleria 1990); Switzerland (Breitenbach & Kränzlin 1986, as a note under *H. fuliginosa*).

Voucher specimens studied: **CZECH REPUBLIC.** Znojmo, Podmoli, Ostroh by river Dyje, on *Quercus petraea*, 19.VII.1988 *Pouzar* (863714, PR). **GERMANY. Baden-Würtemberg**. Baar E of Donauschingen, on *Quercus*, 30.IV.1971 *Jahn & Jahn* (M). **NORWAY.** Oslo, Bygdøy, on *Quercus*, 18.IX.1980 *Ryvarden* (LR 18221, O). **SCOTLAND. Angus**. Glamis, no date, on *Quercus, Stevenson* 489 (K). **SLOVAKIA.** Zvolen, Pusty hrad, on *Quercus cerris*, 19.X.1954 *Pouzar* (838510, PR). **SPAIN.** Leon, Fabero, cerca de San Pedro de Paradela, 12.XII.1984 *Brito et al.* (6764 Tell., MA). **SWEDEN. Uppland.** N. Warleda near Rånäs, 35 km E of Uppsala, on *Quercus robur*, 7.VIII.1970 *Jahn & Jahn* (LY 6580, LY). **Västmanland.** Västerås-Barkarö sn, Högholmsskär, on *Quercus*, 11.X.1975 *Hallenberg & Hallenberg* (NH 0927, GB). **SWITZERLAND**. Jura, Südhang by Orvin, 700 m, on *Quercus*, 10.I.1971 *Schaeren* (M). **UKRAINE.** Inte-Syrt state reserve, on *Quercus*, 9.IX.1937 *Bondartsev* (174814, LE).

This species is similar to *H. fuliginosa* which grows on coniferous wood, rarely on *Salix*, and has a thinner basidiome and bigger spores (5–6.5 × 1.8–2.6 µm); (*H. subfuliginosa* 4.5–5.5 × 2.7–3.2 µm (Parmasto 2000: fig. 3). The microscopical differences are small, but because of the thick basidiome and the host it is easy to identify. Many authors consider them to be conspecific. The hymenial surface has the same appearence as *H. rubiginosa*, and it has also been misidentified as a resupinate form of this species. Many specimens are named *H. fuliginosa*, but also misidentified in herbaria as *H. cinnamomea, H. corrugata* and *H. rubiginosa.*

Fig. 14. *Hymenochaete ulmicola*. Russia, Chelyabinskaya obl., Vilyay, 20 km S of Ascha, on *Ulmus scabra*, 29.VIII.2002 *Corfixen 02.146* (C-F-61560, C). – Photo: P. Corfixen

14. Hymenochaete ulmicola Corfixen & Parmasto – Figs. 14; 19,14; 20,14.

Mycobank no: MB 344440

Mycotaxon 91: 465 2005; - *H. rubiginosa* f. *minuta* Pilát, Hedwigia 70: 119 (1930).

Holotype: **DENMARK. Sjælland.** Frederiksværk community, Glædelundgård, on *Ulmus glabra*, 29.VII.1991 *Corfixen 4044* (C-F-13496, C).

Basidiome perennial, effuso-reflexed with slightly elevated margins, or with well-developed umbonate-adnate pilei, almost cupulate, usually fixed to the substratum with an umbonate point, woody hard, brittle when dry; resupinate part up to 10 mm in diam., pilei 2–5 mm long, projecting 3–10 mm, 0.2–1 mm thick, single or a few confluent. Pileal surface concentrally sulcate with few furrows in the marginal part, when young concentrically rough hairy, later glabrous, dark brown or blackish (K&W: 6E4, when old 6F5–4 or 6F9, blackish chocolate brown); margin thin, slightly lobate. *Hymenium* smooth or with scattered tubercles, not cracked, light brown (K&W: 6D4–5 or 5E6, camel to sunburn or mustard brown). *Tomentum* present as tomentose zones on pilei, 50-80 µm thick, later vanishing; cortex present, 30–60(–75) µm thick; hyphal layer well developed, up to 200 µm thick, composed of almost densely radially interwoven hyphae; setal layer thickening, with up to five indistinct or distinct layers, up to 400(–800) µm thick. *Hyphal system* subdimitic; generative hyphae subhyaline, 2.5–3.5(–4) µm in diam., sklerefied hyphae 4–5 µm in diam. Setal hyphae absent, but some setae bending downwards with horizontal

Fig. 15. *Hymenochaetopsis corrugata*. Denmark. Sjælland, Eskebjerg Vesterlyng, Mareskov, on *Rosa*, 14.X.1996 *Læssøe 6463* (C-F-52193, C). – Photo: P. Corfixen

elongated base up to 100 µm long. *Setae* numerous, confined to the hymenium, 50–90 × 6–11 µm, subulate, with acute tip, naked or enmeshed in hyphal sheaths, without incrustations, projecting up to 50 µm. *Cystidia and hyphidia* absent, but basidioles numerous, hymenium encrusted with granules of resinous matter. *Basidia* 18–25 × 4.5–6 µm, subcylindrical, with four sterigmata, each about three µm long. *Basidiospores* 5.5–7.5 × 3–4 µm (Parmasto: 9 specimens; 5.79–6.89 × 3.14–3.59 µm; Q value 1.83–1.98), ellipsoid.

The species grows on *Ulmus* trees (mainly of *U. glabra*), in bark fissures. Only known from Europe. Known from many countries, but only by a few records, being possibly very rare: Austria (2), Czechia (3), Denmark (14), Estonia (6), Finland (4), France (1), Norway (1), Russia (8), Sweden (9). In literature reported by Corfixen & Parmasto (2005), from Hungary (Papp 2013), from Norway (Jordal 2006), from Sweden (Svensson 2010).

Basidiomes are easily overlooked. The habitat is similar to the possibly closely related *H. carpatica* which differs in always being resupinate and firmly attached to the substrate, the basidiomes are growing mainly on *Acer pseudoplatanus*. The basidiomes of *H. ulmicola* resemble a miniature *H. rubiginosa*; the latter has the same type of structure (tomentum, cortex, hyphal and setal layers present), but differs by smaller spores, 3.5–5.5 × 2–3 µm, and another host.

15. Hymenochaetopsis corrugata (Fr. : Fr.) S.H. He & Jiao Yang – Figs. 15, 18; 19,15; 21,15.

Mycobank no: MB 814946

Mycol. Prog. 15: 4 (2016). – *Hymenochaete corrugata* (Fr.) Lév., Ann. sci. nat. Bot. III 5: 152 (1846); Bourdot & Galzin, Bull. Soc. mycol. Fr. 38: 184 (1921) and Hyménomycètes de France: 389 (1928); excl. f. *calluna* (= *H. canescens*);

Pilát, Hedwigia 70: 125 (1930); Jahn, Westfäl. Pilzbriefe 8: 141, f. 28, 39, Abb. 40 (1971) ; excl. f. *calluna* (= *H. canescens*); Bondartseva & Parmasto, Clavis diagn. fung. URSS. Aphyll. 1: 32 (1986); Léger, Hymenochaete 100, f. 26 (1998). Bernicchia & Gorjón, Corticiaceae s.l.: 326 (2010). - *Thelephora corrugata* Fr. Observ. Mycol 1: 134 (1815). – *Corticium corrugatum* (Fr.) Fr. Epicrisis: 565 (1838). – *Xerocarpus corrugatus* (Fr.) P. Karst. Bidr. Känn. Finl. Nat. Folk 37: 138 (1882). - *Hymenochaete agglutinans* Ellis Bull. Torrey bot. Club 5: 46 (1874) is a sterile form. – *Hymenochaete croceoferruginea* Massee J. Linn Soc. Bot. 27: 110 (1890). – *Thelephora padi* Pers., Myc. Eur. 1: 142 (1828).

Icon. Breitenbach & Kränzlin (1986): nr. 293. Krieglsteiner (2000): 210. **Web**. https://svampe.databasen.org/taxon/14931

Basidiome perennial, effused, closely adnate, up to 30 × 300 mm, 0.08–0.6 mm thick; hymenial surface even, soon irregularly cracked, brownish or reddish grey, yellowish brown to dark brown to nearly black (K&W 7E5, D3, E–F6); margin thin, lighter or darker. *Cortex* absent or very thin; hyphal layer 10–40 µm thick; setal layer 100–500 µm thick, composed of overlapping rows of setae. *Hyphal system* monomitic. Solitary tramal setae rare, 50–150 × 5–9 µm. Generative hyphae 2–4 µm in diam., subhyaline, thin to thick-walled. *Setae* very numerous, 40–100 × 6–14 µm, projecting 20–40 µm, conical to fusiform, thick and uneven, with short and eroding tip (Fig. 18), often broken. *Basidia* 15–20 × 2.5–4 µm, subclavate, with four thin sterigmata, 4 µm long. *Basidiospores* 4.5–7 × 1.5–2.3 µm, cylindrical to suballantoid. Causes white rot.

On fallen or hanging branches and dead twigs, mostly on *Corylus* (189). Other hosts: *Acer* (2), *Alnus* (11), *Betula* (47), *Buxus* (5), *Calluna* (1), *Carpinus* (22), *Castanea* (6), *Clematis* (2), *Crataegus* (7), *Erica* (1), *Fagus* (51), *Fraxinus* (11), *Hedera* (1), *Ilex* (2), *Juniperus* (1), *Picea* (7), *Pinus* (1), *Platanus* (1), *Prunus* (26), *Pterocarya* (1), *Pyrus* (5), *Quercus* (19), *Rhododendron* (1), *Rosa* (10), *Rubus* (8), *Salix* (2), *Sambucus* (2), *Sorbus* (3), *Tilia* (1), *Ulmus* (3).

A cosmopolitan species. Most common in the warmer atlantic zones with few records from Scandinavia: Azerbaijan (1), Austria (86), Belgium (6), Croatia (1), Czechia (12), Denmark (26), England (126), Finland (1), France (34), Georgia (3), Germany (27), Ireland (17), Italy (2), Lithuania (1), Netherlands (1), Northern Ireland (1), Norway (9), Poland (1), Portugal (3), Romania (2), Russia (2), Scotland (13), Slovakia (2), Slovenia (4), Spain (76), Sweden (27), Switzerland (3), Ukraine (78), Wales (9). In literature reported from Austria (Gerhold 2000), from Azerbaijan, Georgia, Russia (Ghobad-Nejhad et al. 2009), from Germany (Krieglsteiner 2000), from Spain (Telleria 1990) and from Switzerland (Breitenbach & Kränzlin 1986).

Exsiccata studied: Berkeley, *British Fungi* 249 & 298 (BR, E, K); Fungi *Tirolenses exsiccate* 20 (W); *Kryptogamae exsiccatae* 714 (BR, C, G, H, HBG, K, L, LD, M, PC, PR, S, W); Lundell & Nannfeldt, *Fungi Exsiccati Suecici Upsalienses* 2230 (K, PC, PR, S), 2646 (C, K, PC, PR, S, U); Petrak, *Flora Bohemiae et Moraviae Exsiccata* 1842 (BPI, BR, C, HBG, K, PR, S); Pilát, *Fungi Carpatici Lignicoli Exsiccati* 37 (BPI, BR, K, PR) & 143 (BPI, BR, K, NY); *Plantae Graecenses* 7 (B, BPI, H, K, L, LD, M, PR, S), 16 (B, H, K, L, LD, M, PR, S), 180 (B, H, K, L, LD, M), 181 (B, H, K, L, LD, M); Roumeguère, *Fungi Selecti Gallici Exsiccati* 4605 (G, BR) as *Thelephora cerasi*; Thümen, *Mycotheca Universalis* 309 (BR, C) as *H. agglutinans*; Weese, *Eumycetes Selecti Exsiccati* 274 (BPI, K, M). **Erroneous**: Petrak, *Mycotheca Carpatica* 466 (BPI; = *H. tabacina*).

Types studied: *H. croceoferruginea*, **Nottinghamshire,** Lombley, on *Rosa canina* (K).

Voucher specimens studied: **DENMARK. Sjælland.** Eskebjerg Vesterlyng, Mareskov, on *Rosa*, 14.X.1996 *Læssøe* (TL-6463, C-F-52193, C). **ENGLAND. North Kent.** Lessness Woods, 21.II.1926 *Grimling* (K). **FRANCE.** Aveyron, Vignoles, on *Corylus*, 11.VI.1917 *Galzin* (HB 19648, PC). **GERMANY. Rheinland.** Koblenz, Eltzbachtal, on *Corylus*, 31.III.1967 *Jahn* (GB). **IRELAND.** Inch, NW of Youghal, Co. Cork, on *Rubus fruticosus*, IX.1985 *Scannell* (DBN). **SPAIN.** Santander, Los Tojos, Saja, hacia el Puerto de Palombera, on *Fagus*, 1.IV.1985 *Coello et al.* (3697 MD, MA). **UKRAINE. Carpatorossia**. Velky Bockov, rivum Kuzy, on *Quercus*, VII.1933 *Pilát* (496344, PR).

Fig. 16. *Hymenochaetopsis laricicola*. Russia, Krasnojarsk kraj, Kotuy-river, 70 km S of Khatanga, close to Kayale, on *Larix gmelinii*, 27.VIII.1993 *Kotiranta 11353*. – Photo: H. Kotiranta

H. corrugata is quite common especially in northwestern Europe and mostly on *Corylus*. When two twigs are close it may develop a sterile basidiome with setae, keeping the twigs together. In such situations it has the same appearence as a sterile form of *H. tabacina*, why it is only possible to determine the species by finding a fertile basidiome near by. In herbaria sometimes misidentified as *H. cinnamomea, H. fuliginosa, H. rubiginosa* and *H. tabacina*.

16. Hymenochaetopsis laricicola S.H. He & Jiao Yang – Figs. 16; 19,16; 21,16.

Mycobank no: MB 814944

Mycol. Progr. 15: 4 (2016)

Basidiome annual, with well developed pilei or effuso-reflexed, closely adnate, soft coriaceus, but brittle when dry. Pilei dimidiate on vertical substrate, 5–15 × 5–25 mm, confluent on horizontal substrate, 5–200 × 10–100 mm, 0.1–0.4 mm thick; surface radially fibrillose, silky, glabrous when old, with concentric zones, brown beige (6E3) to light brown (6D4); margin thin, entire, caramel brown (6F4). Hymenium smooth, cracked when old, grey (6D3), chocolate brown (6F4) when old, margin yellow. *Tomentum* up to 150 µm thick; cortex up to 50 µm thick, composed of agglutinated hyphae; hyphal layer 120-200 µm thick, hyphae compactly longitudinally arranged; setal layer 60-120 µm thick, composed of 1–5 rows of setae. *Hyphal system* subdimitic, solitary tramal setae present, 40–120 × 7–12 µm, thick-walled, with acute, eroding tip. Generative hyphae 2-3.5 µm in diam., subhyaline, thin-walled; sklerefied hyphae 3–5 µm in diam., thick-walled, brown. *Setae* numerous, (16-)25-35 (–40) × (5–) 6–9 (–13) µm, lageniform, with obtuse, eroding tip, projecting up to 30 µm. *Hyphidia* numerous, not well differentiated, 2.5-4 µm in diam., thin-walled, subhyaline. *Basidia* 13 × 2.5–4 µm, clavate or subclavate, with four thin sterigmata, 2.5 µm long. *Basidiospores* 4–6 x

Fig. 17. *Hymenochaetopsis tabacina*. Denmark, Lovns Egekrat, on *Prunus spinosa*, 6.VIII.1975 *Corfixen 3312* (C-F-13181 (C). – Photo: P. Corfixen

1.5–1.9 µm (Parmasto: 5 specimens; 5.39–6.49 × 1.73–1.88 µm; Q value 2.97-3.69), cylindrical to suballantoid. Causes white pocket rot.

Only known from *Larix sibirica* (incl. *L. rossica*) and *L. gmelinii*; on newly fallen trunks and on dead twigs. Temperate Asia, in Russia from Arkhangelsk to Kamchatka and Russian Far East and in North China.

Voucher specimens studied:. **RUSSIA. Bryansk district.** no date, on coniferous wood, *Bondartseva 174906* (LE). **Irkutskaya oblast.** Baykal Lake, Cape Sibyr Kedrovyy, 450 m., on *Larix sibirica*, 9.IX.2000 *Corfixen 00.070* (C-F-50883, C). **Komi.** Kadzherom, on *Larix rossica* , 20.VIII.1957 *Parmasto 008457* (C, TAA).

Hymenochaetopsis laricola has been collected by both authors throughout Siberia. In some areas it was found to be very common. Kotiranta and both authors have used the preliminary names *H. laricis* and *H. laricina* in herbaria and *H. „larici"s* in three papers: Kotiranta & Penzina (1998), Shiryaev & Mikhalova (2016), Kotiranta & Shiryaev (2016). Other, previous collections in herbaria are labelled *H. tabacina*.

17. Hymenochaetopsis tabacina (Sowerby: Fr.) S.H. He & Jiao Yang, – Figs. 17; 19,17; 21,17.

Mycobank no: MB 814955

In Yang, Dai & He, Mycol. Progr. 15: 7 (2016). - *Pseudochaete tabacina* (Sowerby: Fr.) T. Wagner & M. Fisch. (gen. inval., later homonym), Myc. Progr. 1: 100 (2002). - *Hymenochaete tabacina* (Sowerby: Fr.) Lév. Ann. sci. nat. Bot. III 5: 152 (1846); Bourdot & Galzin, Bull. Soc. mycol. Fr. 38: 180 (1923) and Hyménomycètes de France: 389 (1928), excl. f. *crocata* and f. *effusa*; Pilát, Hedwigia 70: 106 (1930) excl. f. *rhododendri,* f. *crocata* and var. *konradii*; Skovsted, Compt.-

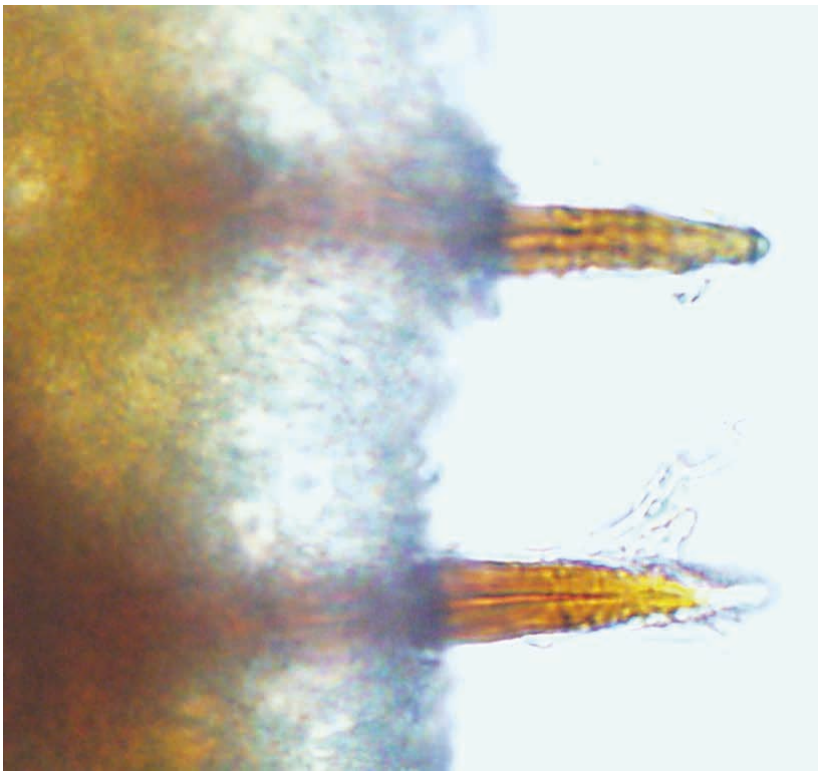

Fig. 18. *Hymenochaetopsis corrugata*. Eroded setae. Denmark. Sjælland, Eskebjerg Vesterlyng, Mareskov, on *Rosa*, 14.X.1996 *Læssøe 6463* (C-F-52193, C). – Photo: P. Corfixen

rend. Lab. Carlsberg, Sér. physiol. 25 (17): 412, f. 13 (1956); Jahn, Westfäl. Pilzbriefe 8: 136, f. 25, Abb. 20 (1971); Bondartseva & Parmasto, Clavis diagn. fung. URSS. Aphyll. 1: 39 (1986); Léger, Hymenochaete 270, f. 105 (1998); Bernicchia & Gorjón, Corticiaceae s.l.: 330 (2010). – f. *conglutinans* Bourd. & Galz., Bull. Soc. mycol. Fr. 38: 181 (1923) is a sterile form resempling that of *H. corrugata*. – *Hymenochaete avellana* (Fr.) Lév. Grevillea 8: 146 (1880). – *Hymenochaete nigrescens* Cooke ex Massee J. Linn. Soc. Bot. 27: 104 (1890).

Icon. Bernicchia & Gorjón (2010): 840. Breitenbach & Kränzlin (1986): nr. 297. Jahn (1979): f. 128. Krieglsteiner (2000): 215. Ryman & Holmåsen (1984): 197. **Web**. https://svampe.databasen.org/taxon/14935

Basidiome annual with well developed pilei or effuso-reflexed, closely adnate, soft coriaceus, but brittle when dry. Pilei dimidiate on vertical substrate, 5–15 × 5-25 mm, confluent on horizontal substrate, 5–40 × 10–many mm, 0.1–1 mm thick; surface radially fibrillose, silky, glabrous when old, with concentric zones, rust brown, greyish or dark brown (6E4–6E6); margin thin, entire, golden yellow when young. *Hymenium* smooth, usually concentrically zonate, cracked when old, greyish brown (6E6). *Tomentum* up to 300 µm thick; cortex up to 150 µm thick, composed of agglutinated hyphae; hyphal layer 70–400 µm thick, hyphae compactly longitudinally arranged; setal layer 70–450 µm thick, composed of 1(–2) rows of setae. *Hyphal system* subdimitic, solitary tramal setae present, 90–285 × 7–13 µm, thick-walled, with acute, eroding tip. Generative hyphae 2–3.5 µm in diam., subhyaline, thin-walled; sklerefied hyphae 3–5 µm in diam., thick-walled, brown. *Setae* numerous, 52–100 × 7–18 µm, projecting up to 60 µm, conical-fusiform, with acute eroding tip. *Hyphidia* numerous, not well differentiated, 1.5–3 µm in diam., thin-walled, subhyaline. *Basidia* 15–25

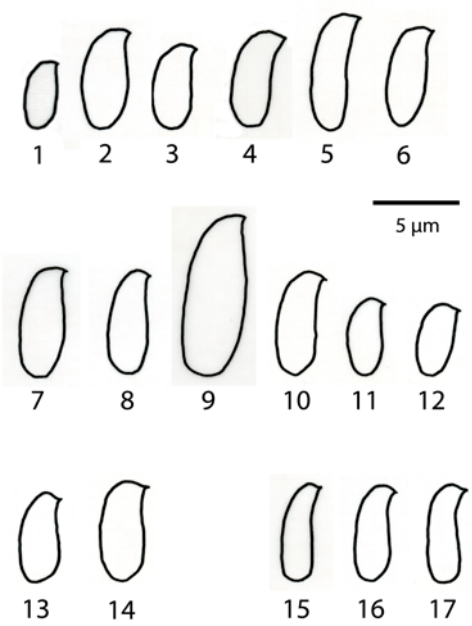

Fig. 19. Spores of *Hymenochaete* and *Hymenochaetopsis*. 1. *Hymenochaete canescens*, 2. *H. carpatica*, 3. *H. caucasica*, 4. *H. cinnamomea*, 5. *H. cruenta*, 6. *H. fuliginosa*, 7. *H. jaapii*, 8. *H. konradii*, 9. *H. longispora*, 10. *H. pilatii*, 11. *H. rhododendri*, 12. *H. rubiginosa*, 13. *H. subfuliginosa*, 14. *H. ulmicola*, 15. *Hymenochaetopsis corrugata*, 16. *H. laricicola*, 17. *H. tabacina*.

× 3–5 µm, clavate or subclavate, with four thin sterigmata, 4–5 µm long. *Basidiospores* 4.8–6.7 × 1.6–2.6 µm (Parmasto: 16 specimens; 4.80–6.67 × 1.57–2.60 µm; Q value 2.44–3.22), cylindrical to suballantoid. Causes white rot. Like for *H. corrugata* there exists a sterile form only with setae, keeping the twigs together (*agglutinans*-form) (Stenlid & Holmer 1991).

On fallen twigs and trunks, on stumps of deciduous trees, seldom conifers; main hosts are *Salix* (794) and *Corylus* (390), but also on many other trees, bushes and even on herbs: *Abies* (9), *Acer* (12), *Alnus* (126), *Amelanchier* (1), *Betula* (101), *Calluna* (2), *Carpinus* (14), *Cornus* (1), *Cotoneaster* (3), *Crataegus* (5), *Epilobium* (2), *Erica* (5), *Fagus* (16), *Filipendula* (2), *Frangula* (3), *Fraxinus* (13), *Juniperus* (9), *Larix* (9), *Ledum* (2), *Lonicera* (8), *Malus* (1), *Picea* (62), *Pistacia* (1), *Populus* (47), *Prunus* (112), *Quercus* (12), *Rhododendron* (1), *Ribes* (9), *Rosa* (20), *Rubus* (4), *Sambucus* (4), *Sarothamnus* (1), *Sorbus* (43), *Spiraea* (3), *Symphoricarpus* (1), *Syringa* (11), *Tilia* (5), *Ulmus* (3) and *Viburnum* (2). Growth from one plant to the neighboring plant is common, which can be the explanation for the long list of hosts.

A cosmopolitan species. In Europe most common subalpine zones, the whole distribution covers: Armenia, Austria (69), Azerbaijan, Belarus, Belgium (35), Bosnia (1), Czechia (99), Denmark (423), England (69), Estonia (115), Finland (358), France (52), Germany (337), Georgia, Hungary (2), Latvia (16), Lithuania, Macedonia (5), Netherlands (30), Italy (8), Norway (274), Poland (9), Portugal (4), Russia (32), Scotland (2), Slovakia (17), Spain (6), Switzerland (19), Sweden (357), Ukraine (2), Wales (1). In literature reported followingly: from Austria (Gerhold 2000), from Germany (Krieglsteiner 2000), from Macedonia (Karadelev & Rusevska 2004/2005), from Russia (Ghoad-Nejhad et al. 2009), from Spain (Telleria 1990) and from Switzerland (Breitenbach & Kränzlin 1986).

Exsiccata studied: Berkeley, *British Fungi* 248 (E); Brinkman, *Westfälische Pilze* 40 (BPI, HBG, K, L, M, W), 41 (BPI, HBG, K, M); Cooke, *Fungi Britannici Exsiccati* 415 (DBN, E, K, RO, W) as *H. rubiginosa*; Desmazières, *Plantes Cryptogames Nord France* 415 (G, K); *Fungi Estonici Exsiccati* 9 (BRNM, H, M, PR, S); *Fungi Fenniae exssiccati* 130 (K); *Fungi Tirolenses exsiccate* 19 (W); *Herbier Cryptogamique Belgique* 1288 (BR, K); Jaap, *Fungi Selecti Exsiccati* 45 a-e (B, C, DBN, HBG, JE, K, KRA, L, M, PC, S, TUR, W); Klotzschii, *Herbarium Mycologicae* 1120 (BR, L, M, PR, RO); Krieger, *Fungi Saxonici Exsiccati* 270 (BPI, HBG, JE, K, M, S, W); *Kryptogamae exsiccatae* 1141 (BPI, BR, C, G, H, HBG, JE, K, L, LD, M, PC, PR, S, W); Kunze, *Fungi selecti* 203 (BPI, NY); Libert, *Plantae Cryptogamicae Arduenna* 121 (BR, G, K, L, PR, RO, W); Litschauer-Lohwag, *Fungi Selecti Exsiccati Europaei* 112 (L, PR); Lundell & Nannfeldt, *Fungi Exsiccati Suecici Upsalienses* 171 (C, K, PC, PR, U), 939 a-b (C, K, PC, PR, S, U), 2231 (C, K, PC, PR, U), 2232 (C, K, PC, PR, U); Oudemans, *Fungi Neerlandici Exsiccati* 240 (BR, DBN, K); Parmasto, *Mycotheca Estonica* 6-7 (H, L, O, PR, TAA, TUR, UPS); Petrak, *Mycotheca Carpatica* 236 & 466 as

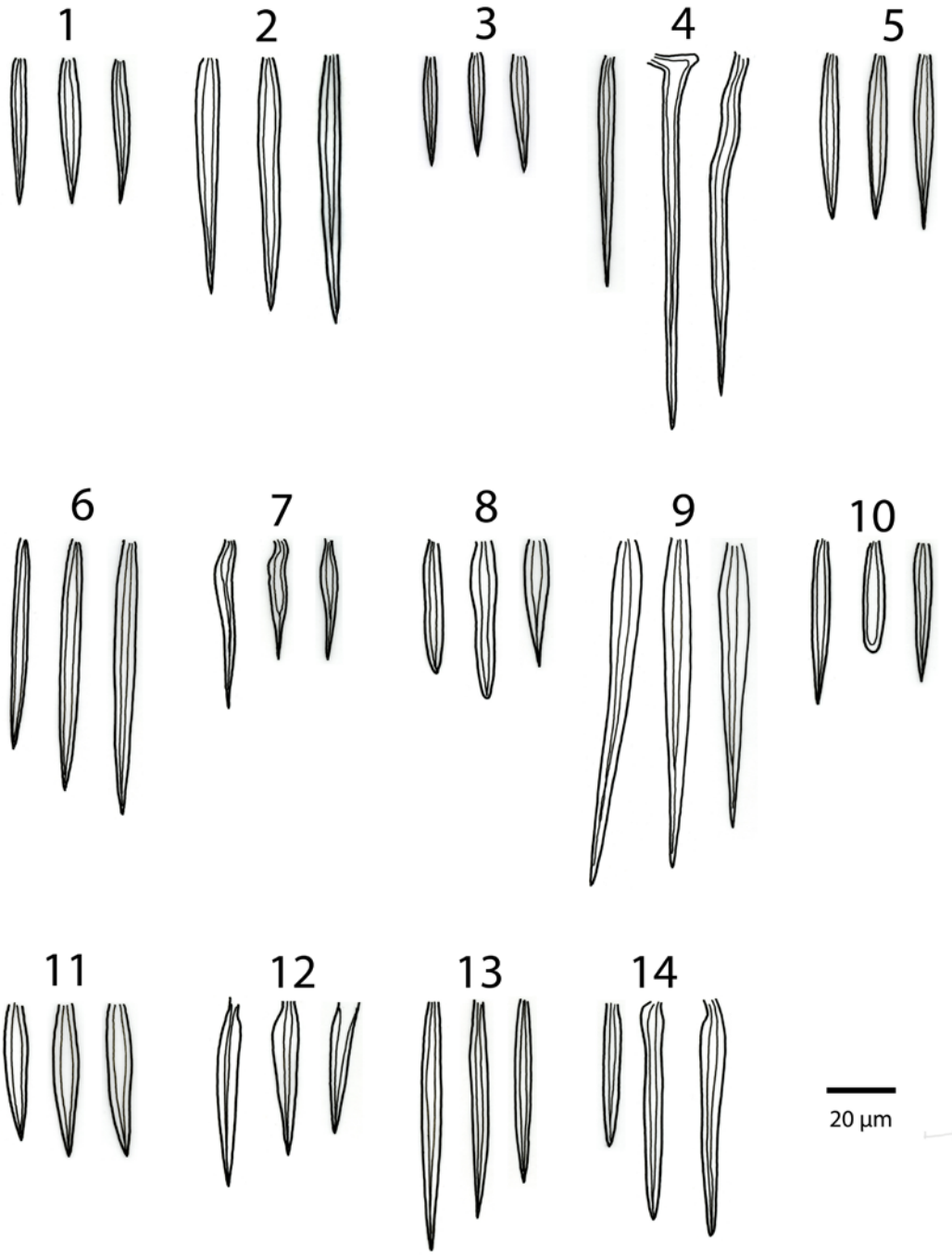

Fig. 20. Setae of *Hymenochaete*. 1. *Hymenochaete canescens*, 2. *H. carpatica*, 3. *H. caucasica*, 4. *H. cinnamomea*, 5. *H. cruenta*, 6. *H. fuliginosa*, 7. *H. jaapii*, 8. *H. konradii*, 9. *H. longispora*, 10. *H. pilatii*, 11. *H. rhododendri*, 12. *H. rubiginosa*, 13. *H. subfuliginosa*, 14. *H. ulmicola*

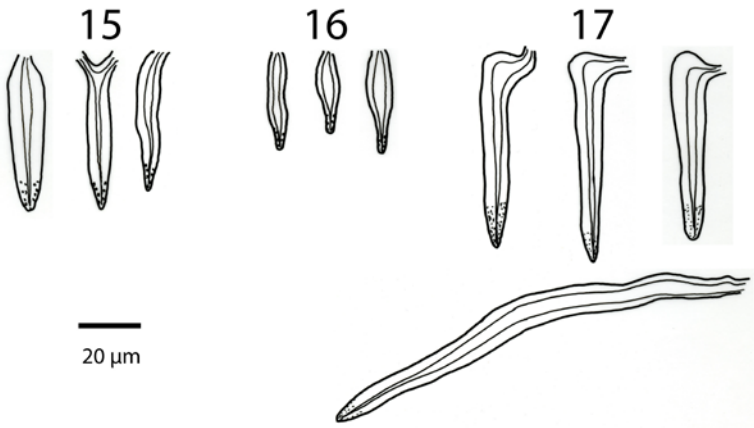

Fig. 21. Setae of *Hymenochaetopsis*. 15. *Hymenochaetopsis corrugata*, 16. *H. laricicola*, 17. *H. tabacina*.

H. corrugata (BPI, HBG, K, LD, M, PR, S); *Plantae graecenses* 95, 117, 513 & 514 (B, G, H, K, L, LD M, PR, S); Rabenhorst-Winter, *Fungi Europaei* 1404 (BR, C, G, K, L, M, O, RO); *Reliquiae Petrakiana* 729 as *H. corrugata*, 730 (B, H, M, PR, S); Roumeguère, *Fungi Selecti Gallici Exsiccati* 4571 (BR), 7346 (G); Smarods, *Fungi Latvici Exsiccati* 265 (PR, W); Sommerfelt, *Plantarum Cryptogamarum Norvegicarum* 186 (L, RO); Sydow, *Mycotheca Germanica* 2063 (B, BPI, BR, C, E, FI, HBG, JE, K, L, M, PR, S, W), 3203 (B, BR, C, HBG, KRA, L, M, PR, S); Thümen, *Mycotheca Universalis* 211 (B, BPI, BR, DBN, G, HBG, K, L, M, NEU, Ny, PR, RO, S, W), 211b (BR, NEU, RO, PR, S).

Type studied: *Hymenochaete tabacina*: **USA. Idaho**, 13.VI.1948 *Cooke* (NY; neotype designated by DeFigio, published by Job 1990: 44). *Hymenochaete nigrescens*: **ENGLAND,** Carlisle, 1884 *Carlyle* (K).

Voucher specimens studied:. **CZECH REPUBLIC. Bohemia,** Sobeslav-Blata, on *Salix*, (as var. *crassa*), VII.1932 *Pilát* (TUR). **DENMARK.** Frederiksdal, on *Salix*, 7.XI.1912 *Lind* (C-F-13062, C). Helsinge, Høbjerg Hegn, on *Corylus*, 4.V.1977 *Corfixen 3709* (C-F-13111, C). Lovns Egekrat, , on *Prunus spinosa*, 6.VIII,1975, *Corfixen 3312* (C-F-13181, C). **ENGLAND.** Cumberland, Carlisle, III.1884 *Carlyle* (several coll., E, K). **FINLAND. Etelä-Häme.** Hattula, Parola, Yllitty, on *Salix phylicifolia*, 11.IX.1971 *Uotila 12229* (H). **FRANCE.** Noisy-la-See, on *Sarothamnus scoparius,* III.1928 *Joachim* (HB 41687, PC). **GERMANY. Westfalen.** Siegen, Kleinen Nunnbach bei Siegen, on *Prunus spinosa*, 22.X.1938 (B). **LATVIA.** Vidzeme, Vestiena, on *Corylus*, 28.VIII.1935 *Starc* (3139, B, S). **NORWAY.** Akershus, Ski, N. Ski gård, on *Sorbus aucuparia*, 6.II.1955 *Stordal* (O). **SWEDEN. Hälsingland.** Harmåanger sn, Strömsbruk, on *Juniperus communis,* 22.VI.1949 *Eriksson* (3329, UPS). **SWITZERLAND.** Neuchatel, Chauffort, 23.V.1988 *Keller* (JK 4257, NEU).

This is the most common species in these two genera, especially in northern and central Europe. It has the same appearance as *H. laricicola* (smaller setae), *Hymenochaete pilatii* (without cortex) and *H. rhododendri* (setae shorter, no eroding tip). In herbaria often named as *H. cinnamomea, H. corrugata* and *H. rubiginosa.*

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