

CATATHELASMA

a journal on biodiversity, taxonomy and conservation of fungi

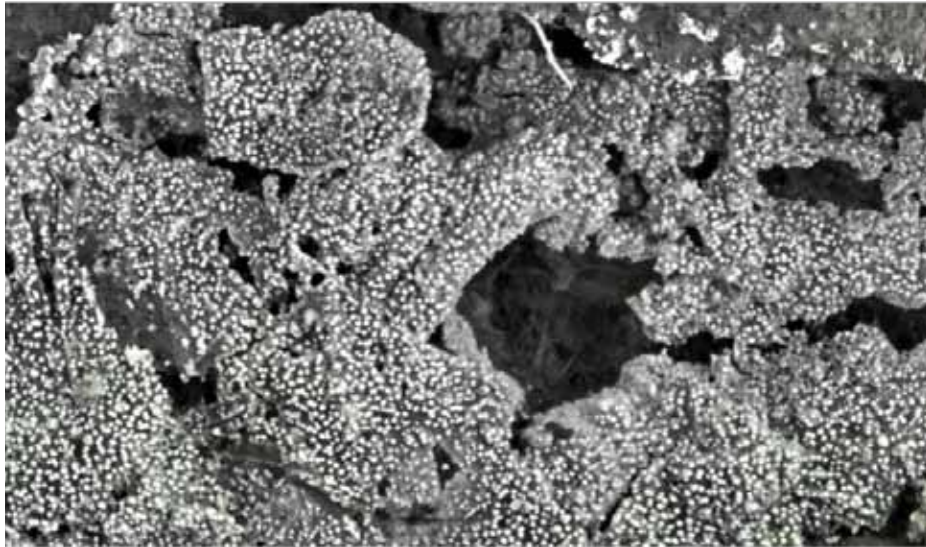
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Scopuloides rimosa, Slovakia, Borská nížina Lowland, Šaštín-Stráže village, 22 August 2012, L. Hagara (private herbarium).

Photo L. Hagara; see p. 19–32.



Scopuloides rimosa, Slovakia, Borská nížina Lowland, Šaštín-Stráže village, 18 August 2012, L. Hagara (private herbarium).
Photo L. Hagara; see p. 19–32.



Scopuloides rimosa, Slovakia, Borská nížina Lowland, Šaštín-Stráže village, 5 October 2012, L. Hagara (private herbarium).
Photo L. Hagara; see p. 19–32.

Catathelasma

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LIGNICOLOUS MACROMYCETES IN SPRUCE MONOCULTURES AT VRCH DOBROČ LOCALITY (CENTRAL SLOVAKIA)

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Mihál, I. & Luptáková, E. 2017. Lignicolous macromycetes in spruce monocultures at Vrch Dobroč locality (Central Slovakia). *Catathelasma* 18: 5–17.

The first part of our mycological research at the Vrch Dobroč locality (Veporské vrchy Mts.) was accomplished in 1989–2003. Six permanent plots were established in Norway spruce monocultures planted on former non-forest land and mycocoenological features, such as species diversity, abundance, distribution of sporocarps, dominance and succession of species and biomass production of epigeic sporocarps were observed. Sixty species of lignicolous macromycetes were identified, eight of them parasitic (*Armillaria ostoyae*, *Fomitopsis pinicola*, *Heterobasidion annosum*, *Neonectria fuckeliana*, *Schizophyllum commune*, *Stereum sanguinolentum*, *Trichaptum abietinum* and *Verticillium* sp.) and 52 saprotrophic. Species richness on the permanent plots was more or less similar (number of species varied from 21 to 29). Lignicolous macromycetes occurred most frequently in the oldest stands where dead wood was available. The permanent plots were dominated by *Calocera viscosa*, *Dacrymyces stillatus* and *Hypholoma fasciculare*. Presence of rotting spruce trees in the first 14 years of growth stands was negligible, while in the 23 years old stands was accounted for 28%. Sporocarps of important pathogens *Armillaria ostoyae* and *Heterobasidion annosum* were firstly noticed in the 33 years old spruce stands. The highest values of sporocarp production were found in the oldest, 40 years old stands (133.49 and 57.19 kg.ha⁻¹), the lowest in the youngest, 16 to 22 years old plantations (13.01 and 31.6 kg.ha⁻¹).

Mihál, I. & Luptáková, E. 2017. Lignikolné makromycéty v smrekových monokultúrach na lokalite Vrch Dobroč (stredné Slovensko). *Catathelasma* 18: 5–17.

V rokoch 1989–2003 prebiehala na lokalite Vrch Dobroč (Veporské vrchy) prvá etapa mykologického výskumu. V porastoch smrekových monokultúr rastúcich na bývalej nelesnej pôde sa vytýčilo šesť trvalých plôch, na ktorých sa skúmali vybrané mykocénologické pomery (druhová diverzita, abundancia, distribúcia plodníc, dominancia a sukcesia druhov, produkcia biomasy epigeických sporokarpov a iné). Celkovo sa zistilo 60 druhov lignikolných makromycétov, z nich osem parazitických (*Armillaria ostoyae*, *Fomitopsis pinicola*, *Heterobasidion annosum*, *Neonectria fuckeliana*, *Schizophyllum commune*, *Stereum sanguinolentum*, *Trichaptum abietinum*, *Verticillium* sp.) a 52 saprotrofných. Počet a druhové zastúpenie makromycétov bolo na trvalých plochách viac-menej vyrovnané (počet druhov varíroval od 21 do 29). Najčastejšie

a viac-menej pravidelne sa makromycéty vyskytovali vo vekovo najstarších porastoch, kde bol dostatok dreveného substrátu. Na trvalých plochách dominovali druhy *Calocera viscosa*, *Dacrymyces stillatus* a *Hypholoma fasciculare*. Prejavly hniloby smrekov v prvých 14 rokoch rastu porastov boli prakticky zanedbateľné, pričom v 23 ročných porastoch predstavovali už 28%. Sporokarpy významných patogénov, *Armillaria ostoyae* a *Heterobasidion annosum*, sme po prvýkrát zaznamenali v 33 ročných smrekových porastoch. Najvyššie hodnoty produkcie biomasy sporokarpov sme zistili v najstarších, 40-ročných porastoch (133,49 a 57,19 kg.ha⁻¹), najmenej v najmladších, 16 až 22-ročných porastoch (13,01 a 6,31 kg.ha⁻¹).

Key words: wood-inhabiting fungi, *Picea abies*, non-forest soils, permanent plots, Veporské vrchy Mts.

Introduction

Data gathered on fungi in Norway spruce plantations may serve also for comparison of mycoflora in natural spruce stands or in natural mixed forests. It is of course important to observe not only the dynamics and species diversity, abundance, fructification and production affinity of terrestrial saprotrophic and ectomycorrhizal fungi, but also of lignicolous species.

Area Vrch Dobroč is appropriate for long-term monitoring of the succession of fungi associated with Norway spruce stands because of the uniformity of planted stands. First permanent research plots were established in 1989 by Pavel Lizoň joined by Dušan Mlynarčík, Miloslav Procházka, Vincent Kabát, Pavol Škubla, Ľudovít Varjú and Ján Gáper. The area was introduced and proposed by Jozef Kodrík who was teaching at the Technical University in Zvolen at that time. Four permanent research plots (PRP) were designated (each of 1250 m²) in different aged stands – the PRP A and PRP B in the 24 years old stands, PRP C in 7-year old stand and the PRP D in 2-year young spruce culture. Later, the area was often visited by researchers and mycological excursions (see Mihál et al. 2016).

The research at the locality was originally focused on colonization and succession of macromycetes in spruce stands of different ages (Gáper & Lizoň 1995, 1997, Mihál 2005b), as well as the biomass production of fungi (Mihál 1999), later on macromycetes species diversity (Mihál 2005a), ectomycorrhizal potential and rotting of spruce trees (Gáper & Mihál 2008), the mutual ratio of ectomycorrhizal and saprotrophic macromycetes (Gáper 2005) and monitoring of lignicolous fungi (Mihál 2005a).

Our project presented here focused on selected mycological rela-

tions of lignicolous macromycetes in permanent plots at the Vrch Dobroč locality was accomplished in 1989–2003. The objectives of our research were to study: i) species diversity of lignicolous macromycetes, ii) ecological classification and possible parasitic occurrence of lignicolous species, iii) abundance and distribution of sporocarps, iv) species dominance and succession, v) sporocarp biomass production.

Material and Methods

The research was carried out at six permanent research plots (PRP) established in Norway spruce monoculture stands of various ages on formerly non-forest soil at the Vrch Dobroč locality. The locality is situated in the western part of mountain range of Slovenské Rudohorie, Veporské Vrchy Mts., in the woods of Forestry district Kriváň, in the area of the Ipeľ river basin (48° 32' N, 19° 34' E). The geological and soil conditions at the Vrch Dobroč locality are the following: geological substrate: granodiorite, soil type: cambisol typical, humus form: mull moder. Other basic characteristics of all the PRP are given in Table 1.

Tab. 1. The characteristics of the mycological permanent research plots (PRP A–F) at Vrch Dobroč locality

Characteristics / PRP	A	B	C	D	E	F
Afforested in year	1965	1965	1982	1989	1965	1965
Dominant tree species	spruce	spruce	spruce	spruce	spruce	spruce
Size of plot (m)	125 x 10	125 x 10	41.66 x 30	35.4 x 35.3	40.3 x 31	39 x 32
Area (m ²)	1250	1250	1250	1250	1250	1250
Plantation spacing (m)	1.4 x 1.4	1.4 x 1.4	1.4 x 1.4	1.9 x 1.2	1.4 x 1.4	1.4 x 1.4
Age of stands (in 2005)	40	40 (10)	22	16	40	40
Number of trees in 1997	178	220	630	565	–	–
Altitude (m a.s.l.)	820–835	820–835	810–815	860	850–865	855–865
Exposition	SW	SW	SW	E	SE	SW
pH of soil (H ₂ O) in 1994	4.28	4.56	5.44	5.27	–	–

It should be noted that permanent research plots A and B were heavily damaged by wind and snow storms in 1993 and 1994. PRP B was completely destroyed and PRP A considerably damaged. Due to the calamity, all trees were removed from PRP B and the plots were reforested in 1995. In PRP A, E and F thinning and selection felling were carried out before 1993 and harvested trees were removed from the stand. Selective felling and partial thinning was carried out also in the PRP B before 1993, but harvested trees were left at the ground. Stands at PRP C and D were planted by the „hole method“. Seedlings at PRP D came from air pollution tolerant clone from the Orava (northern Slovakia) provenience, reproduced vegetatively. In spruce stands at the PRP C, D, E and F some hardwoods from natural seeding (birch, aspen) were mixed in. The PRP D was located on mesophilic moved meadow, formerly an orchard and with some remains of decaying stumps of fruit trees (cherry, apple, pears).

The data presented here include data collected by the senior author of this paper in 1992–2003, as well unpublished data and published papers by Gáper (2005), Gáper & Lizoň (1997), Gáper & Mihál (2008), Gáper & Molnárová (2000), Mihál (1999, 2005a). Selected ecological characteristics of mycocoenoses of lignicolous fungi were studied in the project. The species diversity has been documented and identified in the field and/or in the laboratory. Abundance (number of sporocarps – A) and distribution (number of occurring places of sporocarps – D) were recorded, the value of dominance of each species (Do) was calculated ($A + D = Do$). The values of sporocarp biomass production of selected macromycetes have been calculated by average weight of one exemplar of sporocarp multiplied by total abundance of evaluated species (present as fresh weight $\text{kg}\cdot\text{ha}^{-1}$). Specific methodologies evaluating the mycoflora and the characteristics of the research plots at Vrch Dobroč locality are presented by Gáper (2005), Gáper & Lizoň (1997), Gáper & Mihál (2008), Gáper & Molnárová (2000), Mihál (2005a, 2005b).

Fruitbodies were identified according to the determination keys by Breitenbach & Kränzlin (1984), Červenka et al. (1972), Hagara (1987, 1992), Hagara et al. (1999), Hansen & Knudsen (1997), Jülich (1984), Keizer (1998), Moser (1963, 1983), Papoušek (2004), Veselý et al. (1972) and other sources. Herbarium specimens of the selected specimens are deposited in the Institute of Forest Ecology, Slovak Academy of Sciences in Zvolen. The scientific nomenclature of lignicolous species follows Cooper & Kirk (2017). For some photos see pages 67, 68.

Results

1st part of mycological research at Vrch Dobroč locality

There were identified 60 lignicolous macromycetes species in six permanent mycological research plots from 1989 to 2003 (Tab. 2). It represents 30.8 % of all 195 recorded macromycetes. From 60 lignicolous macromycetes eight species can be classified as parasitic (4.1%) and 52 as saprotrophic (26.6%).

Tab. 2. The list of lignicolous macromycetes recorded at Vrch Dobroč locality during the 1st part of mycological research (1989–2003)

	Ascomycota	
<i>Durella commutata</i>	<i>Hyaloscypha aurieliella</i>	<i>Lachnellula occidentalis</i>
<i>Nectria cinnabarina</i>	<i>Neonectria fuckeliana</i>	<i>Rutstroemia bulgarioides</i>
<i>Verticillium</i> sp.		
	Basidiomycota	
<i>Armillaria ostoyae</i>	<i>Bjerkandera adusta</i>	<i>Calocera viscosa</i>
<i>Crepidotus variabilis</i>	<i>Dacrymyces stillatus</i>	<i>Exidia glandulosa</i>
<i>Exidia pithya</i>	<i>Daedalea quercina</i>	<i>Fomitopsis pinicola</i>
<i>Galerina marginata</i>	<i>Galerina tibiicystis</i>	<i>Gloeophyllum abietinum</i>
<i>Gymnopilus sapineus</i>	<i>Heterobasidion annosum</i>	<i>Hygrophoropsis aurantiaca</i>
<i>Hymenopellis radicata</i>	<i>Hyphoderma setigerum</i>	<i>Hypholoma capnoides</i>
<i>Hypholoma fasciculare</i>	<i>Hypholoma lateritium</i>	<i>Ischnoderma benzoinum</i>
<i>Lentinus arcularius</i>	<i>Lenzites betulina</i>	<i>Lycoperdon pyriforme</i>
<i>Merulius tremellosus</i>	<i>Mycena epipterygia</i>	<i>Phanerochaete laevis</i>
<i>Panellus stipticus</i>	<i>Pholiota flammans</i>	<i>Pholiota spumosa</i>
<i>Phyllotopsis nidulans</i>	<i>Picipes melanopus</i>	<i>Pleurocybella porrigens</i>
<i>Pluteus cervinus</i>	<i>Postia caesia</i>	<i>Postia fragilis</i>
<i>Postia stiptica</i>	<i>Rhodocollybia maculata</i>	<i>Schizophyllum commune</i>
<i>Skeletocutis amorpha</i>	<i>Sphaerobolus stellatus</i>	<i>Stereum hirsutum</i>
<i>Stereum sanguinolentum</i>	<i>Strobilurus esculentus</i>	<i>Stropharia aeruginosa</i>
<i>Tapinella atrotomentosa</i>	<i>Trametes hirsuta</i>	<i>Trametes versicolor</i>
<i>Tremella encephala</i>	<i>Trichaptum abietinum</i>	<i>Tricholomopsis decora</i>
<i>Tricholomopsis rutilans</i>		

The occurrence of parasitic macromycetes in particular PRP is presented in Table 3. These species act as parasites on living trees and also as saproparasites on dying or dead trees. The rest of recorded lignicolous macromycetes can be classified as saprotrophic fungi.

Tab. 3. The occurrence of parasitic lignicolous macromycetes in the permanent research plots (PRP A–F) at Vrch Dobroč locality (1989–2003)

*LP – lignicolous parasite, TP – tracheomycosis (vascular) parasite

Species / PRP	A	B	C	D	E	F	Ecophysiology*
<i>Armillaria ostoyae</i>						*	LP
<i>Fomitopsis pinicola</i>	*	*			*	*	LP
<i>Heterobasidion annosus</i>					*	*	LP
<i>Neonectria fockeliana</i>		*	*				TP
<i>Schizophyllum commune</i>	*	*		*		*	LP
<i>Stereum sanguinolentum</i>	*	*	*		*	*	LP
<i>Trichaptum abietinum</i>	*	*	*	*	*	*	LP
<i>Verticillium</i> sp.				*			TP
Total	4	5	3	3	4	6	

In the group of lignicolous fungi, the species that occurred frequently or regularly and/or produced mass of sporocarps, belonged among the dominant fungi, e.g. *Calocera viscosa*, *Dacrymyces stillatus* and *Hypholoma fasciculare* (Tab. 4).

Tab. 4. The dominant lignicolous species in the permanent research plots (PRP A–F) at Vrch Dobroč locality (1989–2003)

PRP	Dominant species
A	<i>Calocera viscosa</i> , <i>Dacrymyces stillatus</i> , <i>Fomitopsis pinicola</i> , <i>Gymnopilus hybridus</i> , <i>Hypholoma fasciculare</i> , <i>Rhodocollybia maculata</i> , <i>Trichaptum abietinum</i>
B	<i>Calocera viscosa</i> , <i>Dacrymyces stillatus</i> , <i>Fomitopsis pinicola</i> , <i>Hypholoma fasciculare</i> , <i>Pleurocybella porringens</i> , <i>Trichaptum abietinum</i> , <i>Postia fragilis</i>
C	<i>Neonectria fockeliana</i> , <i>Lentinus arcularius</i> , <i>Sphaerobolus stellatus</i>
D	<i>Bjerkandera adusta</i> , <i>Daedalea quercina</i> , <i>Hypholoma fasciculare</i> , <i>Schizophyllum commune</i> , <i>Stropharia aeruginosa</i> , <i>Trametes hirsuta</i> , <i>T. versicolor</i>
E	<i>Dacrymyces stillatus</i> , <i>Hypholoma fasciculare</i> , <i>Mycena epipterygia</i> , <i>Postia caesia</i>
F	<i>Calocera viscosa</i> , <i>Dacrymyces stillatus</i> , <i>Hypholoma fasciculare</i> , <i>Mycena epipterygia</i> , <i>Rhodocollybia maculata</i> , <i>Tricholomopsis decora</i> , <i>Postia caesia</i>

The highest biomass of sporocarps production of lignicolous macromycetes (Tab. 5) was recorded in the oldest, 40 years old stands (in PRP F, totally 133.49, and in PRP B, 57.19 kg.ha⁻¹); the lowest values were in the youngest, 16 to 22 years old stands (in PRP D, totally 13.01, resp. in PRP C, only 6.31 kg.ha⁻¹). Out of all species, the highest values of the biomass of sporocarp production were recorded for *Hypholoma fasciculare* (241.71 kg.ha⁻¹), *Rhodocollybia maculata* (24.83 kg.ha⁻¹) and *Armillaria ostoyae* (6.21 kg.ha⁻¹).

Tab. 5. Biomass of sporocarp production of lignicolous macromycetes (kg.ha⁻¹ weight of fresh sporocarps) in the permanent research plots (PRP A–F) at Vrch Dobroč locality (1989–2003)

Species / PRP	A	B	C	D	E	F	Total
<i>Armillaria ostoyae</i>						6.21	6.21
<i>Galerina marginata</i>						0.29	0.29
<i>Galerina tibiicystis</i>						0.15	0.15
<i>Gymnopilus sapineus</i>						0.09	0.09
<i>Hygrophoropsis aurantiaca</i>						0.09	0.09
<i>Hymenopellis radicata</i>				0.06			0.06
<i>Hypholoma fasciculare</i>	27.67	56.69	2.5	11.1	27.65	116.1	241.71
<i>Hypholoma lateritium</i>				0.06		0.12	0.18
<i>Lentinus arcularius</i>			0.01				0.01
<i>Mycena epipterygia</i>	0.03			0.4	0.06	0.25	0.74
<i>Pholiota flammans</i>					0.02	1.17	1.19
<i>Picipes melanopus</i>				0.01			0.01
<i>Pluteus cervinus</i>	0.08		0.04	0.08	0.04	0.04	0.28
<i>Rhodocollybia maculata</i>	3.58	0.14	2.58	0.29	12.07	6.17	24.83
<i>Strobilurus esculentus</i>	0.04		1.18		0.17		1.39
<i>Stropharia aeruginosa</i>		0.36		1.07			1.43
<i>Tricholomopsis decora</i>	0.35				0.35	0.7	1.4
<i>Tricholomopsis rutilans</i>					0.71	2.11	2.82
Total	31.75	57.19	6.31	13.01	4.07	133.49	282.82

Discussion

We expected that the majority of species belong to parasites, but it was not confirmed. Most of recorded species live as saproparasites or as lignicolous saprotrophes. When comparing the occurrence of parasitic macromycetes within the particular PRP, their occurrence is very low. For example, *Stereum sanguinolentum* in younger spruce stands is often connected with the bark damage of trees by deer. Čermák & Strejček (2007) discovered in 40 years old spruce stands, out of the total of 16,700 evaluated trees, that 44% trees were damaged by deer's peeling and bark stripping, followed up by *S. sanguinolentum* which was acting as parasite, while 4,997 (30%) trees were affected out of the total amount of deer damaged trees. The wounds on the spruce bark caused by deer are often infected by so called "wound" fungi parasites, e.g. *S. sanguinolentum* (Čermák & Strejček l.c.).

Parasitic occurrence of species *Neonectria fuckeliana* in PRP C was surprising. The species belongs to the group of tracheomycotic parasites of the genus *Nectria* s. l., parasitizing on a variety of forest trees. Another tracheomycotic species recorded in the young spruce stands at the Vrch Dobroč locality was *Verticillium* sp. Species of the genus *Verticillium* significantly affect the survival of young spruce stands because after the infection by these tracheomycotic parasites, the top terminals of the spruce trees suffer from necrosis that leads to death of the whole tree. Zúbrik et al. (1994) noted a gradual mass dying off of spruces from the main terminal caused by *Botrytis cinerea*, *Gremmeniella abietina*, *Verticillium albo-atrum*, and by various sucking and biting insects, whilst all trees are susceptible to this sort of disease after prolonged periods of drought.

A parasitic occurrence of *Schizophyllum commune* was also unusual. Even it occurs also in spruce stands, it is associated first of all with beech stands. According to Bondarceva & Parmasto (1986), the species is a typical saprotrophic fungus with possible parasitic occurrence mainly in surface tree wounds. They consider this species to be xerophilic fungus, seeking substrate in dry and sunny places. Janitor & Vizárová (1994) treat *S. commune* as parasitic and saprotrophic species. We recorded the parasitic occurrence of this species mostly on the forest edge in PRP A that was exposed to sun after the clearance of PRP B. Beside species typical for conifers, there were recorded also species typically associated with deciduous trees, such as *Durella commutata*, *Bjerkandera adusta*,

Crepidotus variabilis, *Daedalea quercina*, *Lentinus arcularius*, *Lenzites betulina*, *Phanerochaete laevis*. These fungi occurred mainly in PRP C, E and F where deciduous trees species from natural regeneration (e.g. birch, aspen) were present. The PRP D is located on mesophilic meadow formerly with an orchard and has still remains of decaying stumps of fruit trees (cherry, apple, pear).

One of the most important pathogens in cultivated spruce stands is *Armillaria ostoyae*. In 1998, we found 41 sporocarps on the edge of PRP F and in 1999 28 sporocarps in PRP F directly on root butts. The occurrence of *A. ostoyae* in the stands of Vrch Dobroč locality was not surprising. When mull moder humus is prevalent, the fungus turns to the parasitic way of nutrition (Málek 1967, Risbeth 1982). Similarly, Konôpka (1992) also observed increased decay of spruce stands growing on formerly agricultural soils with good humification. Černý (1989) and Jankovský (1995) mention parasitic occurrence of *A. ostoyae* mostly on weakened or old trees and they explain an eventual mass occurrence of *A. ostoyae* in spruce monocultures by planting trees in marginal conditions for the optimal spruce occurrence, where spruce suffers from summer drought and the lack of precipitation.

Several environmental and climatic factors such as snow and wind storm, unsuitable woody species composition and provenience of spruce seedlings influence also lignicolous mycocoenoses at the Vrch Dobroč locality. It is known that snow and wind calamities are frequent causes of high level of decay in such stands. Vicena & Vokroj (1991) studied the impact of the decay on the tree's resistance to crown break under heavy snow. Trees with the surface rot advancing from the outer circumference of the stem towards the wound were substantially more vulnerable than trees with so called core rot, advancing mostly from roots to the stem. The effect and degree of decay in spruce stands of the Vrch Dobroč locality was studied by Gáper & Mihál (2008). They found the decay in the first 14 years of stands development was almost negligible, whilst in 23 years old stands it was 28%. The most dangerous agents of decay were *Armillaria ostoyae* and *Heterobasidion annosum* which fructified for the first time in 33 years old spruce stands.

The relationships of macromycetes production in spruce monocultures at the Vrch Dobroč locality are influenced by several edaphic and climatic

– ecological factors. One of the significant factors is a degree of shade – spruce canopy cover, which substantially influences mainly the amount of precipitation penetrating the crowns, falling on the soil and the transfer of sunlight and heat radiation. The production of biomass was the lowest in PRP C (due to small amount of wood substrate) and the maximum production of biomass was found in PRP F and B (because if available wood substrate). Positive effect of a closed canopy of the stand on the abundance (also on the sporocarp biomass production) was observed by Jansen & De Nie (1988) and Gáper & Lizoň (1995). The decline of sporocarps abundance, low biomass production and changes in the succession of macromycetes species in the stands after felling operations are presented by Ohenoja (1988) and Wästerlund & Ingelög (1981). In connection with the negative impact of harvests in forest stands on the abundance and biomass production of macromycetes, it should be noted that in suitably placed, even if artificially planted forest stands, we can expect higher levels of biomass production in a particular succession stage compared to natural forests. It was documented by Lagana et al. (2002), who noted an increase of macromycetes sporocarp biomass in fir-beech stands established on previously agricultural soil compared to natural fir-beech forest stands.

2nd part of mycological research at Vrch Dobroč locality

Monitoring mycocoenoses in various spruce stands at the Vrch Dobroč locality will continue (2016 to 2019). The plan is to continue in evaluating the dynamics of species diversity of macromycetes (including lignicolous fungi) and selected mycocoenological factors (abundance and distribution of sporocarps, dominance and succession of species, ecotrophy and biomass of sporocarp production). At the same time, greater attention will be paid to the evaluation of abiotic factors impact at the researched area. We would like also to study phylogenetic relationships and taxonomic validity of selected genera and species of macromycetes by molecular-genetic methods, e.g. the taxa *Armillaria*, *Heterobasidion*, *Laccaria*, *Mycena alcalina*). While studying lignicolous fungi in research plots with sufficient dead woody substrate, the mass and degree of woody substrate decay will be quantified.

Acknowledgements

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BOOK NOTICES

Pavel Lizoň

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Volume 36 has, as all previous volumes, 50 plates on laminated loose pages. On the back of each plate is description both in Catalan and Spanish, and information about locality, author of the picture and voucher specimen. The series is focused on macrofungi but occasionally are included also microfungi or/and slime-moulds (*Puccinia phragmitis*, *Physarum compressum* in this volume). Of course, some of depicted species are common (such as *Pleurotus cornucopiae*, *Russula badia*, *Trametes gibbosa*) but many are rare not only in Catalonia or Spain in general (such as *Trichoglossum tetrasporum*, *Tricholomopsis sulphureoides*, *Gyromitra martini*, *Lentaria epichnoa*).



Index of all volumes of Bolets and general index of taxa are available on the Society webpage (www.micocat.org).

Catalan Mycological Society publishes also series Fitxes Tècniques, monographs, a scientific journal Revista Catalana de micologia. It started in 1974 and one issue is released annually (vol. 38 in 2017). There is posted also an index of photographs published both in Bolets and Revista.

DISTRUBUTION AND ECOLOGY OF SCOPULOIDES RIMOSA IN SLOVAKIA

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Hagara, L. 2017. Distrubution and ecology of *Scopuloides rimosa* in Slovakia. *Catathelasma* 18: 19–32.

The paper summarise the knowledge on the distribution of *Scopuloides rimosa* in Slovakia based on the herbarium collections. Recently, 95 specimens are known from our country from the years 1889–2012. Dominant host trees of the species are beech and alder.

Hagara, L. 2017. Rozšírenie a ekológia *Scopuloides rimosa* na Slovensku. *Catathelasma* 18: 19–32.

Článok zhŕňa doterajšie poznatky o rozšírení druhu *Scopuloides rimosa* na území Slovenska na základe herbárových zberov. Dosiaľ sa z nášho územia eviduje 95 zberov z rokov 1889–2012. Dominantnými hosťiteľskými drevinami daného druhu sú buk a jelša.

Key words: corticioid fungi, Central Europe, host trees, vertical distribution

Introduction

One of the corticioid fungi occurring in all continents is *Scopuloides rimosa* (Cooke) Jülich, species originally described by British mycologist M. C. Cooke as *Peniophora rimosa* in 1881. First seven Slovak specimens were collected in the Štiavnické vrchy Mts. by Andrej Kmeť in the same decade.

Fungus has been described as distinct species by several authors: as *Peniophora terrestris* by G. E. Massee in 1887, as *Odontia conspersa* by G. Bresadola in 1897 (he marked by this name collections by A. Kmeť from 1889); its synonyms are also *Peniophora crystallina* Höhn. et Litsch. in 1907, and *Peniophora hydnoides* Cooke et Massee in 1888.

Peniophora rimosa was described as having smooth hymenophore and *P. hydnoides* as having serrulated hymenophore, but they are microscopically identical. In this paper, under the name *Scopuloides rimosa* are also included the specimens originally named as *Odontia conspersa* and *Scopuloides hydnoides*.

Material and Methods

Material studied includes 95 voucher specimens of *Scopuloides rimosa*, of them 54 deposited in the herbarium BRA, 34 in PRM, two in S and five in the private herbaria. The institutional herbaria acronyms follow Thiers (2017). Data on the specimens are presented in their original form. Taxonomic concept of *S. rimosa* follows Eriksson et al. (1984). Macromorphological characters are based on the fresh material collected and processed by the author. Micromorphological characters were examined from dried specimens by Olympus BX51 light microscope using an oil immersion lens at a magnification of 1000x. All tissues were examined in Melzer's solution. Statistical calculations of microscopic characters are based on 20 measurements and given as minimum and maximum. Geomorphological map is prepared based on the concept by Mazúr & Lukniš (1986).

Results

Scopuloides rimosa (Cooke) Jülich, (see page 1, 2) *Persoonia* 11(4): 422 (1982)

Description: *Scopuloides rimosa* has resupinate fruitbodies, usually thinner than 0.1 mm (25–120 µm). They are closely attached to the substrate, firmly gelatinous and semi-translucent when fresh, ceraceous when dry, surface smooth, granulous, verrucose, finely serrulated (teeth 0.1–0.3 high, 4–8 teeth per 1 mm), tips of cystidia protruding (seen under lens) and giving the fungus velvety look. Hymenium is gray to blue gray, sometimes with pink violet, yellowish-olive or cream tones. Microscopically is the fungus characterized by 1) densely arranged clampless hyphae with wall 0.3–1.5 µm thick (1.5–3 µm in subhymenium, 3–7 µm in subiculum), by 2) clavate basidia with 4 sterigmata, 10–16 × 3–5 µm, by 3) ellipsoid spores, on the base flat to slightly depressed, smooth, 3.5–4.5 × 1.7–2.2 µm, by 4) two types of cystidia – common tapered lamprocystidia, 25–80 × 5–12 µm (with thickened walls, first smooth, then covered by tiny crystals), and less common cylindrical septocystidia, 60–150 × 7–15 µm (with clampless septa, thickened walls and covered by crystals above the attenuate smooth base) (see micro photo).



Scopuloides rimosa: lamprocystidia and one septocystidium. Slovakia, Borská nížina, Šaštín-Stráže village, 22 August 2012, L. Hagara (private herbarium). Photo L. Hagara.

Ecology: The species grows all year long in Central Europe (except of freezy months), generally from June to September. In Slovakia, it was recorded from May to December (Tab. 1). It occurs from lowlands to alpine belt, from 100 to ca. 1500 m a. s. l. in Slovakia (Tab. 2), up to 1900 m a. s. l. in Austrian Alps.

Tab. 1. Fenology of *Scopuloides rimosa* based on the included Slovak collections

Month	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
No. of collections	7	19	22	13	20	10	3	1

Tab. 2. Vertical distribution of *Scopuloides rimosa* based on the included Slovak collections

Altitude [m a. s. l.]	< 200	201–300	301–400	401–500	501–600	601–700	701–800	801–900	901–1000	1001–1100	1101–1200	1201–1300	1301–1400	1401–1500
No. of collections	15	20	12	5	13	4	9	7	5	1	2	0	1	1

Scopuloides rimosa is one of the most abundant corticioid species. It generally colonizes fallen decorticated trunks and branches that are in final stage of decomposition. It is associated first of all with *Fagus* and *Alnus* and same hosts are recorded also in the Austrian database (<http://austria.mykodata.net>) and *Fagus* is most important host also in Baden-Württemberg, Germany and United Kingdom. In Europe, *S. rimosa* grows often on *Fraxinus* and *Carpinus*, less frequently on other deciduous trees, such as *Acer*, *Corylus*, *Betula*, *Populus*, *Tilia*, *Salix*, rarely on *Ulmus*, *Sorbus*, *Prunus*, *Sambucus*, *Malus*, *Crataegus*, *Rosa*, *Clematis*, *Hedera*, *Calluna*, *Ilex* and *Ulex*. Among conifers it is associated with *Picea* more frequently (21 records in Austria) and also with *Pinus*, *Larix* and *Juniperus*. Herbs (*Rubus*, *Tanacetum*, *Angelica* and *Arctium*), and dead fruitbodies (*Phellinus*, *Inonotus*, *Fomes*, *Daedaleopsis* and *Byssomerulius*) might also host this fungus (Bernicchia & Gorjón 2010, <http://austria.mykodata.net>, Krieglsteiner 2000, www.fieldmycology.net/frdbi/asp).

According to the included Slovak collections, **host plants** of *Scopuloides rimosa* are: 25× *Fagus sylvatica*, 19× *Alnus* (16× *A. glutinosa*, 3× *A. incana*), 9× *Populus* (8× *P. tremula*, 1× *P. sp.*), 7× *Acer* (3× *A. platanoides*, 2× *A. campestre*, 1× *A. pseudoplatanus* and *A. sp.*), 7× *Salix* (5× *S. alba*, 1× *S. caprea*, *Salix sp.*), 6× unidentified deciduous tree, 4× *Corylus avellana*, 3× *Picea abies*, 2× *Abies alba*, *Quercus sp.*, *Robinia pseudacacia* and *Sorbus* (1× *S. aucuparia* and *S. torminalis*), 1× *Cornus mas*, *Clematis vitalba*, *Crataegus sp.*, *Carpinus betulus*, *Fraxinus excelsior*, *Ulmus glabra* and *Phellinus sp.*

For the occurrence of *Scopuloides rimosa* in Slovakia see the Map and Specimens studied.



Map. The occurrence of *Scopuloides rimosa* in Slovakia. Shaded are the geomorphological units in which the occurrence of the species is backed up by the herbarium specimen(s).

Author of the map L. Majdanová.

Specimens studied

Specimens are ordered within the geomorphological units of Slovakia by Mazúr & Lukniš (1986). Data (letter/number) in the square bracket refers to their map position.

[A] Borská nížina

- Šaštín-Stráže, okr. Senica, Chránený areál Jubilejný les, na ležiacom odkôrnenom práchnivom kmeni *Corylus avellana*, 175 m n. m., 18. 08. 2012, leg. et det. L. Hagara, súkromný herbár L. Hagaru.
- Šaštín-Stráže, okr. Senica, Chránený areál Jubilejný les, na ležiacom odkôrnenom kmeni *Alnus glutinosa* 175 m n. m., 22. 08. 2012, leg. et det. L. Hagara, súkromný herbár L. Hagaru.
- Šaštín-Stráže, okr. Senica, Chránený areál Jubilejný les, na opadanej borke *Alnus glutinosa* 177 m n. m., 22. 08. 2012, leg. et det. L. Hagara, súkromný herbár L. Hagaru.
- Šaštín-Stráže, okr. Senica, Chránený areál Jubilejný les, na hniúcom úlomku kmeňa *Alnus glutinosa* 175 m n. m., 05. 10. 2012, leg. et det. L. Hagara, súkromný herbár L. Hagaru.

[B] Chvojnická pahorkatina

Gbely, okr. Skalica, luh na okraji obce, na borke ležiaceho kmeňa jelše (*Alnus glutinosa*), 180 m n. m., 16. 06. 2000, leg. et det. L. Hagara (BRA CR25498).

[D] Podunajská rovina

Čičov, okr. Komárno, Čičovský les, na ležiacom kmeni vrbu (*Salix alba*), 112 m n. m., 20. 09. 1984, leg. et det. Z. Pouzar ako *Scopuloides hydroides* (ďalej *S. hydroides*) (PRM 903724).

Čičov, okr. Komárno, Čičovský les, na ležiacom kmeni *Salix alba*, 112 m n. m., 20. 09. 1984, leg. F. Kotlaba, det. Z. Pouzar ako *Scopuloides hydroides* (PRM 903785).

Čičov, okr. Komárno, pri Lionskom jazere, na obhorenom ležiacom kmeni topoľa (*Populus sp.*), 113 m n. m., 27. 09. 1985, leg. et det. K. Čížek (BRA CR25495).

Bratislava, časť Rusovce, pri Rusovskom ramene Dunaja, na opadanej kôre duba (*Quercus sp.*), 130 m n. m., 05. 11. 1997, leg. et det. L. Hagara (BRA CR25492).

Bajč, časť Vlkano, okr. Komárno, breh Príbetského kanála, na ležiacom konári vrbu (*Salix alba*), 115 m n. m., 11. 09. 2001, leg. et det. L. Hagara (BRA CR25421).

Bratislava, časť Rusovce, pri Rusovskom ramene Dunaja, na borke poloodumretého kmeňa plamienka (*Clematis vitalba*), 130 m n. m., 10. 11. 2003, leg. et det. L. Hagara, (BRA CR25477).

[E] Podunajská pahorkatina

Chynorany, okr. Partizánske, PR Chynorienský luh, na ležiacom kmeni javora (*Acer campestre*), 180 m n. m., 06. 05. 1999, leg. et det. L. Hagara (BRA CR25502).

Budmerice, okr. Pezinok, kaštieľsky lesopark, na ležiacom kmeni osiky (*Populus tremula*), 215 m n. m., 04. 06. 1999, leg. et det. L. Hagara (BRA CR25517).

Budmerice, okr. Pezinok, kaštieľsky lesopark, na ležiacom kmeni osiky (*Populus tremula*), 210 m n. m., 05. 06. 1999, leg. et det. L. Hagara (BRA CR25516).

Budmerice, okr. Pezinok, kaštieľsky lesopark, na ležiacom kmeni osiky (*Populus tremula*), 196 m n. m., 02. 07. 2007, leg. et det. L. Hagara (BRA CR25478).

[F] Východoslovenská rovina

Veľké Kapušany, okr. Michalovce, Kapušiansky les, na dreve listnáča, 100 m n. m., 15. 07. 1964, leg. V. Jechová, det. Z. Pouzar ako *S. hydroides* (PRM 903739).

[1] Veporské vrchy

Čierny Balog, okr. Brezno, NPR Dobročský prales, na ležiacom kmeni bresta (*Ulmus glabra*), okolo 900 m n. m., 31. 08. 1961, leg. et det. Z. Pouzar ako *S. hydroides* (PRM 845176).

Čierny Balog, okr. Brezno, NPR Dobročský prales, na ležiacom kmeni buka (*Fagus sylvatica*), okolo 900 m n. m., 31. 08. 1961, leg. F. Kotlaba et Z. Pouzar, det. Z. Pouzar ako *Odontia hydroides* (PRM 803758).

Hriňová, časť Biele Vody, okr. Detva, nad potokom Budačov jarok, na obhorenom ležiacom kmeni smreka (*Picea abies*), 970 m n. m., 25. 09. 2000, leg. et det. L. Hagara (BRA CR25499).

[4] Revúcka vrchovina

Málinec, časť Hámor, okr. Poltár, na ležiacom konári agáta (*Robinia pseudacacia*), okolo 350 m n. m., 17. 06. 1962, leg. et det. Z. Pouzar ako *S. hydroides* (PRM 844795).

[6] Slovenský kras

Zádiel, okr. Košice-okolie, NPR Zádielska dolina, na práchnivom kmeni buka (*Fagus sylvatica*), okolo 300 m n. m., medzi 08.–14. 10. 1934, leg. et det. A. Pilát ako *Odontia hydroides* (PRM 28886, Ibidem, PRM 722974)

Zádiel, okr. Košice-okolie, NPR Zádielska dolina, na práchnivom konári buka (*Fagus sylvatica*), okolo 300 m n. m., medzi 08.–14. 10. 1934, leg. et det. A. Pilát ako *Odontia hydroides* (PRM 719519).

Zádiel, okr. Košice-okolie, NPR Zádielska tiesňava, na práchnivom kmeni smreka (*Picea abies*), okolo 300 m n. m., medzi 8.–14. 10. 1934, leg. et det. A. Pilát ako *Odontia hydroides* (PRM 719520).

Hrhov, okr. Rožňava, Vičí vrch, na pni buka (*Fagus sylvatica*), okolo 400 m n. m., 27. 06. 1963, leg. F. Kotlaba, det. Z. Pouzar ako *S. hydroides* (PRM 902512).

Slavec, časť Vidová, okr. Rožňava, Teplá stráň, na ležiacom konári drieňa (*Cornus mas*), okolo 350 m n. m., 01. 07. 1963, leg. et det. Z. Pouzar ako *S. hydroides* (PRM 848103).

Zádiel, okr. Košice-okolie, NPR Zádielska tiesňava, na ležiacom kmeni liesky (*Corylus avellana*), okolo 300 m n. m., 02. 07. 1963, leg. et det. Z. Pouzar ako *S. hydroides* (PRM 845246).

Drnava, okr. Rožňava, vrch Drieňovec, úlomok dreva z listnáča, okolo 600 m n. m., 04. 07. 1963, leg. et det. Z. Pouzar ako *Scopuloides hydroides* (PRM 845247).

Drnava, okr. Rožňava, vrch Drieňovec, na pni javora (*Acer platanoides*),

okolo 600 m n. m., 04. 07. 1963, leg. F. Kotlaba et Z. Pouzar, det. Z. Pouzar ako *S. hydroides* (PRM 845248).

Zádiel, okr. Košice-okolie, NPR Zádielska tiesňava, na opadanej kôre vŕby (*Salix* sp.), 270 m n. m., 12. 09. 1996, leg. et det. L. Hagara (BRA CR25488).

Zádiel, okr. Košice-okolie, NPR Zádielska tiesňava, na holom ležiacom konári javora (*Acer* sp.), 270 m n. m., 12. 09. 1996, leg. et det. L. Hagara (BRA CR 25489).

[9] Malé Karpaty

Borinka, okr. Malacky, lokalita Medené hámre, na ležiacom konári buka (*Fagus sylvatica*), 290 m n. m., 13. 09. 1997, leg. et det. L. Hagara (BRA CR25512).

Borinka, okr. Malacky, breh Stupavského potoka, na ležiacom kmeni jelše (*Alnus glutinosa*), 275 m n. m., 04. 10. 1997, leg. et det. L. Hagara (BRA CR25513).

Lozorno, okr. Malacky, breh Suchého potoka, na ležiacom kmeni i konári jelše (*Alnus glutinosa*), 230 m n. m., 11. 10. 1997, leg. et det. L. Hagara (BRA CR25514).

Marianka, okr. Malacky, Svätý vrch, na ležiacom konári buka (*Fagus sylvatica*), 320 m n. m., 07. 12. 1997, leg. et det. L. Hagara (BRA CR25510).

Bratislava, časť Vinohrady, breh potoka Bystrička, na ležiacom kmeni jelše (*Alnus glutinosa*), 235 m n. m., 16. 05. 1998, leg. et det. L. Hagara (BRA CR25511).

Chtelnica, okr. Trnava, breh potoka Výtok, na opadanej kôre vŕby (*Salix alba*), 265 m n. m., 23. 05. 1998, leg. et det. L. Hagara (BRA CR25504).

Borinka, okr. Malacky, breh potôčika medzi vrchmi Hajdúch a Svätý vrch, na ležiacom kmeni buka (*Fagus sylvatica*), 295 m n. m., 27. 05. 1998, leg. et det. L. Hagara (BRA CR25505).

Bratislava, časť Vinohrady, breh potoka Vydrica, na ležiacom kmeni javora (*Acer pseudoplatanus*), 260 m n. m., 07. 06. 1998, leg. et det. L. Hagara (BRA CR25506).

Bratislava, 1. obvod, Horský park, na ležiacom konári javora (*Acer platanoides*), 210 m n. m., 17. 05. 1999, leg. et det. L. Hagara (BRA CR25518).

Bratislava, 1. obvod, Horský park, na koreňoch ležiaceho kmeňa javora (*Acer platanoides*), 198 m n. m., 16. 11. 2000, leg. et det. L. Hagara (BRA CR25493).

Bratislava, časť Záhorská Bystrica, Svätý vrch, na holom ležiacom kmeni duba (*Quercus* sp.), 380 m n. m., 06. 08. 2002, leg. et det. L. Hagara (BRA CR25490).

[10] Považský Inovec

Sokolovce, okr. Piešťany, les 1 km severne od kostola, na hnilom ležiacom konári javora (*Acer campestre*), 260 m n. m., 07. 06. 1997, leg. et det. L. Hagara (BRA CR25467).

[11] Tríbeč

Veľký Klíž, okr. Partizánske, vrch Rázdziel, na ležiacom kmeni buka (*Fagus sylvatica*), 510 m n. m., 14. 09. 2006, leg. et det. L. Hagara (BRA CR25485).

[12] Strážovské vrchy

Seč, okr. Prievidza, vrch Hájna hora, na ležiacom kmeni buka (*Fagus sylvatica*), 550 m n. m., 07. 05. 1999, leg. et det. L. Hagara (BRA CR25496).

Uhrovec, časť Látkovce, okr. Bánovce nad Bebravou, Jankov vršok, na ležiacom kmeni buka (*Fagus sylvatica*), 510 m n. m., 30. 09. 2002, leg. et det. L. Hagara (BRA CR35474).

[15] Malá Fatra

Kľačno, okr. Prievidza, južná úboč vrchu Reváň, na ležiacom konári buka (*Fagus sylvatica*), 940 m n. m., 29. 09. 2002, leg. et det. L. Hagara, súkromný herbár L. Hagaru.

[16] Veľká Fatra

Ľubochňa, okr. Ružomberok, breh potoka Ľubochnianka, na holom ležiacom kmeni jelše (*Alnus glutinosa*), 510 m n. m., 23. 10. 1997, leg. et det. L. Hagara, BRA CR25475.

Belá-Dulice, okr. Martin, lokalita Mažiarky, na ležiacom konári listnáča, okolo 900 m n. m., 24. 07. 2002, leg. H. Deckerová, det. K. Čížek (BRA CR14049).

[19] Tatry

Pribylina, LM, Červené vrchy, časť Vráta, na ležiacom kmeni jarabiny (*Sorbus torminalis*), okolo 1 500 m n. m., 06. 08. 1963, leg. et det. Z. Pouzar ako *S. hydroides* (PRM 848132).

[20] Nízké Tatry

Bacúch, okr. Brezno, vrch Biela skala, na ležiacom kmeni osiky (*Populus tremula*), okolo 900 m n. m., 14. 08. 1953, leg. F. Kotlaba, det. Z. Pouzar ako *S. hydroides* (PRM 803774).

[24] Hornonitrianska kotlina

Diviacka Nová Ves, okr. Prievidza, les Vŕšky, na holom ležiacom kmeni

liesky (*Corylus avellana*), 270 m n. m., 25. 09. 2002, leg. et det. L. Hagara (BRA CR25476).

[26] Podtatranská kotlina

Vysoké Tatry, časť Tatranské Matliare, na hnilom odkôrnenom konári jelše (*Alnus incana*), okolo 900 m n. m., júl 1924, leg. A. Pilát, det. G. Bresadola ako *Odontia conspersa* (PRM 719485).

Vysoké Tatry, časť Tatranská Lomnica, okr. Poprad, poniže hotela Morava, na ležiacom konári jelše (*Alnus glutinosa*), 860 m n. m., 15. 06. 1998, leg. et det. L. Hagara (BRA CR25508).

Vysoké Tatry, časť Tatranská Lomnica, okr. Poprad, powyše hotela Praha, na ležiacom kmeni jedle (*Abies alba*), 910 m n. m., 14. 06. 1998, leg. et det. L. Hagara (BRA CR25507).

Štrba, časť Štrbské Pleso, okr. Poprad, breh Štrbského plesa, na ležiacom kmeni jarabiny (*Sorbus aucuparia*), 1 355 m n. m., 18. 06. 1998, leg. et det. L. Hagara (BRA CR25509).

Vysoké Tatry, časť Tatranská Lesná, okr. Poprad, les Valy pri Ceste Slobody, na holom ležiacom kmeni jelše (*Alnus incana*), 940 m n. m., 26. 06. 2003, leg. et det. L. Hagara (BRA CR25491).

[29] Vtáčnik

Kamenec pod Vtáčnikom, okr. Prievidza, breh potoka v Gepniarovej doline, na póroch odumretej plodnice *Phellinus sp.*, 560 m n. m., 26. 10. 2000, leg. et det. L. Hagara (BRA CR25501).

Kamenec pod Vtáčnikom, okr. Prievidza, breh potoka v Gepniarovej doline, na dreve i kôre ležiaceho kmeňa *Alnus glutinosa*, 510 m n. m., 28. 06. 2001, leg. et det. L. Hagara, v súkromnom herbári L. Hagaru.

[31] Štiavnické vrchy

Prenčov, okr. Banská Štiavnica, hájovňa Malé Sitno, na ležiacom kmeni osiky (*Populus tremula*), 650 m n. m., 14. 05. 1889, leg. A. Kmeť, det. L. Hagara (BRA CR2309).

Prenčov, okr. Banská Štiavnica, lokalita Čierne blato, na hnilom dreve jelše (*Alnus glutinosa*), okolo 520 m n. m., 04. 07. 1889, leg. A. Kmeť, det. G. Bresadola ako *Odontia conspersa*, nom. prov., (S).

Prenčov, okr. Banská Štiavnica, lokalita Čierne blato, na hnilom dreve jelše (*Alnus glutinosa*), okolo 520 m n. m., september 1889, leg. A. Kmeť, det. L. Hagara (BRA CR2284).

Ilija, okr. Banská Štiavnica, lokalita Vlčia jama, na ležiacom kmeni osiky (*Populus tremula*), 720 m n. m., 04. 06. 1889, leg. A. Kmeť, det. G. Bresadola ako *Odontia conspersa*, nom. prov., rev. L. Hagara (BRA CR2201).

Prenčov, okr. Banská Štiavnica, lokalita Čierne blato, na ležiacom kmeni jelše (*Alnus glutinosa*), okolo 520 m n. m., 04. 07. 1889, leg. A. Kmeť ako *Odontia stipata*, det. L. Hagara (BRA CR2139); Kmeť's specimen with the same date and host tree is deposited in the Swedish Museum of Natural History in Stockholm (S 15770) as the holotype of *Odontia conspersa* published by G. Bresadola in 1897.

Prenčov, okr. Banská Štiavnica, lokalita Baništie, na hnilom dreve listnáča, 450 m n. m. 17. 09. 1889, leg. A. Kmeť, det. G. Bresadola ako *Odontia conspersa*, nom. prov., rev. L. Hagara (BRA CR2196).

Kráľovce-Krnišov, okr. Krupina, osada Jelšovce, na dreve listnáča, 350 m n. m., 05. 07. 1890, leg. A. Kmeť, det. G. Bresadola ako *Odontia conspersa*, nom. prov., rev. L. Hagara (BRA CR2198, BRA CR2200).

Ilija, okr. Banská Štiavnica, lokalita Vlčia jama, na ležiacom kmeni osiky (*Populus tremula*), 720 m n. m., 08. 08. 1894, leg. A. Kmeť ako *Hydnum stipatum*, det. L. Hagara (BRA CR2285).

Ilija, okr. Banská Štiavnica, lokalita Vlčia jama, na ležiacom kmeni osiky (*Populus tremula*), 720 m n. m., 08. 08. 1894, leg. A. Kmeť, det. G. Bresadola ako *Odontia conspersa*, nom. prov., rev. L. Hagara (BRA CR2197).

Prenčov, okr. Banská Štiavnica, hájovňa Malé Sitno, na ležiacom kmeni buka (*Fagus sylvatica*), 650 m n. m., 14. 07. 1897, leg. et det. A. Kmeť ako *Odontia conspersa*, rev. L. Hagara (BRA CR2166).

Kozelník, okr. Banská Štiavnica, alúvium potoka Jasenica, na ležiacom konári jelše (*Alnus glutinosa*), 370 m n. m., 10. 09. 1998, leg. et det. L. Hagara (BRA CR25486).

Pukanec, časť Majere, okr. Levice, vrch Majzibel', na ležiacom kmeni hrabu (*Carpinus betulus*), 460 m n. m., 16. 09. 2007, leg. et det. L. Hagara (BRA CR25480).

[32] Kremnické vrchy

Badín, okr. Banská Bystrica, NPR Badínsky prales, na ležiacom kmeni buka (*Fagus sylvatica*), okolo 800 m n. m., 04. 08. 1973, leg. et det. Z. Pouzar ako *S. hydnoides* (PRM 903787).

Badín, okr. Banská Bystrica, NPR Badínsky prales, na ležiacom kmeni smreka (*Picea abies*), 810 m n. m., 27. 09. 2000, leg. et det. L. Hagara (BRA CR25500).

[33] Poľana

Hriňová, okr. Detva, Chránená krajinná oblasť Poľana, na ležiacom

kmeni buka (*Fagus sylvatica*), okolo 1200 m n. m., 26. 8. 1951, leg. A. Pilát, det. J. Eriksson (PRM 722971).

Hriňová, okr. Detva, Chránená krajinná oblasť Poľana, na ležiacom kmeni buka (*Fagus sylvatica*), okolo 1200 m n. m., 25. 6. 1952, leg. A. Pilát, det. J. Eriksson (PRM 722966).

Hriňová, okr. Detva, PR Pod Dudášom, na ležiacom kmeni jaseňa (*Fraxinus excelsior*), okolo 1 050 m n. m., 31. 08. 1986, leg. et det. Z. Pouzar (PRM 903729).

[37] Zvolenská kotlina

Zvolen, Arborétum Borová hora, na ležiacom kmeni hlohu (*Crataegus sp.*), 295 m n. m., 15. 09.1998, leg. et det. L. Hagara (BRA CR25497).

[40] Juhoslovenská kotlina

Muľa, časť Hámor, VK, vrch Bukovec, na ležiacom konári agáta (*Robinia pseudacacia*), okolo 280 m n. m., 17. 06. 1962, leg. et det. Z. Pouzar ako *S. hydroides* (PRM 844795).

[43] Burda

Chľaba, okr. Nové Zámky, NPR Burda, Veľká dolina, na ležiacom konári vŕby (*Salix alba*), okolo 300 m n. m., 13. 06. 1962, leg. F. Kotlaba, det. Z. Pouzar ako *S. hydroides* (PRM 845873).

[44] Cerová vrchovina

Šiatorská Bukovinka, okr. Lučenec, pod hradom Šomoška (Δ 491), na ležiacom kmeni jelše (*Alnus glutinosa*), v spoločnosti *Botryobasidium conspersum*, 27. 07. 1989, leg. et det. Z. Pouzar (PRM 903635).

[45] Slanské vrchy

Slanská Huta, okr. Košice-okolie, vrch Malý Milič (Δ 759), na ležiacom kmeni buka (*Fagus sylvatica*), 17. 07. 1964, leg. F. Kotlaba et Z. Pouzar, det. Z. Pouzar ako *Scopuloides hydroides* (PRM 844105).

Slanská Huta, okr. Košice-okolie, NPR Malý Milič, na ležiacom kmeni buka (*Fagus sylvatica*), okolo 700 m n. m., 17. 07. 1964, leg. et det. Z. Pouzar ako *S. hydroides* (PRM 903587).

Slanská Huta, okr. Košice-okolie, vrch Veľký Milič, na ležiacom kmeni buka (*Fagus sylvatica*), okolo 800 m n. m., 17. 07. 1964, leg. et det. Z. Pouzar ako *S. hydroides* (PRM 903599).

Zlatá Baňa, okr. Prešov, vrch Šimonka, na úlomku dreva (asi *Fagus*), okolo 1 000 m n. m., 19. 07. 1964, leg. et det. Z. Pouzar ako *S. hydroides* (PRM 903606).

Slanská Huta, okr. Košice-okolie, vrch Veľký Milič, na ležiacom kmeni rakyty (*Salix caprea*), okolo 800 m n. m., 20. 07. 1964, leg. F. Kotlaba, det. Z. Pouzar ako *S. hydroides* (PRM 905867).

[47] Biele Karpaty

Stará Myjava, okr. Myjava, nad potokom Myjava, na hnilom ležiacom kmeni buka (*Fagus sylvatica*), 530 m n. m., 14. 06. 1997, leg. et det. L. Hagara (BRA CR25468).

Drietoma, časť Liešna, okr. Trenčín, vrch Chabová, na ležiacom kmeni jelše (*Alnus incana*), 380 m n. m., 21. 06. 2002, leg. et det. L. Hagara (BRA CR254482).

Drietoma, časť Liešna, okr. Trenčín, vrch Machnáč, na ležiacom kmeni liesky (*Corylus avellana*), 380 m n. m., 22. 06. 2002, leg. et det. L. Hagara (BRA CR25487).

Vršatské Podhradie, okr. Ilava, NPR Vršatské bradlá, na ležiacom kmeni buka (*Fagus sylvatica*), 760 m n. m., 17. 09. 2002, leg. et det. L. Hagara (BRA CR25492).

[73] Bukovské vrchy

Nová Sedlica, okr. Snina, Prírodná rezervácia Riaba skala, na buku? (*Fagus?*), ca 800 m n. m., 22. 10. 1987, leg. et det. F. Kotlaba et Z. Pouzar (PRM).

Nová Sedlica, okr. Snina, NPR Stučica, vrch Kamenná lúka, na holom ležiacom kmeni buka (*Fagus sylvatica*), 720 m n. m., 18. 09. 1996, leg. et det. L. Hagara (BRA CR25469).

[76] Laborecká vrchovina

Nižný Komárnik, okr. Svidník, Komárnická dolina, na úlomku jedľového dreva (*Abies alba*), okolo 450 m n. m., 22. 07. 1964, leg. et det. Z. Pouzar ako *S. hydroides* (PRM 903615).

Nižný Komárnik, okr. Svidník, Prírodná rezervácia Dranec, na ležiacom kmeni buka (*Fagus sylvatica*), okolo 500 m n. m., 22. 7. 1964, leg. F. Kotlaba et Z. Pouzar, det. Z. Pouzar ako *Metulodontia hydroides* (PRM 803588).

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FIRST RECORD OF HEMILEUCOGLOSSUM LITTORALE IN SLOVAKIA

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Recorded for the first time in Slovakia, *Hemileucoglossum littorale* is characterized by setose hairs on the stipe, predominantly hyaline mature ascospores and paraphyses agglutinated by a dense brown amorphous material. Among other species of the genus, *H. littorale* stands out due to short ascospores with only few septa. Our contribution to the global knowledge about the taxon is informative.

Kučera, V. & Fedosova, A. G. 2017. Prvý nález *Hemileucoglossum littorale* na Slovensku. *Catathelasma* 18: 33–38.

Hemileucoglossum littorale je nový druh slovenskej mykoflóry. Huba je charakteristická prítomnosťou setozných chlupov na hlúbiku, prevažne hyalínymi dospelými výtrusmi a parafýzami stmelenými tmavou hnedou hmotou. Od ostatných zástupcov rodu sa *H. littorale* odlišuje krátkymi askospórmi, ktoré majú menej priehradok. Náš príspevok ku svetovému rozšíreniu je informatívny.

Key words: Ascomycetes, biodiversity, *Geoglossaceae*, new records, distribution

Introduction

The species of earth tongues with setose hairs on the stipe, ascospores remaining hyaline for a long time and becoming slightly coloured in maturity, and paraphyses strongly agglutinated by a dense brown amorphous material belongs to the genus *Hemileucoglossum* (Geoglossomycetes, Ascomycota). Having united such combination of characters, four species of *Geoglossum* were transferred by Arauzo & Iglesias (2014) to the new genus *Hemileucoglossum* with the following combinations: *H. alveolatum* (E. J. Durand ex Rehm) Arauzo, *H. elongatum* (Starb. ex Nannf.) Arauzo, *H. intermedium* (E. J. Durand) Arauzo, and *H. littorale* (Rostr.) Arauzo. The type species of the genus, *H. littorale*, was described as *Leptoglossum littorale* by Rostrup in 1892 from Denmark (Rostrup 1892). Next records of this fungus were made only 100 years later in Sweden (Kers & Carlsson 1996). Since that time a number of collection is known

from other European countries (see distribution). The species mostly occurs on the oligotrophic lake shores with *Littorella uniflora*.

During our field excursion to the Stolické vrchy Mts. in 2011, we have found an earth tongue with hyaline septate ascospores, agglutinated paraphyses, and setose hairs on the stipe. Below we describe and discuss our collection of *Hemileucoglossum littorale*, a new member of Slovak mycobiota. In this paper, the collection is described and illustrated.

Material and Methods

Only one collection of *Hemileucoglossum littorale* was collected in Slovakia. Macromorphological characters were observed in fresh material. Micromorphological structures were studied in dried specimen using light microscope with an oil immersion lens. Tap water, 5% KOH, Melzer's reagent (MLZ), Lugol's solution (IKI), and solution of Congo red in ammonia were employed as mounting media. Micromorphological characters were estimated as an average (\pm SD) of 30 measurements (10 and 90 percentiles are given in parentheses) taken from tap water mounts. Morphological identification is based on Kers & Carlsson (1996). Locality is georeferenced, the coordinates are presented in WGS 84 system. Description is based on voucher specimen deposited in the fungarium of the Institute of Botany, Slovak Academy of Sciences (SAV). The DNA extraction, amplification and sequencing of ITS and LSU regions were provided on commercial base in Alvalab (Spain). Sequences generated for this study were submitted to GenBank (MF353089 and MF353092).

Results

Hemileucoglossum littorale (Rostr.) Arauzo, Errotari 11: 177 (2014)

≡ *Leptoglossum littorale* Rostr. Botanisk Tidsskrift. XVIII: 76 (1892)

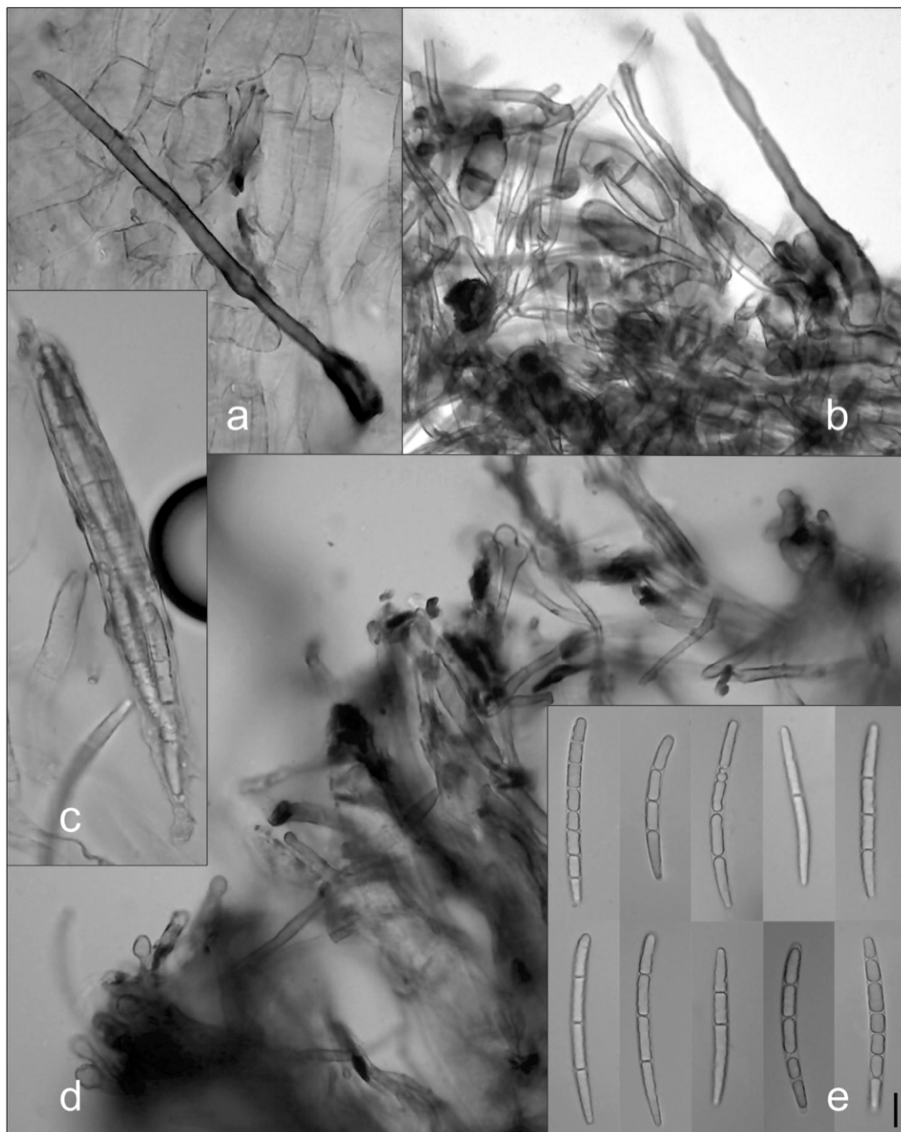
≡ *Geoglossum littorale* (Rostr.) Nannf. Ark. Bot. 30: 34 (1942)

Ascocarps scattered, clavate, stipitate, 0.8–3.5 cm tall, 0.1–0.5 cm wide, black throughout. Fertile part clavate, ca 1/3–1/2 of the total ascocarp length, 0.8–1.2 cm long, black, concolour with the stipe, oval in cross section, sharply delimited from the stipe, smooth both in fresh and dry conditions. Stipe terete, cylindrical, oval in cross section, slender, conspicuously hairy with dark brown setose hairs in tufts in the upper part of the stipe when fresh, rough to squamulose when dry. Asci clavate (118)132.6–182(194.4) x (13.2)13.8–18.2(20.9) μ m, Q = (8.9)9.1–

10.4(10.4), 8-spored, with euamyloid apical ring and wall in MLZ and IKI. Ascospores elongate-clavate, narrowed to the base, slightly curved, (51.2)55.7–66.4(68.1) x (4.4)4.7–5.7(6.3) μ m, Q = (9.7)10.3–13.4(13.9), hyaline, predominantly 3–4-septate, rarely with 0–5–7(9) septa. Ascoconidia 3.7 x 2.4 μ m. Paraphyses cylindrical, sparsely septate, longer than asci, 2–3 μ m diam., straight or slightly curved, inflated at the apex, hyaline at basal part to pale brown at the apex, embedded in adense brown amorphous material. Apical cells of paraphyses usually inflated and constricted in the middle or pyriform, sometimes proliferating (12.5)18.7–21(29) x (4.6)8.1–9.5(10.5) μ m. Stipe surface with tufts of dark brown setose septate hairs (75)90–110(141) μ m long, straight, moderately septate, basal cells usually inflated (8.5)9–10(12) μ m, medial cells (4.9)6.5–7(9.5) μ m and apical cells 2(3) μ m with rounded apex (see micro photo).

Specimen studied. Slovakia, Stolické vrchy Mts., Muránska Zdychava village, ca 2.6 km N of the village, settlement Karafová, fen-meadow with *Eriophorum* sp., *Salix* sp. *Phragmites australis* and mosses, N 48° 45' 40.13" E 20° 08' 26.38", alt. 649 m, 4 October 2011, V. Kučera & V. Kautman (SAV F-10486).

Habitat and distribution. On wet soil of oligotrophic lake shores in Spain, Germany, Denmark, Sweden, Norway (Arauzo & Iglesias 2014, Rostrup 1892, Lüderitz 2010, Læssøe 1997, Kers & Carlsson 1996, Johansson 2007), on soil in a fen-meadow in Slovakia (this paper).



Hemileucoglossum littorale (SAV F-10486): a, b – setose hairs, c – ascus, d – paraphyses, e – ascospores. Bar = 10 μ m.

Photo V. Kučera.

Discussion

Members of the genus *Hemileucoglossum* are relatively easy to identify. They are black and at least in upper part of the stipe have setose hairs. Neither setose hairs nor setae are present in the fertile part which is the main delimiting character from *Leucoglossum* and *Trichoglossum*. Four species were accepted in *Hemileucoglossum* (Arauzo & Iglesias 2014). *Hemileucoglossum littorale* possess less septate spores than *H. alveolatum* and *H. intermedium* (Durand 1908) and differs from *H. elongatum* in lack of curvature of apical cells of paraphyses (Nannfeldt 1942). Interestingly, the production of ascoconidia within the asci is reported before only in the collections of *H. littorale* studied by Arauzo & Iglesias (2014), no mention is made of this phenomenon in any previous treatment of the species (Rostrup 1892, Lind 1913, Nannfeldt 1942). *Littorella uniflora* was not noted in the Slovak locality of *H. littorale* and it seems that its presence is not necessary for occurrence of *H. littorale*. We suppose water level fluctuations is of much more importance. The Slovak collection studied in the present work displays some differences in morphology when compared with the original description by Rostrup (1892). Slovak material has longer and thicker asci (132.6–182 x 13.8–18.2 μ m) and spores (55.7–66 x 4.7–5.7 μ m) than the type collection from Denmark (asci 100–120 x 16–18 μ m and spores 50–60 x 5 μ m). *Hemileucoglossum littorale* is variable taxon and critical morphological study is needed as well as collection of a new material and DNA sequencing for future taxonomical revision.

Acknowledgements

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ASCOMYCETEN, EXSICCATAE COLLECTION BY H. REHM. 3. INDEX OF TAXA ISSUED IN FASCICLES 12–20 (551–1000)¹

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Lizoň, P. 2017. Ascomyceten, exsiccatae collection by H. Rehm. 3. Index of taxa issued in fascicles 12–20 (551–1000). *Catathelasma* 18: 39–66.
Index of specimens and taxa published in fascicles no. 12–20 of the exsiccatae collection.

Lizoň, P. 2017. Ascomyceten, exsikátová zbiierka H. Rehma. 3. Index taxónov uverejnených v zošitoch 12–20 (551–1000). *Catathelasma* 18: 39–66.

Index položiek a taxónov uverejnených v zošitoch č. 12–20 exsikátovej zbierky.

Key words: list, types, new taxa, new combinations, references to fungaria

Fascicles 12–20

- Rehm, H. 1881. Ascomyceten Fasc. XII. Hedwigia² 20: 33–42, 49–54.
- Rehm, H. 1882. Ascomyceten fasc. XIII. Hedwigia 21: 65–75, 81–86.
- Rehm, H. 1883. Ascomyceten fasc. XIV. Hedwigia 22: 33–41, 52–61.
- Rehm, H. 1884. Ascomyceten fasc. XV. Hedwigia 23: 49–57, 69–77.
- Rehm, H. 1885. Ascomyceten fasc. XVI. Hedwigia 24: 7–17, 66–72.
- Rehm, H. 1885. Ascomyceten fasc. XVII. Hedwigia 24: 225–246.
- Rehm, H. 1887. Ascomyceten Fasc. XVIII. Hedwigia 26: 81–98.
- Rehm, H. 1888. Ascomyceten fasc. XIX. Hedwigia 27: 163–175.
- Rehm, H. 1889. Ascomyceten, Fasc. XX. Hedwigia 28: 347–358.

How to read the index

Each entry is arranged in this order: consecutive number of the specimen, original name as presented on the label (corrected only the spelling; authorities of taxa as used by Rehm, their abbreviations unified to standard forms), collection(s) acronym with accession number (**boldface**

¹ for dates of issue of exsiccatae see *Catathelasma* 16: 27–40, 2015 (the 1st part); for notes on labels, extra numbers, new taxa and location of collections see *Catathelasma* 17: 35–74, 2016 (the 2nd part)

² abbreviated as Hedw. in the list

indicates the type), all in parentheses, double slash // is followed by the name published in Rehm's list. When the name on the label and in the published list is the same it is not repeated after double slash; but it is repeated (and followed by the reference) if representing a new name (**boldfaced**) or new combination (*italicized*, reference supplemented by the basionym). Specimens originating from Slovakia are recognized.

Index of specimens issued in the fascicles 12–20

551. *Morchella conica* Pers. (S F128880) //
552. *Plicaria pustulata* Fuckel (S F96305) //
- 552b. *Plicaria pustulata* (Hedw.) [fasc. 24] (S F189299; S F189300; UPS F-672471) //
- 552c. *Plicaria pustulata* f. *pumila* [fasc. 24] (S F189342; S F189343; S F189344; UPS F-670482; UPS F-672472) //³
553. *Plicaria chlorophaea* Rehm (**S F8365**) // ***Plicaria chlorophaea*** Rehm (Hedw. 20: 34)
554. *Plicaria furfuracea* Rehm (**S F8356**; **S F8357**) // ***Plicaria furfuracea*** Rehm (Hedw. 20: 34)
555. *Humaria umbrorum* Fuckel (PH 00300844) //
556. *Humaria hirta* Schum. (**S F190946**; **S F190947**) // ***Humaria hirta* f. *lignicola*** Rehm (Hedw. 20: 35)
557. *Humaria hazslinskya* (Cooke) (S F114456; S F114458) // *Humaria hazslinskya* (Cooke) Rehm (Hedw. 20: 35, Peziza h.)
- 557b. *Lachnea ampezzana* Rehm [fasc. 33] (BPI 572994; S F57340) //
558. *Ombrophila janthina* P. Karst. (BPI 666538) //
559. *Helotium glanduliforme* f. *bartsiae* Rehm (**S F11641**; **S F11643**) // ***Helotium glanduliforme* f. *bartsiae*** Rehm (Hedw. 20: 35)
560. *Helotium aspidiicolum* Berk. & Broome (PH 00301383) // *Helotium aspidiicola* (Berk. & Broome) Rehm (Hedw. 20: 35, Peziza a.)
- 560b. *Pezizella aspidiicola* var. *luteola* Rehm [fasc. 55] (**S F91546**; **S F91551**; **BPI 656728**; **UPS F-671688**) // ***Pezizella aspidiicola* var. *luteola*** Rehm (Ann. Mycol. 12: 175, 1914)
561. *Helotium pineti* Batsch (PH 00301438) //
- 561b. *Helotium pineti* (Batsch) P. Karst. [fasc. 13] (PH 00301439) //
562. *Helotium robustius* P. Karst. (S F6136; S F69055; SF69056) //
- 562b. *Belonium albidoroseum* f. *kriegeriana* Rehm [fasc. 50] (S F69057; S F69058; BPI 662771; UPS F-695221) // ***Belonium albidoroseum* var. *kriegeriana*** Rehm z Ann. 10: 358, 1912)

3 listed as no. 553c

563. *Helotium aspidiorum* Rehm (**S F5929**; **S F51905**) // ***Helotium aspidiorum*** Rehm (Hedw. 20: 36)
564. *Helotium chrysostigma* (Fr.) Fuckel (S F155177; S F155180) //
565. *Helotium xeroplacticum* Rehm (**S F9688**; **S F92033**) // ***Helotium xeroplacticum*** Rehm (Hedw. 20: 37)
566. *Helotium drosodes* Rehm (**S F9707**; **S F9708**) // ***Helotium drosodes*** Rehm (Hedw. 20: 37)
567. *Trichopeziza calycioides* Rehm (S F69789; S F154490) // *Trichopeziza calycioides* (Rehm) Rehm (Hedw. 20: 37, Peziza c.)
- 567b. *Dasyscypha calycioides* Rehm [fasc. 37] (S F154466; S F154468; BPI 659490) // *Lachnum calycioides* Rehm
568. *Dasyscypha bicolor* f. *alpina* Rehm (**S F63881**; **S F63882**) // ***Dasyscypha bicolor* f. *alpina*** Rehm (Hedw. 20: 37)
569. *Pirottaea veneta* Sacc. & Speg. (S F47412; S F47413) //
- 569b. *Pirottaea gallica* Sacc. [fasc. 19] (UPS F-671689) //
570. *Niptera plicata* Rehm (**S F7689**; **S F10371**) // ***Niptera plicata*** Rehm (Hedw. 20: 38)
571. *Mollisia junciseda* P. Karst. (PH 00301544) //
572. *Pyrenopeziza betulicola* var. *rubicola* Rehm (**S F49657**; **S F76308**) // ***Pyrenopeziza betulicola* var. *rubicola*** Rehm (Hedw. 20: 39)
573. *Pseudopeziza cerastiorum* Wallr. (PH 00301565) // *Pseudopeziza cerastiorum* (Wallr.) Fuckel
574. *Patellaria atrata* (Hedw.) Fr. (PH 00301791) //
- 574b. *Patellaria atrata* (Hedw.) Fr. [fasc. 25] (BPI 675120; UPS F-670483; UPS F672473) //
575. *Pezicula carpinea* (Pers.) Tul. (PH 00301726) //
- 575b. *Pezicula carpinea* (Pers.) Tul. [fasc. 49⁴] (BPI 656933) //
576. *Celidium varians* (Davies) Arnold (S F70455) //
577. *Tromera difformis* (Fr.) Arnold (NY 00914678⁵) //
578. *Cenangium ferruginosum* Fr. (S F189038; S F189039; FH 00431759) //
579. *Schmitzomia nivea* (Pers.) De Not. (PH 00301837) //
580. *Lophodermium arundinaceum* f. *secalis* Rehm (**S F72650**; **S F72651**) // ***Lophodermium arundinaceum* f. *secalis*** Rehm (Hedw. 20: 42)
581. *Rhopoglyphus filicinus* (Sow.) Nitschke (PH 00303354) //
582. *Diaport he hystrix* (Tode) Sacc. (S F277706; S F277707) //

4 listed as no. 57b

5 marked as isoneotype by R. C. Harris but neotype was not located

583. *Diaporthe tosta* (Berk. & Broome) Niessl (NY 2930846) //
584. *Pseudovalsa lanciformis* (Fr.) Ces. & De Not. (NY 2932621) //
- 584b. *Pseudovalsa lanciformis* [fasc. 13] (BPI 622696; UPS F-671690) // *Pseudovalsa lanciformis* (Fr.) f. *castaneae* Rehm (Hedw. 21: 86)⁶
585. *Nectria episphaeria* (Tode) Fr. (PH 00303120) //
- 585b. *Nectria episphaeria* (Tode) Fr. (CUP-F-1754) [fasc. 33] //
- 585c. *Nectria episphaeria* (Tode) Fr. [fasc. 45] (BPI 551977; CUP F-1753) //
586. *Hypomyces viridis* (Alb. & Schw.) P. Karst. (PH 00303056) //
- 586b. *Hypomyces viridis* (Alb. & Schw.) P. Karst. [fasc. 36] (BPI-Rehm; BPI 630944) //
587. ?⁷ // *Leptospora spermoides* (Hoffm.) Fuckel
588. *Melanomma megalosporum* var. *britzelmayrianum* Rehm (**S F29407**; **S F60477**) // ***Melanomma megalosporum* var. *britzelmayrianum*** Rehm (Hedw. 20: 51)
589. *Amphisphaeria pusiola* P. Karst. (S F13970; S F13974) // *Didymosphaeria pusiola* (P. Karst.) Rehm (Hedw. 20: 51, *Amphisphaeria* p.)
590. *Leptosphaeria typhae* P. Karst. (PH 00304405) //
591. *Pleospora coronata* Niessl (PH 00304463) //
592. *Pyrenophora trichostoma* (Fr.) Fuckel (S F62071; S F62085) //
593. *Staurosphaeria lycii* Duby (PH 00312505) // *Staurosphaeria lycii* (Duby) Rehm (Hedw. 20: 53, *Dothidea* l.)
594. *Laestadia niesslii* Kunze (PH 00312484) // ***Laestadia niesslii*** Kunze ex Rehm (Hedw. 20: 53)⁸
595. *Sphaeria bryoniae* Fuckel (S F263357; S F263358) // *Didymosphaeria bryoniae* (Auersw.) Niessl
596. *Gnomonia tetraspora* var. *rubi* Rehm (**S F65474**; **S F65721**) // ***Gnomonia tetraspora* var. *rubi*** Rehm (Hedw. 20: 53)
597. *Venturia ditricha* (Fr.) P. Karst. (UPS F-672108; UPS F-672474) //
598. *Tichothecium gemmiferum* (Taylor) Körb. (PH 00312472) //
599. *Calocladia penicillata* f. *betulae* Rehm (**PH 00000863**) // ***Calocladia penicillata* f. *betulae*** Rehm (Hedw. 20: 54)

6 nomen nudum

7 question mark in this position indicates that the specimen was not located and not seen (thus the label name not checked)

8 type: J. Kunze, Fungi selecti exsiccati no. 241 (e. g. **GZU 000304082**, **NY 02931788**; **NY 00914153**)

600. *Sphaerotheca castagnei* Lév. (PH 00302724) // *Sphaerotheca castagnei* f. *impatiensis* Rabenh.
600. *Mitruha paludosa* Fr. (FH 00464399) //
- 601b. *Mitruha phalloides* (Bull.) Chev. [fasc. 55] (BPI 568098; BPI 568100; FH 00464401) //
601. *Pustularia macrocalyx* (Riess) Hazsl. (S F134126; S F134185) //
- 602b. *Pustularia macrocalyx* (Riess) [fasc. 26] (S F105464; S F105466; S F134147; UPS F-670484; UPS F-672475) // *Pustularia coronaria* var. *macrocalyx* (Riess)
603. *Sclerotinia duriaeana* (Tul.) (PH 00301519) // *Sclerotinia duriaeana* (Tul.) Rehm (Hedw. 21: 66, *Peziza* d.)
- 603b. *Sclerotinia duriaeana* (Tul.) [fasc. 24] (UPS F-670485; UPS F-672476) //
604. *Humaria theleboides* (Alb. & Schwein.) (S F181372; S F181465; FH 00431953) // *Humaria theleboides* (Alb. & Schwein.) Rehm (Hedw. 21: 66, *Peziza* t.)
- 604b. *Humaria theleboides* (Alb. & Schw.) Rehm [fasc. 16] (S F181336; S F181368; FH 00431951) //
- 604c. *Humaria theleboides* (Alb. & Schw.) Rehm [fasc. 17] (S F181335) //
605. *Humaria hirtella* f. *minor* (**S F181165**; **S F181169**) // ***Humaria hirtella* f. *minor*** Rehm (Hedw. 21: 66)
606. *Ciboria echinophila* (Bull.) Sacc. (PH 00301343) //
607. *Helotium subgranulosum* Rehm (S F9527; S F9529; FH 00433691; NY 01179539⁹; NY 01179540; FH 00433687) // ***Helotium subgranulosum*** Rehm (Hedw. 21: 67)¹⁰
608. *Mollisia aberrans* Rehm (**S F5800**) // ***Mollisia aberrans*** Rehm (Hedw. 21: 67, 1882)
- 608b. *Mollisia aberrans* Rehm [fasc. 15] (PH 00301530) //
- 608c. *Naevia pusilla* (Lib.) [fasc. 24] (BPI 668013; UPS F-670486; UPS F-672477) //
- 608d. *Naevia pusilla* (Lib.) Rehm [fasc. 39] (BPI-Rehm; BPI 668008) //
609. *Mollisia andropogonis* Rehm (PH 00301534) // *Mollisia andropogonis* Rehm (Hedw. 21: 68, *Peziza* a.)
610. *Mollisia lycopi* P. Karst. (PH 00301546) // ? *Mollisia lycopi* P. Karst.
611. *Trichopeziza dumorum* (Desm.) Sacc. (PH 00301198) //

9 marked as lectotype, ex S, slide

10 lectotype: **S F9531** (not Ascomyceten 607!) designated by Carpenter (Mem. New York Bot. Gard. 33: 258, 1981)

612. *Tapesia prunicola* f. *minor* Rehm (**S F76236; S F76239; PH 00301615**) // *Tapesia prunicola* f. *minor* Rehm (Hedw. 21: 69)
613. *Pseudopeziza saniculae* f. *astrantiae* Niessl (**S F66575; S F66576**) // *Pseudopeziza saniculae* f. *astrantiae* Niessl
- 613b. *Trochila saniculae* f. *astrantiae* (Niessl) Rehm [fasc. 16] (PH 00302061) // *Trochila saniculae* f. *astrantiae* (Niessl) Rehm (Hedw. 24: 71, *Pseudopeziza saniculae* f. a.)
614. *Pseudopeziza trifolii* (Biv. ['Bernh.']) Fuckel (PH 00301578) //
- 614b. ?¹¹
- 614c. *Pseudopeziza trifolii* (Biv. 'Bernh.') Rehm [fasc. 52] (BPI 670339; S F102639; S F102645) //
615. *Habrostictis persoonii* (Moug.) (PH 00301836) // *Habrostictis persoonii* (Moug.) Rehm (Hedw. 21: 70, *Peziza* p.)
- 615b. ? [fasc. 18] // *Stamnaria equiseti* (Hoffm.) P. Karst.
616. *Cenangium ferruginosum* var. *acicolum* Fuckel (S F184808) //
- 616b. *Cenangium acicolum* (Fuckel) Rehm [fasc. 15] (S F83933; S F83943) // *Cenangium acicola* (Fuckel) Rehm (Hedw. 23: 76, *Pleospora* a.)
617. *Patellaria connivens* (**S F11680; S F198213**¹²) // *Durella connivens* (Fr.) Rehm (Hedw. : 70, *Peziza* c.)
618. *Tympanis atrovirens* (Pers.) (FH 00432421) // *Tympanis atrovirens* (Pers.) Rehm (Hedw. 21: 70, *Peziza* a.)
619. *Tympanis bacillifera* P. Karst. (S F96873) //
620. *Ombrophila prasinula* P. Karst. (S F38561; S F84124; FH 00464677) //
621. *Calloria luteorubella* (Nyl.) P. Karst. (**PH 00300777**) // *Calloria luteorubella* f. *major* Rehm (Hedw. 21: 71)
622. *Trochila laurocerasi* var. *smaragdina* Lév. (PH 00302060) // *Trochila laurocerasi* (Desm.) Fr.
623. *Lophodermium herbarum* (Fr.) (PH 00302116) //
624. *Hysterographium vulvatum* (Schwein.) Rehm (S F159752; S F159754) // *Hysterographium vulvatum* (Schwein.) Rehm (Hedw. 21: 72, *Hysterium* v.)
625. *Coccomyces pini* (Alb. & Schw.) P. Karst. (UPS F-672109; UPS F-672478) //
626. *Ascomyces betulae* (Fuckel) Magnus (S F109632; S F109634) // *Ascomyces betulae* (Fuckel) Magnus (in Rehm, Hedw. 21: 73,

¹¹ not located neither the specimen nor the name in published lists

¹² syntypes of *Durella connexa* Rehm (Pilze Deutschl., Hyster., Discomyc. 1/3.: 289, 1890)

- Exoascus b.)
627. ? // *Ascomyces caerulescens* Desm. & Mont.
628. *Exoascus wiesneri* Ráthay (PH 00300404) //
629. *Choiromyces meandriformis* Vittad. (S F194027; S F194036) //
- 629b. *Choiromyces meandriformis* Vittad. [fasc. 40] (S F194030; F194035; BPIRehm; BPI 684865) //
630. *Hypoxyton michelianum* Ces. & De Not. (PH 00316605) //
631. ? // *Diatrype bullata* (Hoffm.) Fr.
632. *Valsa subcongrua* Rehm (**S F10934; S F10935**) // *Valsa subcongrua* Rehm (Hedw. 21: 75)
633. *Valsaria hysterioides* Rehm (**S F5682; S F5683**) // *Valsaria hysterioides* Rehm (Hedw. 21: 75)
634. *Pleonectria ribis* (Niessl) P. Karst. (S F279697) //
635. *Nectria cinnabarina* f. *ribis* Rehm (**S F279701**) // *Nectria cinnabarina* f. *ribis* Rehm (Hedw. 21: 81)
- 635b. *Nectria ribis* (Tode) Oudem. [fasc. 24] (S F119234; S F119236; UPS F670487; UPS F-672479) //
636. *Gibbera vaccinii* Fr. (PH 00303544) //
637. *Cucurbitaria coluteae* (Rabenh.) Auersw. (PH 00303521) //
638. ? // *Anthostomella poetschii* Niessl
639. *Melanomma ovoidea* (Fr.) Fuckel (PH 00303446) //
640. *Melanomma hydrelum* Rehm (**S F7600; S F29417; E 00455530**) // *Melanomma hydrelum* Rehm (Hedw. 21: 82)
641. *Leptosphaeria dolioloides* (Auersw.) (PH 00304370) //
- 641b. *Leptosphaeria dolioloides* (Auersw.) [fasc. 52] (BPI 620809) //
642. *Leptosphaeria macrospora* (Fuckel) Thüm. (PH 00304382) //
643. *Leptosphaeria poae* Niessl (**S F6953; S F6954**) // *Leptosphaeria poae* Niessl (in Rehm, Hedw. 21: 83)
644. *Microthelia crastophila* Niessl (**M¹³; S F12025; E 00429475; FH; H; NY**) // *Microthelia crastophila* Niessl (in Rehm, Hedw. 21: 84)
645. *Massaria niessleana* Rehm (**S F6635; S F8521**) // *Massaria niessleana* Rehm (Hedw. 21: 84)
646. *Venturia atriseda* Rehm (**S F5745; S F5746**) // *Venturia atriseda* Rehm (Hedw. 21: 84)
647. *Melanospora arenaria* L. Fisch. & Mont. (PH 00303063) //
648. *Sphaerella caulicola* P. Karst. (S F223401) //
- 648b. *Sphaerella caulicola* P. Karst. [fasc. 29] (S F223402; UPS F-670488; UPS F672480) //

¹³ lectotype ['holotype'] designated by Aptroot (Stud. Mycol. 37: 28, 1995)

649. *Sphaerella depazeaeformis* (Awd.) Ces. & De Not. (PH 00303659) //
650. *Erysiphe martii* f. *physospermi* Rehm (PH 00005606) // **Erysiphe martii f. physospermi** Rehm (Hedw. 21: 85)
651. *Otidea grandis* (Pers.) Sydow (S F107112) //
- 651b. *Otidea grandis* (Pers.) Rehm [fasc. 18] (S F107113; S F107125) // *Otidea grandis* (Pers.) Rehm (Bull. Soc. mycol. Fr. 9: 111, 1893)
652. *Otidea auricula* (Cooke) Rehm (S F126704; S F126715) // *Otidea auricula* (Cooke) Rehm (Hedw. 22: 34, Peziza a.)
- 652b. *Otidea auricula* (Cooke) Rehm [fasc. 15] (S F126764) //
653. *Otidea leporina* f. *minor* Rehm (**S F88379; S F88381**) // **Otidea leporina f. minor** Rehm (Hedw. 22: 34)
654. *Helotium sublenticulare* [(Hornem.)] Fr. (PH 00301449) //
655. *Mollisia melatephroides* Rehm (**S F10329; S F10331**) // **Mollisia melatephroides** Rehm¹⁴ (Hedw. 22: 34)
656. *Mollisia plicata* f. *ebuli* (Fr.) P. Karst. (PH 00301547; K(M) 45981) // *Mollisia plicata* f. *ebuli* (Fr.) Rehm (Hedw. 22: 35, Peziza atrata var. e.)
- 656b. ? [fasc. 19] // *Mollisia ebuli* (Fr.) P. Karst.
657. *Trochila emergens* P. Karst. (PH 00302058) // *Trochila emergens* (P. Karst.) Rehm (Hedw. 22: 35, Stictis e.)
658. *Trichopeziza rehmi* Staritz (**S F69776; S F69790**) // **Trichopeziza rehmi** Staritz (in Rehm, Hedw. 22: 36)
659. *Pseudopeziza ranunculi* (Wallr.) Fuckel (PH 00301573) //
- 659b. *Leptotrochila ranunculi* (Fr.) Schüepf [fasc. 23] (UPS F-670489; UPS F672481) // *Fabraea ranunculi* (Fr.)
660. *Peziza kriegeria* Rabenh. (BPI-Rehm) // *Ciboria kriegeria* (Rabenh.) Rehm (Hedw. 22: 36, Ombrophila k.)
661. *Saccobolus depauperatus* (Berk. & Broome) (PH 00301326; ?BPI 663466) // *Saccobolus depauperatus* (Berk. & Broome) Rehm (Hedw. 22: 37, Ascobolus d.)
662. *Rhytisma salicinum* (Pers.) Fr. (PH 00302025) //
- 662b. *Rhytisma salicinum* var. *ampligenum* [fasc. ?¹⁵] (UPS F-695220; BPI 674025) // ?
663. *Elaphomyces granulatus* Fr. (S F101081; E 00278174) //
- 663b. *Elaphomyces granulatus* Fr. [fasc. 44] (S F101072; S F101101; BPI 684632) //

14 type species of the genus *Nimbomoliella* Nannf. (Mycologia 75: 297, 1983)

15 question mark in this position indicated that the collection was not located in published lists

664. *Valsa pustulata* Auersw. (PH 00304913) //
- 664b. *Valsa pustulata* (Auersw.) [fasc. 22] (UPS F-670490; UPS F-672482) //
665. *Valsa juniperina* Cooke (BPI-Rehm; UPS F-672110; UPS F-672483) //
666. *Valsa ambiens* f. *ulmi* Rehm (**PH 00304803; NY 2933295**) // **Valsa ambiens f. ulmi** Rehm (Hedw. 22: 38)
- 666b. *Valsa ambiens* f. *ulmi* [fasc. 51] (BPI 700860; CUP-F-2309; UPS F-671691) //
667. *Diaporthe laschii* Nitschke (PH 00304705) //
668. *Diaporthe arctii* f. *tanacetii* Rehm (**S F262983**) // **Diaporthe arctii f. tanacetii** Rehm (Hedw. 22: 39)
669. *Diaporthe ryckholtii* (Westend) Nitschke (PH 00304729) //
670. *Diaporthe pyrrocystis* (Berk. & Broome) Fuckel (NY 02930540) //
- 670b. *Diaporthe pyrrocystis* (Berk. & Broome) Fuckel [fasc. 32] (BPI 617079; CUP F-0723) //
671. *Diaporthe oligocarpa* Nitschke (BPI-Rehm; NY 02930300) //
672. *Cryptosporella aurea* Sacc. (BPI-Rehm) // *Cryptosporella aurea* (Fuckel) Sacc.
673. *Cryptospora corylina* (Tul.) Fuckel (BPI Rehm; NY 2929240) //
- 673b. *Cryptospora corylina* (Tul.) Fuckel [fasc. 32] (CUP F-0636; MICH 311737) //
674. *Melanconis leucostroma* (Niessl) Rehm (**BPI-Rehm; NY 02932386**) // **Melanconis leucostroma** Niessl (in Rehm, Hedw. 22: 40)
675. *Melanconis stilbostoma* (UPS F-672111) // *Melanconis stilbostoma* (Fr.) Tul.
676. *Hypocrea contorta* Schwein. (PH 00303012) //
677. *Hypocrea citrina* (Pers.) Fr. (BPI-Rehm) //
- 677b. *Hypocrea citrina* (Pers.) Fr. [fasc. 16] (PH 00303004) //
678. *Hypocrea karsteniana* Niessl (**K(M) 61844; ?RMS 0012771**) // **Hypocrea karsteniana** Niessl (in Rehm, Hedw. 22: 53)
679. *Hypocrea tuberculariformis* Rehm (**BPI Rehm; S F86644; S F86645**) // **Hypocrea tuberculariformis f. caulicola** Rehm (Hedw. 22: 53)
680. *Nectria coryli* f. *salicis* (S F84579; S F84581) // *Nectria coryli* Fuckel
681. *Nectria lutescens* Arnold (BPI-Rehm; S F130574) //
682. *Cucurbitaria spartii* f. *euonymi* Cooke (PH 00303538) //

- 682b. *Cucurbitaria euonymi* Cooke [fasc. 21] (UPS F-670491; UPS F-672484) //
683. *Pleospora herbarum* f. *meliloti* Rabenh. (PH 00304477) //
684. *Thyridium vestitum* Fr. (**BPI Rehm; S F11830; S F11835**) // **Thyridium vestitum f. ribis** Rehm (Hedw. 22: 55)
685. *Leptosphaeria planiuscula* f. *cruciferarum* Rehm (**S F70952**) // **Leptosphaeria planiuscula f. cruciferarum** Rehm (Hedw. 22: 55)
686. *Leptosphaeria alliariae* Auersw. (PH 00304355) // *Leptosphaeria alliariae* (Auersw.) Rehm (Hedw. 22: 56, *Sphaeria* a.)
687. *Leptosphaeria dumetorum* f. *ebuli* Rehm (**S F70893; S F70894**) // **Leptosphaeria dumetorum f. ebuli** Rehm (Hedw. 22: 56)
688. *Leptosphaeria dumetorum* f. *meliloti* Rehm (**S F6955; S F70954**) // **Leptosphaeria dumetorum f. meliloti** Rehm (Hedw. 22: 56)
689. *Leptosphaeria millefolii* (Fuckel) Niessl (BPI-Rehm; UPS F-672112; UPS F672485) //
690. *Leptosphaeria umbrosa* Niessl (BPI-Rehm; S F70986; S F70988) //
691. *Leptosphaeria ammophilae* (Lasch) Ces. & De Not. (BPI-Rehm) //
- 691b. *Leptosphaeria littoralis* Sacc. [fasc. 21] (UPS F-670492; S F77746; S F77747) //
- 691c. *Leptosphaeria littoralis* Sacc. [fasc. 21] (UPS F-670493) //
- 691d. *Leptosphaeria littoralis* Sacc. [fasc. 34] (BPI Rehm; BPI 621101; S F77689; S F77691) //
- 691e. *Leptosphaeria littoralis* Sacc. [fasc. ?] (S F77745) // ?
692. *Lophiostoma arundinis* (Fr.) Ces. & De Not. (**PH 00303576**)¹⁶ // **[Lophiostoma semiliberum f. graminum** Rehm (Hedw. 22: 58)]
693. *Lophiostoma semiliberum* (Desm.) Ces. & De Not. (**PH 00303604**) // **Lophiostoma semiliberum f. caulium** Rehm (Hedw. 22: 58)
694. *Lophiostoma hungaricum* Rehm (**S F7256; S F71877**)¹⁷ // **Lophiostoma hungaricum** Rehm (Hedw. 22: 58)
695. *Rosellinia pulveracea* (Ehrh.) Fuckel (PH 00303475) //
696. ? // *Hypocopra macrospora* (Auersw.) Sacc.
697. ? // *Massaria eburnea* Tul.
698. *Massaria corni* Fuckel (BPI-Rehm; S F13397; S F123543) //
699. *Melanospora lagenaria* (Pers.) Fuckel (BPI-Rehm; S F137667) //

¹⁶ syntype of *Lophiostoma semiliberum f. graminum* Rehm (Hedw. 22: 58)]

¹⁷ Slovakia, Vysoké Tatry Mts., valley Veľká studená dolina

700. *Leptosphaeria herpotrichoides* De Not. (? RMS 0012949) // *Leptosphaeria culmifraga* f. *herpotrichoides* (De Not.) Rehm (Hedw. 22: 60, *Leptosphaeria* h.)
701. *Rhizina undulata* Fr. (S F189647) //
702. *Pustularia carbonaria* (Alb. & Schwein.) Rehm (S F136277) // *Pustularia carbonaria* (Alb. & Schwein.) Rehm (Hedw. 23: 50, *Peziza* c.)
703. *Ombrophila strobilina* (Fr.) P. Karst. (PH 00300798) //
704. *Helotium citrinum* (Hedw.) Fr. (S F596) //
- 704a. *Helotium citrinum* (Hedw.) Fr. [fasc. ?] (S F622) // ?
- 704b. *Helotium citrinum* (Hedw.) Fr. [fasc. ?] (S F698; S F46785; S F182484) // ?
705. *Desmazierella acicola* Lib. (PH 00300824)¹⁸ //
- 705b. *Desmazierella acicola* Lib. [fasc. 48] (BPI 659197; UPS F-671692; S F46785; S F182484) //
706. *Trichopeziza carestiana* f. *tetraspora* (**S F118510; S F118512**) // **Trichopeziza carestiana** Rehm (Hedw. 23: 51)
707. *Lachnum diminutum* (Desm.) Rehm (S F160458) // *Lachnum diminutum* (Desm.) Rehm (Hedw. 23: 51, *Peziza* d.)
708. *Lachnum subnidulans* Rehm (PH 00301484) // *Lachnum subnidulans* (Rehm) Rehm (Hedw. 23: 52, *Trichopeziza* s.)
709. *Dasyscypha staritzii* Rehm (**S F69780; S F69787**) // **Lachnum staritzii** Rehm (Hedw. 23: 52)
710. *Pyrenopeziza vossii* Rehm (**S F52017**) // **Pyrenopeziza vossii** Rehm (Hedw. 23: 52)
711. *Mollisia karstenii* f. *caricis* Rehm (**S F93934; S F93937; PH 00301545**) // **Mollisia karstenii f. caricis** Rehm (Sacc.) Rehm (Hedw. 23: 53)
712. *Mollisia cinerea* f. *luteola* Sacc. (PH 00301537) // *Mollisia cinerea* (Batsch) P. Karst.
- 712b. *Mollisia cinerea* (Batsch) f. *luteola* Sacc. [fasc. 16] (PH 00301539) //
713. *Mollisia phaea* Rehm (**S F10324; S F10325**) // **Mollisia phaea** Rehm (Hedw. 23: 54)
714. *Gorgoniceps obscura* Rehm (**S F6111**)¹⁹ // **Gorgoniceps obscura** Rehm (Hedw. 23: 54)

¹⁸ Slovakia, in the vicinity of Bratislava

¹⁹ as 714a.

- 714b. *Gorgoniceps obscura* Rehm [fasc. 16] (S F263585; S F263586) //
 715. *Lachnea melaloma* (Alb. & Schwein.) Sacc. (BPI 573206; S F135286) // *Pyronema melaloma* (Alb. & Schwein.) Fuckel
 715b. *Lachnea melaloma* (Alb. & Schwein.) Sacc. [fasc. 39] (BPI-Rehm) //
 716. *Trochila petiolicola* f. *fagi* Rehm (**S F277894**; **S F277896**) // ***Trochila petiolicola* f. *fagi*** Rehm (Hedw. 23: 55)
 717. *Trochila epilobii* P. Karst. (**S F61522**; **S F61523**) // ***Trochila substrictita*** Rehm (Hedw. 23: 55)
 717b. *Naevia minutula* (Sacc. & Malbr.) Rehm [fasc. 43] (BPI 667974; UPS F672118) //
 718. *Trochila erumpens* f. *ailanthi* Rehm (**S F104107**) // ***Trochila erumpens* f. *ailanthi*** Rehm, *Trochila erumpens* (Grev.) Rehm (Hedw. 23: 55, Peziza e.)
 719. *Trochila craterium* (DC.) Fr. (PH 00302057) //
 720. *Calloria rosella* Rehm (**S F9977**; **S F9978**) // ***Calloria rosella*** Rehm (Hedw. 23: 56)
 721. *Propolis rubi* Rehm (**S F7980**; **S F7981**) // ***Propolis rubi*** Rehm (Hedw. 23: 56)
 722. *Tympanis conspersa* var. *mali* Rehm (**S F197094**; **S F197095**) // ***Tympanis conspersa* f. *mali*** Rehm (Hedw. 23: 56)
 723. *Tympanis pinastri* f. *laricinum* (Fuckel) Rehm (PH 00301750) // *Tympanis* ?
 724a. *Rhytisma salicinum* (Pers.) Fr. (PH 00302026) //
 724b. *Rhytisma salicinum* (Pers.) Fr. (PH 00302027) //
 724c. *Rhytisma salicinum* (Pers.) Fr. (PH 0030203) //
 724d. *Rhytisma salicinum* (Pers.) Fr. (PH 00302031) //
 724e. *Rhytisma salicinum* (Pers.) Fr. [fasc. 26] (UPS F-670494; UPS F-672486) //
 725. *Hysterographium rehmanum* f. *pyri* (**S F196048**; **S F196049**) // ***Hysterographium rehmanum* f. *pyri*** Rehm (Hedw. 23: 69)
 726. *Valsa ambiens* f. *tiliae* Rehm (**NY 2933301**) // ***Valsa ambiens* f. *tiliae*** Rehm (Hedw. 23: 69)
 727. *Valsa ambiens* f. *corni* Rehm (**NY 2933512**) // ***Valsa ambiens* f. *corni*** Rehm (Hedw. 23: 69)
 728. *Valsa populina* Fuckel (PH 00304904) //
 729. *Valsa sordida* Nitschke (PH 00304937) //
 730. *Eutypella stellulata* (Fr.) Sacc. (BPI 738269; PH 00304777) //
 730b. *Eutypella stellulata* (Fr.) Sacc. [fasc. 47] (BPI 576480) //

- 730c. *Eutypella stellulata* f. *diatrypeoides* Rehm [fasc. 51] (BPI 576472) // ²⁰
 731. *Diatrypella minuta* Nitschke (PH 00305128) //
 732. *Diaporthe trinucleata* Niessl (NY 02930981) //
 733. *Massaria macrospora* (Desm.) Sacc. (PH 00304539) // 733b. ? [fasc. 15] // *Cryptosphaeria populina* (Pers.) Sacc.
 734. *Leptosphaeria culmorum* f. *apogon* Sacc. & Speg. (PH 00304365) //
 735. *Heptameria uncinata* (Niessl) Rehm (**S F10390**; **S F64157**) // ***Heptameria uncinata*** Niessl (in Rehm, Hedw. 23: 72)
 736. *Pleospora papaveracea* (De Not.) Sacc. (PH 00304483) //
 736b. *Pleospora calvescens* f. *papaveracea* De Not. [fasc. 45] (BPI 627353; S F6721) //
 737. *Didymosphaeria celata* (Curr.) Sacc. (S F13580; S F13590) //
 738. *Sphaerella fraxini* Niessl (S F224544; S F224545)²¹ //
 739. *Sphaerella topographica* Sacc. & Speg. (PH 00303738) //
 740. *Didymella vexata* Sacc. (PH 00304334) //
 741. *Didymella exigua* (Niessl) Sacc. (S F37499; S F37500; S F375010) //
 742. *Melanospora leucotricha* Corda (PH 00303065) //
 743. *Sordaria discospora* Auersw. (PH 00303384) //
 744. *Sordaria maxima* Niessl (S F720) //
 745. *Coprolepa merdaria* (Fr.) Fuckel (PH 00312487) //
 746. *Delitschia moravica* Niessl (S F6117) //
 747. *Delitschia furfuracea* Niessl (**S F11961**; **S F11963**) // ***Delitschia furfuracea*** Niessl (in Rehm, Hedw. 23: 75)
 748. ? // *Sporormia corynespora* Niessl
 749. *Lophiostoma caulium* f. *majus* Rehm (**S F71862**; **S F71863**) // ***Lophiostoma caulium* f. *majus*** Rehm (Hedw. 23: 75)
 750. *Sphaerotheca castagnei* f. *senecionis* Rehm (PH 00302725) // ***Sphaerotheca castagnei* f. *senecionis*** Rehm (Hedw. 23: 76)
 751. *Acetabula sulcata* (Pers.) Rehm (S F126980; S F126992) // *Acetabula sulcata* (Pers.) Rehm (Hedw. 24: 8)
 752. *Sclerotinia baccarum* (Schröt.) Rehm (PH 00301517) // *Sclerotinia baccarum* (Schröt.) Rehm (Hedw. 24: 8, Rostroemia b.)
 752b. *Sclerotinia baccarum* (Schröt.) Rehm [fasc. 35] (BPI-Rehm; BPI 400060; MICH 267393) //

²⁰ nomen nudum

²¹ issued also by Linhart in *Fungi hungarici* 1: 162, 1883

753. *Plicaria fuckelii* Rehm (**S F187310**²²; **E 00456205**) // **Plicaria fuckelii** Rehm²³ (Hedw. 24: 9)
- 753a. *Plicaria fuckelii* Rehm [fasc. ?] (S F187313; S F9763²⁴) // ?
- 753b. *Plicaria fuckelii* Rehm [fasc. ?] (S F187311; E 00456206) // ?
754. *Humaria pedrottii* (Bres.) Rehm (S F197440) // *Humaria pedrottii* (Bres.) Rehm (Hedw. 24: 9, *Helotium* p.)
755. *Leucoloma sydowii* Rehm (**S F7036**; **S F10442**) // **Leucoloma sydowii** Rehm (Hedw. 24: 9)
756. *Niptera benesuada* (Tul.) Rehm (S F76038) // *Niptera benesuada* (Tul.) Rehm (Hedw. 24: 10, *Peziza* b.)
757. *Niptera teucarii* Fuckel (S F76374; S F76377) //
758. *Mollisia cinerea* f. *epilobii* Kunze (PH 00301538) // 758b. *Mollisia minutella* [fasc. ?] (BPI 658269) // ?
759. *Mollisia dehnii* (Rabenh.) P. Karst. (PH 00301541) //
760. *Tapesia prunicola* f. *alni* Rehm (PH 00301616) // **Tapesia prunicola** f. **alni** Rehm (Hedw. 24: 11)
761. *Tapesia melaleuca* var. *strobilicola* Rehm (?PH 00044307) // **Tapesia melaleuca** var. **strobilicola** Rehm (Hedw. 24: 11)
762. *Dasyscypha flavovirens* Bres. (**S F11892**; **S F11893**) // **Dasyscypha flavovirens** Bres. ex Rehm (Hedw. 24: 12)
- 762b. *Dasyscypha flavovirens* Bres. [fasc. 49] (BPI 660493) //
763. *Pirottaea cembricola* Rehm (**S F8958**; **S F11059**; **S F1106**; **E 00433545**) // **Pirottaea cembricola** Rehm (Hedw. 24: 12)
764. *Lachnum patens* var. *sphaerocephalum* (Wallr.) P. Karst. (S F155008; S F155134) //
- 764b. *Lachnum sphaerocephalum* var. *transiens* Rehm [fasc. 53] (**S F69112**; **S F69113**; **S F69786**; **BPI 659809**) // **Lachnum sphaerocephalum** var. **transiens** Rehm (Ann. Mycol. 11: 395, 1913)
765. *Lachnum nidulum* (J. C. Schmidt & Kunze) P. Karst. (NY 01721807) //
- 765b. ? [fasc. 20] // *Lachnum nidulum* f. *polygonati multiflori*²⁵
766. *Helotium grisellum* Rehm (**S F8760**; **S F74648**; **FH 00433677**) // **Helotium grisellum** Rehm (Hedw. 24: 13)

22 Slovakia, collected by A. Kmet'

23 new name for *Plicaria pustulata* Fuckel (Jb. Nassau. Ver. Naturk. 23-24: 327, 1870)

24 marked as lectotype by Maas-Geesteranus

25 nomen nudum

767. *Helotium stigmaion* f. *minusculum* Rehm (**S F11662**²⁶; **S F11663**; **NY 01179531**) // **Helotium stigmaion** f. **minusculum** Rehm (Hedw. 24: 13)
768. *Helotium phyllogenum* [phyllogenon] Rehm (**FH 00433687**²⁷; NY 01179448 [ex FH]; NY 01179449 [ex FH]; NY 01179447; NY 01179450; S F64043; S F64045) // **Helotium phyllogenum** Rehm (Hedw. 24: 14)
769. *Trochila paradoxa* f. *luzulae* Rehm (**S F58053**; **S F58056**) // **Trochila paradoxa** f. **luzulae** Rehm (Hedw. 24: 14)
770. *Calloria occulta* Rehm (**S F9973**; **S F9974**) // **Calloria occulta** Rehm (Hedw. 24: 14)
771. *Ryparobius crustaceus* (Fuckel) P. Karst. (S F190876) //
772. *Phacidium rhododendri* Rehm (S F102736; S F102737) // *Phacidium rhododendri* (Rehm) Rehm²⁸ (Hedw. 24: 15, *Propolis* r.)
- 772b. *Pseudophacidium rhododendri* Rehm [fasc. 50] (S F102734; S F102735; UPS F-695222) //
773. *Tympanis pinastri* f. *laricinum* (Fuckel) Rehm (PH 00301750) // *Tympanis pinastri* f. *laricinum* (Fuckel) Rehm (Hedw. 24: 15, *Cenangium* l.)
774. *Hysterium acuminatum* var. *alpinum* Rehm (**PH 00302174**) // **Hysterium acuminatum** var. **alpinum** Rehm (Hedw. 24: 15)
775. *Lophodermium arundinaceum* f. *apiculatum* Duby (S F72610; S F72611) //
776. *Valsa abietis* Fr. (PH 00304794) //
777. *Valsa populina* var. *astoma* Rehm (**S F118962**; **S F118964**) // **Valsa populina** var. **astoma** Rehm (Hedw. 24: 16)
778. *Eutypella sorbi* (J. C. Schmidt) Sacc. (PH 00304776) //
- 778b. *Eutypella sorbi* (Alb. & Schwein.) Sacc. [fasc. 47] (BPI 575748) //
779. *Euphorthe malbranchei* Sacc. (NY 02930218) //
- 779b. *Diaporthe malbranchei* Sacc. [fasc. 29] (UPS F-670495; UPS F-672487) //
780. *Thyridium vestitum* f. *sambuci* Rehm (**S F111826**; **S F111836**) // **Thyridium vestitum** f. **sambuci** Rehm (Hedw. 24: 17)
781. *Nectria cucurbitula* (Tode) Fr. (PH 00303114) //

26 Carpenter (Mem. New York Bot. Gard. 33: 116, 1981) has not specified which of two specimens he designated as lectotype; Arendholz (1982) noted at the label that this might be the lectotype

27 FH has 3 specimens: the specimen in the type collection was designated as lectotype by Lizoň (Mycotaxon 45: 35, 1992)

28 later homonym of *Phacidium rhododendri* Schwein.

- 781b. *Nectria cucurbitula* (Tode) Fr. (PH 00303114) [fasc. 18] //
782. *Leptosphaeria multiseptata* G. Winter (PH 00304390) //
783. *Leptosphaeria acuta* (Moug. & Nestl.) P. Karst. (S F70406; S F70407) //
784. *Leptosphaeria culmifraga* f. *minuscula* Rehm (S F70877, bei Franzenhöhe); 784a. (**S F70876**, bei Franzenhöhe) // ***Leptosphaeria culmifraga* f. *minuscula*** Rehm (Hedw. 24: 66²⁹)
- 784b. *Leptosphaeria culmifraga* f. *minuscula* Rehm (S F70874 and S F70875, bei Sulden am Ortler); 784a.b. *Leptosphaeria culmifraga* f. *minuscula* Rehm (UPS F-672128, UPS F-672135, UPS F-672136, UPS F-672137, all Andechs, bayr. Voralpen)
- 784c. *Leptosphaeria culmifraga* f. *minuscula* Rehm [fasc. 25] (BPI 620732; UPS F670496) //
785. *Leptosphaeria culmifraga* f. *majuscula* Rehm (**S F70869; S F70870; S F70871; S F70873**) // ***Leptosphaeria culmifraga* f. *majuscula*** Rehm (Hedw. 24: 67)
786. *Pyrenophora trichostoma* f. *alpestris* Rehm (**S F62134; S F62136**) // ***Pyrenophora trichostoma* f. *alpestris*** Rehm (Hedw. 24: 67)
787. *Pyrenophora venziana* Sacc. (PH 00304493) //
788. *Lasio-sphaeria ovina* (Pers.) Ces. & De Not. (PH 00303432) //
789. *Ceratospaeria aeruginosa* f. *minor* Rehm (**S F50955; S F50957**) // ***Ceratospaeria aeruginosa* f. *minor*** Rehm (Hedw. 24: 68)
790. *Rosellinia ambigua* Sacc. (PH 00303457) //
- 790b. *Podosphaera myrtilina* Kunze [fasc. 36] (S F270454; S F270455; S F270456; BPI-Rehm; BPI 603498) //
791. *Venturia myrtili* Cooke (PH 00304511) //
792. *Venturia ditricha* f. *fraxinicola* Rehm (**S F107750; S F107752**) // ***Venturia ditricha* f. *fraxinicola*** Rehm (Hedw. 24: 69)
793. *Hyospila pustula* (Pers.) P. Karst. (NY 2931719) //
- 793b. *Hyospila pustula* (Pers.) P. Karst [fasc. 27] (BPI 623886; UPS F-670498; MICH 312310) //
794. *Sphaerella graminicola* f. *alpina* Rehm (S F80204; S F80207) // *Sphaerella graminicola* Fuckel
795. *Gnomonia perversa* Rehm (**S F11094; S F11096**) // ***Gnomonia perversa*** Rehm (Hedw. 24: 70)
796. *Sphaerotheca pannosa* (Wallr.) Lév. (PH 00302754) //
797. ? // *Phyllactinia suffulta* (Rebent.) Sacc.
- 797b. *Phyllactinia corylea* f. *paliuri* Rehm [fasc. 54] (S F270075; S

29 as "784a., b." with one description but without indication of type collection

- F270076; BPI 606751) // ³⁰
798. *Podosphaera myrtilina* (C. Schub.) Kunze (S F270451; S F270452) //
799. ? // *Erysiphe communis* f. *paeoniae* Siegmund
800. *Erysiphe umbelliferarum* f. *chaerophylli* Rehm (PH 00005607) // ***Erysiphe umbelliferarum* f. *chaerophylli*** Rehm (Hedw. 24: 71)
801. *Pustularia carbonaria* f. *major* Rehm (**S F105329; S F105330**³¹) // ***Pustularia carbonaria* f. *major*** Rehm; *Pustularia carbonaria* (Alb. & Schw.) Rehm (Hedw. 24: 226, Peziza c.)
- 801b. *Geopyxis carbonaria* (Alb. & Schwein.) Sacc [fasc. 47] (S F136271; S F136298; BPI 569558) //
802. *Ciboria sydowiana* Rehm (**S F8330; S F105306; S F105307**) // ***Ciboria sydowiana*** Rehm (Hedw. 24: 226)
803. *Crouania asperella* Rehm (**S F6433; S F7574**) // ***Crouania asperella*** Rehm (Hedw. 24: 226)
804. *Leucoloma ustorum* (Berk. & Broome) Rehm (S F179275) // *Leucoloma ustorum* (Berk. & Broome) Rehm (Hedw. 24: 227, Peziza u.)
805. *Pyronema omphalodes* f. *carneum* Rehm (S F67715) // *Pyronema omphalodes* (Bull.) Fuckel
806. *Ombrophila Baeumleri* Rehm (**S F10277; S F10278**³²) // ***Ombrophila baeumleri*** Rehm (Hedw. 24: 228)
807. *Helotium conscriptum* f. *caulicolum* Rehm (S F64058; S F64060³³) // ***Helotium conscriptum* f. *caulicolum*** Rehm (Hedw. 24: 228)
808. *Helotium scutula* f. *rubi* Rehm (**S F64004; S F64005**) // ***Helotium scutula* f. *rubi*** Rehm (Hedw. 24: 229)
809. ***Helotium herbarum* f. *alpestre*** Rehm (**S F64027; S F64028; UPS F-672113; UPS F-672129**) // ***Helotium herbarum* f. *alpestre*** Rehm (Hedw. 24: 229)
810. *Helotium glanduliforme* f. *robustior* Rehm (S F11638; **S F11640**³⁴; NY 01169468) // ***Helotium glanduliforme* f. *robustior*** Rehm (Hedw. 24: 229)
811. *Helotium herbarum* f. *rubi* Rehm (**S F64026**) // ***Helotium herbarum* f. *rubi*** Rehm (Hedw. 24: 230)

30 nonem nudum

31 Slovakia, Vysoké Tatry Mts., Dolný Smokovec

32 Slovakia, Bratislava

33 Slovakia, Vysoké Tatry Mts., valley Malá studená dolina

34 lectotype designated by Carpenter (Mem. New York Bot. Gard. 33: 81, 1981)

812. *Trichopeziza winteriana* Rehm (**S F5926**) // **Trichopeziza winteriana** Rehm (Hedw. 24: 230)
813. *Tapesia retincola* (Rabenh.) P. Karst. (PH 00301618) //
814. *Niptera plicata* f. *albomarginata* Rehm (**S F63437**; **S F63438**³⁵) // **Niptera plicata f. albomarginata** Rehm (Hedw. 24: 231)
815. *Mollisia umbonata* (Fuckel) Rehm (PH 00301549³⁶) // *Mollisia umbonata* (Fuckel) Rehm (Hedw. 24: 230, *Niptera* u.)
816. *Mollisia hysteropezizoides* Rehm (**S F6402**; **S F10014**) // **Mollisia hysteropezizoides** Rehm (Hedw. 24: 231)
817. *Coronellaria aquilina* Rehm (**S F9017**; **S F9664**) // **Coronellaria aquilina** Rehm (Hedw. 24: 231)
818. *Pseudopeziza glacialis* Rehm (**S F11806**; **S F11807**; **UPS F-118010**; **E 00456125**) // **Pseudopeziza glacialis** Rehm (Hedw. 24: 232)
819. *Pseudopeziza cerastiorum* (Wallr.) Fuckel PH 00301565) //
820. *Coccomyces cembrae* Rehm (**S F11528**; **S F11529**; **E 00429418**) // **Coccomyces cembrae** Rehm (Hedw. 24: 232)
821. *Coccomyces quadratus* (J. C. Schmidt) P. Karst. (PH 00301934) //
822. *Cenangium acuum* Cooke & Peck (S F83925; S F83928; S F83935) //
- 822b. *Cenangium acuum* f. *strobi* Rehm [fasc. 52] (S F83922; S F83924; BPI 664541) // ³⁷
823. *Ascobolus denudatus* Fr. (S F179381) //
824. *Lophium mytilinellum* Fr. (PH 00302268) //
825. *Xylaria hypoxylon* (L.) Grev. (PH 00316765) //
826. *Nectria cucurbitula* f. *alnicola* Rehm (S F84684; S F84769; PH 00303115³⁸) // *Nectria cucurbitula* (Tode) Fr.
827. *Leptosphaeria multiseptata* f. *alpina* Rehm (S F63440; S F63441) // *Leptosphaeria multiseptata* G. Winter
828. *Leptosphaeria derasa* f. *alpestris* Rehm (?S; **ILLS 00000334**) // **Leptosphaeria derasa f. alpestris** Rehm (Hedw. 24: 235)
829. *Pleospora glacialis* Niessl (**S F8477**; **S F94993**; **UPS F-646060**; **E 00433536**) // **Pleospora glacialis** Niessl (in Rehm, Hedw. 24: 236)

35 Slovakia, Vysoké Tatry Mts., valley Malá studená dolina

36 Slovakia, in the vicinity of Bratislava

37 nomen nudum

38 Slovakia, in the vicinity of Bratislava

830. *Pleospora oligotricha* Niessl (**S F8423**; **S F8424**; **E 00433532**) // **Pleospora oligotricha** Niessl (in Rehm, Hedw. 24: 236)
831. *Pleospora hispida* f. *alpina* Rehm (**S F94984**; **S F94987**) // **Pleospora hispida f. alpina** Rehm (Hedw. 24: 237)
832. *Sphaerella subnivalis* Rehm (**S F9712**; **S F79963**; **E 00456160**) // **Sphaerella subnivalis** Rehm (Hedw. 24: 237)
833. *Sphaerella consociata* Rehm (**S F9817**; **E 00456166**) // **Sphaerella consociata** Rehm (Hedw. 24: 238)
834. *Sphaerella parallelogramma* Rehm (**S F9567**; **S F79961**; **E 00456163**) // **Sphaerella parallelogramma** Rehm (Hedw. 24: 239)
835. *Sphaerella recutita* f. *dispersa* Rehm (**S F79962**; **S F83535**) // **Sphaerella recutita f. dispersa** Rehm (Hedw. 24: 239)
836. *Sphaerella tassiana* De Not. (S F218102; S F218103) //
837. *Sphaerella pteridis* (Desm.) De Not. (PH 00303714) //
838. *Metasphaeria epipteridea* (Cooke & Harkn.) Sacc. (PH 00304415) //
839. ? // *Ophiobolus bardanae* var. *umbelliferarum* Rehm
840. ? // *Venturia chlorospora* f. *canescens* P. Karst.
841. *Venturia elegantula* Rehm (**S F11555**; **S F11556**; **NY 00914439**) // **Venturia elegantula** Rehm (Hedw. 24: 241)
- 841b. *Venturia elegantula* Rehm [fasc. 41] (BPI 612594) //
842. *Venturia potentillae* (Fr.) Cooke (PH 00304519³⁹) //
- 842b. *Venturia potentillae* (Fr.) Cooke [fasc. 40] (BPI 613311; CUP F-2378) //
843. *Laestadia rhytismoides* (Bab.) Sacc. (PH 00312483) //
844. *Sphaerulina subglacialis* Rehm (**S F6673**; **S F6674**; **NY 01103010**) // **Sphaerulina subglacialis** Rehm (Hedw. 24: 243)
845. *Ascomycetella quercina* Peck (S F231896; S F231897) //
846. *Microsphaera symphoricarpi* Howe (PH 00302593) //
847. *Microsphaera loniceræ* (DC.) G. Winter (PH 00302563⁴⁰; ?BPI 557285A) //
848. *Microsphaera penicillata* f. *alni* Fuckel (PH 00302565⁴¹) // *Microsphaera penicillata f. alni* (DC.) Rehm (Hedw. 24: 244, *Erysiphe* a.)
849. ? // *Microsphaera vanbruntiana* W. R. Gerard

39 Slovakia, in the vicinity of Bratislava

40 Slovakia, mountains [Malé Karpaty] next to Bratislava

41 Slovakia, in the vicinity of Bratislava

850. *Podosphaera tridactyla* f. *pruni-domesticae* Fuckel (PH 00302719⁴²) //
851. *Plicariella fuliginea* (Schum.) Rehm (S F189274) // *Plicariella fuliginea* (Schum.) Rehm (Hedw. 26: 81, Peziza f.)
852. *Geoscypha subcupularis* Rehm (**S F10479**; **S F30593**) // **Geoscypha subcupularis** Rehm (Hedw. 26: 81)
853. *Helotium trabinelloides* Rehm (**S F7139**; **S F7141**; **FH**) // **Helotium trabinelloides** Rehm (Hedw. 26: 81)
854. ? // *Leucoloma piliferum* (Cooke) Rehm (Hedw. 26: 83, Peziza p.)
- 854b. *Humaria pilifera* (Cooke) Sacc. [fasc. 25] (S F224549; S F224550; BPI 571255; UPS F-671693; UPS F-672488) //
855. *Mollisia leucostigmoides* (Sacc.) Rehm (S F76378; S F76400) // *Mollisia leucostigmoides* (Sacc.) Rehm (Hedw. 26: 83, Calloria l.)
- 855b. *Pezizella teucarii* var. *leucostigmoides* Sacc. [fasc. 30] (UPS F-670499) //
856. *Mollisia juncina* (Pers) Rehm (S F76217; S F76218) // *Mollisia juncina* (Pers.) Rehm (Hedw. 26: 83, Peziza j.)
857. *Mollisia atrata* f. *gentianae* Rehm (**S F62493**; **S F62495**) // **Mollisia atrata f. gentianae** Rehm (Hedw. 26: 84)
858. *Niptera subbiatorina* Rehm (**S F10379**; **S F10380**) // **Niptera subbiatorina** Rehm (Hedw. 26: 83)
859. ? // *Tapesia fusca* (Pers.) Fuckel
860. *Tapesia rehiana* E. Bommer & M. Rousseau (**S F62481**; **S F62484**) // **Tapesia rehiana** M. Rousseau & E. Bommer (in Rehm, Hedw. 26: 85, May-June 1887)⁴³
861. *Tapesia apocrypta* Rehm (**S F6407**; **S F6408**) // **Tapesia apocrypta** Rehm (Hedw. 26: 85)
862. ? // *Pyrenopeziza nigrificans* (G. Winter) Rehm (Hedw. 26: 86, *Niptera* n.)
863. *Helotium dolosellum* f. *gramineum* Rehm (**S F51468**⁴⁴; **NY 01169424**; **S F51469**) // **Helotium dolosellum f. gramineum** Rehm (Hedw. 26: 86)
864. ? // *Tympanis syringae* (Fuckel) Rehm⁴⁵

42 Slovakia, Bratislava

43 *Peziza rehiana* Sacc., E. Bommer & M. Rousseau (in E. Bommer & M. Rousseau, Bull. Roy. Soc. Bot. Belg. 26: 190, 1887)

44 lectotype designated by Carpenter (Mem. New York Bot. Gard. 33: 135, 1981); isoelectotype: NY 01169424

45 validly described as *Tympanis syringae* Fuckel (Fungi rhenani exsiccati suppl. fasc. 7: no. 2144, 1868)

865. ? // *Pezicula eucrita* P. Karst.
- 865b. *Dermatea eucrita* (P. Karst.) Rehm [fasc. 29] (BPI 664177; BPI 664178; UPS F-670500; UPS F-672489; MICH 316493; MICH 316492) //⁴⁶
- 865c. ? [fasc. 55] // *Pezicula eucrita* P. Karst.
866. *Pseudophaacidium betulae* Rehm (**S F102706**; **S F102708**) // **Pseudophaacidium betulae** Rehm (Hedw. 26: 87)
867. ? // *Lophodermium hysterioides* (Pers.) Sacc.
868. ? // *Gloniella molinae* (De Not.) Sacc.
869. ? // *Exoascus ulmi* Fuckel
870. *Hydnobolites cerebriformis* Tul. (S F120858; S F120862) //
871. ? // *Xylaria tulasnei* Nitschke
872. ? // **Polystigma ochraceum f. juvenilis** Rehm (Hedw. 26: 89)⁴⁷
873. ? // *Dothidella betulina* (Fr.) Sacc.
874. *Diaporthe hypoxyloides* Rehm (**S F12439**; **BPI 616288**) // **Diaporthe hypoxyloides** Rehm
875. *Diaporthe oligocarpoides* Rehm (**S F12474**; **S F49000**) // **Diaporthe oligocarpoides** Rehm (Hedw. 26: 90)
876. *Diaporthe dubia* Nitschke (NY 02929873) //
877. ? // *Hypomyces aurantius* (Pers.) Tul.
878. ? // *Nectria sinopica* Fr.
879. ? // *Nectria stilbosporae* Tul.
880. *Nectria leptosphaeriae* Niessl (? UPS F-672158) //
881. *Nectria consanguinea* Rehm (**S F62505**; **S F62508**) // **Nectria consanguinea** Rehm (Hedw. 26: 92)
882. ? // *Massaria conspurcata* (Wallr.) Sacc.
883. ? // *Leptosphaeria haematites* (Roberge in Desm.) Niessl
884. *Leptosphaeria helvetica* Sacc. & Speg. (S F62501; S F62503) //
885. ? // *Leptosphaeria derasa* f. *alpestris* Rehm
886. ? // *Leptosphaeria crepinii* (Westd.) De Not.
- 886b. *Leptosphaeria crepinii* (Westend.) De Not. [fasc. 34] (BPI 620589; CUP F1220; MICH 305166) //
887. *Leptosphaeria monotis* Rehm (**S F6887**; **S F6890**) // **Leptosphaeria monotis** Rehm (Hedw. 26: 94)
888. *Leptosphaeria doliolum* var. *dissimilis* Rehm (**S F6794**; **S F70889**) // **Leptosphaeria doliolum var. dissimilis** Rehm (Hedw. 26: 94)
889. ? // *Zignoëlla pygmaea* (P. Karst.) Sacc.

46 included also in the list for fasc. 55 as *Pezicula eucrita* P. Karst.

47 nomen nudum

890. *Rhamphoria tympanidispora* Rehm (**S F7531; S F7534**) // **Rhamphoria tympanidispora** Rehm (Hedw. 26: 95)
891. *Ceratostomella vestita* Sacc. (S F215573) //
892. ? // *Didymella hellebori* (Chaillet) Sacc.
893. *Pharcidia lichenum* (Arnold) G. Winter (S F79410) //
894. *Homostegia parasitica* (Fabre) Rehm (S F278; S F90143; S F90145) // *Homostegia parasitica* (Fabre) Rehm (Hedw. 26: 96, Bertia p.)
895. ? // *Auerswaldia chamaeropis* (Cooke) Sacc.
896. *Asterina reticulata* Kalchbr. & Cooke (S F46129; S F46130) //
897. *Dimerosporium maculosum* (Speg.) Sacc. (S F126119; S F126120; S F126121) //
898. *Meliola niessliana* G. Winter (S F81972; S F81973) //
899. *Microthyrium epimyces* Sacc., E. Bommer & M. Rousseau (**S F62512; S F62513**) // **Microthyrium epimyces** Sacc., E. Bommer & M. Rousseau (in Rehm, Hedw. 26: 97, May-June 1887; in E. Bommer & M. Rousseau, Bull. Roy. Soc. Bot. Belg. 26: 209, 1887)
900. *Pseudosphaera oxyacanthae* f. *mespili* Rehm (**S F250713; S F250714**⁴⁸) // **Pseudosphaera oxyacanthae f. mespili** Rehm (Hedw. 26: 98)
901. *Geoscypha schroeteri* (Cooke) Rehm (S F197535; S F197555) // *Geoscypha schroeteri* (Cooke) Rehm (Hedw. 27: 163, Peziza s.⁴⁹)
902. ? // *Crouania cinnabarina* Fuckel
903. *Ciboria carniolica* Rehm (**S F51157; S F51158; UPS F-671696**) // **Ciboria carniolica** Rehm (in Voss, Verh. zool.-bot. Ges. Wien 37: 226, 1887)
904. ? // *Helotium cyathoideum* (Bull.) P. Karst.
- 904b. *Phialea cyathoidea* f. *lappae* Rehm [fasc. 28] (S F11653⁵⁰; S F11657; S F92268; S F92269; S F9227; S F9235; BPI 656693; BPI 656692; BPI 656639; UPS F-670501; NY 01168062) // *Phialea cyathoidea* (Bull.)⁵¹

48 Slovakia, Bratislava

49 (Grevillea 6: 110, 1878), replacement name for *Peziza rufescens* J. Schröt., later homonym of *Peziza rufescens* Saut.; not clear if *Geoscypha schroeteri* (P. Karst.) Lambotte is conspecific

50 designated as lectotype of *Phialea cyathoidea* f. *lappae* Rehm [nomen nudum!] by Carpenter (Mem. New York Bot. Gard. 33: 69, 1981); isolectotype at BPI; included in the list for fasc. 52 as *Phialea cyathoidea* f. *lappae* Rehm

51 "juvenilis-obscurior"; as *Phialea cyathoidea* f. *lappae* Rehm also in the list for fasc. 52 (Neufriedenheim/München)

905. *Helotium deparculum* P. Karst. (S F155833; S F155835) //
906. *Lachnum nidulus* f. *epilobii* Rehm (**S F69783; S F69784**) // **Lachnum nitidulum epilobii** Rehm (Hedw. 27: 165)
907. *Lachnum controversum* f. *albescens* Rehm (**S F69712; S F69713; S F69717; S F189470; S F189472; S F189473**) // **Lachnum controversum f. albescens** Rehm (Hedw. 27: 165)
908. *Tapesia fusca* f. *corni* Rehm (**S F67090; S F67091; S F67092**) // **Tapesia fusca f. corni** Rehm (Hedw. 27: 165)
909. ? // *Pirottaea gallica* Sacc.
910. *Mollisia lycopincola* Rehm (**S F76248; S F76284; UPS F-671701**) // **Mollisia lycopincola** Rehm (Hedw. 27: 166)
911. *Mollisia tamaricis* f. *robiniae* Rehm (**S F76242; S F76243; S F76244**) // **Mollisia tamaricis f. robiniae** Rehm (Hedw. 27: 166)
912. *Mollisia cinerea* f. *spiraeaecola* Rehm (**S F76088; S F76089; S F76362**) // **Mollisia cinerea f. spiraeaecola** Rehm (Hedw. 27: 166)
913. *Patellaria cyanea* Ellis & G. Martin (S F86747; S F86748; S F86749) //
- 914a. *Ryparobius cookei* (Crouan) Boud. (S F61100) //
- 914b. *Ryparobius pachyascus* Zukal (**S F6109; S F190867; S F190868**) // **Ryparobius pachyascus** Zukal (in Rehm, Hedw. 27: 167)
915. ? // **Bulgaria inquinans f. fagi** Rehm (Hedw. 27: 168)
916. *Hymenobolus carniolicus* Rehm (**S F10518; S F10519; S F11360**) // **Stictophaacidium carniolicum** Rehm (Hedw. 27: 168)
917. ? // *Trochila petiolaris* f. *hippocastani* Rehm (Hedw. 27: 169)⁵²
918. *Hysterographium ruborum* f. *vitis* Rehm (**UPS F-671705**) // **Hysterographium ruborum f. vitis** Rehm (Hedw. 27: 169)
919. *Hypoderma virgultorum* f. *erigerontis* Rehm (**S F10615; S F196064; UPS F-671707**) // **Hypoderma virgultorum DC. f. erigerontis** Rehm (Hedw. 27: 169)
920. *Exoascus bullatus* (Berk. & Broome) Fuckel (S F109662; S F109667; NY 02768713) // *Exoascus bullatus* f. *pyri* Rehm (Hedw. 27: 169)⁵³
- 920b. *Taphrina bullata* (Berk. & Broome) Tul. [fasc. 32] (S F109656; S F109659; BPI 675628; MICH 303245) //
921. ? // *Taphrina rhizophora* Johanson
922. *Phyllachora melianthi* (Thümen) Sacc. (UPS F-671709) //

52 nomen nudum

53 nomen nudum

923. *Phyllachora dalbergiae* var. *macrasca* Sacc. (**S F49856; S F125792**⁵⁴) // *Phyllachora dalbergiae* Niessl
- 923b. *Phyllachora dalbergiae* Niessl [fasc. 28] (S F125784; S F125786; S F125791; BPI 636992; UPS F-670502) //
924. ? // *Ophiodothis vorax* (Berk. & M.A. Curtis) Sacc.
925. *Munkiella pulchella* Speg. (S F220998; S F220999; UPS F-671713) //
- 925a. ? [fasc. 40] // *Roussoella subcoccodes* Speg.⁵⁵
- 925b. *Roussoella subcoccodes* Speg. [fasc. 40] (S F221004; S F221005; S F221006; S F221007; BPI 643437A; BPI 643437B) // ⁵⁶
926. ? // *Aglaospora thelebola* Tul.
- 926b. *Melanconis thelebola* (Fr.) Sacc. [fasc. 53] (BPI 615158; CUP F-1550) //
927. *Diaporthe fallaciosa* f. *aceris-pseudoplatani* Rehm (**UPS F-671715**) // ***Diaporthe fallaciosa* f. *aceris-pseudoplatani*** Rehm (Hedw. 27: 170)
928. *Diaporthe crassicollis* Nitschke (UPS F-671718) //
929. *Diaporthe inaequalis* (Curr.) Nitschke (UPS F-671719) // *Diaporthe inaequalis* f. *cytisi-capitati* Rehm (Hedw. 27: 171)⁵⁷
930. *Diaporthe beckhausii* Nitschke (UPS F-671720) //
931. *Monographos microsporus* Niessl (UPS F-671729) //
932. *Monographos aspidiorum* (Libert) Fuckel (S F10165; S F10166; UPS F-671730) //
933. *Nectria importata* Rehm (**NY 00671967; NY 00671969; NY 00671968**) // ***Nectria importata*** Rehm (Hedw. 27: 171)
934. ? // *Nectria rousseliana* (Mont.) Sacc.
935. *Diatrypella deusta* Ellis & G. Martin (S F142605; S F278249; S F278250) //
936. *Cucurbitaria spartii* f. *genistae* Rehm⁵⁸ (UPS F-671732) //
937. *Leptosphaeria pleurospora* Niessl (**S F6949; S F6951; S F6952; GZU 000306296**) // ***Leptosphaeria pleurospora*** Niessl (in Rehm, Hedw. 27: 172)
938. *Leptosphaeria vitalbae* Niessl (S F7511) // *Leptosphaeria vitalbae* Niessl (in Rehm, Hedw. 27: 172)⁵⁹

54 *Phyllachora dalbergiae* var. *macrasca* Sacc. (Syll. fung. 9: 1007, 1891)

55 São Leopoldo, Rio grande do Sul. Dr. Rick

56 Santos, São Paulo, Prof. Usteri

57 nomen nudum

58 nomen nudum

59 ? Leipzig. Bot. Tauschverein: [1], 1869

- 938b. *Leptosphaeria vitalbae* Niessl [fasc. 55] (BPI 621971) //
939. *Leptosphaeria libanotis* (Fuckel) Niessl (UPS F-671734) //
940. ? // *Leptosphaeria helminthospora* (Ces.) Ces. & De Not.
941. *Leptosphaeria culmorum* f. *hungarica* Rehm (**S F71004; S F71005; S F71006**⁶⁰) // ***Leptosphaeria culmorum* f. *hungarica*** Rehm (Hedw. 27: 173)
942. *Linospora ferruginea* Ellis & G. Martin (UPS F-671736) //
943. *Microthelia delitschii* Niessl (S F10895; **S F10896**⁶¹; S F10897; H; NY) // ***Microthelia delitschii*** Niessl (in Rehm, Hedw. 27: 173)⁶²
- 943b. *Massariopsis graminis* (Niessl) Rehm [fasc. 41] (BPI 618105) //
944. *Gnomonia spermogonioides* Rehm (**S F65718; S F65719; UPS F-671739**) // ***Gnomonia spermogonioides*** Rehm (Hedw. 27: 173)
945. *Podospora appendiculata* (Auersw.) (UPS F-670507) // *Sordaria neglecta* E. C. Hansen
946. *Sordaria lojkaeana* Rehm (**S F10547; S F10548; UPS F-670508**) // ***Sordaria lojkaeana*** Rehm (Hedw. 27: 173)
947. ? // *Sphaerulina myriadea* (DC.) Sacc.
948. *Laestadia punctoidea* (Cooke) Auersw. (UPS F-671740) //
949. ? // *Stigmatea confertissima* Fuckel
- 949b. *Stigmatea confertissima* Fuckel [fasc. 32] (S F107763; S F107769; BPI 610511; CUP-F-2249; MICH 304612) //
950. *Lophiostoma rubidum* Sacc., E. Bommer & M. Rousseau (UPS F-671741) //
951. *Helotium schimperii* Navashin (UPS F-671742) //
952. *Velutaria polytrichi* Rehm (**S F5759; S F9013; UPS F-671743**) // ***Velutaria polytrichi*** Rehm (Hedw. 28: 348)
953. *Pezizella subglacialis* Rehm (**S F9673; S F9674; S F9675; NY 01168150**) // ***Pezizella subglacialis*** Rehm (Hedw. 28: 348)
954. *Mollisia cinerea* var. *grisella* f. *polygonati* Rehm (**S F76081; S F76083; UPS F-671744**) // ***Mollisia cinerea* var. *grisella* f. *polygonati*** Rehm (Hedw. 28: 348)
955. *Lachnum juncicolum* (Fuckel) Rehm (S F160064; S F160065; S F160066) // *Lachnum juncicolum* (Fuckel) Rehm (Hedw. 28: 349, *Dasyscypha* j.)
956. *Pragmopora amphibola* A. Massal. (UPS F-671746) //

60 Slovakia, Prešov

61 lectotype [holotype] designated by Aptroot (Stud. Mycol. 37, 1995)

62 replacement name for *Delitschia graminis* Niessl (Verh. nat. Ver. Brünn 14: 208, 1876)

957. *Tympanis alnea* (Pers.) Fr. (UPS F-671747) // 957b. *Tympanis alnea* (Pers.) Fr. [fasc. 52] (BPI 665290) //
958. ? // *Heterosphaeria patella* (Tode) Grev.
- 958b. *Heterosphaeria patella* [fasc. ?] (BPI 674441) // ?
959. *Karschia sabiniae* (UPS F-671748) // *Caldesia sabinia* (De Not.) Rehm (Hedw. 28: 350, *Triblidium* s.)
960. ? // *Briardia purpurascens* Rehm
- 960b. *Hysteropeziza purpurascens* Rehm [fasc. 40] (BPI-Rehm; BPI 674736; MICH 316693) //
961. *Stictis sesleriae* Lib. (UPS F-671749) //
962. ? // *Dothiora sorbi* (Wahlenb.) Fuckel
963. ? // *Saccobolus depauperatus* (Berk. & Broome)
964. ? // *Saccobolus kerverni* (Crouan) Boud.
965. *Saccobolus beckii* Heimerl (**S F7264**) // *Saccobolus beckii* Heimerl (Jahresber. Ober-Realsch. Bez. Sechshaus Wien 15: 18, 1889)
966. *Ascophanus modestus* Heimerl⁶³ (S F7330; S F182428) // *Ascophanus lacteus* Cooke
967. *Thelebolus stercoreus* Tode (S F190898; S F190899) //
968. *Glonium graphicum* (Fr.) Duby (UPS F-671750) //
969. *Lophodermium melaleucum* (Fr.) De Not. (UPS F-671751) //
970. ? // *Exoascus borealis* (Johanson) Tubeuf
971. *Hydnotria tulasnei* Berk. & Broome (S F121150; UPS F-671752) //
972. *Claviceps microcephala* f. *molinae* (UPS F-671753) // ⁶⁴
973. ? // *Claviceps purpurea* f. *secalis* (Hedw. 27: 352)
- 973b. *Claviceps purpurea* f. *secalis* [fasc. 35] (BPI 634292; UPS F-671754) //
- 973c. *Claviceps purpurea* (Fr.) Tul. [fasc. 50] (BPI 634291; UPS F-695223) //
974. *Nectria henningsii* Rehm (**S F10157; S F10158; UPS F-671755**) // ***Nectria henningsii*** Rehm (Hedw. 28: 352)
975. *Scirrha agrostidis* (Fuckel) G. Winter (UPS F-671756) //
976. *Eutypa velutina* (Wallr.) Sacc. (S F263759; S F263760; S F263761) //
977. *Nummularia bulliardii* f. *tiliae* Rehm (**S F440; S F442; BPI 738882; UPS F-671757**) // ***Nummularia bulliardii* f. *tiliae*** Rehm (Hedw. 27: 353)

63 nomen nudum

64 nomen nudum

978. *Melogramma ferrugineum* (Pers.) Ces. & De Not. (UPS F-671758) //
979. *Diaporthe crassiuscula* Sacc. & Bizz. (UPS F-671759) //
980. *Diaporthe bloxami* (Cooke) Berl. & Volgino (UPS F-671760) //
981. *Diaporthe eres* Nitschke (UPS F-671762) //
982. *Diaporthe nidulans* Niessl (UPS F-671763) //
- 982b. *Diaporthe idaeicola* (P. Karst.) Vesterg. [fasc. 30] (S F143769; UPS F-670503; UPS F-672490) //
983. ? // *Nitschkia cupularis* (Pers.) P. Karst.
984. ? // *Leptosphaeria thalictri* G. Winter
985. *Leptosphaeria microscopica* f. *typhae* (UPS F-671765) // ⁶⁵
986. ? // *Leptosphaeria conferta* Niessl
987. *Zignoella arthopyrenioides* Rehm (**S F21993; UPS F-671764**) // ***Zignoella arthopyrenioides*** Rehm (Hedw. 28: 355)
988. *Sporormia ambigua* Niessl (BPI 622743; UPS F-671766) //
989. *Massaria inquinans* (Tode) Fr. (UPS F-671767) //
990. *Massariella curreyi* (Tul.) Sacc. (UPS F-671768) //
991. *Chaetomium fimeti* Fuckel (UPS F-671769) //
992. *Hypocrea equorum* var. *leporina* Niessl (**S F10544; S F10545; UPS F-670506**) // ***Hypocopa equorum* f. *leporina*** Niessl (in Rehm, Hedw. 28: 356)
993. *Rosellinia abscondita* Rehm (**S F7420; S F7421; UPS F-671770**) // ***Rosellinia abscondita*** Rehm (Hedw. 28: 356)
994. *Clypeosphaeria hyperici* Plowr. & W. Phillips (UPS F-671772) //
995. *Melanopsamma ruborum* (Lib.) Sacc. (UPS F-671773) //
996. *Herpotrichia nigra* Hartig (UPS F-671774) //
- 996b. *Herpotrichia nigra* Hartig [fasc. 24] (BPI 624414; UPS F-670504; UPS F-672491; CUP F-0857; MICH 305025) // ⁶⁶
997. *Sphaerella mariae* Sacc. & E. Bommer (S F80408; S F80409; UPS F-671775) //
998. *Sphaerella patouillardii* Sacc. (S F82281; S F82282; UPS F-671776) //
999. *Zopfia rhizophila* Rabenh. (S F256945; S F256948; UPS F-671777) // 1000. ? // *Asterina himantia* (Pers.) Sacc.

65 nomen nudum

66 in the list for fasc. 37 as *Enchnosphaeria nigra* (R. Hartig) Berl. (Achensee, Tirol, Dr. Rehm)

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Hypholoma lateritium, Slovakia, Veporské vrchy Mts., Vrch Dobroč locality, 8 October 2007. Photo J. Pavlíková; see p. 5–17.



Nectria cinnabarina, Slovakia, Veporské vrchy Mts., Vrch Dobroč locality, 26 June 2008. Photo D. Blanár; see p. 5–17.



Vrch Dobroč locality, Veporské vrchy Mts., 51-years spruce stand,
26 February 2016. Photo E. Luptáková, see p. 5–17.