Lichenicolous and some interesting lichenized fungi from the Northern Ural, Komi Republic of Russia

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Abstract: ZHURBENKO, M. P. 2004. Lichenicolous and some interesting lichenized fungi from the Northern Ural, Komi Republic of Russia. – Herzogia **17**: 77–86.

Sixty-nine species of lichenicolous fungi and seven species of lichens are reported from the Pechora-Ilych Reserve at or near the Northern Ural. The following nineteen species of lichenicolous fungi are reported as new to Russia: *Abrothallus cetrariae, Cercidospora cladoniicola, Cercidospora exiguella, Cercidospora verrucosaria, Cornutispora lichenicola, Dacampia rufescentis, Dactylospora homoclinella, Epicladonia simplex, Everniicola flexispora, Lichenopeltella peltigericola, Lichenosticta alcicornaria, Lichenostigma elongata, Monodictys fuliginosa, Phaeopyxis punctum, Polycoccum peltigerae, Reconditella physconiarum, Rosellinula frustulosae, Sclerococcum simplex* and *Tremella nephromatis*. The lichenized fungus *Vezdaea rheocarpa* is new to Russia, and another six are new to the Komi Republic: *Acarospora putoranica, Buellia nivalis, Pertusaria cribellata, Psora elenkinii, Rinodina olivaceobrunnea* and *Steinia geophana.*

Zusammenfassung: ZHURBENKO, M. P. 2004. Lichenicole und einige interessante lichenisierte Pilze aus dem nördlichen Ural, Republik Komi, Russland. – Herzogia **17**: 77–86.

Neunundsechzig lichenicole und sieben lichenisierte Pilze werden aus dem Pechora-Ilych Reservat im Nordural gemeldet. Neunzehn lichenicole Pilze sind neu für Russland: *Abrothallus cetrariae, Cercidospora cladoniicola, Cercidospora exiguella, Cercidospora verrucosaria, Cornutispora lichenicola, Dacampia rufescentis, Dactylospora homoclinella, Epicladonia simplex, Everniicola flexispora, Lichenopeltella peltigericola, Lichenosticta alcicornaria, Lichenostigma elongata, Monodictys fuliginosa, Phaeopyxis punctum, Polycoccum peltigerae, Reconditella physconiarum, Rosellinula frustulosae, Sclerococcum simplex* und *Tremella nephromatis.* Der lichenisierte Pilz *Vezdaea rheocarpa* ist neu für Russland, sechs weitere Arten sind neu für die Republik Komi: *Acarospora putoranica, Buellia nivalis, Pertusaria cribellata, Psora elenkinii, Rinodina olivaceobrunnea* und *Steinia geophana.*

Key words: Lichenized and lichenicolous Ascomycota, lichenicolous Basidiomycota, biodiversity.

Introduction

This paper continues the series dealing with the lichenicolous fungi of Russia (ZHURBENKO & SANTESSON 1996, DIEDERICH & ZHURBENKO 1997, ZHURBENKO 1998, KARATYGIN et al. 1999, ZHURBENKO & HAFELLNER 1999, ZHURBENKO 2000, ZHURBENKO & DAVYDOV 2000, DIEDERICH & ZHURBENKO 2001, ZHURBENKO 2001, ZHURBENKO & OTNYUKOVA 2001, ZHURBENKO & POSPELOVA 2001, ZHURBENKO 2002a, b, c, ZHURBENKO & HIMELBRANT 2003 ("2002"), ZHURBENKO et al. 2002, ZHURBENKO & TRIEBEL 2003). It presents data on 69 species of lichenicolous fungi in 45 genera. Thus the currently known diversity of lichenicolous fungi of Russia is about 200 species in 80 genera. Seven species of lichenized fungi are recorded from the area which are not included in the preliminary list of lichens of Komi Republic (HERMANSSON et al. 1998).

Material and Methods

The present study is based on the results of the author's field trip in 1997 to the Pechora-Ilych Biosphere Reserve, located at or near the Northern Ural Mountains in Komi Republic of Russia. The coordinates and altitudes were taken by GPS.

The material was examined using standard microscopic techniques. External morphology was studied with a dissecting LOMO Stereomicroscope MBS-1, anatomy - with LOMO MBR-3 light microscope (to ×1250). Microscopic characters were studied using hand-made sections or squash preparations. The material was examined in water and sometimes additionally in 10 % KOH (K), 1 % iodine-potassium iodide (Lugol's iodine), with and without pretreatment with KOH, 1 % Brilliant Cresyl blue, and erythrosin B-ammonia solution (0.5 g erythrosin B in 100 ml 10 % aqueous NH_3). Microscopic measurements refer to dimensions in water, unless otherwise stated.

The cited specimens are deposited in the herbarium of the Komarov Botanical Institute in St.-Petersburg (LE), unless otherwise indicated.

Study area

The collection sites are located at the headwaters of Pechora River, along a transect from the hilly plane (alt. 160 m) with coniferous taiga forests to upper levels of Northern Ural mountains (alt. 800 m) with tundra vegetation (fig. 1). The climate is continental, characterized by long and severe winters and cool summers. Even at the lowest altitudes just 90 days per year have mean temperatures above +10 °C, and 190 days have mean temperatures below 0 °C. At the altitudes above 500 m, the annual period with positive mean daily temperatures is less then 150 days. The absolute extremes recorded are –57.6 °C and +32 °C (LAVRENKO et al. 1995). The mean annual amount of precipitation is 500–600 mm at the Pechora lowland, and 800–1000 mm in the mountains. Snow cover lasts 7–8 months per year.

The vegetation strongly reflects a vertical zonation caused by the mountainous terrain. Taiga forests dominated by *Picea obovata* (vascular plant nomenclature follows LAVRENKO et al. 1995) associated with *Abies sibirica* and *Pinus sibirica* are most common in the lower areas. Higher elevations are occupied by sparse forests with *Betula pubescens*, subalpine meadows and willow thickets (mainly with *Salix lanata* and *S. glauca*), mountain tundras and stone fields mostly inhabited by lichens and bryophytes. It is noteworthy that the lichen diversity of the mountain tundras is poor in comparision to their Arctic counterparts.

Collection sites

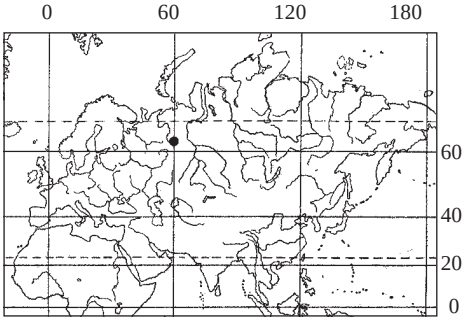

Fig. 1: Location of the study area

Russia, Komi Republic, Troitsko-Pechorskii Region, Pechora-Ilych State Reserve, headwaters of the Pechora River (Northern Ural):

1: near Sobinskoe cabin, 61º59'N, 58°02'E, alt. 160 m, taiga forest, 11.VII.1997.
2: 6 km NE of Sobinskoe cabin, 62°02'N, 58°05'E, alt. 180 m, taiga forest, 10. VII. 1997.
3: near Shezhim cabin at junction of Pechora and Shezhim Rivers, 62°05'N, 58°25'E, alt. 170–200 m, taiga forest, 7., 8., 9.VII.1997.
4: Iordanskogo ravine at 17 km SE of Shezhim cabin, 62°01'N, 58°39'E, alt. 250 m, taiga forest, 28.VI.1997.
5: Yany-Pupu-Ner Range, unnamed mountain "981", 62°05'N, 59°06'E, alt. 500–600 m, subalpine vegetation, 30.VI., 5.VII.1997.
6: same locality, alt. 800 m, mountain tundra, 30.VI., 3.VII.1997.
7: Yany-Pupu-Ner Range, Zayachii Kamen' Mt., 62°01'N, 59°06'E, alt. 650 m, mountain tundra, 2., 3.VII.1997.
8: valley between Yany-Pupu-Ner Range and Medvezhii Kamen' Mt., 62°04'N, 59°08'E, alt. 500 m, taiga forest, 4.VII.1997.
9: foot of Medvezhii Kamen' Mt., 62°04'N, 59°05'E, alt. 500 m, taiga forest, 2.VII.1997.
10: top of Medvezhii Kamen' Mt., 62°04'N, 59°05'E, alt. 650–700 m, mountain tundra, 2.VII.1997.
11: top of Medvezhii Kamen' Mt., 62°03'N, 59°03'E, alt. 700 m, mountain tundra, 2.VII.1997.

Results and Discussion

Abbreviation: M. Z. = Mikhail Zhurbenko. Lichens are indicated by asterisks, species denoted by "#" are new to Russia. Known distribution of lichenicolous fungi in Russia is derived from the literature given in the introduction.

#Abrothallus cetrariae C.Kotte

9: mixed *Picea-Abies-Betula-Sorbus* forest, on *Platismatia glauca* (thallus: gall-like swellings), M. Z. 97228.

Abrothallus parmeliarum (Sommerf.) Arnold

5: rocks by a creek, on *Parmelia saxatilis*, M. Z. 97216.
Known distribution in Russia: Karelia, Leningrad Region, Polar and Northern Urals, Putorana Plateau, Eastern Sayan, Tuva, Altai.

****Acarospora putoranica*** N.S.Golubk. & Zhurb.

11: in crevices of diabase rocks, M. Z. 97151.
Known distribution in Russia: Northern Ural, Taimyr Peninsula (M. Z. 95167, Lichenotheca Graecensis, Fasc. 9, No. 161; OBERMAYER 2001), Putorana Plateau (GOLUBKOVA & ZHURBENKO 1990).

Arthonia excentrica Th.Fr.

5: rocks by a creek, on *Lepraria* sp. (thallus), M. Z. 97222.
Known distribution in Russia: Franz Josef Land, Northern Ural, Severnaya Zemlya, Taimyr Peninsula.

****Buellia nivalis*** (Bagl. & Carestia) Hertel

8: diabase pillars in *Abies* forest, on *Xanthoria elegans* (thallus), M. Z. 97165.
Known distribution in Russia: Franz Josef Land, Northern Ural, Taimyr Peninsula.

#Capronia cf. ***peltigerae*** (Fuckel) D.Hawksw.

5: rocks by a creek, on *Peltigera rufescens* (thallus: bleached portions), M. Z. 97282.
Ascospores hyaline to occasionally pale grey-brown, oval to fusiform, symmetric or not, straight or occasionally slightly curved, apices acute or rounded, guttulate, (1–)3(–4)-septate, wall smooth to finely verruculose, (12–)15–19.5 × 4.5–6.5 µm (n=37). According to HAWKSWORTH (1980: 371) ascospores of *Capronia peltigerae* are hyaline, ellipsoid, with rounded apices, 1–3-septate, smooth-walled, and somewhat bigger, viz. 19–24 × 6–8 µm.

#Cercidospora cladoniicola Alstrup

6: moss-lichen-dwarf-shrub tundra, on *Cladonia portentosa* (old podetia), M. Z. 97244.

#Cercidospora exiguella (Nyl.) Arnold

5: boulder field, on *Rinodina mniaraea* var. *cinnamomea* (mostly thallus, occasionally apothecia), M. Z. 97226; rocks by a creek, on *R. m.* var. *cinnamomea* (thallus), M. Z. 97208; on *R. m.* var. *mniaraea*

(thallus), M. Z. 97189. - **11**: diabase rocks, on *R. m.* var. *cinnamomea* (thallus), M. Z. 97227.
Ascospores colorless, 1-septate, 13.5–27 x 4.5–6.5 µm (n=42). VOUAUX (1913: 89) reported ascospores of this species being 21–27 × 6–8 µm.

Cercidospora lichenicola (Zopf) Hafellner

6: moss-lichen-dwarf-shrub tundra, on *Solorina crocea* (thallus), M. Z. 97177, 97174; on *Peltigera malacea* (thallus: bleached portions), M. Z. 97268.
Known distribution in Russia: Franz Josef Land, Kola Peninsula, Northern Ural, Taimyr Peninsula, Vize Island, Chukchi Peninsula.

#Cercidospora verrucosaria (Linds.) Arnold

5: rocks by a creek, on *Megaspora verrucosa* (thallus and thalline margin of apothecia), M. Z. 97167.

#Cornutispora lichenicola D.Hawksw. & B.Sutton

9: mixed *Picea-Abies-Betula-Sorbus* forest, on *Melanelia olivacea* (apothecia: hymenium), M. Z. 97216.

Corticifraga peltigerae (Nyl.) D.Hawksw. & R.Sant.

3: calcareous rocks by the river bank, on *Peltigera rufescens* (thallus), M. Z. 97258. – **5:** rocks by a creek, on *P. rufescens* (thallus), M. Z. 97289. – **8**: diabase pillars in *Abies* forest, on *P. scabrosa* (thallus), M. Z. 97271.
Known distribution in Russia: Franz Josef Land, Kola Peninsula, Karelia, Polar and Northern Urals, Taimyr Peninsula, Altai, Arctic Yakutiya.

Dacampia engeliana (Saut.) A.Massal.

3: calcareous rocks in *Picea* forest, on *Solorina saccata* (thallus), abundant, M. Z. 97281, 9782 (distributed in Microfungi exsiccati as no. 460; TRIEBEL 2003).
Known distribution in Russia: Northern Ural, Putorana Plateau.

#Dacampia rufescentis (Vouaux) D.Hawksw.

1: forested calcareous rocks by the river bank, on *Peltigera rufescens* (thallus), M. Z. 97252.

Dactylospora attendenda (Nyl.) Arnold

8: huge diabase pillars in *Abies* forest, on *Pilophorus cereolus* (thallus), M. Z. 97166.
Known distribution in Russia: Northern Ural, Taimyr Peninsula, Putorana Plateau, Chukchi Peninsula.

Dactylospora deminuta (Th.Fr.) Triebel

11: diabase rocks, on *Psora globifera* (thallus), M. Z. 97285.
Psora is a new host genus for the species (TRIEBEL 1989: 210).
Known distribution in Russia: Franz Josef Land, Polar and Northern Urals, Taimyr Peninsula, Putorana Plateau, New Siberian Islands, Chukchi Peninsula.

Dactylospora glaucomarioides (Tuck.) Hafellner

5: rocks by a creek, on *Ochrolechia upsaliensis* (mostly thallus, occasionally apothecia), M. Z. 97209. – **11**: diabase rocks, on *Megaspora verrucosa* (apothecia, thallus), M. Z. 97207.
Known distribution in Russia: Northern Ural, Taimyr Peninsula, Putorana Plateau.

#Dactylospora homoclinella (Nyl.) Hafellner

8: diabase pillars in *Abies* forest, on *Lecanora campestris* (thallus), M. Z. 97202.

Dactylospora cf. ***lobariella*** (Nyl.) Hafellner

2: mixed *Picea* forest, on *Lobaria pulmonaria* (thallus), growing on old-growth *Populus*, M. Z. 97197. – **9**: mixed *Picea-Abies-Betula-Sorbus* forest, on *L. pulmonaria* (thallus), M. Z. 97200.
Ascospores 8.5–13 × 4.5–6.5 µm (n=24). HAFELLNER (1979: 119) reported ascospores of this species being 12–14.0–17 × 4.5–5.2–6.5 µm.
Known distribution in Russia: Northern Ural, Altai.

Dactylospora pertusariicola (Tuck.) Hafellner

10: moss-lichen-dwarf-shrub tundra with stone field, on *Pertusaria cribellata* (thallus, occasionally apothecia) growing on scree and stones, abundant, M. Z. 9784 (distributed in the Microfungi exsiccati as no. 461; TRIEBEL 2003).
Known distribution in Russia: Polar and Northern Urals, Taimyr Peninsula.

Dactylospora saxatilis (Schaer.) Hafellner var. ***saxatilis***

11: diabase rocks, on *Pertusaria globulata* (thallus), M. Z. 97211.
Known distribution in Russia: Leningrad Region, Northern Ural, Taimyr Peninsula.

"***Echinothecium cladoniae*** Keissl."

6: moss-lichen-dwarf-shrub tundra, on *Cladonia portentosa* and *C. uncialis* (podetia), M. Z. 97242, 97241.

Known distribution in Russia: Kola Peninsula, Karelia, Northern Ural.

Endococcus nanellus Ohlert

6: moss-lichen-dwarf-shrub tundra, on *Stereocaulon saxatile* (phyllocladia), M. Z. 9774.

Known distribution in Russia: Kola Peninsula, Karelia, Northern Ural, Malyi Yamal Peninsula, Putorana Plateau, Baikal Lake Region, Yakutiya.

Epibryon conductrix (Norman) Nik.Hoffm. & Hafellner – Syn. *Stigmidium catapyrenii* Cl.Roux & Triebel

5: rocks by a creek, on *Catapyrenium* sp. (thallus), M. Z. 97169.

Known distribution in Russia: Northern Ural, Putorana Plateau.

Epicladonia sandstedei (Zopf) D.Hawksw.

5: rocks by a creek, on *Cladonia pocillum* (galls on basal squamules and podetia), M. Z. 97232. – **6:** moss-lichen-dwarf-shrub tundra, on *C. gracilis* (galls on podetia), M. Z. 97237. – **7**: diabase rocks, on *C. pyxidata* (galls on basal squamules), M. Z. 97231. – **9**: mixed *Picea-Abies-Betula-Sorbus* forest, on *Cladonia* sp. (galls on basal squamules and podetia), M. Z. 97233.

Known distribution in Russia: Karelia, Northern Ural, Taimyr Peninsula.

#Epicladonia simplex D.Hawksw.

5: boulder field, on *Cladonia coccifera* (gall-like swellings of basal squamules), M. Z. 97235. – **6**: moss-lichen-dwarf-shrub tundra, on *C. cenotea* (basal squamules), M. Z. 97247.

#Everniicola flexispora D.Hawksw.

8: diabase pillars in *Abies* forest, on *Nephroma arcticum* (thallus), growing over rocks, abundant, M. Z. 9786 (distributed in the Microfungi exsiccati as no. 538; TRIEBEL 2003). – **11**: diabase rocks, on *N. arcticum* (thallus), M. Z. 97215.

Graphium aphthosae Alstrup & D.Hawksw.

3: calcareous rocks in *Picea* forest, on *Peltigera leucophlebia* (decaying thallus), M. Z. 97275. – **8**: diabase pillars in *Abies* forest, on *P. leucophlebia* (decaying thallus), M. Z. 97269.

Known distribution in Russia: Franz Josef Land, Northern Ural, Altai, Yakutiya.

Illosporium carneum Fr.

3: mixed taiga forest, on *Peltigera didactyla* (thallus), growing on *Salix* stem, J. Hermansson s. n.

Known distribution in Russia: Karelia, Novaya Zemlya, Northern Ural, Taimyr Peninsula, Altai.

Lettauia cladoniicola D.Hawksw. & R.Sant.

6: moss-lichen-dwarf-shrub tundra, on *Cladonia gracilis* and *C. portentosa* (old podetia), M. Z. 97290, 97243.

Known distribution in Russia: Northern Ural, Putorana Plateau.

Lichenoconium erodens M.S.Christ. & D.Hawksw.

10: moss-lichen-dwarf-shrub tundra, on *Cladonia stygia* (old podetia), M. Z. 97246.

Known distribution in Russia: Franz Josef Land, Karelia, Northern Ural, Altai.

Lichenoconium lecanorae (Jaap) D.Hawksw.

5: rocks by a creek, on *Brodoa intestiniformis* (apothecia: hymenium), M. Z. 97183; on *Bryonora castanea* (apothecia: mostly disks, occasionally margins), M. Z. 97164. – **11**: diabase rocks, on *Melanelia olivacea* (apothecia: hymenium), M. Z. 97218.

Known distribution in Russia: Franz Josef Land, Karelia, Polar and Northern Urals, Taimyr Peninsula, Putorana Plateau.

#Lichenopeltella peltigericola (D.Hawksw.) R.Sant.

5: rocks by a creek, on *Peltigera rufescens* (thallus: upper surface), M. Z. 97283.

#Lichenosticta alcicornaria (Linds.) D.Hawksw.

10: moss-lichen-dwarf-shrub tundra, on *Cladonia subcervicornis* (podetia, underside of basal squamules), M. Z. 97245.

#Lichenostigma elongata Nav.-Ros. & Hafellner

5: rocks by a creek, on *Lobothallia alphoplaca* (apothecia, thallus), M. Z. 97181.

Known distribution in Russia: Northern Ural.

Lichenostigma rugosa G.Thor

5: rocks by a creek, on *Diploschistes scruposus* (thallus), M. Z. 97163, 97161.

Known distribution in Russia: Northern Ural, Altai, Chukchi Peninsula.

#Monodictys fuliginosa Etayo

8: diabase pillars in *Abies* forest, on *Lobaria pulmonaria* (thallus), M. Z. 97193.

Muellerella pygmaea (Körb.) D.Hawksw. var. ***athallina*** (Müll.Arg.) Triebel

5: boulder field, on *Lecanora polytropa* (mostly thallus, occasionally apothecia), M. Z. 97201. – **11**: diabase rocks, on *L. polytropa* (mostly apothecia, occasionally thallus), M. Z. 97204.

Known distribution in Russia: Karelia, Polar and Northern Urals.

Muellerella pygmaea var. ***ventosicola*** (Mudd) Triebel

11: diabase rocks, on *Ophioparma ventosa* var. *ventosa* (apothecia, thallus), M. Z. 97170.

TRIEBEL (1989: 174) reported perithecia of the fungus growing only on the host thallus.

Known distribution in Russia: Karelia, Polar and Northern Urals, Altai.

Nectriopsis lecanodes (Ces.) Diederich & Schroers

1: forested calcareous rocks by the river bank, on *Peltigera aphthosa* (old thallus: upper and occasionally lower surfaces), M. Z. 97249. – **2:** mixed *Picea* forest with old-growth *Populus*, on *P. membranacea* (old thallus: upper surface), M. Z. 97249. – **3**: calcareous rocks in *Picea* forest, on *P. leucophlebia* (decaying thallus: mostly upper, occasionally lower surfaces), M. Z. 97274.

Known distribution in Russia: Northern Ural, Tuva, Altai.

Neolamya peltigerae (Mont.) Theiss. & Syd.

8: diabase pillars in *Abies* forest, on *Peltigera didactyla* (thallus), M. Z. 97254.

Known distribution in Russia: Northern Ural, Putorana Plateau, Tuva, Altai.

****Pertusaria cribellata*** Branth

10: moss-lichen-dwarf-shrub mountain tundra with stone fields, on scree and stones, abundant, M. Z. 9785 (M).

Known distribution in Russia: sporadically reported from the Arctic and boreal regions (ANDREEV et al. 1996, ZHURBENKO 1996).

Phacopsis cephalodioides (Nyl.) Triebel & Rambold

9: mixed *Picea-Abies-Betula-Sorbus* forest, on *Hypogymnia physodes* (thallus), M. Z. 97182, confirm. P. Diederich, 2001.

Known distribution in Russia: Karelia, Northern Ural, Tuva.

Phacopsis oxyspora (Tul.) Triebel & Rambold

5: rocks by a creek, on *Parmelia fraudans* (Nyl.) Nyl. (thallus: gall-like outgrowths), M. Z. 97219.

Known distribution in Russia: Karelia, Leningrad Region, Northern Ural, Putorana Plateau, Eastern Sayan, Tuva, Altai.

#Phaeopyxis punctum (A.Massal.) Rambold, Triebel & Coppins

2: *Picea* forest with old-growth *Populus*, on *Cladonia parasitica* (upper surface of basal squamules), M. Z. 97236, rev. P. Diederich, 2001. – **6**: moss-lichen-dwarf-shrub tundra, on *C. uncialis* (podetia), M. Z. 97239. – **8**: *Abies* forest, on *C. parasitica* (upper surface of basal squamules), J. Hermansson, rev. P. Diederich, 2001.

Phaeospora peltigericola D.Hawksw.

3: calcareous rocks in *Picea* forest, on *Peltigera leucophlebia* (decaying thallus, cephalodia), M. Z. 97276.

Known distribution in Russia: Northern Ural, Putorana Plateau, Altai.

Phaeosporobolus alpinus R.Sant., Alstrup & D.Hawksw.

5: rocks by a creek, on terricolous *Ochrolechia* sp. (thallus), M. Z. 97291. – **11**: diabase rocks, on *Pertusaria dactylina* (thallus), M. Z. 97205.

Known distribution in Russia: Franz Josef Land, Kola Peninsula, Karelia, Polar and Northern Urals, Severnaya Zemlya, Taimyr Peninsula, Putorana Plateau.

Phaeosporobolus usneae D.Hawksw. & Hafellner

5: rocks by a creek, on *Evernia mesomorpha* (thallus), M. Z. 97168.

Known distribution in Russia: Northern Ural, Taimyr Peninsula, Tuva, Altai.

Plectocarpon lichenum (Sommerf.) D.Hawksw.

2: mixed *Picea* forest, on *Lobaria pulmonaria* (thallus), growing on old-growth *Populus*, M. Z. 97195. – **9**: mixed *Picea-Abies-Betula-Sorbus* forest, on *L. pulmonaria* (thallus), M. Z. 97198.

Known distribution in Russia: Northern Ural, Altai.

Plectocarpon peltigerae Zhurb. et al.

1: forested calcareous rocks by the river bank, on *Peltigera leucophlebia* (old thallus), M. Z. 97253. This species is described in ERTZ et al. (2003).

Known distribution in Russia: Karelia, Northern Ural.

#Polycoccum peltigerae (Fuckel) Vězda

3: calcareous rocks in *Picea* forest, on *Peltigera rufescens* (thallus: brownish swellings of the upper surface), M. Z. 97273.

Polycoccum trypethelioides (Th.Fr.) R.Sant.

6: moss-lichen-dwarf-shrub tundra, on *Stereocaulon paschale* (stem), M. Z. 9773.

Known distribution in Russia: Kola Peninsula, Karelia, Polar and Northern Urals, Severnaya Zemlya, Taimyr Peninsula, Putorana Plateau, Yakutiya, Chukchi Peninsula, Sakhalin Island.

Pronectria erythrinella (Nyl.) Lowen

5: rocks by a creek, on *Peltigera didactyla* (thallus), M. Z. 97262.

Known distribution in Russia: Karelia (ROSSMAN et al. 1999), Northern Ural.

Pronectria robergei (Mont. & Desm.) Lowen

2: *Picea* forest with old-growth *Populus*, on *Peltigera praetextata* (thallus, occasionally apothecia), M. Z. 97264. – **3**: calcareous rocks in *Picea* forest, on *P. horizontalis* (thallus), M. Z. 97280; on *P. leucophlebia* (thallus), M. Z. 97279.

Known distribution in Russia: Northern Ural, Altai, Baikal Lake Region.

Protothelenella santessonii H.Mayrhofer

5: rocks by a creek, on *Cladonia pocillum* (basal squamules), M. Z. 97234.

Known distribution in Russia: Northern Ural, Putorana Plateau, Altai.

****Psora elenkinii*** Rass.

3: calcareous rocks in *Picea* forest, on rock or soil deposits in rock crevices, M. Z. 97295. – **4**: calcareous cliffs in *Picea* forest, on rock, abundant, M. Z. 9780. – **5**: diabase rocks, on rock or soil deposits in rock crevices, M. Z. 97294. – **11**: diabase rocks, on rock or soil deposits in rock crevices, M. Z. 97153. *Psora elenkinii* was reduced to synonymy with *Psora himalayana* (Church. Bab.) Timdal (TIMDAL 1986). However it is clearly distinguished macroscopically from the latter by its squamules, which are tightly and regularly arranged like tiles and have a persistent and conspicuous white marginal rim.

Known distribution in Russia: Northern Ural, Baikal Region (SCHNEIDER 1979), Tuva (SEDEL'NIKOVA 1985), Central Yakutiya (ZHURBENKO 2003), Chukotka (unpublished data of M. Z.).

Pyrenidium actinellum Nyl. s. lat.

6: moss-lichen-dwarf-shrub tundra, on *Baeomyces placophyllus* (thallus), M. Z. 97163; on *Solorina crocea* (thallus), M. Z. 97175.

Known distribution in Russia: Franz Josef Land, Northern Ural, Taimyr Peninsula, Altai.

Raciborskiomyces peltigericola (D.Hawksw.) M.E.Barr – Syn. *Wentiomyces peltigericola* D.Hawksw.

8: diabase pillars in *Abies* forest, on *Peltigera aphthosa* (decaying thallus), M. Z. 97270.

Known distribution in Russia: Kola Peninsula, Northern Ural, Taimyr Peninsula, Altai.

#Reconditella physconiarum Hafellner & Matzer

11: diabase rocks, on *Physconia muscigena* (thallus), M. Z. 97230.

According to MATZER & HAFELLNER (1990) the fungus was known from *Physconia distorta* and *P. venusta*, thus *P. muscigena* is probably a new host.

Rhagadostoma lichenicola (De Not.) Keissl.

6: moss-lichen-dwarf-shrub tundra, on *Solorina crocea* (thallus), M. Z. 97176, 97173.

Known distribution in Russia: Kola Peninsula, Northern Ural, Chukchi Peninsula.

Rhymbocarpus neglectus (Vain.) Diederich & Etayo

5: rocks by a creek in subalpine belt, on *Lepraria* sp. (thallus), M. Z. 97223. – **11**, diabase rocks in alpine belt, on *Lepraria* sp. (thallus), M. Z. 97225.

Known distribution in Russia: Northern Ural, Severnaya Zemlya, Taimyr Peninsula, Putorana Plateau.

Rinodina olivaceobrunnea C.W.Dodge & G.E.Baker – Syn. *R. sorediicola* Degel.
5: rocks by a creek, on *Lobaria scrobiculata* (thallus: mostly soredia), M. Z. 97192.
Known distribution in Russia: sporadically reported from the Arctic and boreal regions (ANDREEV et al. 1996, ZHURBENKO 1996).
#Rosellinula frustulosae (Vouaux) R.Sant.
11: diabase rocks, on *Lecanora argopholis* (thallus), M. Z. 97203.
#Sclerococcum simplex D.Hawksw.
11: diabase rocks, on *Pertusaria dactylina* (thallus), M. Z. 97206.
Pertusaria dactylina is a new host for the species (HAWKSWORTH 1979: 249).
Scutula epiblastematica (Wallr.) Rehm
3: calcareous rocks by the river bank, on *Peltigera rufescens* (thallus: mostly upper, occasionally lower surfaces), M. Z. 97259.
Known distribution in Russia: Northern Ural, Altai.
Scutula stereocaulorum (Anzi) Körb.
6: moss-lichen-dwarf-shrub tundra, on *Stereocaulon saxatile* (phyllocladia), M. Z. 9772, 9771.
Known distribution in Russia: Franz Josef Land, Kola Peninsula, Karelia, Bol'shezemel'skaya Tundra, Novaya Zemlya, Polar and Northern Urals, Gydan Peninsula, Severnaya Zemlya, Izvestii TsIK Archipelago, Taimyr Peninsula, Putorana Plateau, Arctic Yakutiya, New Siberian Islands, Chukchi Peninsula.
Sphaerellothecium minutum Hafellner
6: moss-lichen-dwarf-shrub tundra, on *Sphaerophorus fragilis* (thallus), M. Z. 97158, 97160. – **7**: rock outcrops, on *S. fragilis* (thallus), M. Z. 97159.
Known distribution in Russia: Franz Josef Land, Karelia, Northern Ural, Taimyr Peninsula, Putorana Plateau, Altai.
****Steinia geophana*** (Nyl.) B.Stein
3: calcareous rocks in *Picea* forest, on *Peltigera leucophlebia* (decaying thallus), M. Z. 97277.
Known distribution in Russia: Karelia (FADEEVA et al. 1997), Leningrad Region (ZAVARZIN et al. 1999), Northern Ural, Taimyr Peninsula (PIIN & MARTIN 1978).
Stigmidium cerinae Cl.Roux & Triebel
5: rocks by a creek, on *Caloplaca cerina* (apothecia: mostly hymenium, occasionally thalline margins), M. Z. 97187. – **11:** diabase rocks, on *C. cerina* (apothecia: hymenium), M. Z. 97190.
Known distribution in Russia: Northern Ural, Taimyr Peninsula.
Stigmidium peltideae (Vain.) R.Sant.
3: calcareous rocks in *Picea* forest, on *Peltigera rufescens* (decaying thallus), M. Z. 97272. – **11:** diabase rocks, on *P. elisabethae* (old thallus), M. Z. 97263.
Known distribution in Russia: Franz Josef Land, Karelia, Northern Ural, Taimyr Peninsula, Altai, Chukchi Peninsula.
Stigmidium pumilum (Lettau) Matzer & Hafellner
5: rocks by a creek, on *Physcia caesia* (thallus), M. Z. 97229.
Known distribution in Russia: Karelia, Polar and Northern Urals.
Stigmidium solorinarium (Vain.) D.Hawksw.
8: diabase pillars in *Abies* forest, on *Solorina saccata* (thallus), M. Z. 97180.
Known distribution in Russia: Kola Peninsula, Karelia, Northern Ural, Taimyr Peninsula, Chukchi Peninsula.
Thelocarpon epibolum Nyl. f. ***longisporum*** H.Magn. (nom. inval.)
5: rocks by a creek, on *Peltigera leucophlebia* (decaying thallus), M. Z. 97261. – **8**: diabase pillars in *Abies* forest, on *P. leucophlebia* (decaying thallus), M. Z. 97292.
Known distribution in Russia: Northern Ural, Altai.
#Tremella nephromatis Diederich
2: mixed *Picea* forest, on *Nephroma parile* var. *endoxantha* (thallus), growing on old-growth *Populus*, M. Z. 97213 (LE 210208, herb. Diederich), rev. P. Diederich, 2001.
#*Vezdaea rheocarpa Poelt & Döbbeler
3: calcareous rocks by the river bank, on *Peltigera rufescens* (old thallus), M. Z. 97257.

This is a rarely reported lichen, which usually grows on soil, mosses, mossy tree trunks, or moribund *Marchantia* thalli (POELT & DÖBBELER 1975: 347, PURVIS 1992: 644).

Zwackhiomyces berengerianus (Arnold) Grube & Triebel

3: calcareous rocks in *Picea* forest, on *Mycobilimbia carneoalbida* (apothecia, thallus), M. Z. 97185. Known distribution in Russia: Northern Ural, Taimyr Peninsula, Putorana Plateau.

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