

New records of lichens and allied fungi from the Leningrad Region, Russia. XIV

Dmitry E. Himelbrant, Irina S. Stepanchikova, Agata A. Rodionova, Anna S. Zueva,
Andrei Tsurykau^{1,2}, Iryna Bolsun¹, Ivan V. Frolov & Ekaterina S. Kuznetsova

¹Francisk Skorina Gomel State University, Gomel, Republic of Belarus

²Gomel State Medical University, Gomel, Republic of Belarus

E-mail: d_brant@mail.ru

Abstract: Seven lichen (including two “semilichen”) species, ten lichenicolous fungi and one related saprotrophic fungus were recorded for the first time in the Leningrad Region or Saint Petersburg. The lichen *Micarea myriocarpa* and the lichenicolous fungus *Tremella anapythiae* are new to Russia. The lichenicolous fungi *Arrhenia peltigerina* s. lat., *Cladosporium licheniphilum*, and *Unguiculariopsis lettaui* are new to European Russia. The species *Amandinea pelidna*, *Coppinsiella ulcerosa*, *Cryptodiscus foveolaris*, *Lichenopeltella ramalinae*, *Monodictys epicladonia*, *Reichlingia zwackhii*, *Stigmidium cladoniicola*, and *Zyzygomyces aipoliae* are new to North-Western European Russia.

Keywords: lichen diversity, crustose lichens, lichenicolous fungi, *Micarea myriocarpa*, *Tremella anapythiae*

INTRODUCTION

This article continues the series of publications on new and noteworthy findings of lichens and allied fungi from the Leningrad Region and St. Petersburg (see e.g., Kuznetsova et al., 2007; Stepanchikova et al., 2010; Himelbrant et al., 2022). Currently, the known lichen biota of the Leningrad Region (LR) and St. Petersburg comprises approximately 1230 species, including 1030 lichens, 165 lichenicolous fungi, and 34 allied saprobic fungi.

MATERIAL AND METHODS

The specimens of lichens and fungi were mainly collected by Dmitry E. Himelbrant, Irina S. Stepanchikova, Agata A. Rodionova, Anna S. Zueva, Ekaterina S. Kuznetsova, Eseniya A. Timofeeva, and Zhanna O. Zholobova in 2020–2025. The specimens are deposited in the lichen herbaria of St. Petersburg State University (LECB), Francisk Skorina Gomel State University (GSU), mycological herbarium of the Komarov Botanical Institute (LE F), or the private herbarium of I. Frolov (herb. Frolov). The photographs were taken by Agata A. Rodionova (Fig. 1, Fig. 2F) and Anna S. Zueva (Fig. 2: A–E, G) using an Olympus Tough TG-5 camera (Olympus, Japan)

(Fig. 1, F; Fig. 2: A), a Carl Zeiss Axioskop 40 light microscope (Carl Zeiss AG, Germany) with a QImaging Micro-Publisher 5.0 RTV camera (QImaging, Canada) (Fig. 2: C, E, G), and a Carl Zeiss STEMI-2000 CS dissecting microscope with an AxioCam 506 color camera (Carl Zeiss AG, Germany) (Fig. 2: B, D).

In the species list, brief diagnostic characteristics and distribution records in North-Western European Russia, Fennoscandia, and the Baltic countries are provided. The names of the main collectors and identifiers are abbreviated as follows: AR – Agata A. Rodionova, AT – Andrei Tsurykau, AZ – Anna S. Zueva, DH – Dmitry E. Himelbrant, IB – Iryna Bolsun, and IS – Irina S. Stepanchikova. The following abbreviations are used here: LR – Leningrad Region, ELR – Eastern Leningrad Region, WLR – Western Leningrad Region, SPb – Saint Petersburg. The subdivision of the Leningrad Region (LR) was published in our previous paper (Stepanchikova et al., 2010); the biogeographical border between the eastern and western parts of the region is the Volkhov River (see Kuznetsova et al., 2007). The biogeographical provinces of Eastern Fennoscandia are abbreviated traditionally (Kotiranta et al., 1998): Ik – Isthmus karelicus, Ka – Karelia australis. All geographical coordi-



Fig. 1. *Arrhenia peltigerina*. Scale bar = 1 cm.

nates are given in the spatial reference system WGS 84. Lichenicolous fungi are marked with #, saprotrophic fungus with +. The nomenclature of taxa generally follows Westberg et al. (2021) for lichens and Diederich et al. (2025) for lichenicolous fungi.

RESULTS AND DISCUSSION

A total of 18 species are reported, including five lichens, two “semilichens” (sensu Vondrák et al., 2026), ten lichenicolous fungi and one saprotrophic fungus related to lichens. All the species were recorded for the first time in the Leningrad Region or Saint Petersburg. The lichen *Micarea myriocarpa* and lichenicolous fungus *Tremella anaptychia* are new to Russia. The lichenicolous fungi *Arrhenia peltigerina* s.

lat., *Cladosporium licheniphilum*, and *Unguiculariopsis lettaui* are new to European Russia. The species *Amandinea pelidna*, *Coppinsiella ulcerosa*, *Cryptodiscus foveolaris*, *Lichenopeltella ramalinae*, *Monodictys epicladonia*, *Reichlingia zwackhii*, *Stigmidium cladoniicola*, and *Zyzygomyces aipoliae* are new to North-Western European Russia. The species *Lecanora argopholis*, and *Xyloschistes platytropa* are new to the Leningrad Region, while lichenicolous fungi *Abrothallus bertianus* and *Lichenochora polycoccoides* are new to St. Petersburg.

THE SPECIES

#ABROTHALLUS BERTIANUS De Not. – SPb, Kurortny District, Ik, SE part of Zelenogorsk, E of Sportivnaya str. and S of Primorskoe highway,

60°10'55.8"N, 29°45'25.4"E, 4 m a. s. l., bird cherry thickets, on thallus of *Melanohalea olivacea* (L.) O. Blanco et al. on bark of *Prunus padus* L., DH & AR, det. AT, 05.08.2024 (GSU). – New to SPb, previously known from WLR (Himmelbrant & Gagarina, 2018). Distribution in Fennoscandia and Baltic countries: Estonia (Randlane et al., 2025).

AMANDINEA PELIDNA (Ach.) Fryday & Arcadia – WLR, Ka, Vyborg District, Orliny Island, 60°28'02.2"N, 27°53'29.3"E, 7 m a. s. l., rocky shore (E slope), on siliceous rock, IS, 10.07.2023 (LECB). – New to North-Western European Russia. Nearest locality in European Russia is in Franz Josef Land, Arkhangelsk Region (Chesnokov & Konoreva, 2023). Distribution in Fennoscandia and Baltic countries: Norway, Sweden, Finland (Westberg et al., 2021). Close to *Amandinea punctata* (Hoffm.) Coppins & Scheid. from which it differs by its rimose thallus, spore wall thickening, the usual presence of pycnidia and growth in coastal rock habitats. *Amandinea coniops* (Wahlenb.) M. Choisy ex Scheid. & H. Mayrhofer has a thicker, bullate thallus (Cannon et al., 2021).

#ARRHENIA PELTIGERINA (Peck) Redhead et al., s. lat. – ELR, Boksitogorsk District, 2.7 km E of Vyalgozero Lake, 59°57'29.8"N, 34°59'39.7"E, 213 m a. s. l., old-growth spruce forest, on thallus of *Peltigera canina* (L.) Willd. on mossy soil, DH, AR, & AZ, confirm. O. Morozova, 26.09.2025 (LE F, Fig. 1). – New to European Russia, previously known from Republic of Buryatia, Sayan Mts (Zhurbenko, 2009). Distribution in Fennoscandia and Baltic countries: Sweden, Finland (Westberg et al., 2021), Estonia (Randlane et al., 2025). The species is a basidiomycete which is characterized by a 4–20 mm, brown, convex, hygrophanous cap with distant, arcuate-decurrent gills. It is microscopically defined by oblong-ellipsoid to dacryoid basidiospores (7–11 × 4–5.5 µm), presence of clamps, the total absence of cystidia, and inhabiting *Peltigera* spp. (Knudsen & Vesterholt, 2012). The species has recently been divided into several crypto-species (Voitk et al., 2024), however, in the absence of molecular data, we provide here the record from LR in broad (traditional) sense.

#CLADOSPORIUM LICHENIPHILUM Heuchert & U. Braun – SPb, Ik, Kurortny District, central part of Zelenogorsk, Sluzhebny square E of the railway station, 60°12'13.7"N, 29°42'21.1"E, 44 m a. s. l., group of broadleaved trees near the brook, on thallus of *Xanthoria parietina* (L.) Th. Fr. on bark of *Ulmus glabra* Huds., DH & AR, det. IB, 05.08.2024 (GSU). – New to SPb, not known in LR. New to European Russia, type locality is in Altay Territory (Bensch et al., 2012). Distribution in Fennoscandia and Baltic countries: Norway (Bensch et al., 2012), Sweden (Vicente et al., 2025), Estonia (Randlane et al., 2025), Lithuania (Motiejūnaitė, 2024). Six species are currently recognized in the genus *Cladosporium* Link.; *C. licheniphilum* differs from *C. antarcticum* K. Schub. et al., *C. macrocarpum* Preuss, and *C. peltigerae* Diederich & Schiefelbein by its smooth (vs verruculose) conidia. It is further distinguished from *C. tenuissimum* Cooke by shorter conidiophores (50–190 µm vs 135–290 µm) and septate (vs aseptate) conidia. From *C. diploschisticola* Diederich, it differs in the number of conidial septa (0–1-septate vs. (1)3-septate) and smaller conidial size (3–20 × 3–7 µm vs. 16.5–20 × 5.5–8 µm) (Diederich et al., 2024).

COPPINSIELLA ULCEROSA (Coppins & P. James) S. Y. Kondr. & Lőkös – SPb, Kurortny District, 2.1 km N of Yuntolovo, 60°03'12.3"N, 30°07'54.6"E, 5 m a. s. l., birch forest, on bark of *Populus tremula* L., DH & AR, 09.05.2025 (LECB). – New to North-Western European Russia. Nearest published locality in European Russia is in the Ryazan Region (Kotkova et al., 2023). Distribution in Fennoscandia and Baltic countries: Norway, Sweden (Westberg et al., 2021), Estonia (Randlane et al., 2025), Latvia (Motiejūnaitė et al., 2016). The species is recognized by the whitish or greyish thallus producing crater-like or merely concave without a rim, grayish to pale green soralia, and orange to orange-red apothecia. It can be confused with *Tsarenkoella obscurella* (J. Lahm) S.Y. Kondr. et al. that differs in having brown apothecia lacking anthraquinones. It is also similar to *Coppinsiella substerilis* (Vondrák et al.) S.Y. Kondr. & Lőkös which has an endophloeodal thallus or thallus consisting of diffuse minute squamules with elongated margins and never has crater-like soralia. *Coppinsiella ulcerosa* is a mostly corticolous species, however, few epilithic records are

known from the Czech Republic and Sweden (Vondrák et al., 2009).

CRYPTODISCUS FOVEOLARIS (Rehm) Rehm – SPb, Kurortny District, 4 km E of Alexandrovskaya and 350 m N of Levashovskoe highway, 60°03'12.1"N, 30°04'29.9"E, lingon-blueberry-*Sphagnum* spruce forest with birch and pine, on wood of branch of *Picea abies* (L.) Karst., DH, IS, & AR, 28.08.2025 (LECB). – New to North-Western European Russia. Nearest localities in European Russia are in the Republic of Mordovia (Urbanavichene & Urbanavichus, 2016) and Kazan, Republic of Tatarstan (Miftakhova et al., 2025). Distribution in Fennoscandia and Baltic countries: Sweden (Baloch et al., 2009). The species is recognized by deeply immersed, pale ochraceous to yellowish-orange apothecia, 1-septate ascospores, and inhabiting wood of both conifers and deciduous trees (Baloch et al., 2009). Consistent with other species of the genus *Cryptodiscus* Corda, this taxon does not form a morphologically distinct thallus but maintains an intimate association with algal photobionts. We follow Vondrák et al. (2026) in applying the term “semilichen” to describe this symbiotic system.

CRYPTODISCUS PALLIDUS (Pers.) Corda – SPb, Ik, Kurortny District, 1 km SE of Reshetnikovo and 1.8 km NE of Zelenogorsk, 60°13'41.8"N, 29°43'48.3"E, 31 m a. s. l., blueberry-*Sphagnum* spruce forest with birch, on wood of *Picea abies*, DH, AR, & IS, 14.09.2024 (LECB). – New to SPb, not known in LR. Distribution in North-Western European Russia: Republic of Karelia (Finnish Museum of Natural History, Botany and Mycology Unit, 2026). Distribution in Fennoscandia and Baltic countries: Norway, Sweden, Finland (Baloch et al., 2009). The species is recognized by ellipsoid, pale ochraceous apothecia seemingly splitting the substrate lengthwise, 3-septate ascospores usually with constrictions at septa, and preference of wood of deciduous trees as a substrate, however, known also from wood of *Juniperus* sp. The related species *C. tabularum* Kirschst. is confined to pine wood (Baloch et al., 2009). Our sample was found on spruce wood, which is uncommon. Like the previous one, this species can be named “semilichen” (Vondrák et al., 2026).

LECANORA ARGOPHOLIS (Ach.) Ach. – WLR, Vyborg District, Ka, Dolgy Kamen' Island,

60°27'48.6"N, 27°52'00.3"E, 0 m a. s. l., young open pine forest covered with wasteland, with boulders, on siliceous rock, 06.07.2023, IS (LECB); Orliny Island, 60°27'41.0"N, 27°52'40.2"E, 5 m a. s. l., open pine forest on rocky outcrops covered with wasteland, on siliceous rock, 09.07.2023, IS (LECB); Otradny Island, 60°27'50.5"N, 27°53'01.3"E, 0 m a. s. l., NE seashore slope, on siliceous rock. – New to LR. Distribution in North-Western European Russia: Republic of Karelia (Fadeeva et al., 2007). Distribution in Fennoscandia and Baltic countries: Norway, Sweden, Finland (Westberg et al., 2021), Estonia (Randlane et al., 2025). *Lecanora argopholis* is close to *L. frustulosa* (Dicks.) Ach., from which it differs by a thick, yellowish-white to grey-greenish warted-areolate thallus (Foucard, 2001).

#*LICHENOCHORA POLYCOCCOIDES* Hafellner & R. Sant. – SPb, Kurortny District, Ik, SE part of Zelenogorsk, E of Sportivnaya str. and S of Primorskoe highway, 60°10'55.8"N, 29°45'25.4"E, 4 m a. s. l., bird cherry thickets, on thallus of *Physcia aipolia* (Ehrh. ex Humb.) Fűrnr. on bark of *Prunus padus*, DH & AR, det. AT, 05.08.2024 (GSU). – New to SPb, in North-Western European Russia previously known from WLR (Himelbrant et al., 2015) and Republic of Karelia (Zhurbenko & Himelbrant, 2002). Distribution in Fennoscandia and Baltic countries: Finland (Westberg et al., 2021).

#*LICHENOPELTELLA RAMALINAE* Etayo & Diedrich – WLR, Luga District, left bank of the Luga River W of Muraveino Village, bank of the Rastishensky brook, 59°00'40.4"N, 29°37'18.9"E, elm forest with grasses, on thallus of *Ramalina farinacea* (L.) Ach. on bark of *Ulmus glabra*, DH & IS, 06.10.2024 (GSU); same place, 3 km S of Muraveino Village and 1 km N of Bezhany Village, brook valley, 58°58'19.7"N, 29°40'00.3"E, elm-aspen forest with grasses, on thallus of *Ramalina farinacea* (L.) Ach. on bark of *Populus tremula* L., DH & IS, det. AT, 06.10.2024 (GSU). – New to North-Western European Russia. Nearest locality in European Russia is in the Tver Region (Czernyadjeva et al., 2021). Distribution in Fennoscandia and Baltic countries: Norway (Frisch et al., 2022), Estonia (Randlane et al., 2025). Characterized by forming catathecia on blackened areas of the thalli of *Ramalina* species and hyaline, 1-septate ascospores measuring 11–14.5 × 3.5–5 µm (Etayo, 1996).

MICAREA MYRIOCARPA V. Wirth & Vězda ex Cop-pins – SPb, Ik, Kurortny District, right bank of the Sestra River W of Beloostrov, 60°10'12.9"N, 29°58'37.9"E, blueberry-*Sphagnum* spruce forest with birch, aspen, and pine, on bark of *Picea abies*, E. Kuznetsova, AR, & AZ, det. L. Konoreva & S. Chesnokov, 13.07.2022 (LECB, Fig. 2A–C); N of Privetinskoe, 60°11'42.2"N,

29°26'11.5"E, 37 m a. s. l., blueberry-*Sphagnum* with heather oldgrowth pine forest, on wood of *Picea abies* branch, DH, AR, & IS, det. L. Konoreva & S. Chesnokov, 07.08.2024 (LECB). – New to Russia. Distribution in Fennoscandia and Baltic countries: Norway, Sweden, Finland (Westberg et al., 2021), Estonia (Randlane et al., 2025), Lithuania (Motiejūnaitė,

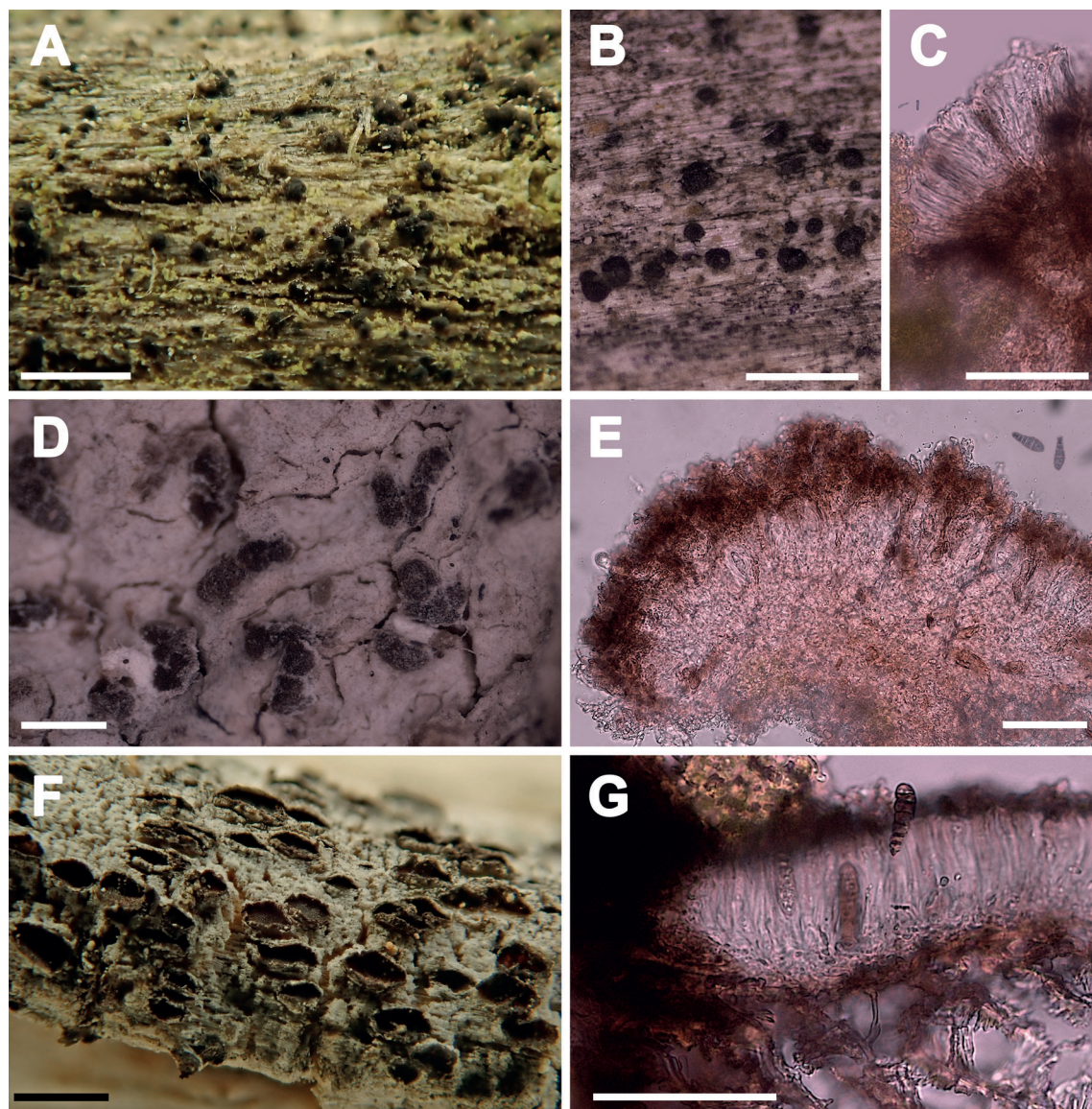


Fig. 2. A–C – *Micarea myriocarpa* (A, B – thallus with apothecia; C – apothecium section); D, E – *Reichlingia zwackhii* (D – thallus with apothecia; E – apothecium section); F, G – *Xyloschistes platytropa* (F – thallus with apothecia; G – apothecium section). Scale bars: A, B, D, F = 0.5 mm, C, E, G = 50 µm.

2024). The species is characterized by very small apothecia which makes it superficially similar to *Psilolechia* spp. It has a farinose-granular pale thallus, reddish-brown apothecia (all parts K–, N–), and 0–1-septate, ovoid ascospores. The species can be distinguished from other species under dry overhangs by the small apothecia and pigmentation (Cannon et al., 2022).

#MONODICTYS EPICLADONIA (Zhurb.) Diederich – SPb, Kurortny District, Ik, Komarovo, N of Kurortnaya Street and S of Zelenogorskoe highway, 60°11'17.3"N, 29°46'35.5"E, 23 m a. s. l., blueberry-moss pine forest, on thallus of *Cladonia digitata* (L.) Hoffm. on bark of *Pinus sylvestris* L., DH & AR, det. AT, 05.08.2024 (GSU); WLR, Tosno District, 2 km W of Grishkino, 59°19'33.5"N, 30°45'28.6"E, 30 m a. s. l., lingonberry-reed grass-moss spruce-aspen forest, on thallus of *Cladonia digitata* on bark of *Pinus sylvestris*, DH, IS, & Zh. Zholobova, det. AT, 16.10.2022 (GSU); same place, 700 m NW of railway station Novolisino, 59°34'50.6"N, 30°32'12.6"E, 54 m a. s. l., cotton grass-moss-*Sphagnum* pine forest, on thallus of *Cladonia digitata* on bark of *Pinus sylvestris*, DH, IS, & Zh. Zholobova, det. AT, 21.10.2022 (GSU). – New to North-Western European Russia. The only known locality in European Russia is in the Smolensk Region (Muchnik et al., 2022). Distribution in Fennoscandia and Baltic countries: not reported. *Monodictys epicladonia* is characterized by black, dispersed to more frequently aggregated colonies and muriform, subspherical to short ellipsoidal conidia, which are medium brown, K+ greyish olive, 7–30 µm in diam. and composed of 6–100 cells (Diederich et al., 2024). The related *M. epilepraria* Kukwa & Diederich differs in having always dispersed conidia and host selection (*Lepraria* vs *Cladonia*). The morphologically similar *Milospium lacoizquetae* Etayo & Diederich differs with aseptate conidia.

REICHLINGIA ZWACKHII (Sandst.) Frisch & G. Thor – ELR, Podporozhje District, vicinity of Yuksovskoe Lake, right bank of the Svyatukha River, 60°57'08"N, 35°02'02"E, middle-aged aspen forest with spruce undergrowth, on bark of *Populus tremula*, DH, IS, & AZ, 01.02.2025 (LECB, Fig. 2D, E). – New to North-Western European Russia. Known locality in European Russia is in the Republic of Mari El (Bogdanov & Urba-

navichus, 2008). Distribution in Fennoscandia and Baltic countries: Sweden (Westberg et al., 2021). The species is characterized by effuse, white to pale grey, matte thallus with *Trentepohlia* photobiont, irregularly stellate ascomata, red-brown, usually white-pruinose. Ascospores 16–22(24) × 5–7 µm, cylindric-obovoid, 3- or 4-septate, the apical cell enlarged; old ascospores brown and warted. Often associated with *Phlyctis argena* (Spreng.) Flot. (Cannon et al., 2020).

#STIGMIDIUM CLADONICOLA Zhurb. & Diederich – WLR, Ik, Priozersk District, W of the Lake Schukinskoe (former Haukilampi), E of the bog Obmannoe (former Ruokosuo), 60°49'58.8"N, 30°23'21.1"E, 41 m a. s. l., bilberry-moss pine-spruce forest with birch, DH & IS, det. AT, 19.09.2020 (GSU). – New to North-Western European Russia. Known locality in European Russia is in the Republic of Komi (Zhurbenko & Diederich, 2008). Distribution in Fennoscandia and Baltic countries: Sweden (Vicente et al., 2024), Norway (Frisch et al., 2022), Estonia (Randlane et al., 2025). The species is characterized by small ascomata, 30–80 µm in diameter; I–, K/I– hymenial gel and asci, absence of interascal filaments, and hyaline, smooth, 1-septate ascospores measuring (9)11.5–13–15(16.5) × 3–3.5–4(5) µm (Zhurbenko & Diederich, 2008).

#TREMELLA ANAPTYCHIAE J.C. Zamora & Diederich – WLR, Luga District, E shore of Lake Vrevo, Skreblovo manor park, 58°36'02.2"N, 29°53'05.1"E, 41 m a. s. l., manor park, alleys of old broadleaved trees, on thallus of *Anaptychia ciliaris* (L.) Körb. on bark of very old *Populus alba* L., DH & IS, det. IB, 15.10.2024 (GSU). – New to Russia. Distribution in Fennoscandia and Baltic countries: Sweden (Westberg et al., 2021). This species differs from most lichenicolous *Tremella* species in having predominantly monoseptate basidia with a long, narrowed stalked base. *Tremella anaptychiae* differs from the similar *T. wedinii* Diederich et al. in the size of the basidia [15–20 × 10–15 µm vs. (16.5)20–28.5(31.5) × (8)9–10.5(11) µm] and the host lichen [*Anaptychia ciliaris* vs. *Glyphis scyphulifera* (Ach.) Staiger] (Diederich et al., 2022).

#UNGUICULARIOPSIS LETTAUI (Grumann) Coppins – WLR, Luga District, 330 m SE of Yaschera Village, left bank of the Yaschera River,

58°53'30.0"N, 29°49'30.9"E, 42 m a. s. l., broadleaved forest in the river valley, on thallus of *Evernia prunastri* (L.) Ach. on bark of *Tilia cordata* Mill., IS & DH, det. AT, 20.05.2023 (GSU); ELR, Podporozhje District, vicinity of Yaroslavichi Village, 60°29'46"N, 34°27'49"E, aspen forest with elm on the slope of brook valley, on thallus of *Evernia prunastri* on bark of *Ulmus* sp., DH, IS, AZ, & AR, det. AT, 31.01.2025 (GSU). – New to European Russia. Nearest locality is in the Krasnodar Territory, Russian Caucasus (Zhurbenko & Otte, 2012). Distribution in Fennoscandia and Baltic countries: Sweden (Westberg et al., 2021), Estonia (Randlane et al., 2025). *Unguiculariopsis lettaui* is a conspicuous species with brown apothecia developing in groups on dark hypostromata. The discs of apothecia become grey-pruinose because of the presence of hyaline, refractive hairs curved with hooked apices. Ascospores are hyaline, simple, 6–8 × 3–3.5 µm, often with several guttules (Hawksworth et al., 2010; Hafellner, 2018).

+XYLOSCHISTES PLATYTROPA (Nyl.) Vain. ex Zahlbr. – WLR, Ka, Vyborg District, Dolgy Kamen' Island, 60°27'34.1"N, 27°51'15.4"E, 5 m a. s. l., juniper community on rocky outcrops, on wood of *Pinus sylvestris*, IS, 07.07.2023 (LECB, Fig. 2F, G); Kholmisty Island, 60°28'05.0"N, 27°52'53.9"E, 8 m a. s. l., open lichen pine forest on rocky outcrops, on wood of *P. sylvestris*, IS, 10.07.2023 (LECB). – New to LR. Distribution in North-Western European Russia: Republic of Karelia (Fadeeva et al., 2007). Distribution in Fennoscandia and Baltic countries: Finland (Westberg et al., 2021). The species is closely related to *Cryptodiscus* Corda (Pino-Bodas et al., 2017; Thiagaraja et al., 2021). This fungus on decorticated pine wood is characterized by black, innate-erumpent, urceolate to flat apothecia (~0.5 mm wide) with a thin elevated margin. Exciple blackish, hypothecium pale brown, apices of paraphyses form brown epihymenium. Hymenial gel I+ vine-red/yellowish (following a brief blue phase). Asci predominantly monosporous, contain large, elongated-oblong, finally dark brown and muriform ascospores, 22–36 × 6–8 µm (Nylander, 1868; Vainio, 1883).

#ZYZYGOMYCES AIPOLIAE Diederich et al. – WLR, Ka, Kingisepp District, central part of the Seskar Island, W shore, base of Cape Vamlinkari,

60°01'12.1"N, 28°22'15.0"E, 2 m a. s. l., scattered young oaks, birches, rowans, apple trees, and willow thickets on the seashore with huge granite boulders, on thallus of *Physcia aipolia* (Ehrh. ex Humb.) Fűrnr. on bark of *Malus* sp., DH & AR, det. IB, 30.07.2023 (GSU). – New to North-Western European Russia. Nearest locality in European Russia is in the Tver Region (Kotkova et al., 2025). Distribution in Fennoscandia and Baltic countries: Sweden (Diederich et al., 2022), Estonia (Randlane et al., 2025), Lithuania (Motiejūnaitė, 2024). The species differs from the more common *Zyzygomyces physciacearum* (Diederich) Diederich et al. in the colour of the basidiomata (pale to medium reddish-brown vs. pale, dark brown to black), the size of the basidia [45–68 × 4.5–6.5 µm vs. 22–68(82) × 4–7 µm] and basidiospores (7–9 × 4.5–5.5 µm vs. 8–12.5 × 4.5–7.5 µm), the host lichen (restricted to *Physcia aipolia* vs. a broader range of *Physcia* species, excluding *P. aipolia*), and the location on the host (occurring on both the thallus and apothecial margin vs. typically on the thallus and very rarely on the apothecia) (Diederich et al., 2022).

ACKNOWLEDGEMENTS

Authors are grateful to Eseniya A. Timofeeva, Zhanna O. Zholobova, and all other participants of the fieldwork. We thank Ludmila Konoreva & Sergey Chesnokov (Komarov Botanical Institute RAS) for identification of *Micarea myriocarpa*. We acknowledge the administration of the Nature Reserves Nizhnesvirsky and Vostok Finskogo Zaliva for permission to work on the islands in Vyborg District. We are also grateful to Anastasiya Philippova (Komarov Botanical Institute RAS) for her assistance in organizing the fieldwork and the reviewers for valuable corrections and comments.

REFERENCES

- Baloch, E., Gilenstam, G. & Wedin, M. 2009. Phylogeny and classification of *Cryptodiscus*, with a taxonomic synopsis of the Swedish species. *Fungal Diversity* 38: 51–68.
- Bensch, K., Braun, U., Groenewald, J. Z. & Crous, P. W. 2012. The genus *Cladosporium*. *Studies in Mycology* 72(1): 1–401. <https://doi.org/10.3114/sim0003>
- Bogdanov, G. A. & Urbanavichus, G. P. 2008. Lichen species new and rare to Russia from the Republic

- of Mari El. *Botanicheskii Zhurnal* 93(6): 944–950. (In Russian, English summary).
- Cannon, P., Ertz, D., Frisch, A., Aptroot, A., Chambers, S., Coppins, B., Sanderson, N., Simkin, J. & Wolseley, P. 2020. Arthoniales: Arthoniaceae, including the genera *Arthonia*, *Arthothelium*, *Briancoppinsia*, *Bryostigma*, *Coniocarpon*, *Diarthonis*, *Inoderma*, *Naevia*, *Pachnolepia*, *Reichlingia*, *Snippocia*, *Sporodophoron*, *Synarthonia* and *Tylophoron*. *Revisions of British and Irish Lichens* 1: 3–48. <https://doi.org/10.34885/173>
- Cannon, P., Orange, A., Aptroot, A., Sanderson, N., Coppins, B. & Simkin, J. 2022. Lecanorales: *Pilocarpaceae*, including the genera *Aquacidia*, *Byssoloma*, *Fellhanera*, *Fellhaneropsis*, *Leimonis* and *Micareia*. *Revisions of British and Irish Lichens* 27: 1–48.
- Cannon, P., Prieto, M., Coppins, B., Sanderson, N., Scheidegger, C. & Simkin, J. 2021. Caliciales: Caliciaceae, including the genera *Acolium*, *Amandinea*, *Buellia*, *Calicium*, *Diploicia*, *Diplotomma*, *Endohyalina*, *Monerolechia*, *Orcularia*, *Pseudothelomma*, *Rinodina* and *Tetramelas*. *Revisions of British and Irish Lichens* 15: 1–35.
- Chesnokov, S. V. & Konoreva, L. A. 2023. New records of lichenized and lichenicolous fungi from the Franz Josef Land (Russian Arctic). *Novosti sistematiki nizshikh rastenii* 57(2): L39–L48. <https://doi.org/10.31111/nsnr/2023.57.2.L39>
- Czernyadjeva, I. V., Davydov, E. A., Efimova, A. A., Gogorev, R. M., Himelbrant, D. E., Kotkova, V. M., Kuzmina, E. Yu., Leostin, A. V., Moroz, E. L., Neshataeva, V. Yu., Notov, A. A., Novozhilov, Yu. K., Paukov, A. G., Popova, N. N., Potemkin, A. D., Stepanchikova, I. S., Storozhenko, Yu. V., Yakovchenko, L. S., Yurchak, M. I., Volosnova, L. F., Zhurbenko, M. P. & Zyatnina, M. V. 2021. New cryptogamic records. 7. *Novosti sistematiki nizshikh rastenii* 55(1): 249–277. <https://doi.org/10.31111/nsnr/2021.55.1.249>
- Diederich, P., Ertz, D. & Braun, U. 2024. *Flora of Lichenicolous Fungi, Vol. 2, Hyphomycetes*. Luxembourg, National Museum of Natural History. 544 pp.
- Diederich, P., Lawrey, J. D. & Ertz, D. 2025. The 2025 classification and checklist of lichenicolous fungi: documenting a rapidly growing knowledge of diversity. *The Bryologist* 128(4): 765–870. <https://doi.org/10.1639/0007-2745-128.4.765>
- Diederich, P., Millanes, A. M., Wedin, M. & Lawrey, J. D. 2022. *Flora of Lichenicolous Fungi, Vol. 1, Basidiomycota*. Luxembourg, National Museum of Natural History. 351 pp.
- Etayo, J. 1996. Aportacion a la flora liquenica de las Islas Canarias. I. Hongos liquenicolos de Gomera. *Bulletin de la Société Linnéenne de Provence* 47: 93–110.
- Fadeeva, M. A., Golubkova, N. S., Vitikainen, O. & Ahti, T. 2007. *Conspectus of lichens and lichenicolous fungi of the Republic of Karelia*. Petrozavodsk. 194 pp. (In Russian, English summary).
- Finnish Museum of Natural History, Botany and Mycology Unit. 2026. Ascomycetes Fennoscandiae orientalis. Occurrence dataset <https://doi.org/10.15468/hyqe5g> accessed via GBIF.org on 2026-03-28. <https://www.gbif.org/occurrence/4023869218>
- Foucard, T. 2001. Svenska skorplavar och svampar som växer på dem. Stockholm. 392 pp.
- Frisch, A., Holien, H., Klepsland, J., Suija, A. & Bendiksby, M. 2022. New data on lichenicolous fungi in Norway. *Graphis Scripta* 34(7): 59–133.
- Hafellner, J. 2018. Noteworthy records of lichenicolous fungi from various countries on the Balkan Peninsula. *Herzogia* 31(2): 476–493.
- Hawksworth, D. L., Atienza, V. & Coppins, B. J. 2010. Artificial keys to the lichenicolous fungi of Great Britain, Ireland, the Channel Islands, Iberian Peninsula, and Canary Islands. Fourth draft edition for testing only. Published online by the authors. http://www.ascofrance.com/uploads/forum_file/LichenKeys2010-0001.pdf
- Himelbrant, D. E. & Gagarina, L. V. 2018. Lichens of the proposed Protected Area “Toksovsky” and its vicinities (Leningrad region). *Herold of the Tver State University. Series of Biology and Ecology* 1: 151–170. (In Russian, English summary).
- Himelbrant, D. E., Stepanchikova, I. S., Motiejūnaitė, J., Vondrak, J., Tagirdzhanova, G. M., Gagarina, L. V. & Kuznetsova, E. S. 2015. New records of lichens and allied fungi from the Leningrad Region, Russia. VI. *Folia Cryptogamica Estonica* 52: 21–28. <http://doi.org/10.12697/fce.2015.52.03>
- Himelbrant, D. E., Stepanchikova, I. S., Tsurykau, A. G. & Andreev, M. P. 2022. New records of lichens and allied fungi from the Leningrad Region, Russia. XII. *Folia Cryptogamica Estonica* 59: 17–22. <https://doi.org/10.12697/fce.2022.59.04>
- Knudsen, H. & Vesterholt, J. (eds). 2012. *Funga Nordica: Agaricoid, boletoid, clavarioid, cyphelloid and gastroid genera (2nd ed.)*. Copenhagen, Nordsvamp. 966 pp.
- Kotiranta, H., Uotila, P., Sulkava, S. & Peltonen, S.-L. (eds). 1998. *Red Data Book of East Fennoscandia*. Helsinki. 351 pp.
- Kotkova, V. M., Afonina, O. M., Androsova, V. I., Beliaeva, T. A., Bely, P. N., Bessudova, A. Y., Bolsun, I. M., Chemeris, E. V., Chernova, N. A., Chesnokov, S. V., et al. 2025. New cryptogamic records. 16. *Novosti sistematiki nizshikh rastenii* 59(2): R1–R37. <https://doi.org/10.31111/nsnr/2025.59.2.R1>
- Kotkova, V. M., Czernyadjeva, I. V., Davydov, E. A., Doroshina, G. Ya., Efimov, D. Yu., Efimova, L. A., Frolov, I. V., Gabiger, Ya. I., Glushchenko, M. Yu., Gorbunova, I. A., et al. 2023. New cryptogamic records. 11. *Novosti sistematiki nizshikh rastenii* 57(1): 155–204. <https://doi.org/10.31111/nsnr/2023.57.1.155>
- Kuznetsova, E., Ahti, T. & Himelbrant, D. 2007. Lichens and allied fungi of the Eastern Leningrad Region. *Norrinia* 16: 1–62.

- Miftakhova, G. I., Chernyshova, V. A., Zueva, A. S., Rodionova, A. A., Stepanchikova, I. S., Himelbrant, D. E., Tsurykau, A. G., Chesnokov, S. V. & Frolov, I. V. 2025. Lichens and allied fungi of the Lebyazhe Forest Park (Kazan, Republic of Tatarstan). *Novosti sistematiki nizshikh rastenii* 59(1): L15–L29. (In Russian, English summary). <https://doi.org/10.31111/nsnr/2025.59.1.L15>
- Motiejūnaitė, J. 2024. Kerpių ir su jomis susijusių grybų sąrašas. *Lietuvos makroskopinių grybų ir kerpių sąvadas taksonai ir mikonimai*. Gamtos tyrimų centras, Vilnius, pp. 49–81. <https://doi.org/10.35513/NRC.2024.1.03>
- Motiejūnaitė, J., Chesnokov, S. V., Czarnota, P., Gagarina, L. V., Frolov, I., Himelbrant, D., Konoreva, L. A., Kubiak, D., Kukwa, M., Moisejevs, R., Stepanchikova, I., Suija, A., Tagirdzhanova, G., Thell, A. & Tsurykau, A. 2016. Ninety-one species of lichens and allied fungi new for Latvia with a list of additional records from Kurzeme. *Herzogia* 29(1): 143–163.
- Muchnik, E. E., Tsurykau, A., Otte, V., Breuss, O., Gerasimova, J. V. & Cherepenina, D. A. 2022. New and otherwise noteworthy records of lichenized and lichenicolous fungi from central European Russia II. *Herzogia* 35(2): 494–509. <https://doi.org/10.13158/heia.35.2.2022.494>
- Nylander, W. 1868. Addenda nova ad lichenographiam Europaeam. Continuatio septima. *Flora, oder, Botanische Zeitung: welche Recensionen, Abhandlungen, Aufsätze, Neuigkeiten und Nachrichten, die Botanik betreffend*, enthält 51: 161–165.
- Pino-Bodas, R., Zhurbenko, M. P. & Stenroos, S. 2017. Phylogenetic placement within Lecanoromycetes of lichenicolous fungi associated with *Cladonia* and some other genera. *Persoonia* 39: 91–117. <https://doi.org/10.3767/persoonia.2017.39.05>
- Randlane, T., Saag, A. & Suija, A. 2025. Lichenized, lichenicolous and allied fungi of Estonia. Ver. December 31, 2025 – <http://esamba.bo.bg.ut.ee/checklist/est/home.php> (Accessed on 31.03.2026).
- Stepanchikova, I. S., Kukwa, M., Kuznetsova, E. S., Motiejūnaitė, J. & Himelbrant, D. E. 2010. New records of lichens and allied fungi from the Leningrad Region. *Folia Cryptogamica Estonica* 47: 77–84.
- Thiyagaraja, V., Lücking, R., Ertz, D., Karunarathna, S. C., Wanasinghe, D. N., Lumyong S. & Hyde, K. D. 2021. The Evolution of life modes in Stictidaceae, with three novel taxa. *Journal of Fungi* 7(2): no. 105. <https://doi.org/10.3390/jof7020105>
- Urbanavichene, I. N. & Urbanavichus, G. P. 2016. The lichen flora of the Mordovskii Reserve (an annotated species list). *Flora and fauna of Nature Reserves* 126: 1–41. (In Russian).
- Vainio, E. A. 1883. Adjumenta ad lichenographiam Lapponiae Fennicae atque Fenniae borealis. II. *Meddelanden af Societas pro Fauna et Flora Fennica* 10: 1–230.
- Vicente, R., Isaksson, R., Frisch, A. & Hammarström, O. 2025. Some new mitosporic lichenicolous fungi for Sweden, Norway and Fennoscandia. *Folia Cryptogamica Estonica* 62: 31–40. <https://doi.org/10.12697/fce.2025.62.03>
- Vicente, R., Westberg, M., Isaksson, R., Anderberg, R., Frisch, A., Hammarström, O., Hansson, J., Jonsson, F. & Svensson, M. 2024. Additions to the flora of lichenicolous fungi of Sweden II. *Graphis Scripta* 36(7): 123–147.
- Voitk, A., Saar, I., Burzynski, M., & Corriol, G. 2024. The *Arrhenia peltigerina* complex – preliminary report. *Botany* 102(6): 248–267. <https://doi.org/10.1139/cjb-2023-0138>.
- Vondrák, J., Šoun, J., Arup, U., Aptroot, A. & Redchenko, O. 2009. *Caloplaca ulcerosa*, a maritime species in Europe with a remarkable occurrence in the Czech Republic. *Bryonora* 44: 1–7.
- Vondrák, J., Svoboda, S., Řiha, P., Hauser, T., Kantnerová, V., Škaloud, P. & Kubásek, J. 2026. Semilichen, an unjustly neglected symbiotic system between green biofilms and true lichens. *Scientific Reports* 16: no. 927. <https://doi.org/10.1038/s41598-025-30542-z>
- Westberg, M., Moberg, R., Myrdal, M., Nordin, A. & Ekman, S. 2021. *Santesson's checklist of Fennoscandian lichen-forming and lichenicolous fungi*. Uppsala, Museum of Evolution, Uppsala University. 933 pp.
- Zhurbenko, M. P. 2009. Lichenicolous fungi and lichens from the Holarctic. Part II. *Opuscula Philolichenum* 7: 121–186. <https://doi.org/10.5962/p.381973>
- Zhurbenko, M. P. & Diederich, P. 2008. *Stigmidium cladoniicola*, a new lichenicolous fungus from Northern Ural, Russia. *Graphis Scripta* 20(1): 13–18.
- Zhurbenko, M. P. & Himelbrant, D. E. 2002. Lichenicolous fungi from the Kandalaksha Gulf, Karelia Keretina, Russia. *Folia Cryptogamica Estonica* 39: 51–59.
- Zhurbenko, M. P. & Otte, V. 2012. Lichenicolous fungi from the Caucasus: new records and a first synopsis. *Herzogia* 25(2): 235–244.