Folia Cryptog. Estonica, Fasc. 52: 21–28 (2015)
http://dx.doi.org/10.12697/fce.2015.52.03

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

Dmitry E. Himelbrant[1,2], Irina S. Stepanchikova[1,2], Jurga Motiejūnaitė[3], Jan Vondrak[4,5,6], Gulnara M. Tagirdzhanova[1], Ludmila V. Gagarina[2] & Ekaterina S. Kuznetsova[1,2]

[1]Department of Botany, St. Petersburg State University, Universitetskaya emb. 7–9, 199034 St. Petersburg, Russia. E-mails: d_brant@mail.ru, stepa_ir@mail.ru, felis.murgul@gmail.com, igel_kuzn@mail.ru

[2]Laboratory of Lichenology and Bryology, Komarov Botanical Institute RAS,Professor Popov St. 2, 197376 St. Petersburg, Russia. E-mail: kvercus@yandex.ru

[3]Laboratory of Mycology, Nature Research Centre, Institute of Botany, Žaliųjų Ežerų 49, LT–08406 Vilnius, Lithuania. E-mail: jurga.motiejunaite@botanika.lt

[4]Institute of Botany, Academy of Sciences of the Czech Republic, Zámek 1, 252 43 Průhonice, Czech Republic

[5]Department of Botany, Faculty of Science, University of South Bohemia, Branišovská 31, 370 05 České Budějovice, Czech Republic. Faculty of Environmental Sciences

[6]Czech University of Life Sciences Prague, Kamýcká 129, 165 21 Praha 6 – Suchdol, Czech Republic. E-mail: j.vondrak@seznam.cz

Abstract: Eighteen species of lichens and five lichenicolous fungi are reported here for the Leningrad Region or Saint Petersburg. Of them, the lichens *Absconditella delutula*, *Calogaya pusilla*, *Flavoplaca flavocitrina* and *Rinodina colobina* are new for the North-Western European Russia, and the lichenicolous species *Abrothallus parmeliarum*, *Diploschistes muscorum*, *Lichenochora* cf. *polycoccoides* and *Nieslia peltigericola* – for the Leningrad Region; *Cladonia novochlorophaea* and *Lichenodiplis lecanorae* are reported for the first time for Saint Petersburg. The most noteworthy records are briefly discussed.

Keywords: lichens, new records, Saint Petersburg, North-Western European Russia

INTRODUCTION

In this article we continue to publish new and noteworthy records on lichens and allied fungi from the Leningrad Region and Saint-Petersburg as parts of the Baltic Region (see e.g. Kuznetsova et al., 2007; Stepanchikova et al., 2010a, b, 2011, 2013; Himelbrant et al., 2013). Among the 23 species presented here, several are recorded for the first time in Saint-Petersburg or Leningrad Region, others are new for the North-Western European Russia or European Russia.

MATERIAL AND METHODS

The materials were collected by D. E. Himelbrant, I. S. Stepanchikova, G. M. Tagirdzhanova, L. V. Gagarina and E. S. Kuznetsova in the period of 2005–2014 in the Eastern and Western parts of Leningrad Region or Saint-Petersburg (ELR, WLR, and SPb, respectively), and are deposited in the lichen herbaria of Nature Research Centre, Institute of Botany in Vilnius (BILAS), Botanical Museum of University of Helsinki (H), Komarov Botanical Institute in Saint-Petersburg (LE), St. Petersburg State University (LECB) or Institute of Biology and Soil Science in Vladivostok (VLA). In addition, several specimens kept in the herbaria of University of Turku (TUR, TUR-V), H and LE were reviewed. Specimens of lichens and lichenicolous fungi were identified by the authors of the paper, if otherwise, the identifier's name is mentioned in the annotation of the species. Lichen substances in the thalli of *Cladonia grayi*, *C. novochlorophaea* and *Lepraria borealis* were identified by using the standard technique of high performance thin-layer chromatography (HPTLC) in solvent systems A and B (Orange et al., 2001). For molecular barcoding reasons, we obtained ITS nrDNA sequences from some samples (*Calogaya pusilla* and *Flavoplaca flavocitrina*). DNA was extracted using the method of CTAB. Primers for amplification were ITS1F (Gardes & Bruns, 1993) and ITS4 (White et al., 1990). PCR cycling parameters followed Ekman (2001). For *Flavo-*

placa flavocitrina, the sequences, including three new sequences and all other sequences from the GenBank, were aligned manually as well as sequences of the outgroup, *F. austrocitrina* (Vondrák, P. Říha, Arup & Søchting) Arup, Søchting & Frödén and *F. limonia* (Nimis & Poelt) Arup, Frödén & Søchting, which were also obtained from the GenBank. The phylogenetic analysis by maximum likelihood was performed using the site Phylogeny.fr (Dereeper et al., 2008). For *Calogaya pusilla*, ITS sequence was compared with GenBank sequences using Blast.

The names of the main collectors or reviewers in the species list are abbreviated as follows: AD – Aleksandra V. Dyomina, DH – Dmitry E. Himelbrant, EK – Ekaterina Kuznetsova, GT – Gulnara M. Tagirdzhanova, IS – Irina S. Stepanchikova, LK – Ludmila Konoreva, TA – Teuvo Ahti. The subdivision of the Leningrad Region (LR) was published in our previous paper (Stepanchikova et al., 2010b). The biogeographical provinces of Eastern Fennoscandia are abbreviated traditionally (Kotiranta et al., 1998): Ik – Isthmus karelicus, Ka – Karelia australis, Kol – Karelia olonetsensis. Lichenicolous fungi are marked with #. The nomenclature of taxa follows Nordin et al. (2011).

THE SPECIES

Abrothallus parmeliarum (Sommerf.) Arnold – ELR, Podporozh'e District, Travniki, 60°54'N, 35°21'E, on thallus of *Parmelia sulcata* Taylor on bark, 15.06.1943, leg. Veli Räsänen, det. TA (H 8005593). – New to LR. Report from WLR (Huusniemi, Vyborg, Ka) by Vainio (1878) as "*Lecidea Parmeliarum* Smmrft." was based on misidentifications: all the specimens by Vainio from Vyborg were re-identified as *Abrothallus peyritschii* (Stein) Kotte [H 6022485, TUR-V 09650 and TUR 10203, all on thalli of *Vulpicida pinastri* (Scop.) J.-E. Mattsson & M. J. Lai]. Another report of this species from WLR (Hogland, Lounatkorkia) by Brenner (1885; specimen in H) was also published erroneously (see Alstrup & Ahti, 2007). Distribution in North-Western European Russia outside of LR: Republic of Karelia (Fadeeva et al., 2007). Distribution in Fennoscandia and Baltic countries: Norway, Sweden, Finland (Nordin et al., 2011), Estonia (Randlane et al., 2013), Lithuania (Motiejūnaitė, 1999).

Absconditella delutula (Nyl.) Coppins & H. Kilias – SPb, Ik, Kurortny District, NE of Puhtolova Hill, 60°14'01"N, 29°40'23"E, old military fortifications in pine forest, on plant debris, 22.05.2010, leg. DH, IS & EK (LECB). – New to the North-Western European Russia. In European Russia known from the Tver' Region (Notov et al., 2011) and the Murmansk Region (Melekhin, 2013). Distribution in Fennoscandia and Baltic countries: Norway, Sweden, Finland (Nordin et al., 2011), Estonia (Randlane et al., 2013), Lithuania (Motiejūnaitė et al., 2008). Differs from other species of the genus by one-septate ascospores and immersed minute apothecia (predominantly to 0.2 mm diam.) (Foucard, 2001; Smith et al., 2009).

Calogaya pusilla (A. Massal.) Arup, Frödén & Søchting – SPb, Kronshtadt District, Kotlin Island, vicinity of Zapadny Kotlin protected area, N part of the fort Rif, 60°01'51"N, 29°38'04"E, constructions of the fort, on concrete, 10.05.2014, leg. DH, IS & GT (GenBank code KR045290; LECB). – New to the North-Western European Russia. A common European species, frequently recorded in urbanized areas, mostly on concrete. It has been identified as "*Caloplaca saxicola*", but *Caloplaca saxicola* (Hoffm.) Nordin s. str. is a taxon with very short marginal lobes [similar to *Calogaya arnoldii* (Wedd.) Arup, Frödén & Søchting], mostly collected from natural habitats (Gaya, 2009; Gaya et al., 2011).

Chaenotheca hispidula (Ach.) Zahlbr. – ELR, Boksitogorsk District, N of Samozero village, 59°57'29.8"N, 34°59'39.7"E, old spruce forest with *Sphagnum* spp. and *Vaccinium myrtillus* L., on bark of *Populus tremula* L., 28.09.2012, leg. DH & IS (LECB); Podporozh'e District, 200 m S of Chogozero Lake, bank of the Esipruchey stream, 60°28'56"N, 35°13'43"E, old-growth spruce swampy forest with pines and *Sphagnum* spp., on bark of *Betula* sp., 22.09.2009, leg. IS & EK (LECB); Podporozh'e District, SW of Kuzra village, bank of the Kuzra River, 60°57'16"N, 35°10'34"E, old spruce forest with old pines, aspens, birches, willows, *Sphagnum* spp. and *Vaccinium myrtillus*, on bark of *Populus tremula*, 03.10.2014, leg. IS, DH & GT (LECB). – New to ELR. Known from WLR and SPb (Vainio, 1927; Himelbrant et al., 2006; Stepanchikova et al., 2008). Distribution in North-Western European Russia outside of LR and SPb: Republic

of Karelia (Fadeeva et al., 2007), Pskov Region (Istomina & Likhacheva, 2010). Distribution in Fennoscandia and Baltic countries: Norway, Sweden, Finland (Nordin et al., 2011), Estonia (Randlane et al., 2013), Latvia (Mežaka et al., 2009), Lithuania (Motiejūnaitė, 1999). Indicator of biologically valuable forests in the Southern Taiga of North-Western European Russia (Andersson et al., 2009).

Cladonia caespiticia (Pers.) Flörke – ELR, Kol, Podporozh'e District, N of Vachozero Lake, vicinity of Muzhala River, 61°09'10.1"N, 34°10'26.2"E, old-growth wet spruce forest near the stream, on mossy twigs of *Picea abies* (L.) Karst., 01.10.2013, leg. IS & GT (H); Podporozh'e District, W of Spirkovo village, near the road Vinnitsy-Alekhovschina and Ojat' River, 60°29'23"N, 34°22'12"E, elm forest with aspens, on lignum of fallen trunk of *Populus tremula*, 13.09.2014, IS & DH (LECB). – New to ELR. Known from WLR and SPb (for discussion on distribution in LR, Fennoscandia and Baltic countries see Himelbrant et al., 2013).

Cladonia grayi G. Merr. ex Sandst. – SPb, Ik, Kurortny District, S of Komarovo, Komarovsky Bereg Protected Area, 60°11'N, 29°47'E, spruce forest with *Oxalis acetosella* L., on the base of birch trunk, 12.06.2002, leg. Olga Kataeva (LE L915); SPb, Ik, Kurortny District, Gladyshevsky Protected Area, left bank of the Roschinka (former Raivolanjoki) River, 60°13'27"N, 29°31'18"E, old granite military constructions, on soil, 01.05.2006, leg. DH, LK & IS (LE L12425); SPb, Primorsky District, Lakhta, 60°01'N, 30°07'E, forest, on stumps, 06.1907, leg. Vsevolod Savicz (LE L12448). All specimens contain grayanic acid and fumarprotocetraric acid complex (trace). – First records for the SPb territory, supported by TLC data and voucher specimens. Previously reported from vicinities of Zelenogorsk (former Terijoki) and Komarovo (former Kellomäki) by Sokolova (1995; no TLC data and no voucher specimens in herbaria). Known from WLR and ELR (Räsänen, 1939; Kuznetsova et al., 2007). Distribution in North-Western European Russia outside of LR and SPb: Republic of Karelia (Fadeeva et al., 2007), Pskov Region (Istomina & Likhacheva, 2010). Distribution in Fennoscandia and Baltic countries: Norway, Sweden, Finland (Nordin et al., 2011), Estonia (Randlane et al., 2013), Latvia (Piterāns, 2001), Lithuania (Motiejūnaitė, 1999).

Cladonia novochlorophaea (Sipman) Brodo & Ahti – SPb, Ik, Kurortny District, NW from Komarovo, N from Schuch'e (former Haukijärvi) Lake, Schuch'e Ozero Protected Area, 60°13'05"N, 29°46'57"E, small sphagnum bog with sparse pines and birches, on turf, 26.04.2014, DH & IS (LE L12445); SPb, Ik, Kurortny District, Gladyshevsky Protected Area, E of the Chyornaya (former Vammeljoki) River, 60°13'30.2"N, 29°33'20.0"E, small pine peat bog with sparse birches, on the bark of dead birch, 07.05.2006, leg. DH, LK & IS (LE L12444); same territory, 60°12'57.2"N, 29°30'28.6"E, young pine forest in sandpit, on soil, 17.09.2006, leg. DH, LK & IS (LE L12446). All specimens contain sekikaic and homosekikaic acids. – New to SPb. Known from WLR and ELR (Alexeeva & Himelbrant, 2007; Kuznetsova et al., 2007). Distribution in North-Western European Russia outside of LR and SPb: Republic of Karelia (Fadeeva et al., 2007). Distribution in Fennoscandia and Baltic countries: Norway, Sweden, Finland (Nordin et al., 2011), Estonia (Randlane et al., 2013), Lithuania (Motiejūnaitė, 1999).

Diploschistes muscorum (Scop.) R. Sant. – WLR, Luga District, left bank of the Yaschera River, vicinity of the Yaschera village, 1.2 km NE of the confluence of the rivers Luga and Yaschera, S slope of small hill, near the sandy road, 58°53'20"N, 29°49'41"E, open pine forest with lichens, *Calluna vulgaris* (L.) Hull and mosses, on *Cladonia* thalli growing on a large boulder, 15.05.2014, leg. DH & IS (LECB). – New to LR. Distribution in North-Western European Russia outside of LR: Republic of Karelia (Fadeeva et al., 2007). Distribution in Fennoscandia and Baltic countries: Norway, Sweden, Finland (Nordin et al., 2011), Estonia (Randlane et al., 2013), Latvia (Piterāns, 2001), Lithuania (Motiejūnaitė, 1999). The only lichenicolous species in the genus, differing from others by 4-spored asci, hymenium to 120 μm tall, dark hypothecium and inhabiting substrate (lichen thalli, mosses or soil) (Smith et al., 2009).

Flavoplaca flavocitrina (Nyl.) Arup, Frödén & Søchting – SPb, Kronshtadt District, Kotlin Island, vicinity of Zapadny Kotlin protected area, the fort Rif, westernmost part of the island, 60°01'54"N, 29°38'06"E, constructions of the fort, on concrete, 28.09.2014, leg. DH, IS & AD (GenBank code KR045287; LECB); same territory, E of the fort Rif, 60°01'54"N, 29°38'32"E,

constructions along the seashore, on concrete, 28.09.2014, leg. DH, IS & AD (GenBank code KR045288; LECB); same territory, E of the fort Rif, 60°01'54"N, 29°38'40"E, constructions along the seashore, on concrete, 28.09.2014, leg. DH, IS & AD (LECB); SPb, Kurortny District, old military constructions, W of the Chyornaya River, 60°12'12"N, 29°32'23"E, 21.09.2005, leg. DH, LK and IS (GenBank code KR045289; LECB). – New to the North-Western European Russia. It is the most widely distributed *Flavoplaca* in the Northern hemisphere, common on lime enriched artificial substrates (Vondrák, unpublished). Within Russia, it is only known from the Black Sea coast (Vondrák et al., 2009) and Ryazan Region (Muchnik et al., 2014). Its specimens have been commonly called "*Caloplaca citrina*", but *Flavoplaca citrina* (Hoffm.) Arup, Frödén & Søchting s. str. is so far known only from some parts of Europe (Arup, 2006; Vondrák et al., 2009) and it is not confirmed in Russia. Both taxa are sometimes very similar and ITS proof is recommended for their identifications.

Gyalecta derivata (Nyl.) H. Olivier – ELR, Podporozh'e District, NW of Yaroslavichi, right bank of the Ojat' River, 60°30'21" N, 34°29'13" E, elm forest, on bark of *Ulmus* sp., 13.09.2014, leg. DH & IS (LECB). – New to ELR. Known from WLR (Gagarina & Himelbrant, 2010). Distribution in North-Western European Russia outside of LR: not reported. Distribution in Fennoscandia and Baltic countries: Norway, Sweden (Nordin et al., 2011), Lithuania (Motiejūnaitė et al., 2012).

Lepraria borealis Lohtander & Tønsberg – ELR, Kol, Podporozh'e District, 2 km SE of Gimreka village, Schelejki Protected Area, rocky range, 61°08'34"N, 35°39'16"E, pine-spruce forest with birches, aspens, *Vaccinium myrtillus* and mosses on the N slope of range, on siliceous stone, 30.05.2005, leg. EK & DH (LECB). Specimen contains atranorin, jackinic/rangiformic, norjackinic/norrangiformic and tracks of roccellic acids. – New to ELR. Known from WLR (Stepanchikova et al., 2013). Distribution in North-Western European Russia outside of LR: Republic of Karelia (Fadeeva et al., 2007). Distribution in Fennoscandia and Baltic countries: Norway, Sweden, Finland (Nordin et al., 2011), Estonia (Randlane et al., 2013), Lithuania (Prigodina-Lukošienė et al., 2003).

Lichenochora cf. polycoccoides Hafellner & R. Sant. – WLR, Ka, Vyborg District, Vyborg Gulf, Berezovye Ostrova Protected Area, Maly Solnechny Island, 60°24'45"N, 28°30'48"E, seashore, on thallus of *Physcia dubia* (Hoffm.) Lettau on granite boulder, 05.06.2014, DH, IS & GT (BILAS). – New to LR. Distribution in North-Western European Russia outside of LR: Republic of Karelia (Zhurbenko & Himelbrant, 2002). Distribution in Fennoscandia and Baltic countries: Finland (Hafellner, 1989). Characteristics of our specimen (size, form, colour and septation of the ascospores as well as species of the host) agree with the description provided by Zhurbenko & Himelbrant (2002) and differ from the characters given in the protologue (Hafellner, 1989). The differences were discussed in detail by Zhurbenko & Himelbrant (2002). In Santesson et al. (2004: 191), *P. dubia* is mentioned as the host of this species, however, the protologue of *L. polycoccoides* and almost all subsequent citations indicate that host of the fungus is *Physcia tribacia* (Ach.) Nyl.

Lichenodiplis lecanorae (Vouaux) Dyko & D. Hawksw. – SPb, Ik, Kurortny District, Gladyshevsky Protected Area, left bank of the Chornaya River close to the Finnish Gulf, 60°11'42.7"N, 29°32'52.2"E, on apothecia of *Acarospora glaucocarpa* (Ach.) Körb. on constructions of concrete, 25.09.2005, leg. DH, IS & LK (BILAS). – New to SPb. Known from WLR (Stepanchikova et al., 2011). Distribution in North-Western European Russia outside of LR and SPb is unknown. Distribution in Fennoscandia and Baltic countries: Norway, Sweden, Finland (Nordin et al., 2011), Estonia (Randlane et al., 2013), Lithuania (Motiejūnaitė, 1999).

Micarea peliocarpa (Anzi) Coppins & R. Sant. – ELR, Boksitogorsk District, N of Sviatozero Lake, 59°59'01.6"N, 35°09'02.6"E, pine forest with spruces, dwarf shrubs and mosses, lignum of dead erect *Pinus sylvestris* L., 29.09.2012, leg. IS & DH (LECB). – New to ELR. Known from WLR (Fries, 1871–1874). Distribution in North-Western European Russia outside of LR: Republic of Karelia (Fadeeva et al., 2007), Pskov Region (Istomina & Likhacheva, 2010). Distribution in Fennoscandia and Baltic countries: Norway, Sweden, Finland (Nordin et al., 2011), Estonia (Randlane et al., 2013), Lithuania (Motiejūnaitė, 1999).

Montanelia disjuncta (Erichsen) Divakar et al. – ELR, Kol, Podporozh'e District, former Nikol'sky (Nikola), 61°06'N, 34°51'E, on siliceous stone,

27.06.1875, leg. Frederik Elfving (H). This specimen published by Elfving (1878) as "*Parmelia sorediata* (Ach.)" and cited by Kuznetsova et al. (2007) as *Melanelia sorediata* (Ach.) Goward & Ahti, but actually belongs to *Montanelia disjuncta* (det. TA & Nadezhda Alexeeva). – New to ELR. Known from WLR (Alexeeva & Himelbrant, 2007). Distribution in North-Western European Russia outside of LR: Republic of Karelia (Fadeeva et al., 2007). Distribution in Fennoscandia and Baltic countries: Norway, Sweden, Finland (Nordin et al., 2011), Estonia (Randlane et al., 2013).

Nephroma laevigatum Ach. – WLR, Ka, Vyborg District, Vyborg Gulf, Vesenny Island (Luurinsaari), 60°31'12.7"N, 28°39'22.0"E, broad-leaved forest, on bark of *Populus tremula* (base of trunk), 20.08.2014, leg. Ludmila Gagarina (LE). Poorly developed specimen. – First reliable record from WLR. Reported erroneously from Vanhaviipuri (Vyborg) by Vainio (1878); record by Wei (1962) from Kuznechnoe is also dubious due to the incorrect species concept employed by the author and absence of voucher specimens does not allow to check the report identity. Known from ELR (Kuznetsova et al., 2007). Distribution in North-Western European Russia outside of LR: Republic of Karelia (Fadeeva et al., 2007). Distribution in Fennoscandia and Baltic countries: Norway, Sweden, Finland (Nordin et al., 2011), Estonia (Randlane et al., 2013), Latvia (Piterāns, 2001). Indicator of biologically valuable forests in the Southern Taiga of North-Western European Russia (Andersson et al., 2009).

Niesslia peltigericola (D. Hawksw.) Etayo – ELR, Kol, Podporozh'e District, Voznesen'e (right side of the Svir' River), 61°01'N, 35°30'E, on thallus of *Peltigera aphthosa* (L.) Willd., 01.06.1898, leg. Aimo Cajander & Johan Lindroth, det. Arto Puolasmaa (H 8005575); WLR, Ka, Vyborg District, Vyborg Gulf, Sovetsky (former St. Johannes), way to church, 60°32'N, 28°40'E, near the pit, on thallus of *P. aphthosa*, 24.10.1893, leg. Ch. E. Boldt, det. A. Puolasmaa (H 8005573); WLR, Ik, Vyborg District, Pervomajskoe (former Kivennapa), 60°22'N, 29°44'E, on thallus of *P. aphthosa*, 04.09.1889, leg. Arthur Boman, det. A. Puolasmaa (H 8005574). – New to LR. Distribution in North-Western European Russia outside of LR: Republic of Karelia (Fadeeva et al., 2007). Distribution in Fennoscandia and Baltic countries: Norway, Sweden (Nordin et al., 2011), Estonia (Randlane et al., 2013).

Psoroglaena dictyospora (Orange) H. Harada – ELR, Podporozh'e District, ca. 8 km E from Ladva village, 60°22'47"N, 35°13'26"E, sparse old-growth spruce-birch forest with *Sphagnum* spp. and *Calamagrostis* sp., on bark of old *Salix* sp., 30.09.2010, leg. DH & IS (H); WLR, Ka, Vyborg District, Vyborg, 60°43'N, 28°45'E, on bark of *Populus tremula*, 1875, leg. Edvard Vainio (H). – New to LR. Not rare in SPb (Stepanchikova et al., 2008, 2010a; Stepanchikova & Kataeva, 2010). Distribution in North-Western European Russia outside of LR and SPb is unknown. Distribution in Fennoscandia and Baltic countries: Sweden, Finland (Nordin et al., 2011), Estonia (Randlane et al., 2013).

Rhizocarpon cinereonigrum Vain. – ELR, Kol, Podporozh'e District, former Nikol'sky (Nikola), 61°06'N, 34°51'E, on siliceous stone, 25.06.1875, leg. F. Elfving (H 8005273, sub *Lecidella carpathica* Körb.). – New to ELR. Known from WLR (Stepanchikova et al., 2013). Distribution in North-Western European Russia outside of LR: Republic of Karelia (Fadeeva et al., 2007). Distribution in Fennoscandia and Baltic countries: Norway, Sweden, Finland (Nordin et al., 2011).

Rinodina colobina (Ach.) Th. Fr. – ELR, Podporozh'e District, NE of Svir'stroj, right slope of the Yandeba River valley, 60°49'41"N, 33°50'16"E, birch-aspen-spruce forest, on bark of *Populus tremula*, 04.10.2014, leg. DH & IS (LECB, VLA). – New to the North-Western European Russia. In European Russia known from Komi Republic (Pystina, 2003), Belgorod Region (Konoreva & Muchnik, 2005) and Murmansk Region (Urbanavichus, 2014). Distribution in Fennoscandia and Baltic countries: Norway, Sweden, Finland (Nordin et al., 2011), Estonia (Randlane et al., 2013), Latvia (Piterāns, 2001). Very distinctive but rare species, characterized by dark granulose to blastidiate thallus, bluish to greenish grey epihymenium with K+ violet reaction and smooth spores by intermediate *Pachysporaria-Physcia-Mischoblastia*-type (Mayrhofer & Moberg, 2002).

Scoliciosporum umbrinum (Ach.) Arnold – ELR, Kol, Podporozh'e District, NE of Scheleyki village, Scheleyki Protected Area, 61°07'N, 35°40'E, rocky outcrops and rich deciduous forests

around former diabase quarry, on bark of *Populus tremula*, 18.06.1991, leg. TA (H 8000702, sub *Pertusaria leioplaca* DC.). – New to ELR. Not rare in WLR and SPb (e.g. Vainio, 1878; Stepanchikova & Kataeva, 2010; Stepanchikova et al., 2011, 2013). Distribution in North-Western European Russia outside of LR and SPb: Republic of Karelia (Fadeeva et al., 2007), Novgorod Region (Kataeva, 2009). Distribution in Fennoscandia and Baltic countries: Norway, Sweden, Finland (Nordin et al., 2011), Estonia (Randlane et al., 2013), Latvia (Piterāns, 2001), Lithuania (Motiejūnaitė, 1999).

Syzygospora physciacearum Diederich – ELR, Tikhvin District, Vepssky Les Protected Area, NE of Langozero Lake, 60°13'33.6"N, 35°08'24.8"E, old-growth aspen-spruce forest with *Vaccinium myrtillus* and *Calamagrostis* sp., on bark of *Populus tremula* on thallus of *Physcia aipolia* (Ehrh. ex Humb.) Fürnr., 18.08.2012, leg. GT (BILAS). – New to ELR. Known from WLR (Himelbrant et al., 2013; Stepanchikova et al., 2013). Distribution in North-Western European Russia outside of LR: Republic of Karelia (Fadeeva et al., 2007). Distribution in Fennoscandia and Baltic countries: Norway, Sweden, Finland (Nordin et al., 2011), Estonia (Randlane et al., 2013), Latvia (Czarnota & Kukwa, 2010), Lithuania (Motiejūnaitė, 1999).

Umbilicaria proboscidea (L.) Schrad. – WLR, Ka, Vyborg District, Vyborg Gulf, S of Chistopolie village, Prigranichny proposed Protected Area, 60°29'56.7"N, 27°59'25.1"E, seashore rocks, on siliceous stones, 30.08.2014, leg. Ludmila Gagarina (LE). – First record since the beginning of 1960[s]. Known from WLR, mainly from Hogland and NE of Karelian Peninsula (Hakulinen, 1962; Wei, 1962). Included into Red Data Book of LR (Tzvelev, 2000). Distribution in North-Western European Russia outside of LR: Republic of Karelia (Fadeeva et al., 2007). Distribution in Fennoscandia and Baltic countries: Norway, Sweden, Finland (Nordin et al., 2011), Estonia (Randlane et al., 2013).

ACKNOWLEDGEMENTS

We would like to acknowledge help of the colleagues at the Botanical Museum of University of Helsinki and lichen herbarium of University of Turku during our investigations in H, TUR-V and TUR. We would like to thank Ludmila A. Konoreva, who participated in some field investigations, and we are grateful to the staff of Metsä Forest Podporozh'e corporation for organizing the field trips to different districts of ELR. We are grateful to anonymous reviewer for valuable comments on the manuscript. The study was also supported by Russian Foundation for Basic Research (grant 14–04–01411) and research grant 1.37.151.2014 of Saint-Petersburg State University. The work was carried out within the framework of the institutional research project (no. 01201255601) of the Komarov Botanical Institute of the Russian Academy of Sciences.

REFERENCES

Alexeeva, N. M. & Himelbrant, D. E. 2007. Lichens. In: Tsvelev, N. N. (ed.). *Environment and biological diversity of Berezovye Islands Archipelago (The Gulf of Finland).* (In Russian, English summary). St. Petersburg. Pp. 213–229.

Alstrup, V. & Ahti, T. 2007. New reports of lichenicolous fungi, mainly from Finland and Russia. *Karstenia* 47: 1–4.

Andersson, L., Alexeeva, N. & Kuznetsova, E. (eds). 2009. *Survey of biologically valuable forests in North-Western European Russia. Vol. 2. Identification manual of species to be used during survey at stand level.* (In Russian). St. Petersburg. 258 pp.

Arup, U. 2006. A new taxonomy of the *Caloplaca citrina* group in the Nordic countries, except Iceland. *Lichenologist* 38(1): 1–20. http://dx.doi.org/10.1017/S0024282905005402

Brenner, M. 1885. Bidrag till kannedom af Finska vikens ovegetation. IV. Hoglands lafvar. *Meddelanden af Societatis pro Fauna et Flora Fennica* 13: 1–144.

Dereeper, A., Guignon, V., Blanc, G., Audic, S., Buffet, S., Chevenet, F., Dufayard, J. F., Guindon, S., Lefort,V., Lescot, M., Claverie, J. M. & Gascuel, O. 2008. Phylogeny.fr: robust phylogenetic analysis for the non-specialist. *Nucleic Acids Research* 36 (suppl. 2): W465–W469. http://dx.doi.org/10.1093/nar/gkn180

Czarnota, P. & Kukwa, M. 2010. New and noteworthy lichenized and lichenicolous fungi from Latvia. *Botanica Lithuanica* 16(1): 21–27.

Ekman, S. 2001. Molecular phylogeny of the Bacidiaceae (Lecanorales, lichenized Ascomycota). *Mycological Research* 105: 783–797. http://dx.doi.org/10.1017/S0953756201004269

Elfving, F. 1878. Anteckningar om vegetationen kring floden Svir. Meddelanden *af* Societatis pro Fauna et Flora Fennica 4: 113–170.

Fadeeva, M. A., Golubkova, N. S., Vitikainen, O. & Ahti, T. 2007. *Conspectus of lichens and lichenicolous fungi of the Republic of Karelia.* (In Russian, English summary). Karelian Research Centre of RAS, Petrozavodsk. 194 pp.

Fries, T. M. 1871–1874. *Lichenographia Scandinavica sive disposito lichenum in Dania, Suecia, Norvegia, Fennia, Lapponia Rossica hactenus collectorum.* Upsaliae. 639 pp.

Foucard, T. 2001. *Svenska skorplavar och svampar som växer på dem.* Stockholm. 392 pp.

Gagarina, L. V. & Himelbrant, D. E. 2010. Interesting record of *Gyalecta derivata* (Nyl.) H. Olivier from the North-Western European Russia. (In Russian). *Vestnik of Saint Petersburg University. Series 3. Biology* 4: 78–80.

Gardes, M. & Bruns, T. D. 1993. ITS primers with enhanced specificity for basidiomycetes. Application for the identification of mycorrhizae and rusts. *Molecular Ecology* 2: 113–118. http://dx.doi.org/10.1111/j.1365-294X.1993.tb00005.x

Gaya, E. 2009. Taxonomical Revision of the *Caloplaca saxicola* Group (Teloschistaceae, Lichen-forming Ascomycota). *Bibliotheca Lichenologica* 101: 1–191.

Gaya, E., Redelings, B. D., Navarro-Rosinés, P., Llimona, X., Cáceres, M. De & Lutzoni, F. 2011. Align or not to align? Resolving species complexes within the *Caloplaca saxicola* group as a case study. *Mycologia* 103(2): 361–378. http://dx.doi.org/10.3852/10-120

Hafellner, J. 1989. Studien über lichenicole Pilze und Flechten VII. Über die neue Gattung *Lichenochora* (Ascomycetes, Phyllachorales). *Nova Hedwigia* 48(3–4): 357–370.

Hakulinen, R. 1962. Die Flechtengattung *Umbilicaria* in Ostfennoskandien und Angrenzenden Teilen Norwegens. *Annales Botanici Societatis Zoologicae-Botanicae Fennicae Vanamo* 32(6): 1–87.

Himelbrant, D. E., Motiejūnaitė, J., Pykälä, J., Schiefelbein, U. & Stepanchikova, I. S. 2013. New records of lichens and allied fungi from the Leningrad Region, Russia. IV. *Folia Cryptogamica Estonica* 50: 23–31. http://dx.doi.org/10.12697/fce.2013.50.04

Himelbrant, D. E., Stepanchikova, I. S. & Konoreva, L. A. 2006. Lichen flora of the Sergievka Park and their peculiarities. (In Russian). In: Monitoring of nature of the Sergievka Park. *Transactions of the Biological Institute of Saint Petersburg State University* 52: 58–89.

Istomina, N. B. & Likhacheva, O. V. 2010. Preliminary list of lichens of the Pskov Region. (In Russian, English summary). *Novitates Systematicae Plantarum Non Vascularum* 44: 171–199.

Kataeva, O. A. 2009. Lichens and lichenicolous fungi. (In Russian). In: *Cadaster of flora of Novgorod Region.* Veliky Novgorod. Pp. 247–254.

Konoreva, L. A. & Muchnik, E. E. 2005. Towards investigations of lichens of Belgorod Region. (In Russian). *Novitates Systematicae Plantarum Non Vascularum* 38: 200–212.

Kotiranta, H., Uotila, P., Sulkava, S. & Peltonen, S.-L. (eds). 1998. *Red Data Book of East Fennoscandia.* Helsinki. 351 pp.

Kuznetsova, E., Ahti, T. & Himelbrant, D. 2007. Lichens and allied fungi of the Eastern Leningrad Region. *Norrlinia* 16: 1–62.

Mayrhofer, H. & Moberg, R. 2002 R. *Rinodina.* In: *Nordic Lichen Flora. Vol. 2.* Uddevalla. Pp. 41–69.

Melekhin, A. V. 2013. Additions to the lichen flora of the Murmansk Region. (In Russian). *Herald of the Kola Science Centre RAS* 4: 105–107.

Mežaka, A., Strazdiņa, L., Madžule, L., Liepiņa, L., Znotiņa, V., Brūmelis, G., Piterāns, A. & Hultengren, S. 2009. Bryophyte and lichen flora in relation to habitat characteristics in Moricsala Nature Reserve, Latvia. *Latvijas veģetācija* 18: 65–88.

Motiejūnaitė, J. 1999. Checklist of lichens and allied fungi of Lithuania. *Botanica Lithuanica* 5(3): 251–269.

Motiejūnaitė, J., Alstrup, V., Randlane, T., Himelbrant, D., Stončius, D., Hermansson, J., Urbanavichus, G., Suija, A., Fritz, Ö., Prigodina-Lukošienė, I. & Johansson, P. 2008. New or noteworthy lichens, lichenicolous and allied fungi from Biržai district, Lithuania. *Botanica Lithuanica* 4(1): 29–42.

Motiejūnaitė, J., Berglund, T., Czarnota, P., Himelbrant, D., Högnabba, F., Konoreva, L. A., Korchikov, E. S., Kubiak, D., Kukwa, M., Kuznetsova, E., Leppik, E., Lõhmus, P., Prigodina-Lukošienė, I., Pykälä, J., Stončius, D., Stepanchikova, I., Suija, A., Thell, A., Tsurikau, A. & Westberg, M. 2012. Lichens, lichenicolous and allied fungi found in Asveja Regional park (Lithuania). *Botanica Lithuanica* 18(2): 85–100. http://dx.doi.org/10.2478/v10279-012-0011-9

Muchnik, E., Wilk, K., Vondrák, J. & Frolov, I. 2014. Contribution to the knowledge of the genus *Caloplaca* in the Central European Russia. *Polish Botanical Journal* 59: 263–270. http://dx.doi.org/10.2478/pbj-2014-0043

Nordin, A., Moberg, R., Tønsberg, T., Vitikainen, O., Dalsätt, Å., Myrdal, M., Snitting, D. & Ekman, S. 2011. *Santesson's Checklist of Fennoscandian Lichen-forming and Lichenicolous Fungi.* Ver. April 29, 2011. http://130.238.83.220/santesson/home.php (18 May 2015)

Notov, A. A., Himelbrant, D. E. & Urbanavichus, G. P. 2011. *The list of lichens and allied fungi of the Tver Region.* (In Russian). Tver. 124 pp.

Orange, A., James, P. W. & White, F. J. 2001. *Microchemical methods for the identification of lichens.* London. 101 pp.

Piterāns, A. 2001. Checklist of the lichens of Latvia. *Latvijas Veģetācija* 3: 5–46.

Prigodina-Lukošienė, I., Kukwa, M. & Naujalis, J. R. 2003. Lichen species new to Lithuania. *Botanica Lithuanica* 9(4): 379–384.

Pystina, T. N. 2003. *Lichens of the taiga forests of the European North-East (southern and middle taiga subzones).* (In Russian). Ekaterinburg. 240 pp.

Randlane, T., Saag, A. & Suija, A. 2013. *Lichenized, lichenicolous and allied fungi of Estonia*. Ver. December 31, 2013. http://esamba.bo.bg.ut.ee/checklist/est/home.php (14 March 2015)

Räsänen, V. 1939. Die Flechtenflora der nördlichen Küstengegend am Laatokka-See. *Annales Botanici Societatis Zoologicae-Botanicae Fennicae Vanamo* 12(1): 1–240.

Santesson, R., Moberg, R., Nordin, A., Tønsberg, T. & Vitikainen O. 2004. *Lichen-forming and lichenicolous fungi of Fennoscandia*. Museum of Evolution, Uppsala University. 359 pp.

Smith, C. W., Aptroot, A., Coppins, B. J., Fletcher, A., Gilbert, O. L., James, P. W. & Wolseley, P. A. (eds). 2009. *The Lichens of Great Britain and Ireland*. London. 1046 pp.

Sokolova S. V. 1995. Genus *Cladonia* in the lichen flora of the Leningrad Region. (In Russian). *Novitates Systematicae Plantarum Non Vascularum* 30: 90–92.

Stepanchikova, I. S., Himelbrant, D. E. & Konoreva, L. A. 2008. Lichens of the Severo-Primorsky Park in Saint Petersburg. (In Russian). *Vestnik of Saint Petersburg University. Series 3. Biology* 3: 55–66.

Stepanchikova, I. S., Himelbrant, D. E., Kukwa, M. & Kuznetsova, E. S. 2010a. Additions to the lichen flora of the Finnish Gulf shore protected areas (in limits of Saint Petersburg). (In Russian, English summary). *Novitates Systematicae Plantarum Non Vascularum* 44: 237–244.

Stepanchikova, I. S. & Kataeva, O. A. 2010. Lichens of the Novoorlovsky Forest Park (Saint Petersburg). (In Russian). *Herald of Tver State University. Series: Biology and Ecology* 19(27): 69–82.

Stepanchikova, I. S., Kukwa, M., Kuznetsova, E. S., Motiejūnaitė, J. & Himelbrant, D. E. 2010b. New records of lichens and allied fungi from the Leningrad Region. *Folia Cryptogamica Estonica* 47: 77–84. http://www.ut.ee/ial5/fce/fce47pdf/fce47_stepanchikova.pdf

Stepanchikova, I. S., Schiefelbein, U., Alexeeva, N. M., Ahti, T., Kukwa, M., Himelbrant, D. E. & Pykälä, J. 2011. Additions to the lichen biota of Berezovye Islands, Leningrad Region, Russia. *Folia Cryptogamica Estonica* 48: 95–106. http://www.ut.ee/ial5/fce/fce48pdf/fce48_stepanchikova-2.pdf

Stepanchikova, I. S., Tagirdzhanova, G. M. & Himelbrant, D. E. 2013. The lichens and allied fungi of the Smorodinka River valley (Leningrad Region). *Novitates Systematicae Plantarum Non Vascularum* 47: 262–278.

Tsvelev, N. N. (ed.). 2000. *Red Data Book of Nature of the Leningrad Region. Vol. 2. Plants and Fungi*. Saint Petersburg. 672 pp.

Urbanavichus, G. P. 2014. Additions to the lichen flora of Murmansk Province. (In Russian). *Bulletin of Moscow Society of Naturalists. Biological series* 119(3): 77.

Vainio, E. A. 1878. Lichenes in viciniis Viburgi observati. Meddelanden *af* Societatis pro Fauna et Flora Fennica 2: 35–72.

Vainio, E. A. 1927. Lichenographia Fennica. III. Coniocarpineae. *Acta Societatis pro Fauna et Flora Fennica* 57(1): 1–138.

Vondrák, J., Říha, P., Arup, U. & Søchting, U. 2009. The taxonomy of the *Caloplaca citrina* group (Teloschistaceae) in the Black Sea region; with contributions to the cryptic species concept in lichenology. *Lichenologist* 41(6): 571–604. http://dx.doi.org/10.1017/S0024282909008317

Wei, J. C. 1962. Additions to the lichen flora of the North-Eastern part of the Karelian Peninsula, Leningrad Region. (In Russian). *Notulae Systematicae e Sectione Cryptogamica Instituti Botanici Nomine V. L. Komarovii Academiae Scientiarum URSS* 15: 8–12.

White, T. J., Bruns, T. D., Lee, S. & Taylor, J. 1990. Amplification and direct sequencing of fungal ribosomal DNA genes for phylogenies. In: M. A. Innis, D. H. Gelfand, J. J. Sninsky & T. J. White (eds). PCR Protocols: a Guide to Methods and Applications. Academic Press. Pp. 315–322. http://dx.doi.org/10.1016/B978-0-12-372180-8.50042-1

Zhurbenko, M. P. & Himelbrant, D. E. 2002. Lichenicolous fungi from the Kandalaksha Gulf, Karelia Keretina, Russia. *Folia Cryptogamica Estonica* 39: 51–59.