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CONTRIBUTION TO THE LITHUANIAN FLORA OF LICHENS AND ALLIED FUNGI. IV.

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Abstract

Motiejūnaitė J., Kukwa M., Lõhmus P., Markovskaja S., Oset M., Prigodina Lukošienė I., Stončius D., Uselienė A. 2013: Contribution to the Lithuanian flora of lichens and allied fungi. IV [Papildomi duomenys apie Lietuvos kerpių ir su jomis susijusių grybų florą. IV]. – Bot. Lith., 19(1): 3–7.

Four species of lichens and two species of lichenicolous fungi were reported as new to Lithuania: *Chaenotheca sphaerocephala*, *Endophragmiella franconica*, *Merismatium decolorans*, *Ochrolechia androgyna*, *Pertusaria ophthalmiza*, *Stereocaulon taeniarum*. *Endophragmiella franconica* was reported on a new host – *Cladonia coniocraea.* The teleomorph of *Abrothallus suecicus* was recorded for the first time in the country. Three species, *Chaenotheca sphaerocephala*, *Endophragmiella franconica* and *Stereocaulon taeniarum*, were recorded for the first time in the Baltic states. *Microcalicium arenarium*, previously known in Lithuania only from literature data, was confirmed with certainty for the first time. A revision of the *Candelaria concolor* complex revealed that only *C. pacifica* is known in Lithuania.

Keywords: lichens, lichenicolous fungi, Lithuania.

INTRODUCTION

We continue the series of reports on new finds of lichens and allied fungi in Lithuania based on the specimens collected from various parts of the country in 2010–2012 and on the revision of previous collections. Four species of lichens and two species of lichenicolous fungi new to Lithuania were reported. Of these, three species were found for the first time in the Baltic states.

MATERIALS AND METHODS

Lichen and fungus morphology was studied using a stereomicroscope, anatomy was analysed using a light microscope by means of hand-sectioned preparations in water or KOH. Spot-test reactions were checked with 10% KOH (K), sodium hypochlorite (C) and para-phenylenediamine in ethanol (Pd). Lichen substances were identified by thin-layer chromatography (solvents A or C) after the methods described by Orange et al. (2001). All referred specimens are deposited at the following herbaria: BILAS, WI, TU.

LIST OF SPECIES

Note: lichenicolous fungi are marked with an asterisk (*), saprobic, non-lichenized fungi are marked with a hash (#).

Abrothallus suecicus (Kirschst.) Nordin

This lichenicolous fungus has recently been

reported from Lithuania in its anamorph state as *Vouauxiomyces ramalinae* (Nordin) D.Hawksw. (Motiejūnaitė et al., 2011). In the present specimen, both teleomorph and anamorph inhabited apothecia of the host.

It is an uncommon species with a wide albeit scattered distribution in Europe. Notably, it was found to be common in old-growth forests (Hedenås et al., 2006). Of the nearby countries, it has so far been reported only from Estonia (Suija, 2005).

Specimen examined: BILAS: Zarasai district, Vajasiškis village, on the apothecia of *Ramalina fraxinea* growing on an old *Acer platanoides* in a churchyard, 1 August 2012, leg. D. Stončius.

Candelaria pacifica M.Westb.

The recent description of *C. pacifica* (Westberg & Arup, 2011) and the revision of the genus in the Nordic countries (Westberg & Arup, 2010) has shown that the entity known before as *C. concolor* (Dicks.) Stein comprises two species and that the vast majority of the collections belongs to *C. pacifica*. This has prompted a checking of the Lithuanian specimens of *C. concolor* that were housed in both BILAS and WI. The revision revealed the absence of *C. concolor* s. str. in the country. Though all examined specimens were sterile (no apothecia have ever been found in Lithuania, see Motiejūnaitė, 2002), all thalli with well-developed lobes lacked a lower cortex or the specimens represented a reduced form of a granular-blastidiate crust resembling *Candelariella* species (see Westberg & Arup, 2010).

C. pacifica was also reported from Estonia as very frequent species (Randlane & Martin, 2011).

Specimens examined: BILAS: Dzūkija National Park, Varėna district, Puvočiai, on timber fence in the village, 21 July 1994, leg. D. Mikalauskas; Marcinkonys, on timber wall of barn in rectory, 1 October 2012, leg. J. Motiejūnaitė; Marijampolė district, ± 2 km W of Sangrūda village, on trunk of *Tilia* sp. by a roadside, 25 August 1999, leg. J. Motiejūnaitė; Zubriai, on trunk of *Quercus robur* in a glade, 27 August 1999, leg. J. Motiejūnaitė; Ukmergė district, Taujėnai manor, on trunk of *Tilia* sp. in a manor park, 11 September 1997, leg. J. Motiejūnaitė; Siesikai manor, on trunk of *Tilia* sp. in a manor park, 11 September 1997, leg. J. Motiejūnaitė; Tauragė district, Eičiai Forest district, forest compartment No 4, edge of Viešvilė State Strict Nature Reserve, Gudaitynė homestead, on timber wall, 9 February 2001, leg. A. Uselienė; Kuršių Nerija National Park, Juodkrantė, Raganų kalnas hill, on trunk of a deciduous tree, June 1993, leg. O. Motiejūnaitė; Pakruojis district, Linksmučiai village, on trunk of *Pinus sylvestris* in a park, 11 September 1991, leg. J. Motiejūnaitė; Kėdainiai district, Griniai, on trunk of old *Quercus robur* in the graveyard, 22 July 2009, leg. D. Stončius; Rokiškis district, Juodupė Forest district, forest compartment No 253, on trunk of old *Quercus robur* in an old park, 11 August 2003, leg. J. Adamonis; WI: Kaunas city, Žaliakalnis, on trunk of *Salix* sp., 16 June 1937, leg. O. Klemas.

Additional extra-Lithuanian specimens examined: ***Poland***: BILAS: NE Poland, Augustow Forest, forestry area close to Starożyn Nature Reserve, 6 August 2005, leg. J. Motiejūnaitė; WI: Bolechowo, close to Poznań, on trunks of *Aesculus hippocastanum* by the roadside, 21 June 1921, leg. G. Krawiec (Lichenotheca Polonica, No 77).

Chaenotheca sphaerocephala Nádv.

This calicioid lichen was originally described from the Southern Hemisphere, now, however, it is known from cool to temperate regions in almost all continents (Tibell, 1999; Tibell & Frisch, 2010). In Europe, the species is scattered, confined to old-growth forests and is found on very few substrate units. It was recorded from montane parts of Central Europe, Fennoscandia and European Russia in spruce forests and usually grows on the bases of *Picea abies* trunks. Our specimen was found in a humid, old spruce stand; however, it grew on the base of an old *Alnus glutinosa*.

Our specimen has a superficial, minutely granular-verrucose grayish Pd+ orange thallus with a trebouxioid photobiont, tall (stalk up to 1.5 mm) ascomata covered with grayish pruina, a spherical capitulum lacking pruina, ascospores with irregular fissures, 3–4.5 µm in diam. *C. sphaerocephala* may be confused with *C. brunneola* (Ach.) Müll.Arg., which differs in shining black, epruinose, often branched ascomata and *Dictyochloropsis* as a photobiont, *C. stemonea* (Ach.) Müll.Arg., which has much smaller ascomata and *Stichococcus* as a photobiont as well as *C. gracillima* (Vain.) Tibell and *C. gracilenta* (Ach.) J.-E.Mattsson & Middelb., but the two latter taxa

have taller ascomata, a differently coloured pruina on the stalks, smaller ascospores, *Stichococcus* as a photobiont and a Pd– Thallus.

New to the Baltic States.

In our collection, thallus of *C. sphaerocephala* was inhabited by *Chaenothecopsis pusilla* (Ach.) A.F.W.Schmidt.

Specimen examined: BILAS: Viešvilė State Strict Nature Reserve, forest compartment No 96, right bank of the Viešvilė rivulet, on base of *Alnus glutinosa* trunk in springy area overgrown with old spruce-alder stand, 16 March 2007, leg. A. Uselienė.

**** Endophragmiella franconica*** Brackel & Markovsk.

This dematiaceous hyphomycete has recently been described from Bavaria (Germany) as growing on two species of the *Parmeliaceae* family, *Hypogymnia physodes* (L.) Nyl. and *Platismatia glauca* (L.) W.L.Culb. & C.F.Culb. (Brackel & Markovskaja, 2009). Here we report a new locality outside Germany and *Cladonia coniocraea* (Flörke) Spreng. as a new host.

In our specimen, the fungus grew on moribund thalli of lichens, but, according to the protologue, only some discolouration of the host thalli (in case of *P. glauca*) or no changes at all (in case of *H. physodes*) were observed. Our find confirms a lichenicolous habit of the species as the fungus was not found on adjacent bark. Another noteworthy observation is that *E. franconica* was found at the same location on the same substrata and the hosts in two subsequent years (2010 and 2011).

New to the Baltic States.

Specimen examined: BILAS: Kuršių Nerija National Park, Juodkrantė Forest district, forest compartment No 53, on decaying thalli of *Cladonia coniocraea* and *Hypogymnia physodes* growing on bark of *Pinus sylvestris* in pine-dominated stand. September 2010, leg. G. Adamonytė.

**** Merismatium decolorans*** (Rehm ex Arnold) Triebel

Three species of *Merismatium* Zopf are reported to grow on *Cladonia* spp.: *M. cladoniicola* Alstrup, *M. decolorans* (Rehm ex Arnold) Triebel, and *M. heterophractum* (Nyl.) Vouaux (Zhurbenko & Alstrup, 2004); of these, only *M. decolorans* has smooth, uniformly pale brown, 3.5–6 µm wide, 1–3-septate ascospores; rarely a longiseptum in a central segment may be developed (present in our specimen). In the Lithuanian material, the perithecia were smaller and only up to 120 µm in diam.

M. decolorans is a widespread lichenicolous fungus inhabiting various hosts. It has recently been recorded from Estonia on *Lepraria neglecta* (Nyl.) Erichsen (Suija et al., 2008).

Specimen examined: BILAS: Viešvilė State Strict Nature Reserve, central part of Artoji bog, on lower parts of podetia of *Cladonia ramulosa*. 26 July 2010, leg. A. Uselienė.

\# ***Microcalicium arenarium*** (Hampe ex A.Massal.) Tibell

In Lithuania, the species was so far known only from literature data: Lettau (1912) reported it from Schwarzort (nowadays Juodkrantė, Kuršių Nerija National Park).

M. arenarium is an uncommon species, with scattered distribution in Fennoscandia (Tibell, 1999), the closest localities to Lithuania are in Estonia, where it is rare (Suija et al., 2010).

Specimen examined: TU: Labanoras Forest district, 55° 16’ 39’’ N, 25° 48’ 49’’ E, managed and mature dry boreal pine forest, the rootplate of *Pinus sylvestris*, on roots, 21 July 2010, leg. P. Lõhmus.

Ochrolechia androgyna (Hoffm.) Arnold

The revision of the genus *Ochrolechia* A.Massal. in the Baltic countries (Kukwa, 2009, 2011) has shown that of the *O. androgyna* complex, only *O. bahusiensis* H.Magn. and *O. mahluensis* Räsänen were present in Lithuania. While checking unidentified sterile crusts deposited in BILAS, a specimen of *Ochrolechia* was found, morphologically and chemically (gyrophoric, lecanoric acids and ‘androgyna B unknowns’, fide Tønsberg, 1992) fitting the description of *O. androgyna* s. str. (Kukwa, 2011).

The specimen was found in humid mixed forest surrounded by a lake.

Specimen examined: BILAS: Žemaitija National Park, Plungė district, Lake Plateliai, Auksalė peninsula, on trunk of *Quercus robur* in mixed forest, 12 September 2001, leg. J. Motiejūnaitė.

Pertusaria ophthalmiza (Nyl.) Nyl.

This lichen is characterized by a rather thin thallus, elevated sorediate warts containing apothecia and fatty acids of the murolic acid complex as secondary metabolites. So far four fatty acids have been reported in *P. ophthalmiza* (Hanko, 1983; Chambers et al., 2009), however, in our specimen only three were detected. A similar result was obtained for Polish specimens (Oset & Kukwa, 2010).

This lichen may be similar to young thalli of *P. albescens* (Huds.) M.Choisy & Werner and to *Ochrolechia turneri* (Sm.) Hasselrot but the former has true soralia lacking apothecia, whereas the latter produces variolaric acid (Oset & Kukwa, 2010). Besides, *P. ophthalmiza* tends to grow on trees with acid bark (Jüriado et al., 2002; Chambers et al., 2009) and the two former species prefer neutral to subneutral bark. In Poland, however, *P. ophthalmiza* has been recorded from phorophytes with neutral to slightly acid bark (Oset & Kukwa, 2010). Our specimen grew on acid bark (*Betula*); its habitat, an old, humid spruce-hardwood stand, nevertheless, conformed the one indicated by Jüriado et al. (2002), Chambers et al. (2009) and Oset & Kukwa (2010).

P. ophthalmiza is known from Estonia (Jüriado et al., 2002) and NE Poland (Oset & Kukwa, 2010) and apparently is an uncommon species in the region, confined to little-disturbed humid forests.

Specimen examined: BILAS: Šalčininkai district, former Rūdninkai military Forest district, forest compartment No 118, on base of *Betula* sp. trunk, 24 June 1996, leg. J. Motiejūnaitė.

Stereocaulon taeniarum (H.Magn.) Kivistö

This species has only recently been segregated from *S. paschale* (L.) Hoffm., differing mainly in the absence of true cephalodia and in more robust phyllocladia that cover the pseudopodetia all over (Kivistö, 1998).

New to the Baltic states, but apparently it was not distinguished from *S. paschale*. Regarding its distribution in Finland (Kivistö, 1998) and Poland (Oset, 2010), *S. taeniarum* may appear to be more common in the region than *S. paschale* s. str.

Specimen examined: BILAS: Aukštaitija National Park, Utena district, Vaišniūnai Forest district, forest compartment No 132, on siliceous stone, at the edge of the forest, 15 May 2001, leg. J. Motiejūnaitė.

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PAPILDOMI DUOMENYS APIE LIETUVOS KERPIŲ IR SU JOMIS SUSIJUSIŲ GRYBŲ FLORĄ. IV.

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Santrauka

Straipsnyje pateikti duomenys apie keturių rūšių kerpes ir dviejų rūšių lichenofilinius grybus, kurių iki šiol Lietuvoje nebuvo aptikta. Dvi kerpių rūšys – *Chaenotheca sphaerocephala* ir *Stereocaulon taeniarum* bei lichenofilinis grybas *Endophragmiella franconica* aptikti pirmą kartą Baltijos šalyse. *Merismatium decolorans*, *Ochrolechia androgyna* ir *Pertusaria ophthalmiza* aptikti pirmą kartą Lietuvoje, pirmą kartą šalyje rasta ir *Abrothallus suecicus* teleomorfa. Lichenofilinis grybas *Endophragmiella franconica* pirmą kartą aptiktas ant naujo šeimininko – *Cladonia coniocraea.* Rastas iki šiol Lietuvoje tik iš istorinių literatūros šaltinių žinomas *Microcalicium arenarium*. Atlikus kerpių *Candelaria concolor* komplekso reviziją nustatyta, kad Lietuvoje kol kas žinoma tik viena komplekso rūšis – *Candelariella pacifica*.