Acta Biol. Univ. Daugavp. 15 (2) 2015
ISSN 1407 - 8953

SOME NEW TO LATVIA LICHENS AND ALLIED FUNGI

Rolands Moisejevs

Moisejevs R. 2015. Some new to Latvia lichens and allied fungi. *Acta Biol. Univ. Daugavp., 15 (2): 285 – 292.*

The paper presents data on five lichenized, lichenicolous and saprobic fungus species that are new to Latvia. *Chaenothecopsis pusiola, Scytinium teretiusculum, Microcalicium ahlneri, M. disseminatum* and *Pilophorus cereolus* were found in Vidzeme region in year 2015. Of them, *Scytinium teretiusculum* and *Pilophorus cereolus* are rare in all Baltic States.

Key words: lichenized fungi, lichenicolous fungi, non-lichenized fungi.

Rolands Moisejevs. Daugavpils University, Institute of Life Sciences and Technology, Daugavpils University, Parādes str.1a., LV-5401, e-mail: rolands.moisejevs@biology.lv.

INTRODUCTION

Lichens are poorly studied group of organisms in Latvia. Current total number of lichen and allied fungus species found in Latvia is the smallest in Baltic States – 682 in total (Motiejūnaitė et al., in prep.). During last 25 year new records of lichens and allied fungi were reported as a fieldwork result of the Symposia of Baltic Mycologists and Lichenologists (Motiejūnaitė & Piterāns 1998, Motiejūnaitė et al. 2006, Czarnota & Kukwa 2010), by visiting lichenologists from other countries (Sundin & Thor 1990, Motiejūnaitė & Grochowski 2014), local ecological studies (Plociņa 2007, Mežaka 2009, Mežaka et al. 2008, 2009, 2012), and some targeted lichen diversity studies (Piterāns et.al. 2005, 2006). Current paper supplements data on biota of lichens and allied fungi in Latvia and expands knowledge on distribution of some rare and understudied species.

MATERIAL AND METHODS

Specimens of lichenized and allied fungi were collected by the author of present paper in year 2015, in two Natura 2000 and one industrial forest territories in Vidzeme region (Fig 1.). Collected specimens were identified using the routine lichenological methods (Smith et al. 2009). Specimens were examined under stereomicroscope Nicon SMZ 800. Watermounted hand-made cross sections were examined under light transmission microscope Nicon Eclipse E100. Measurements of ascospores and other structures were made in water. For determination of collected specimens following references were employed: Ahti & Steinross (2013), Jørgensen (2007), Smith et al. (2009) , Tibell (1999). The nomenclature of taxa mainly follows Nordin et al. (2011). Some specimens were compared with the collections at the herbarium of the Institute of Botany, Nature Research Centre, Vilnius (BILAS). Species distribution in neighboring countries (except Russia) is provided. Non-lichenized fungi are marked with (+) and lichenicolous fungi with (#).All lichen specimens that are presented in this paper are deposited at the Herbarium of Daugavpils University, Institute of Life Sciences and Technology, Laboratory of Botany (DAU).

Study site

Vidzeme is situated in northeast part of Latvia and occupies area of 25 683 km^2 (including Riga and Pieriga districts), with highest population in the districts of Riga, Jūrmala, Valmiera and Cēsis. (Turlājs 2011). There are 7 Nature Parks, 4 Protected Landscape Areas, 1 Biosphere Preserve, 1 National Park and over 70 Nature Preserves. (Dabas aizsardzības pārvalde 2015). The region is bordered by Riga Gulf in the west. Highest areas above the sea level are Vidzemes and Alūksnes uplands with highes points „Gaiziņkalns" 311,6 m and „Dēliņkalns" 271,5. Largest river in Vidzeme is Gauja with total lenth of 452 km and catchment area over 7.700 km^2 in Latvia. Sandstone outcrops are found along the banks and in the catchment of the river (Turlājs 2011).

Climate of Vidzeme region is mainly formed by Atlantic cyclones that bring air masses and precipitation from west and northwest. Average temperature in January ranges between -7 and -3 °C , in July +16 and +18°C. Average yearly precipitation ranges between 600 and 850 mm, snow cover remains for 80–110 days (Turlājs 2011).

A number of forest and outcrop habitat types included into Annex I of European Union Habitat Directive are found in the region, such as 6530 *Fennoscandian wooded meadows, 9010 *Western taiga, 9020 *Fennoscandian hemiboreal natural old broad-leaved deciduous forests rich in epiphytes, 9050 Fennoscandian herb-rich forests with *Picea abies*, 9080 *Fennoscandian deciduous swamp woods, 9160 Sub-Atlantic and medio-European oak forests, 9180 *Tilio-Acerion* forests of slopes, screes and ravines, 91E0 *Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior*, 91D0 Bog woodland, 8220 Siliceous (sandstone) rocky slopes with chasmophytic vegetation, 8210 Calcareous rocky slopes with chasmophytic vegetation and some others (Lārmanis 2013, Rēriha 2013).

RESULTS AND DISCUSSION

All refered specimens were collected during the year 2015 in Vidzeme. *Chaenothecopsis pusiola,*

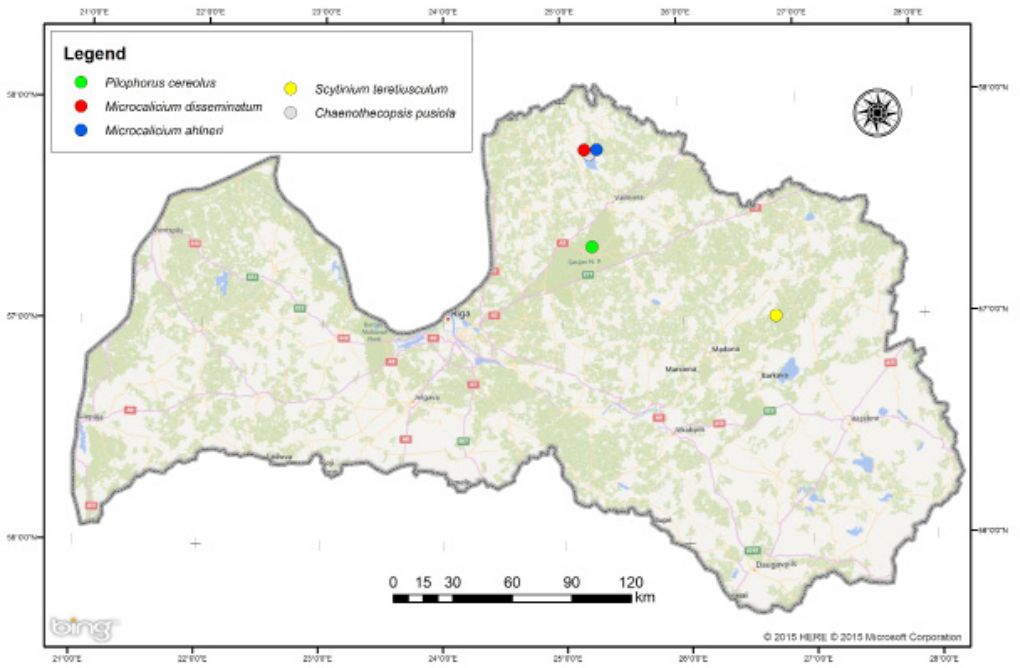

Fig 1. Study areas.

Scytinium teretiusculum, Microcalicium ahlneri, Microcalicium disseminatum, Pilophorus cereolus are reported here for the first time in Latvia. Of the five newly recorded species, *Scytinium teretiusculum* and *Pilophorus cereolus* are rare and red-listed in adjacent countries whenever they are known (Randlane & Saag 2000, Randlane et al. 2008, Rašomavičius 2007).

SPECIES LIST

+ *Chaenothecopsis pusiola* (Ach.) Vain.

Morphology: Apotecia 0,3-0,55 mm tall, head 0,16- 0,2 mm diam. Ascospores 6-7x 2-2,4 µm, 1-septate, septum pale. Excipulum K+ bright red.

Species distribution and ecology: Widely distributed in boreal and montane zones of N.Hemisphere, occurs on lignum of conifers, less often on lignum of deciduous trees (Tibell 1999) . Species is known from Lithuania and Estonia (Motiejūnaitė 1999; Lõhmus 1998).

Material examined: Latvia, Valmieras region, Burtnieku district, Nature preserve „Vidusburtnieks", (57°46'N, 25°14'E). On decaying *Quercus* wood in old shaded woodland with high humidity. .May 16, 2015. (DAU Nr. 027004001)

***Scytinium teretiusculum* (Wallr.) Otálora et al.**

Morphology: Thallus dark grey. Lobes 0,3-0,8x 0,1-0,2 mm. Isidia long, cylindrical 40- 65 µm diam and 0,6-0,8 mm long. Apotecia in Latvian material not found.

Species distribution and ecology: Europe, Macaronesia, N. and C. America, Asia. Corticolous on coarse-barked trees, especially *Populus tremula* or *Juniperus*. (Gilbert & Jørgensen 2009, Jørgensen 2007). Species known from Lithuania and Estonia (Motiejūnaitė et.al. 2005; Randlane & Saag 1999).

Material examined: Latvia, Lubānas region, Daukstas district**,** About 5km West off Lubāna

Fig 2. Old woodland from study area.

City (57°1'N 26°46'E). Broad-leaved forest with *Populus tremula*. On trunk of *Tillia cordata*. Old shaded woodland with high humidity (Fig 2). July 22, 2015 (DAU Nr. 064007001).

+ ***Microcalicium ahlneri*** Tibell (Fig 4.)

Morphology: Apotecia 0,4-0,5 mm tall. Stalk black, head narrowly conical. Ascospore mass green-black with sclerotized hyphae. Ascospores 5-6,5x 2-2,4 µm.

Species distribution and ecology: Known in Europe, N. America, Asia. On decorticated stumps heavily attacked by brown rot fungi, usually of *Pinus sylvestris,* more rarely on lignum of *Picea abies*, and occasionally on oak wood. Mainly in humid locations (Tibell 1999). Recorded from Lithuania and Estonia (Motiejūnaitė 2007; Randlane & Saag 1999).

Material examined: Latvia, Valmieras region, Burtnieku district, Nature preserve „Vidusburtnieks" , (57°46' N 25°14'E). On decaying wood of *Quecus robur*. Old shaded woodland with high humidity.May 16, 2015 (DAU Nr. 143001001) .

Microcalicium disseminatum (Ach.) Vain. (Fig. 5)

Morphology: On thalli of *Chaenotheca trichialis* (Ach.) Th. Fr. Apotecia 0,1-0,3 mm diam., 0,1-0,2 tall, sessile. True exciple aeruginose in section, K+ brown. Ascospores 11-13x 3-3,7 µm, 1- to 3-septate.

Species distribution and ecology: Reported from Europe, N. America, Asia. On lignum and bark of both decidous trees and conifers in moderately shaded situations. Often parasitic on calicioid lichens, particularly Chaenotheca species. Also on free-living algal colonies and apparently also occurring saprobically on wood (Tibell 1999). Species known from Lithuania and Estonia. (Motiejūnaitė 2003; Randlane & Saag 1999).

Material examined: Latvia, Valmieras region, Burtnieku district, Nature preserve „Vidusburtnieks",(57°46' N 25°14'E). On trunk

Fig. 3. Habitat of *Pilophorus cereolus.*

Fig. 4. *Microcalicium ahlneri.*

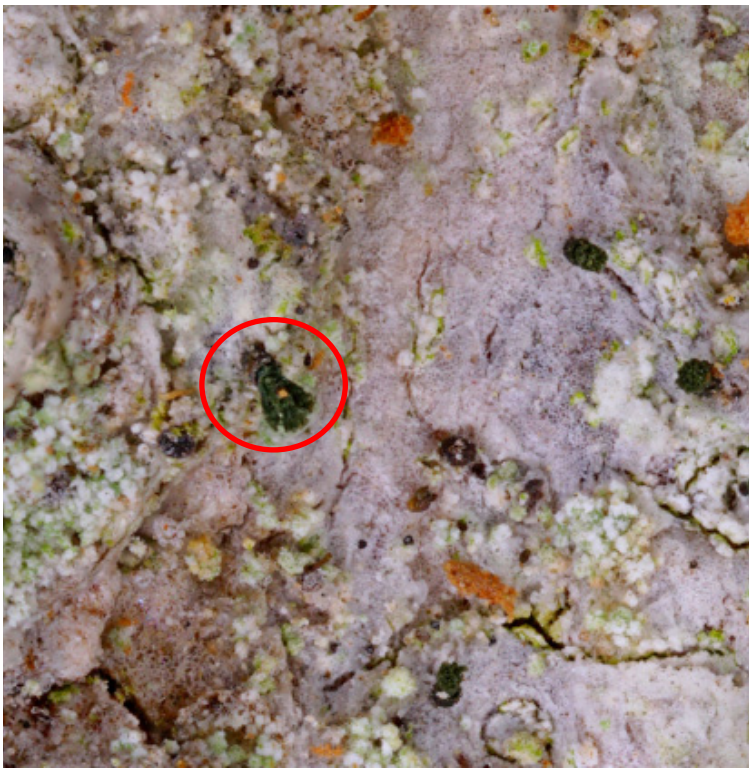

Fig 5. *Microcalicium disseminatum.*

of *Quecus robur*. Old shaded woodland with high humidity. May 16, 2015. (DAU Nr. 143002001)

***Pilophorus cereolus* (Ach.) Hellb.**

Morphology: Crustose, thallus minutely granular, containing soredia and cephalodia. Cephalodia with *Nostoc.* Pseudopodetia 3-5,7 mm high, containing black pycnidia at apices. K+ yellow.

Species distribution and ecology: Reported from Scandinavia, Estonia and Central Europe, Greenland, W and E coast of North America. Grows on siliceous stones and rocks in very shaded, moist places. (Ahti & Stenroos 2013). *P. cereolus* is rare in Baltic region and was found only in Estonia previously (Randlane et al. 2008). In Estonia species is red-listed.

Material examined: Latvia, Cēsu region, Priekuļu district, Gauja National Park, Ērģeļu (Ērgļu) Klintis, (57°21'N 25°15'E). On sandstone outcrops, about 2-3 m from the base (Fig 3).. April 17, 2015 (DAU 144001001)

ACKNOWLEDGEMENTS

I express my sincere thanks to Dr. Jurga Motiejūnaitė (Vilnius) for checking determination of *Pilophorus cereolus* and *Microcalicium* spp. and for helpful advises. I also thank my colleagues Dr. Maksims Balalaikins, Msc. Māris Nitcis, and Msc. Kristīna Aksjuta for help in a field studies and for technical support.

REFERENCES

Ahti T., Stenroos S. 2013. Piloporus. – In: Ahti T., Stenroos S., Moberg R. (eds) Nordic Lichen Flora. Vol.5. Nordic Lichen Society. Bohuslän ´5, Uddevalla. Pp. 87–89.

Anonymous. MK. Noteikumi Nr. 940. http://likumi.lv/doc.php?id=253746 [05.09.2015]

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

Dabas aizsardzības pārvalde. 2015. http://daba.gov.lv/public/lat/iadt/vidzemes_pr_novados/ [09.09.2015]

Gilbert O. L., Jørgensen, P. M. (2009) Leptogium (Ach.) Gray. In: 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: British Lichen Society. Pp. 541–551.

Jørgensen P. M. 2007. Collemataceae. In: Nordic Lichen Flora Vol.3. Nordic Lichen Society. Bohuslän ´5, Uddevalla. Pp. 14–42.

Lārmanis V.(2013.) Meža biotopi. Grām.: Auniņš, A. (red.) Eiropas Savienības aizsargājamie biotopi Latvijā. Noteikšanas rokasgrāmata. 2. papildināts izdevums. Rīga, Latvijas Dabas fonds, Vides aizsardzības un reģionālās attīstības ministrija. Pp. 275–306.

Lõhmus P. 1998. List of Estonian calicioid lichens and fungi. *Folia Cryptog. Estonica,* 32: 43–46.

Mežaka A., Brūmelis G., Piterāns A., Printzen C. 2012. Distribution of *Lepraria* in relation to tree substratum and deciduous forest type (*Lepraria* in deciduous forests). – *Annales Botanici Fennici,* 49: 162–170.

Mežaka A., Strazdiņa L., Brūmelis G., Piterāns A. 2008. Epifītu flora un ekoloģija Dārznīcas pilskalnā. *Latvijas Veģetācija,* 16: 19–34.

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., Suija A., Lõhmus P., Kuznetsova E., Tõrra T., Prigodina-Lukošienė I., Piterāns A. 2006. New or noteworthy lichens, lichenicolous and allied fungi found during the 16th Symposium of Mycologists and Lichenologists in Latvia. *Botanica Lithuanica,* 12(2): 113–119.

Motiejūnaitė J. 2007. Lichenized, lichenicolous and allied fungi of Žemaitija National Park (Lithuania). *Herzogia*, 20: 179–188.

Motiejūnaitė J., Andersson L., 2003. Contribution to the Lithuanian flora of lichens and allied fungi [Papildomi duomenys apie Lietuvos kerpių ir su jomis susijusių grybų florą]. *Botanica Lithuanica,* 9(1): 71–88.

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. Ninety one species of lichens and allied fungi new for Latvia with a list of additional records from Kurzeme. (in prep.)

Motiejūnaitė J., Grochowski P. 2014. Miscellaneous new records of lichens and lichenicolous fungi. *Herzogia,* 27: 193–198.

Motiejūnaitė J., Piterāns A. 1998. Materials on lichens and allied fungi of Ķemeri National Park (Latvia). *Botanica Lithuanica,* 4: 187–196.

Motiejūnaitė J., Stončius D., Kukwa M., 2005. Contribution to the Lithuanian flora of lichens and allied fungi. II *Botanica Lithuanica*, 11(1): 41–49.

Motiejūnaitė J., Suija A., Lõhmus P., Kuznetsova E., Tõrra T., Prigodina-Lukošienė I., Piterāns A. 2006. New or noteworthy lichens, lichenicolous and allied fungi found during the 16th Symposium of Mycologists and Lichenologists in Latvia. *Botanica Lithuanica* 12(2): 113–119.

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 [30.08.2015].

Piterāns A. 1981. Ķērpji un to aizsardzība. Latvijas PSR floras aizsardzības aktuālās problēmas. Rīga, 49. - 52.

Piterāns A. 1991. Slīteres rezervāta ķērpju flora [Lichens of the Slitere Nature Reserve]. *Jaunākais mežsaimniecībā,* 33: 27. - 32.

Piterāns A. 2001. Latvijas ķērpju konspekts. *Latvijas veģetācija,* 3: 5-46.

Piterāns A., Laime B., Žeiviniece A., Berga I. 2005. Lichens in Užava Nature Reserve. *Acta Biologica Universitatis Daugavpiliensis,* 5(2): 109–112.

Piterāns A., Žeiviniece A.,Berga I. 2006. LU Botānikas un ekoloģijas katedras ķērpju herbārijs. *Latvijas Universitātes raksti*, 693: 249–252.

Plociņa J. 2007. Monitoring of woodland meadow management using epiphytic lichens. – In: 4th International Conference "Research and conservation of biological diversity in Baltic region". Daugavpils, 25–27 April, 2007. Book of abstracts. Pp. 88. Daugavpils: Daugavpils University Academic Press "Saule".

Randlane T., Saag A. (eds) 1999. Second checklist of lichenized, lichenicolous and

allied fungi of Estonia. *Folia Cryptog. Estonica,* 35: 1–132.

Randlane T., Saag A. 2000. Biogeographical survey of Estonian lichen flora, with reference to conservation strategies. *For. Snow Landsc. Res.,* 75 (3): 381–390.

Randlane T. Jüriado A. Suija P. Lõhmus, E. Leppik 2008. Lichens in the new Red List of Estonia. *Folia Cryptog. Estonica,* Fasc., 44: 113–120.

Rašomavičius V. (ed.). 2007. Lietuvos Raudonoji Knyga. Leidykla, Lutute. Pp. 19.

Rēriha I. (2013.) Iežu atsegumu biotopi. Grām.: Auniņš, A. (red.) Eiropas Savienības aizsargājamie biotopi Latvijā. Noteikšanas rokasgrāmata. 2. papildināts izdevums. Rīga, Latvijas Dabas fonds, Vides aizsardzības un reģionālās attīstības ministrija. Pp. 245.–254.

Tibell L. 1999. Caliciales. In: Nordic Lichen Flora Vol.1. Nordic Lichen Society. Bohuslän ´5, Uddevalla, 20–94 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: British Lichen Society.

Sundin R.,Thor G. 1990. Some lichens from Latvia. *Graphis Scripta,* 3: 20–23.

Turlājs, J. 2011. Latvijas ģeogrāfijas atlants. – Rīga: Karšu izdevniecība "Jāņa sēta".

Received: 28.04.2015.
Accepted: 06.07.2015.