

ASCOMYCETE SPECIES NEW TO LITHUANIA

Tatjana IZNOVA, Jonė RUKŠĖNIENĖ

Vilnius University, Department of Botany and Genetics, M. K. Čiurlionio Str. 21/27,
 LT-03101 Vilnius, Lithuania; e-mail: tatjana.iznova@gf.vu.lt, jone.rukseniene@gf.vu.lt

Abstract

Iznova T., Rukšėniėnė J., 2012: Ascomycete species new to Lithuania [Naujos aukšliagybių rūšys Lietuvoje]. – Bot. Lith., 18(1): 35–39.

In this paper three ascomycete species, *Capronia nigerrima*, *Kalmusia clivensis* and *Sillia ferruginea*, are reported for the first time in Lithuania. The fungi were found on old stromata of pyrenomycetes, bark of dead branch of *Corylus avellana* and dead stems of *Rubus idaeus* in the alluvial forests with *Alnus glutinosa* of the southern, northeastern and eastern Lithuania. Morphological descriptions, comments and illustrations of the species are presented.

Keywords: ascomycetes, new records, alluvial forests, Lithuania.

INTRODUCTION

Ascomycetes, namely *Dothideomycetes*, *Eurotiomycetes*, *Sordariomycetes*, were intensively studied during the last thirty years in various forests of Lithuania (RUKŠĖNIENĖ, 1989; RUKŠĖNIENĖ, 1995; 1996; CHLEBICKI & TREIGIENĖ, 1995; TREIGIENĖ, 1999; IRŠĖNAITĖ & KUTORGA, 1997; IRŠĖNAITĖ & TREIGIENĖ, 2001; RUKŠĖNIENĖ & ŠARKUTĖ, 2001; 2002; MOTIEJŪNAITĖ et al., 2002; TREIGIENĖ & RUKŠĖNIENĖ, 2005; KUTORGA et al., 2006; RUKŠĖNIENĖ, 2007; RUKŠĖNIENĖ & IZNOVA, 2007; TREIGIENĖ et al., 2007; 2010; IZNOVA & RUKŠĖNIENĖ, 2011b).

It is worth mentioning that the information on these ascomycetes from the alluvial forests with *Alnus glutinosa* (L.) Gaertn. is still sparse (RUKŠĖNIENĖ, 2007). Alluvial forest is a broadleaved stand, which is flooded in spring though is formed on soils of good aeration and permeable for water (RAŠOMAVIČIUS, 2001). These forests with their luxuriant vegetation, high humidity and fertile soil are habitats for very diverse and specific mycobiota (BUJAKIEWICZ, 1989). According to KÜFFER (2008), the alluvial stands of the *Alnion glutinosae* alliance are the richest in fungal species forests in Switzerland. It is most probable that

the fungal diversity of alluvial forests is much higher than hitherto recorded in Lithuania. During the investigations on pyrenomycetes and loculoascomycetes in alluvial forests with *Alnus glutinosa* (plant communities included into the EU Habitats Directive Annex I list) in various regions of Lithuania (IZNOVA & RUKŠĖNIENĖ, 2011a) several new fungal species were identified as new to Lithuania. The aim of this paper was to present the morphological and ecological data of three ascomycete species recorded for the first time in Lithuania.

MATERIALS AND METHODS

The field studies were carried out between 2010 and 2012 in six alluvial forests: northeastern Lithuania, Ignalina district (Šakeliškės meadows and Raitas Forests), southern Lithuania, Lazdijai district (the northern part of Lake Ančia and Rinkotas Forests), eastern Lithuania, Trakai district (Spindžius Forest) and Vilnius district (Šveicarija Forest). The material of pyrenomycetes and loculoascomycetes on various samples of woody and herbaceous plants was collected. Microsections of the collected material,

mounted in water, were observed using Olympus CH 40 light microscope. Fragments of stroma of *Sillia ferruginea* were placed in the 10 % KOH solution for the extraction of pigment. Nomenclature of fungi follows INDEX FUNGORUM (2008) and LUMBSCH & HUHN-DORF (2010). Specimens of the examined species are deposited at Vilnius University Herbarium (WI).

RESULTS AND DISCUSSION

Three species new to Lithuania belong to the families *Herpotrichiellaceae* (order *Chaetothyriales*, class *Eurotiomycetes*), *Montagnulaceae* (order *Pleosporales*, class *Dothideomycetes*), *Sydowiellaceae* (order *Diaporthales*, class *Sordariomycetes*). These fungal families are little known in Lithuania. Only one species belonging to *Sydowiellaceae* (*Sydowiella ambigua* (Mouton) Munk) has been recorded in the country (RUKŠENIENĖ, 1996).

List of species

CHAETOTHYRIALES

HERPOTRICHIELLACEAE

Capronia nigerrima (R. R. Bloxam) M. E. Barr, Mycotaxon, 41(2): 431, 1991. – *Sphaeria nigerrima* R. R. Bloxam, in Currey, 1859. – Fig. 1.

Stroma superficial, globose, about 1 mm in diam., covered with numerous partly immersed pseudothecia. Pseudothecia about 100 µm in diam., black, with very short dark brown hairs. Asci bitunicate, cylindrical-clavate, short-stipitate, rather thick-walled above, 43–61 × 9–13 µm, 8-spored. Ascospores uniseriate to biseriate in the ascus, elliptical, ends rounded, hyaline to pale olive, 15–20 × 5(6) µm, with 3–5 transverse septa and 1 longitudinal septum, with oil drops.

Specimen examined. On old stromata of *Eutypa flavovirens* (Pers.) Tul. et C. Tul., found on dead branch of *Alnus glutinosa*, the forest in the northern part of Lake Ančia, Lazdijai district, April 2010, T. Iznova, WI 7124.

Notes. According to different authors, asci of this species can vary in size: SACCARDO (1891) indicates asci to be 80 × 12 µm; MUNK (1957) – 40–50 × 14–17 µm; DENNIS (1968) – up to 60 × 17 µm.

The recorded species prefers the old stromata of *Eu-*

typa sp., growing on different host trees (MUNK, 1957; DENNIS, 1968). ELLIS & ELLIS (1997) noted more substrates for this fungus: old stromata of *Diatrype stigma* (Hoffm.) Fr., *Eutypa acharii* Tul. & C. Tul. and *Hypoxylon multifforme* (Fr.) Fr. on wood of *Acer* sp., *Corylus* sp., *Fagus* sp., *Fraxinus* sp., *Hedera* sp., *Ilex* sp., *Prunus* sp. and *Salix* sp.

According to BARR (2009), *Capronia nigerrima* is a cosmopolitan species. This species is known in China, Denmark, England, France, Norway, Scotland, Sweden, Russia (FARR & ROSSMAN, 2006; BARR, 2009; ANONYMOUS, 2010).

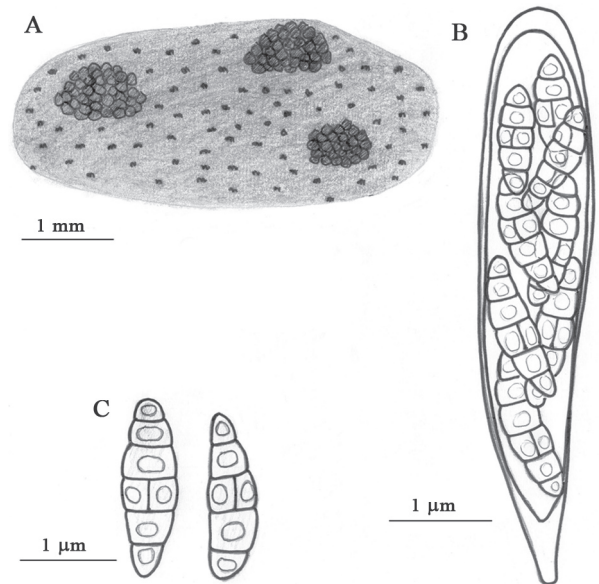


Fig. 1. *Capronia nigerrima*: A – stroma with pseudothecia, B – ascus with ascospores, C – ascospores

DIAPORTHALES

SYDOWIELLACEAE

Sillia ferruginea (Pers.) P. Karst., Bidr. Känn. Finl. Nat. Folk, 23: 159, 1873. – *Sphaeria ferruginea* Pers., 1796. – Fig. 2.

Stroma in bark, hemispherical, up to 3–4 mm in diam., black on the surface, dark yellow inside, crumbly. In the 10 % KOH solution stroma becomes rouge colour. Perithecia about 350 µm in diam., black, numerous, with abundant black cylindrical necks, protruding above the surface of the stroma. Asci unitunicate, narrowly clavate, short-stipitate, with a distinct small apical structure, 96–115 × 10 µm, 8-spored. Ascospores parallel in the ascus, narrowly fusiform,

slightly curved, hyaline, $65\text{--}72 \times 2.5 \mu\text{m}$, with 3–5 transverse septa, containing small oil drops.

Specimen examined. On bark of dead branch of *Corylus avellana* L., Šveicarija Forest, Vilnius district, April 2010, T. Iznova, WI 7125.

Notes. Lithuanian collections had narrower asci than presented in literature: MUNK (1957) – $80\text{--}100 \times 12\text{--}16 \mu\text{m}$; DENNIS (1968) and NORDÉN et al. (1997) – up to $112 \times 16 \mu\text{m}$.

According to the data presented by other authors, the studied species was found on the bark of dead branches and twigs of *Corylus avellana*, *Quercus robur* L. and other deciduous trees (MUNK, 1957; DENNIS, 1968; ELLIS & ELLIS, 1997; NORDÉN et al., 1997).

Sillia ferruginea is known in various countries in the northern Hemisphere: Austria, Bulgaria, Canada, former Czechoslovakia, Denmark, England, France, Germany, Ireland, Poland, Russia, Spain, Sweden, Ukraine, the United States of America (FARR & ROSSMAN, 2006; ANONYMOUS, 2010).

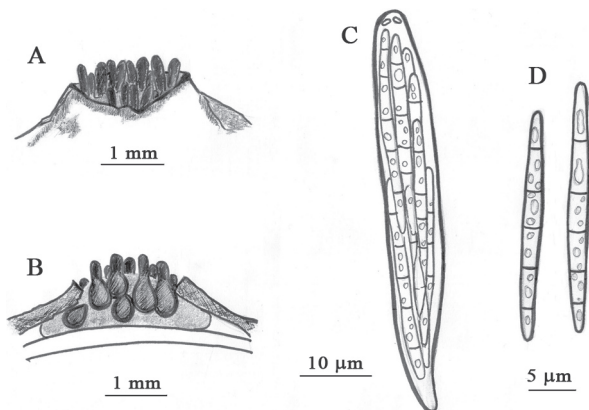


Fig. 2. *Sillia ferruginea*: A – stroma with perithecia, B – longitudinal section through stroma, C – ascus with ascospores, D – ascospores

PLEOSPORALES

MONTAGNULACEAE

Kalmusia clivensis (Berk. et Broome) M. E. Barr, Mycotaxon, 29: 504, 1987. – *Sphaeria clivensis* Berk. et Broome, 1852. – Fig. 3.

Pseudothecia immersed, solitary, globose, black, about $300 \mu\text{m}$ in diam., with slightly prominent papillate ostioles. Asci bitunicate, clavate, $60\text{--}89 \times 12.5\text{--}13 \mu\text{m}$, 8-spored. Ascospores biseriate in the as-

cus, elliptical, ends rounded, pale yellowish-brown, $18\text{--}22.5 \times 6.5\text{--}7.5 \mu\text{m}$, with three transverse septa.

Specimen examined. On dead stems of *Rubus idaeus* L., the forest of Šakeliškės meadows, Ignalina district, April 2010, T. Iznova, WI 7126.

Notes. According to MUNK (1957), DENNIS (1968), ELLIS & ELLIS (1997), BARR (2009), this species was found on the dead stems of various herbaceous and small woody plants.

Kalmusia clivensis is a cosmopolitan species (BARR, 2009). It was recorded in Canada, Denmark, England, Georgia, Italy, Poland, Scotland, Sweden, the United States of America (FARR & ROSSMAN, 2006; BARR, 2009; ANONYMOUS, 2010).

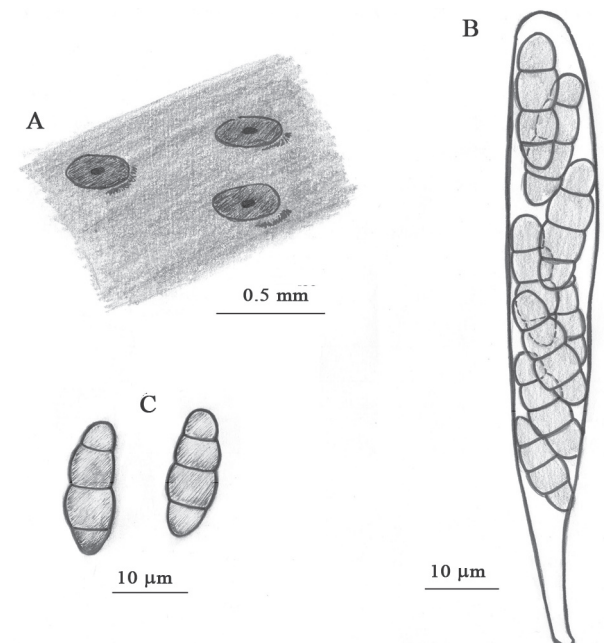


Fig. 3. *Kalmusia clivensis*: A – pseudothecia, B – ascus with ascospores, C – ascospores

ACKNOWLEDGEMENTS

The authors would like to thank anonymous reviewers for helpful comments on the manuscript. Dr. A. Glemžienė is thanked for linguistic help.

REFERENCES

- ANONYMOUS, 2010: The Global Biodiversity Information Facility (GBIF). URL – <http://ecat-dev.gbif.org/> [accessed 01-03-2012].
BARR M. E., 2009: A Nomenclator of Loculoascomy-

- cetous Fungi from the Pacific Northwest. – North American Fungi, 4(1): 1–94.
- BUJAKIEWICZ A. M., 1989: Macrofungi in the alder and alluvial forests in various parts of Europe and North America. – Opera Botanica, 100: 29–41.
- CHLEBICKI A., TREIGIENĖ A., 1995: Notes on *Pyrenomyces* and *Coelomyces* from North Lithuania. – Acta Mycologica, 30(1): 95–119.
- DENNIS R. W. G., 1968: British ascomycetes. – Lehre.
- ELLIS M. B., ELLIS J. P., 1997: Microfungi on land plants. An identification handbook. – London.
- FARR D. F., ROSSMAN A. Y., 2006: Fungal Databases, Systematic Mycology and Microbiology Laboratory, ARS, USDA. URL – <http://nt.ars-grin.gov/fungaldatabases/> [accessed 01-03-2012].
- INDEX FUNGORUM, 2008: The CABI Bioscience Database of Fungal Names. URL – <http://www.index-fungorum.org/> [accessed 01-03-2012].
- IRŠENAITĖ R., KUTORGA E., 1997: Five lignicolous ascomycetes species new to Lithuania. – Botanica Lithuanica, 3: 367–376.
- IRŠENAITĖ R., TREIGIENĖ A., 2001: Pyrenomyces and loculoascomycetes on oak (*Quercus*) in Lithuania. – Botanica Lithuanica, 7: 193–202.
- IZNOVA T., RUKŠENIENĖ J., 2011a: Preliminary data on pyrenomyces and loculoascomycetes (*Ascomycota*) of alluvial forests (Lithuania). – In: ADAMONYTĖ G., MOTIEJŪNAITĖ J. (eds.), Fungi and lichens in the Baltics and beyond. XVIII Symposium of the Baltic Mycologists and Lichenologists Nordic Lichen Society Meeting: 12. Vilnius.
- IZNOVA T., RUKŠENIENĖ J., 2011b: Diversity and ecological aspects of pyrenomyces and loculoascomycetes (*Ascomycota*) in Pavilniai Regional Park (Lithuania). – Botanica Lithuanica, 17: 85–96.
- KUTORGA E., RUKŠENIENĖ J., TREIGIENĖ A., 2006: Microscopical fungi on *Carpinus betulus* in Lithuania. 1. Teleomorphs and associated anamorphs. – Botanica Lithuanica, 12: 233–241.
- KÜFFER N., 2008: Wood-inhabiting aphylloroid basidiomycetes: Diversity, Ecology and Conservation. – Thèse présentée à la Faculté des sciences de l' Université de Neuchâtel pour l' obtention du grade de Docteur ès Sciences.
- LUMBSCH H. T., HUHDORF S. H., 2010: Myconet, 14. Part one. Outline of *Ascomycota*–2009. Part two. Notes on *Ascomycete* systematics. Nos. 4751–5113. – Fieldiana, Life and Earth Sciences, 1: 1–64.
- MOTIEJŪNAITĖ J., KUTORGA E., IRŠENAITĖ R., 2002: SIX ASCOMYCETE SPECIES NEW TO LITHUANIA. – BOTANICA LITHUANICA, 8(2): 171–177.
- MUNK A., 1957: Danish pyrenomyces. – Copenhagen.
- NORDÉN B., APPELQUIST T., BARCK L., LÖHMUS M., 1997: An ecological field study of wood living pyrenomyces in a Swedish hardwood forest. – Windahlia, 22: 57–64.
- RAŠOMAVIČIUS V. (ed.), 2001: Europinės svarbos buveinės Lietuvoje. Lietuvoje aptinkamų Europos Sąjungai svarbių buveinių tipų aiškinamasis vadovas. – Vilnius.
- RUKŠENIENĖ J. J., 1989: Pirenomicety soobščestva *Tilio-Carpinetum* južnoj Litvy. – Mikologija i Fitopatologija, 23(4): 349–354.
- RUKŠENIENĖ J., 1995: Lignicolous Pyrenomyces and Loculoascomycetes in the mixed coniferous-broad-leaved forest near Vilnius. – Biologija, 3–4: 165–166.
- RUKŠENIENĖ J., 1996: Notes on lignicolous Pyrenomyces and Loculoascomycetes from Mažeikiai district (north-west Lithuania). – Botanica Lithuanica, 2: 37–48.
- RUKŠENIENĖ J., 2007: Preliminary notes on pyrenomyces from Pamerkiai (Varėna district, southeastern Lithuania). – Acta Biologica Universitatis Daugavpiliensis, 7(2): 97–102.
- RUKŠENIENĖ J., ŠARKUTĖ G., 2001: New species of pyrenomyces in Lithuania. – Botanica Lithuanica, 7: 99–102.
- RUKŠENIENĖ J., ŠARKUTĖ G., 2002: Outline of pyrenomyces in Skrebys Forest (eastern Lithuania). – Biologija, 1: 41–42.
- RUKŠENIENĖ J., IZNOVA T., 2007: *Pyrenomyces* and *Loculoascomycetes* on elm in Pavilniai Regional Park (Vilnius, Lithuania). – Botanica Lithuanica, 13: 245–249.
- SACCARDO P. A., 1891: Sylloge Fungorum, 9. – Patavia.
- TREIGIENĖ A., 1999: New, comparatively rare *Dothideales* species on woody plants in Lithuania. – Botanica Lithuanica, 5: 289–294.
- TREIGIENĖ A., RUKŠENIENĖ J., 2005: The genus *Massarina* (*Ascomycota*) in Lithuania. – Botanica Lithuanica, 11: 55–61.
- TREIGIENĖ A., MARKOVSKAJA S., BAGDŽIŪNAITĖ A.,

2007: Micromycetes associated with *Betula* in Lithuania. – *Botanica Lithuanica*, 13: 181–196.
TREIGIENĖ A., MARKOVSKAJA S., KUTORGA E., 2010:

Teleomorphic and anamorphic ascomycetes associated with European ash (*Fraxinus excelsior*) in Lithuania. – *Botanica Lithuanica*, 16: 97–113.

NAUJOS AUKŠLIAGRYBIŲ RŪŠYS LIETUVOJE

Tatjana IZNOVA, Jonė RUKŠĖNIENĖ

Santrauka

Straipsnyje aprašytos trys pirmą kartą Lietuvoje užregistruotos aukšliagrybių rūšys – *Capronia nigerrima*, *Kalmusia clivensis* ir *Sillia ferruginea*. Šie grybai buvo rasti ant senos pirenomicetų stromos, ant nukritusios *Corylus avellana* šakos žie-

vės ir ant negyvų *Rubus idaeus* stiebų aliuviniuose miškuose su juodalksniu pietinėje, šiaurinėje ir rytinėje Lietuvos dalyje. Pateikiami šių grybų rūšių morfologiniai aprašymai, komentarai ir iliustracijos.