

# Myxomycetes of the island of Saaremaa, Estonia

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**Abstract:** Forty three species and infraspecific taxa of myxomycetes were recorded in different ecotopes of the Saaremaa island, the West Estonian Archipelago, during the 17<sup>th</sup> Symposium of the Baltic Mycologists and Lichenologists in 2008. Among them, thirteen species were found for the first time in Estonia: *Arcyria abietina*, *Comatricha ellae*, *Craterium leucocephalum*, *Diderma effusum*, *Didymium nigripes*, *Echinostelium apitectum*, *Licea minima*, *L. operculata*, *Physarum robustum*, *P. viride*, *Stemonaria irregularis*, *Stemonitopsis amoena*, and *Trichia munda*.

## Kokkuvõte: Saaremaa limakud

43 liiki ja liigisisest taksonit limakuid registreeriti Saaremaa eri biotoopidest Balti mükoloogide ja lihhenoloogide 17. sümpoosioni jooksul 2008. a. Neist 13 liiki on Eestile uued: *Arcyria abietina*, *Comatricha ellae*, *Craterium leucocephalum*, *Diderma effusum*, *Didymium nigripes*, *Echinostelium apitectum*, *Licea minima*, *L. operculata*, *Physarum robustum*, *P. viride*, *Stemonaria irregularis*, *Stemonitopsis amoena* ja *Trichia munda*.

## INTRODUCTION

Myxomycetes, syncytical terrestrial organisms, are known to play an active role in decomposition and nutrient cycles (Madelin, 1984; Feest, 1987). Today over 1000 myxomycete species are known worldwide (Lado, 2005–2010; Mitchell, 2005). The Estonian checklist of these organisms currently includes 101 species (Järva & Parmasto, 1980; Järva et al., 1998; Ing, 1990; Adamonyte, 2000). In some parts of the country, like south-western Estonia, myxomycetes have been investigated more intensely, while the West Estonian (Moonsund) Archipelago was sampled, but the results have not been published, so far. On September 18–20, 2008, during the 17th Symposium of the Baltic Mycologists and Lichenologists, in Saaremaa, the largest island of the archipelago, participants were granted a possibility to collect mycological material in the most unique sites of the island. The data on myxomycete species recorded during these three excursions are presented here.

## MATERIALS AND METHODS

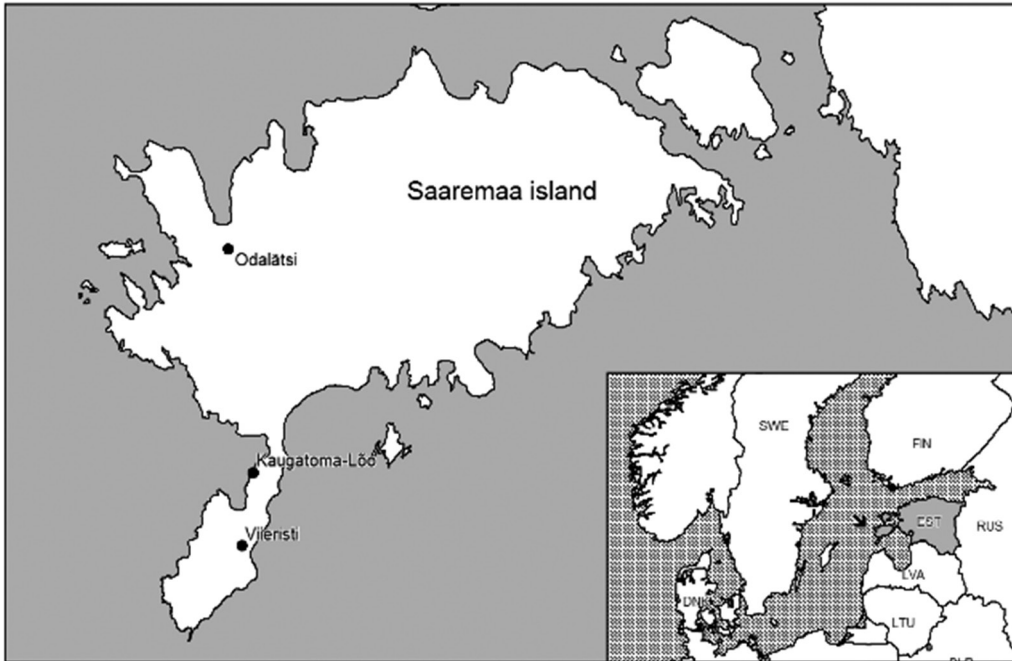
### Visited sites

Saaremaa island (Ösel) is located in the Baltic Sea, 58°25'N, 22°30'E, south of Hiiumaa island. It measures 2,673 km<sup>2</sup>. Because of its mild maritime climate and a variety of soils, Saaremaa

has a rich flora, illustrated by the fact that 80% of the plant species found in Estonia are represented here. Myxomycete material was collected in three protected areas of the island (Fig. 1). Kaugatoma-Lõo Landscape Reserve is located in Sõrve peninsula of Saaremaa island. It was founded to protect geologically important Kaugatoma cliffs and the largest alvar area on the island, Lõo. The unique vegetation types including elements of arcto-alpine and xerocontinental vegetation have been formed due to the extreme conditions on the alvar. Nowadays, due to the cessation of the land management, the alvar tends to overgrow mainly with *Juniperus communis* (Saar & Suija, 2008).

Odalätsi Landscape Reserve in the western part of the island was founded to protect Odalätsi springs and sand dunes and their natural and semi-natural habitats. *Pinus sylvestris* forests environ the springs; dunes are covered with *Cladonia*-type pine forests.

Viieristi Nature Reserve is located in the easter part of Sõrve peninsula aiming to preserve more than 20 plant species, including *Ajuga pyramidalis* and *Taxus baccata*. An unique calcium-rich spring fen lies under the shore bluff dominated by pine forests; furthermore, there is also a temporary water body – Koltsi lake. Besides, a drained swamp, a fresh boreal forest and a rich paludified forest lie on bluff slopes.



**Fig. 1.** The location of the Kaugatoma-Lõo, Odalätsi and Viieristi reserves in Saaremaa island, Estonia.

### Field and laboratory work

Kaugatoma-Lõo Landscape Reserve was visited on September 18, Odalätsi Landscape Reserve – on September 19, and Viieristi Nature Reserve – on September 20, 2008. During the excursions mature fruitbodies and bark of woody plants for subsequent laboratory cultivation of microscopic myxomycete species were collected. Bark samples of main phorophytes in each visited site were collected into paper bags and processed in moist chamber cultures in the laboratory following Härkönen (1977).

Voucher specimens are deposited at the herbarium of the Institute of Botany, Vilnius (BILAS) and at the mycological collection of Institute of Agricultural and Environmental Sciences, Estonian University of Life Sciences, Tartu (TAAM).

Myxomycete taxonomy follows the classification system of Nannenga-Bremekamp (1991), and nomenclature follows Lado (2001, 2005–2010, 2011). Abbreviations of the authors of the species are cited according to Brummitt & Powell (1992).

### RESULTS AND DISCUSSION

No data on the occurrence of myxomycetes have been available from the island of Saaremaa so far, therefore this small study provides an additional information on the distribution of a number of myxomycete species. During three field trips 43 species and infraspecific taxa of myxomycetes were recorded in different ecotopes of the Saaremaa island. Among them, 13 species were found for the first time in Estonia. Employment of the moist chamber method resulted in revealing more than a half of these new species. The great majority of recorded myxomycetes are common temperate or cosmopolitan species known also from the neighbouring countries, i.e. Finland (Härkönen, 1979a, 1979b, 1981, 1988; etc.), Latvia (Bucholtz, 1908; Kupffer, 1931; Ruskule & Vimba, 1987; Adamonyte, 2006; etc.), and Russia (Novozhilov, 1993, 2005; etc.). *Stemonaria irregularis* can be mentioned as a noteworthy species, which is distributed worldwide but is rare everywhere and mostly represented by solitary specimens.

## List of species

Species that are new to Estonia are marked with an asterisk (\*). Specimens developed in moist chamber cultures are marked with "mc". Abbreviations of localities: K – Kaugatoma-Lõo Landscape Reserve; O – Odalätsi Landscape Reserve; V – Viieristi Nature Reserve.

- \*ARCYRIA ABIETINA (Wigand) Nann.-Bremek. – TAAM 198334 (O), duplicate 3605 in BILAS. On dead *Pinus sylvestris* log.
- A. CINEREA (Bull.) Pers. – BILAS 3156 (K); 3561mc, 3567mc (both V). On a log and *Ulmus* sp. bark.
- A. INCARNATA (Pers. ex J. F. Gmel.) Pers. – BILAS 3160 (K). On a log.
- A. POMIFORMIS (Leers) Rostaf. – BILAS 3548mc (K); 3564mc (V). On *Juniperus communis* and *Ulmus* sp. bark, respectively.
- A. STIPATA (Schwein.) Lister – BILAS 3159 (K). On a log.
- CLASTODERMA DEBARYANUM A. Blytt – BILAS 3171 (V). On a deciduous log.
- \*COMATRICHA ELLAE Härk. – BILAS 3552mc (K). On *Picea abies* bark.
- C. NIGRA (Pers. ex J.F.Gmel.) J.Schröt. – TAAM 198330 (O). On dead *Pinus sylvestris* branch.
- \*CRATERIUM LEUCOCEPHALUM (Pers. ex J. F. Gmel.) Ditmar – BILAS 3157 (K). On litter.
- CRIBRARIA PURPUREA Schrad. – BILAS 3181 (V). On a log.
- C. RUFA (Roth.) Rostaf. – BILAS 3155 (K); 3166 (O); 3180 (V). On a log.
- \*DIDERMA EFFUSUM (Schwein.) Morgan – BILAS 3545mc, 3555mc (both K). On *Pinus sylvestris* and *Picea abies* bark.
- DIDYMIUM DIFFORME (Pers.) Gray – BILAS 3570mc (V). On *Ulmus* sp. bark.
- \*D. NIGRIPES (Link) Fr.– BILAS 3169 (O). On litter.
- \*ECHINOSTELIUM APITECTUM K. D. Whitney – BILAS 3541mc, 3544mc (both K). On *Betula* sp. and *Pinus sylvestris* bark.
- E. BROOKSII K. D. Whitney – BILAS 3543mc, 3547mc, 3553mc (all K), 3574mc (V). On *Pinus sylvestris*, *Juniperus communis* and *Picea abies* (twice) bark.
- E. MINUTUM de Bary – BILAS 3540mc (K); 3557mc (O). On *Betula* sp. and *Pinus sylvestris* bark.
- FULIGO SEPTICA (L.) F. H. Wigg. – TAAM 198335 (O). On mosses.
- F. SEPTICA var. FLAVA (Pers.) Lázaro Ibiza – TAAM 198336 (O). On mosses.
- F. CANDIDA Pers. – TAAM 198333 (O). On grasses.
- HEMITRICHIA CLAVATA (Pers.) Rostaf. – BILAS 3163 (O); 3174 (V). On logs.
- LEOCARPUS FRAGILIS (Dicks.) Rostaf. – BILAS 3161 (O); 3172 (V). On litter (twigs).
- LICEA KLEISTOBOLUS G. W. Martin – a record only, mc (O). On *Pinus sylvestris* bark.
- \*L. MINIMA Fr. – BILAS 3565mc (V). On *Ulmus* sp. bark.
- \*L. OPERCULATA (Wingate) G. W. Martin – BILAS 3554mc (K); 3568mc, 3571mc (both V). On *Picea abies*, *Ulmus* sp. and *Betula* sp. bark.
- L. PARASITICA (Zukal) G. W. Martin – a record only mc (K), BILAS 3559mc (O), 3572mc, 3573mc (both V). On *Picea abies* (twice) and *Betula* sp. bark.
- LYCOGALA EPIDENDRUM (L.) Fr. – BILAS 3154 (K), 3175 (V). On logs.
- MACBRIDEOLA CORNEA (G. Lister et Cran) Alexop. – BILAS 3551mc (K); 3566mc, 3569mc (both V). On *Fraxinus excelsior* and *Ulmus* sp. (twice) bark.
- PARADIACHEOPSIS FIMBRIATA (G. Lister et Cran) Hertel. ex Nann.-Bremek. – BILAS 3575mc (V). On *Picea abies* bark.
- P. SOLITARIA (Nann.-Bremek.) Nann.-Bremek. – BILAS 3546mc (K); 3558mc (O). On *Juniperus communis* and *Picea abies* bark.
- PERICHAENA CHRYSOSPERMA (Curr.) Lister – BILAS 3560mc (O); 3562mc, 3569 (both V). On *Picea abies* and *Ulmus* sp. (twice) bark.
- P. CORTICALIS (Batsch) Rostaf. – BILAS 3178 (V). On a deciduous log.
- PHYSARUM ALBUM (Bull.) Chevall. – BILAS 3165 (V); 3179 (V), TAAM 198331 (O). On logs, dead *Pinus sylvestris* bark.
- \*PH. ROBUSTUM (Lister.) Nann.-Bremek. – BILAS 3170 (O). On a log.
- \*PH. VIRIDE (Bull.) Pers. – BILAS 3542mc (K); 3168 (O). On *Betula* sp. bark and a log.
- \*STEMONARIA IRREGULARIS (Rex) Nann.-Bremek., R.Sharma et Y.Yamam. – BILAS 3162 (O). On a log.
- \*STEMONITOPSIS AMOENA (Nann.-Bremek.) Nann.-Bremek. – BILAS 3167 (O); 3576mc (V). On a log and *Ulmus* sp. bark.
- TRICHIA DECIPIENS (Pers.) T. Macbr. – BILAS 3323 (O); 3173 (V). On logs.
- T. FAVOGINEA (Batsch) Pers. – BILAS 3177 (V). On a log.
- \*T. MUNDA (Lister) Meyl. – BILAS 3556mc (K); 3563mc (V). On *Juniperus communis* and *Ulmus* sp. bark.

- T. PERSIMILIS P. Karst. – BILAS 3164 (O), TAAM 198332 (O). On a log, decaying *Pinus sylvestris* wood.
- T. VARIA (Pers. ex J.F.Gmel.) Pers. – BILAS 3173, 3174 (both V). On logs.
- TUBIFERA FERRUGINOSA (Batsch) J. F. Gmel. – BILAS 3158 (K); 3176 (V). On stumps.

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The base location map for Fig. 1 was obtained by courtesy of Dr. Jaan Liira, University of Tartu.

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