Lichenicolous fungi in Estonia II: Basidiomycota and conidial fungi

by

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With 4 figures


Abstract: A commented list of lichen-inhabiting basidiomycetes and conidial fungi found in Estonia, is presented. The list comprises 42 species (10 basidiomycetes and 32 conidial fungi), of these 18 are reported as new for the country. Four species, *Karsteniomycetes tuberculatus*, *Libertia curvispora*, *Taeniotelea cladinicola* and *Tremella ramalinae* are pointed out by their rarity. Scanning electron microscopy was used for better identification of *Phaeosporobolus alpinus* and *Monodictys cellulosa*.

Introduction

This paper continues a review of the lichenicolous fungi found in Estonia. The biggest group of lichenicolous fungi, ascomycetes has been treated earlier (Suija, 2005); the list below includes basidiomycetes (10 species) and conidial fungi (32 species, including anamorphs of some lichenicolous ascomycetes). 18 species are reported for the first time from Estonia.

Both groups are arranged in alphabetical order. Notes on morphology, frequency, distribution etc. are added only for selected species. For taxa with one to three records exact collecting data are added, otherwise only selected specimens are mentioned. Host lichen species listed are based only on Estonian material. „FIRST REF:“ indicates the earliest literature report from Estonia. The species are determined by the author if not otherwise noted.
Material and methods

This study is based on herbarium specimens, the author’s own collections (1998, 2001-2003) and the literature records. The largest collection of lichens and lichenicolous fungi of Estonia is kept at the University of Tartu (TU). Additional material was available from BILAS, TAA, UGDA-L and UPS.

The specimens were studied macroscopically with stereomicroscope TECHNIVAL 2 (Carl Zeiss Jena) and microscopically with PZO and Olympus CX41. Routine methods of light microscopy were used: cross-sections were made by hand and mounted in water, 10% KOH (K) or/and Lugol’s solution (I). Scanning Electron Microscopy (SEM: Philips SEM 515, Geocenter, University of Copenhagen) was performed to examine the surface structure of Phaeosporobolus alpinus and Monodictys cellulosa.

BASIDIOMYCOTA

Athelia arachnoidea (Berk.) Jülich

First ref.: Jülich 1972.

Hosts: Anaptychia ciliaris, Lecanora conizaeoides, Parmelia sulcata, Phaeophyscia orbicularis, Physconia distorta, Xanthoria parietina etc. (thallus).

Anamorph: Fibularhizoctonia carotae (Rader) G.C. Adams & Kropp

Observations: This is one of the commonest lichen-damaging fungi in Estonia. It is easily notable as the white arachnoid mycelium covers epiphytic lichens and also algae. In Estonia its distribution, ecology and changes in frequency have been observed for years (Parmasto 1998).


Biatorporis usnearum Räsänen

First ref.: Randlane & Saag 1999.

Hosts: Usnea cf. glabrescens, Usnea subfloridana and Usnea sp. (thallus).

Observations: Several heterobasidiomycetes grow on Usnea thalli but the commonest of them is B. usnearum, reported from many countries (Diederich & Christensen 1994, Diederich 1996). This lichenicolous fungus is rather common in Estonia too, known from 14 scattered localities.

Diederich & Christensen (1994) counted four lichenicolous fungi as hyperparasites of this heterobasidiomycete. Only Abrothallus usneae (both anamorph and teleomorph states) has been observed on B. usnearum in the studied Estonian material.

Selected specimens: Harjumaa, Tallinn, Tiskre quarter (59°26’N 24°34’E), on U. cf. glabrescens, P. Wasmuth, det. T. Randlane (TU 15483); Põlvamaa, Taevaskoja (58°06’N 27°04’E), on U. subfloridana (infected also with A. usneae), 31 Aug 1968 H. Trass (TU 25067); Tartumaa, Kurista (58°15’N 27°00’E), on Usnea sp. on Pinus sylvestris, 5 Sep 1958 H. Trass (TU 24622).
Syzygospora physciacearum Diederich

First ref.: Halonen et al. 2000.

Hosts: Physcia stellaris and Physcia sp. (thallus and apothecia).

Specimens studied: Raplamaa, Ohukotsu (59°01'N 24°33'E), on Physcia sp., 27 May 1997 H. Aasama (TU); Tartumaa, Agali arboretum (58°17'N 27°17'E), on P. stellaris on Populus sp., 7 Sep 1999 M. Kakwa (UGDA-L); Tartumaa, Järvselja (58°16'N 27°18'E), on Physcia sp. on dry twig of Syringa vulgaris, 22 Aug 2002 I. Jüriado (TU).

Tremella cetraricolola Diederich & Coppins

New for Estonia.

Host: Tuckermannopsis chlorophylla (thallus).


Tremella cladoniae Diederich & M.S. Christ.


Hosts: Cladonia cariosa, C. coniocraea, C. ochrochla, C. phyllophora and Cladonia sp. (squamules, podetia).

Observations: This lichenicolous fungus has been found both on epiphytic and epigeic Cladonia in six different localities. Taeniolella beschiana as hyperparasite of T. cladoniae has been observed once (see below).

Selected specimens: Hiiumaa, Salinõmme saltmarshes (58°50'N 22°57'E), pine forest, on Cladonia sp. at the base of Juniperus communis, 7 Aug 2001 A. Suija & E. Pae 44 (TU); Pärnumaa, Lodja forestry (58°11'N 24°40'E), alder forest, on C. ochrochla on windfallen tree, 6 Aug 2003 I. Jüriado 10 (TU); Valgamaa, Karula National Park (57°42'N 26°31'E), pine forest, on Cladonia sp. on Pinus sylvestris, 22 Aug 2003 A. Suija (TU).

Tremella coppinsii Diederich & G. Marson

New for Estonia.

Host: Platismatia glauca (thallus).

Specimens studied: Exact locality unknown, 28 Sep 1959 H. Trass 369 (TU).

Tremella hypogynniae Diederich & M.S. Christ.

First ref.: Halonen et al. 2000.
HOST: Hypogymnia physodes (thallus).

OBSERVATIONS: The species is easily noticed due to convex, yellow to pink galls on the host thallus. In spite of this, the fungus found only in five scattered localities in Estonia.

SELECTED SPECIMENS: Ida-Virumaa, Oonurme forestry (59°08'N 27°00'E), ash forest, on H. physodes on Betula sp., 12 Sep 1999 K. Kelder (TU 3937); Tartumaa, Järvselja Virgin forest (58°16'N 27°19'E), alder forest, on H. physodes on Betula sp., 8 Aug 1983 A.-L. Sõmermaa (TU); Tartumaa, Padakörve Nature Reserve (58°36'N 27°06'E), pine forest, on H. physodes on Picea abies, 23 Sep 2003 I. Jüriado (TU).

Tremella lichenicola Diederich

New for Estonia.

HOST: Mycoblastus fucatus (thallus).

SPECIMENS STUDIED: Ida-Virumaa, Remniku forestry (59°04'N 27°38'E), birch forest, on M. fucatus on Pinus sylvestris, 8 Jul 1999 I. Jüriado (TU); Pärnumaa, Audru forestry (58°20'N 24°10'E), mixed forest, on M. fucatus on Tilia cordata, 19 Sep 1999 I. Jüriado (TU).

Tremella phaeophysciae Diederich & M.S. Christ.

New for Estonia.

HOST: Phaeophyscia orbicularis (thallus).

SPECIMENS STUDIED: Tartumaa, Tartu, cemetery in Puiestee street (58°23'N 26°43'E), on P. orbicularis on Sorbus aucuparia, 10 Jan 1965 U. Soe (TU); Tartumaa, Tartu, Tamme stadium (58°22'N 26°43'E), P. orbicularis on Acer platanoides, 15 Sep 1972 S. Liiv (TU); Tartumaa, Järvselja (58°16'N 27°18'E), on P. orbicularis on Alnus glutinosa, 1 Oct 1959 H. Trass (TU).

Tremella ramalinae Diederich


HOST: Ramalina fraxinea (thallus).

OBSERVATIONS: This species was previously known only from a few localities in the world – Sweden, Mexico (Diederich 1996), Spain (Triebel 1997) and Estonia (Halonen et al. 2000). Recently it is reported also from Lithuania (Motiejūnaitė 2002), Poland (Kowalewska & Kukwa 2003) and the USA (Diederich 2003).

SPECIMENS STUDIED: Tartumaa, Järvselja (58°16'N 27°18'E), on R. fraxinea on Tilia cordata, 4 Sep 1999 M. Kukwa (UGDA-L).
CONIDIAL FUNGI

**Buchmanniomyces uncialicola** (Zopf) D. Hawksw.

**First ref.:** Suija 2000.

**Host:** *Cladonia uncialis* (thallus).

**Specimens studied:** Läänemaa, Kesu bog (58°41′N 24°18′E), on *C. uncialis* on ground, 22 Jul 1951 H. Trass (TU 3933).

**Epicladonia sandstedei** (Zopf) D. Hawksw.

New for Estonia.

**Host:** *Cladonia coniocraea* (squamules, podetia).

**Specimens studied:** Järvamaa, Saarjõe Nature Reserve (58°39′N 26°45′E), spruce forest, on *C. coniocraea* on fallen trunk, 1 Oct 2003 l. Jüriado 9 (TU 26804).

**Graphium aphthosae** Alstrup & D. Hawksw.

New for Estonia.

**Hosts:** *Peltigera didactyla* and *Peltigera* sp. (thallus).

**Observations:** In the studied material this saprophytic fungus was always associated with other obligate or facultative lichenicolous fungi (see list below).

**Specimens studied:** Harjuma, Lahemaa National Park (59°33′N 26°12′E), on *P. didactyla* (infected also with *Thelocarpon epibolium*) on ground, 28 Jul 1975 E. Nilson (TU 24531); Raplamaa, Kõnnumaa Landscape Reserve (58°52′N 25°00′E), old gravel pit, on *Peltigera* sp. (infected also with *Coricifraga fukeilli* and *Pronectria robergei*) on ground, 1 Oct 2003 A. Suija (TU 25118); Võrumaa, Karula National Park (57°41′N 26°29′E), on *Peltigera* sp. (also with *Sarcosagium campestre*) on ground, 24 Aug 2003 A. Suija (TU).

**Illosporiopsis christiansenii** (B.L. Brady & D. Hawksw.) D. Hawksw.

**First ref.:** Halonen et al. 2000 (as *Hobsonia christiansenii*).

**Host:** *Physcia* sp. (thallus).

**Specimens studied:** Tartumaa, Järvela (58°16′N 27°18′E), on *Physcia* sp. on *Craetagus* sp., Sep 1999 M. Kukwa (UGDA-L); Tartumaa, Emäjõe Suursoo Reserve (58°21′N 27°18′E), 7 Sep 1999 M. Kukwa (UGDA-L); Lääne-Virumaa, Jämi oak forest (59°17′N 26°14′E), on *Physcia* sp. on *Quercus robur*, 8 Jun 2003 A. Suija (TU 25130).

**Illosporium carneum** Fr.

New for Estonia.
Host: *Peltigera didactyla* (thallus).

Specimens studied: Harjumaa, pine forest near Harku (59°23′N 24°35′E), on *P. didactyla* on ground, 5 Sep 1946 E. Parmasto (TU 25274).

**Intralichen christiansenii** (D. Hawksw.) M.S. Cole

First ref.: Suija 2000 (as *Bispora christiansenii*).

Hosts: *Amandinea punctata, Bacidia globulosa, Candelariella* sp. and *Lecidella elaeochroma* (apothecia).

Observations: This hyphomycete is rare in Estonia, being found only four times.

Selected specimens: Harjumaa, Tallinn (59°22′N 24°38′E), on *L. elaeochroma* on *Alnus glutinosa*, 26 Jan 1947 E. Parmasto (TU 3942); Hiiumaa, Hellamaa rahu islet (58°57′N 22°58′E), on *Candelariella* sp. on limestone at seashore, 10 Jul 2002 I. Jüriado & A. Suija 557 (TU); Hiiumaa, Kõverlaid islet (58°45′N 23°10′E), aspen forest, on *A. punctata* on *Fraxinus excelsior*, 31 Aug 2001 I. Jüriado (TU 17636).

**Intralichen lichenenum** (Diederich) D. Hawksw. & M.S. Cole

First ref.: Suija & Jüriado 2002 (as *Bispora lichenenum*).

Hosts: *Bacidia subincompta* and *Lecania cyrtella* (apothecia).

Specimens studied: Hiiumaa, Vareslaaid islet (58°46′N 23°05′E), birch forest, on *B. subincompta* on *Populus tremula*, 28 Aug 2001 I. Jüriado (TU 17580); Hiiumaa, Salinõmme saltmarshes (58°50′N 22°57′E), pine forest, on *L. cyrtella* on *Pinus sylvestris*, 8 Jun 2001 I. Jüriado & A. Suija (TU 20318).

**Karsteniomycyes peltigerae** (P. Karst.) D. Hawksw.

First ref.: Randlane & Saag 1999.

Hosts: *Peltigera canina* and *P. rufescens* (thallus).

Teleomorph: *Scutula miliaris* (Wallr.) Trevis.

Observations: In the material studied, the anamorph and teleomorph were not found on the same *Peltigera* thallus.

Specimens studied: Hiiumaa, Kõrglaid islet (58°45′N 23°06′E), on *P. canina* on ground, 10 Jun 1974 E. Nilson (TU 3801); Jõgevamaa, Siimusti sands (58°43′N 26°20′E), on *P. rufescens* on ground, 14 Aug 1957 S. Pärm (TU 3800); Saaremaa, alvar near Mustjala cliffs (58°34′N 22°17′E), on *P. canina*, 7 Aug 1948 L. Tehver (TU 3799).

**Karsteniomycyes tuberculcosus** Alstrup & D. Hawksw.

New for Estonia.
Host: *Peltigera rufescens* (thallus).

**Teleomorph:** *Scutula tuberculosa* (Th. Fr.) Rehm

Observations: The species was till now known from the type locality in Greenland (Alstrup & Hawksworth 1990) and from one locality in Sweden (Santesson 1993). The pycnidia of the Estonian specimen are superficial, grouped together, orange to dark brown to greyish brown (probably caused by light conditions, V. Alstrup, pers. comm.), c. 140 µm diameter. The conidia are holoblastic, truncate, colourless, mostly one-celled, a few two-celled, 9-18.5 × 3.5-4.5 µm. The conidiophores rise up from the pycnidial wall, colourless, irregularly branched, c. 2.5 µm wide. The host thallus is patchily darkened.

**Specimens studied:** Lääne-Virumaa, Revoja (59°31'N 25°57'E), on *P. rufescens* on ground, 3 Jul 1986 K. Tääkre, det. V. Alstrup (TU 25383).

**Libertiella curvispora** D. Hawksw. & Miadlikowska

New for Estonia.

Host: *Peltigera canina* (upper side of thallus).

Observations: Five species have been described in the genus *Libertiella*, four of them grow on *Peltigera* (Hawksworth & Miadlikowska 1997). *L. curvispora* is similar to *L. malmedyensis* except by its curved, 5.5-8 × 1.5 µm conidia. The species was up to now known from Poland (Hawksworth & Miadlikowska 1997), Spain (Martinez & Hafellner 1998) and the USA (Cole & Hawksworth 2001).

The pycnidia of this coelomycete in the Estonian collection were mixed with apothecia of *Scutula epiblastemica*.

**Specimens studied:** Viljandimaa, pine forest near Rääka (58°34'N 24°40'E), on *P. canina* (with *S. epiblastemica*), 18 Aug 1947 E. Parmasto (TU).

**Lichenocionium erodens** M.S. Christ. & D. Hawksw.

**First ref.**: Randlane & Saag 1999.

Hosts: *Cladonia ochrochloara*, *Diploschistes muscorum*, *Evernia prunastri*, *Hypogymnia physodes*, *Lecanora argentata*, *L. chlorotera*, *L. pulicaris*, *Lecanora* sp., *Parmelia sulcata*, *Parmeliopsis ambigua* and *Pertusaria* sp. (thallus and apothecia).

Observations: This clearly pathogenic *Lichenocionium* species is characterized by very small pycnidia (30-50 µm diameter) and very small, slightly verruculose conidia (2-3.5 µm diameter) (Hawksworth 1981). The fungus is known only from ten scattered localities in Estonia, but might be just overlooked.

**Selected specimens:** Hiiumaa, Kadakalaid islet (58°59'N 23°00'E), on *Lecanora* sp. on *Juniperus communis*, 5 Jun 2001 I. Jürändo 26 (TU 26073); Raplamaa, Lelle cemetery (58°52'N 25°00'E), on *L. chlorotera* on *Acer platanoides*, 30 Jul 1996 I.
Jüriado (TU 8334); Saaremaa, Salava island (58°19'N 21°47'E), on E. prunastri on Juniperus communis, 3 Jun 1981 T. Randlane 169 (TU 26071).

**Lichenocoecium lecanorae** (Jaap) D. Hawksw.

**First ref.**: Halonen et al. 2000.

**Hosts**: Lecanora albella, L. carpinea and L. leptyrodes (apothecia).

**Observations**: This species, attached mainly to the Lecanora pallida group in Estonia, is rare, found only five times.

**Selected specimens**: Hiiumaa, Saarnaki islet (58°48'N 23°00'E), birch forest, on L. carpinea on Alnus glutinosa, 9 Aug 2001 A. Suija & E. Pae (TU 26079); Hiiumaa, Vareslaaid islet (58°46'N 23°05'E), aspen forest, on L. leptyrodes on Populus tremula, 28 Aug 2001 I. Jüriado (TU 26084); Lääne-Virumaa, former wooded meadow with oaks (59°11'N 26°25'E), on L. aff. carpinea on Quercus robur, 2 Jul 2003 A. Suija (TU).

**Lichenocoecium pyxidatae** (Oudem.) Petr. & Syd.

**First ref.**: Suija & Jüriado 2002.

**Hosts**: Cladonia fimbriata and C. pyxidata (thallus).

**Specimens studied**: Hiiumaa, Saarnaki islet (58°47'N 23°00'E), on C. pyxidata on ground, 7 Aug 2001 A. Suija & E. Pae 75 (TU); Raplamaa, Paka limestone cliff (58°56'N 24°44'E), on C. pyxidata on stump, 1 Oct 2003 A. Suija (TU); Saaremaa, Lõopõllu forest (58°03'N 22°08'E), on C. fimbriata on stump, 28 Jul 1986 T. Matt (TU).

**Lichenocoecium usneae** (Anzi) D. Hawksw.

New for Estonia.

**Host**: Usnea sp. (thallus).

**Specimens studied**: Ida-Virumaa, Toila (59°25'N 27°30'E), on Usnea sp. on dry Picea abies, 4 Aug 1961 T. Piin (TU 26100).

**Lichenocoecium xanthoriae** M.S. Christ.

**First ref.**: Randlane & Saag 1999.

**Hosts**: Melanelia olivacea, Physcia stellaris and Xanthoria polycarpa (thallus and apothecia).

**Observations**: This coelomycete is rather rare in Estonia, being reported from six localities.

**Selected specimens**: Hiiumaa, Kadakalaaid islet (58°59'N 23°00'E), on X. polycarpa on Juniperus communis, 5 Jun 2001 I. Jüriado 41 (TU); Saaremaa, Tagaranna wooded
meadow (58°32'N 22°13'E), on M. olivacea on Betula sp., 13 Jul 1958 T. Siinmaa (TU 3798); Tartumaa, peatland forest (58°22'N 27°07'E), on M. olivacea on Alnus glutinosa, 16 Jun 1998 A. Suija (TU 3903).

**Lichenodiopsis lecanorae** (Vouaux) Dyko & D. Hawksw.

New for Estonia.

**Host:** Caloplaca flavorubescens (thallus and apothecia).

**Specimens studied:** Pärnumaa, Nigula Nature Reserve centre (58°01'N 24°43'E), on C. flavorubescens on Fraxinus excelsior, 16 Aug 1996 H. Trass (TU 26103).

**Lichenodiopsis pertusariicola** (Nyl.) Diederich

**First ref.** Suija & Jüriado 2002. (as Laeviomyces pertusariicola).

**Host:** Pertusaria pertusa (thallus).

**Specimens studied:** Hiiumaa, Saarnaki islet (58°48'N 23°02'E), linden forest, on P. pertusa on Tilia cordata, 8 Aug 2001 A. Suija & E. Pae (TU 20320).

**Lichenosticta alicornaria** (Linds.) D. Hawksw.

**First ref.** Suija 2000.

**Hosts:** Cladonia chlorophaea, C. digitata and C. uncialis (podetia and squamules).

**Specimens studied:** Lääne-Virumaa, near Muike (59°30'N 25°55'E), on C. digitata on decaing wood, 2 Jul 1986 J. Pütsepp (TU 3947); Võrumaa, Kasaritsa (57°49'N 27°01'E), pine forest, on C. uncialis, 5 Dec 1948 H. Trass (TU 3941); Võrumaa (57°49'N 27°01'E), pine forest, on C. chlorophaea on ground, 6 Dec 1948 E. Parmasto (TU 19532).

**Monodictys cellulosa** S. Hughes

New for Estonia.

**Host:** unidentified crustose lichen (thallus).

**Observations:** See below at P. alpinus.

**Specimens studied:** Läänemaa, wooded meadow near Suitsjõe (58°43'N 23°44'E), on sterile crustose lichen on decaing Quercus robur, 20 May 1972 A.-L. Sõmermaa (TU).

**Phaeosporobolus alpinus** R. Sant., Alstrup & D. Hawksw.

New for Estonia.

**Hosts:** Lepraria incana and Pertusaria sp. (thallus).
Observations: In the studied material, two different conidial fungi (*Phaeosporobolus alpinus* and *Monodictys cellulosa*) have been found on thalli of leprose lichens. In addition to light microscopy, scanning electron microscopy has been used to identify and also specify their surface structure. *P. alpinus* has distinctly stromatal conidiomata composed of rounded cells (Fig. 1.), the ostiolum is visible in the middle of one of them (Fig. 2.). The hyphomycetous fungus *M. cellulosa* is superficially very similar, but made up of multicellular conidia (Figs. 3. & 4.).

**Specimens Studied:** Pärnumaa, Halinga forestry (58°37'N 24°06'E), oak forest, on *L. incana* on *Quercus robur*, 25 Aug 1999 I. Jüriado 277/2 (TU); Valgamaa, Karuia forestry (57°45'N 26°27'E), spruce forest, *L. incana* on base of *Picea abies*, 1 Jul 1998 I. Jüriado 54/2 (TU); Viliandimaa, water meadow of Halliste river (58°21'N 25°05'E), on *Pertusaria* sp. on deciduous tree, 16 Jul 1985 J. Püttsepp (TU).

**Phaeosporobolus usneae** D. Hawksw. & Hafellner

**First Ref.:** Suija et al. 2001.

**Hosts:** *Evernia prunastri*, *Usnea subfloridana* and *Usnea* sp. (thallus).

Observations: This species is very similar to *P. alpinus*, but differs in the presence of a pellicle-like cover over the conidiomata (stromata), somewhat bigger conidia and individual cells of the conidia (Alstrup & Hawksworth 1990). There is also a difference in host preference (see list of known hosts in Kocourková 2000): *P. alpinus* is mainly found on thalli of crustose lichens, especially on *Ochrolechia* and *Pertusaria*; *P. usneae* grows on thalli of various pendulous and foliose lichens.

This widely distributed fungus is in Estonia known only from two localities. Therefore, it is highly probable that it is overlooked.

**Specimens Studied:** Põlvamaa, Himmaste (58°07'N 27°05'E), spruce forest, on *Usnea* sp. on *Picea abies*, 3 Sep 1995 H. Trass (TU 3943); Põlvamaa, Himmaste (58°07'N 27°05'E), on *E. prunastri* on *Alnus glutinosa*, 28 Aug 1987 H. Trass (TU 3945); Valgamaa, Sangaste forestry (57°58'N 26°14'E), on *U. subfloridana*, Aug 2001 H. Leosk (TU).

**Phoma peltigerae** (P. Karst.) D. Hawksw.

New for Estonia.

**Host:** *Peltigera rufescens* (thallus).

**Specimens Studied:** Harjumaa, Pudisoo (59°31'N 25°33'E), on *P. rufescens* on sandy ground, 20 Jun 1959 P. Põldmaa 26920 (TU).


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**Refractohilum peltigerae** (Keissl.) D. Hawksw.

**REF:** Halonen et al. 2000.

**HOSTS:** *Peltigera didactyla* and *Peltigera* sp. (thallus).

**OBSERVATIONS:** This lichenicolous fungus is rare, being reported only from four localities in Estonia.

**SELECTED SPECIMENS:** Harjumaa, near Võsu (59°35'N 25°59'E), on *P. didactyla* on ground, 11 Sep 1965 U. Soe (TU); Tartumaa, Tähtvere forest (58°24'N 26°40'E), on *P. didactyla* on sands near the bog, Sep 1950 H. Trass (TU); Võrumaa, Karula National Park (57°41'N 26°29'E), on *Peltigera* sp. on ground, 24 Aug 2003 A. Suija (TU).

**Taeniolella beschiana** Diederich

New for Estonia.

**HOSTS:** *Cladonia cariosa*, *C. chlorophaea*, *C. digitata* (squamules, podetia) and *Tremella cladoniae* (basidiomata).

**OBSERVATIONS:** This hyphomycete is similar to *T. delicata*, differing in the surface structure of the conidia and in host preferences (Diederich 1992). In addition, *T. delicata* is clearly pathogenic (Hawksworth 1979) while *T. beschiana* is parasymbiotic or only weakly parasitic (Diederich 1992).

This fungus is restricted to *Cladonia* species. However, solitary, scattered conidiophores of *T. beschiana* have been noted once on *Tremella cladoniae* growing on *C. cariosa*.

**SPECIMENS STUDIED:** Harjumaa, Tallinn, alvar near Pääsküla (59°21'N 24°42'E), on *C. chlorophaea* on decayed wood, 5 Apr 1947 H. Trass (TU 19525); Läänemaa, Nova (59°14'N 23°42'E), pine forest, on *C. cariosa* on ground and on *T. cladoniae*, 7 Oct 2003 A. Kalda (TU); Valgamaa. Karula National Park (57°43'N 26°31'E), pine forest, on *C. digitata* on *Pinus sylvestris*, 23 Aug 2003 A. Suija (TU).

**Taeniolella cladinicola** Alstrup

New for Estonia.

**HOST:** *Cladina rangiferina* (thallus).

**OBSERVATIONS:** This hyphomycete is macroscopically visible because the infected parts turn purplish brown before conidia appear. Afterwards the host obtains a velvet-like surface. Intra-cellular mycelium is also characteristic for this fungus (Alstrup

The distribution of *T. cladinicola* is poorly known, it is till now reported from Denmark (Alstrup 1993) and the Czech Republik (Kocourková 2000).

**Specimens studied:** Pärnumaa, Ruhnu island (57°48'N 23°16'E), on *C. rangiferina* on dunes, 21 Jul 1988 H. Trass (TU).

**Taeniolella delicata** M.S. Christ. & D. Hawksw.

**First ref.:** Suija & Jüriado 2002.

**Hosts:** *Amandinea punctata, Lecanora argentata, L. pulicaris, Lecanora sp.* and *Lecidella elaeochroma* (apothecia).

**Observations:** This lichen parasite has been found five times in Estonia on apothecia of different crustose lichens. Three of these lichens were additionally infected with other lichenicolous fungi (see list below).

**Selected specimens:** Hiiumaa, Kassari park (58°47'N 22°50'E), on *L. elaeochroma* (infected also with *Arthronia intexta*) on *Betula* sp., 7 Nov 1966 E. Viira, det. V. Alstrup (TU 23680); Läänmäe, Osmussaar island (59°17'N 23°22'E), on *Lecanora* sp. (infected also with *Lichenocionium* sp.) on *Fraxinus excelsior*, 28 Jul 1993 T. Randlane & I. Jüriado 68 (TU); Võrumaa, park near Ruusmäe Manor-house (57°38'N 27°06'E), on *L. argentata* (infected also with *Vouauxiella lichenicola*) on *Sorbus aucuparia*, 25 Jul 1996 I. Jüriado (TU 2504).

**Taeniolella phaeophysciae** D. Hawksw.

New for Estonia.

**Host:** *Phaeophyscia orbicularis* (thallus).

**Specimens studied:** Ida-Virumaa, Lüganuse (59°22'N 27°02'E), on *P. orbicularis* on *Acer platanoides*, 2 Oct 1974 E. Nilson 79 (TU).

**Taeniolella punctata** M.S. Christ. & D. Hawksw.

New for Estonia.

**Host:** *Graphis scripta* (thallus).

**Specimens studied:** Pärnumaa, Urissaare forestry (58°02'N 24°37'E), on *G. scripta* on *Tilia cordata*, 7 Jul 1996 H. Trass (TU).

**Vouauxiella lichenicola** (Linds.) Petr. & Syd.

**First ref.:** Randlane & Saag 1999.

**Hosts:** *Lecanora chlorotera* and *L. argentata* (apothecia and thallus).

**Observations:** The infection by this species is rather easily recognized as the black pycnidia are located mainly at the margins of the host apothecia. However, another
lichenicolous fungus can grow on apothecia of L. chlorotera, Stigmatidium congestum. The infection of both fungi on the same apothecia of L. chlorotera has been observed once in the studied material.

V. lichenicola is the commonest lichenicolous coelomycete in Estonia with c. 20 scattered localities. Most specimens are found on apothecia of L. chlorotera and only a few on L. argentata.

SELECTED SPECIMENS: Hiiumaa, Saarnaki islet (59°47'N 23°00'E), on L. chlorotera on Sorbus aucuparia, 7 Jun 1982 T. Randlane (TU 3924); Hiiumaa, Kadakalaid islet (58°59'N 23°00'E), on L. chlorotera (infected also with S. congestum) on Sorbus aucuparia, 8 Jul 2003, I. Jüriado & A. Suija 571 (TU); Läänemaa, Karuse churchyard (58°37'N 23°42'E), on L. chlorotera on Acer platanoides, 18 Jul 1995 I. Jüriado (TU 3925).

Vouauxiomycetes ranalinae (Nordin) D. Hawksw.

FIRST REF.: Randlane & Saag 1999.

HOST: Ramalina fraxinea (apothecia).

TELEOMORPH: Abrothallus suecicus (Kirschst.) Nordin

OBSERVATIONS: The species is rather common in Estonia, found in over ten scattered localities. The infection is easily recognized as the host apothecia turn black. It is mostly found together with apothecia of the teleomorph.

SELECTED SPECIMENS: Harjumaa, Hageri cemetery (59°10'N 24°39'E), on R. fraxinea on Acer platanoides, 29 Jun 1961 E. Parmasto (TU 3815); Hiiumaa, Saarnaki islet (59°47'N 23°00'E), on R. fraxinea, 1974 E. Sander (TU 3809); Viljandimaa, Polli park (58°07'N 25°32'E), on R. fraxinea on Fraxinus excelsior, T. Siinmaa (TU 3812).

Vouauxiomycetes santessonii D. Hawksw.

FIRST REF.: Randlane & Saag 1999.

HOST: Platismatia glauca (thallus).

TELEOMORPH: Abrothallus parmeliarum (Sommerf.) Arnold

OBSERVATIONS: V. santessonii, which grows on Platismatia glauca and Parmelia saxatilis (Hawksworth 1981) is generally presumed to be an anamorph of A. parmeliarum. The co-existence of A. parmeliarum and V. santessonii has not been observed in Estonia.

SELECTED SPECIMENS: Ida-Virumaa, near Tarumaa (59°12'N 27°07'E), swamp forest, on P. glauca, 3 Jun 1932 H. Lippmaa (TU 3806); Põlvamaa, Taevaskoja (58°06'N 27°03'E), on P. glauca, 30 Jul 1973 J. Õunapuu (TU 3803); Viljandimaa, Viljandi castle hills (58°22'N 25°35'E), on P. glauca, Sep 1958 H. Trass (TU 3802).
Xanthoriicola physciae (Kalchbr.) D. Hawksw.

First ref: Randlane & Saag 1999.

Host: Xanthoria parietina (apothecia).


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