

Thirteen taxa of Myxomycetes new to Finland

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Twelve species of Myxomycetes are reported from Finland for the first time: *Amaurochaete tubulina* (Alb. & Schw.) Macbr., *Badhamia populina* A. & G. Lister, *Barbeyella minutissima* Meylan, *Cribraria macrocarpa* Sch. d., *C. minutissima* Schw., *Diderma trevelyani* (Grev.) Fries, *Hemitrichia calyculata* (Speg.) M.L. Farr, *Lepidoderma chailletii* Rost., *Licea parasitica* (Zukal) G.W. Martin, *Physarum murinum* Lister, *P. rigidum* (G. Lister) G. Lister and *Stemonaria irregularis* (Rex) Nann.-Brem., Sharma & Yamam. A new variety for Finland is *Trichia decipiens* (Pers.) Macbr. var. *olivacea* Meylan. One of the 12 species, *Physarum rigidum*, is new to Fennoscandia.

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In the following list, information is given about twelve species and one variety of Myxomycetes new to Finland. Representative specimens are deposited in the Finnish herbaria H, OULU and TUR. The short descriptions of the species are based on observations and measurements made of those specimens. The outline of the general distribution of each species is compiled from Arambarri (1975), Emoto (1977), Farr (1976), Ing (1968, 1981, 1982), Laxhanpal & Mukerji (1981), Martin & Alexopoulos (1969), Nannenga-Bremekamp (1974, 1979, 1983) and Yamamoto (1988). The earlier Scandinavian records were checked in von Bjørnekaer & Klinge (1963), Eliasson (1975), Eliasson & Lundqvist (1979), Eliasson & Strid (1976), Eliasson & Sunhede (1972), Göttsche (1984), Hjortstam & Johannesen (1980), Härkönen (1979, 1981b), Johannesen (1982, 1984) and Santesson (1964). The colour code numbers refer to Maerz & Paul (1950). For very small or simply-coloured (e.g. white) sporangia no reference to the colour chart has been made.

Amaurochaete tubulina (Alb. & Schw.) Macbr. — Fig. 3

Etelä-Karjala: Vehkalahti, Pyhältö, on stump in *Betula* forest, IX.1982 *Fagerström* (H). Pohjois-Savo: Kuopio, on bark, VI.1912 *Lönkbohm* (TUR). — Widely distributed in northern temperate zone. Reported from Sweden, Norway and Denmark.

Aethalia 7-60 mm in diam, pulvinate, flattened, woolly, deep black. No cortex remaining. Capillitium consisting of glossy-black main branches, which branch and anastomose, forming a net with expanded brownish corners. Spores coal-black in mass, brown in transmitted light, minutely spinulose with a lighter edge, 12.5-14.5-14 µm in diam.

Badhamia populina A. & G. Lister

Etelä-Häme: Tampere, Kaleva, a park behind Sammonkatu 40, on trunk of a dead *Populus x berolinensis*, VIII.1981 *Alanko* 41375 (H). — Widely distributed. Reported from Norway.

Sporangia sessile, ovoid, about 1 x 2 mm in diam, densely aggregated, forming pseudoaethalium. Peridium thin, fragile, smooth, white, and iridescent inside. Dehiscence circumscissile, so that pseudoaethalium resembles honeycomb. Capillitium white, badhamioid. Spores black in mass, dark brown in transmitted light, partially clustered, partially free, spherical or somewhat irregular, warted with occasional dark lines on surface, 10-12-13 µm in diam.

Barbeyella minutissima Meylan — Fig. 5

Kittilän Lappi: Kittilä, Homevuotso, virgin forest, decayed wet *Picea abies*, on liverworts and bare wood, IX.1981 *Kotiranta* 3484 (H). Enontekiön Lappi: Enontekiö, Vuontisjärvi, Saivo-

kero, very decayed *Picea abies* on liverworts, IX.1981 *Kotiranta* 3485 (H). — Reported from the U.S.A., Japan, India, Switzerland, Poland and Sweden.

Sporangia scattered, stipitate, shiny black; total height 0.4–0.7 mm. Head of sporangium about 0.2 mm. Peridium stiff, granular, dark brown in transmitted light, dehiscing by lobes, margin of which have blunt warts. Columella attaining about 1/3–1/2 of height of sporangium and dividing into stiff unbranched capillitial threads. Ends of capillitium attached to peridial lobes. Spores pale greyish brown in transmitted light, at first regularly stellate collapsed, after swelling distinctly warted with occasional bigger warts, 8–8.5–9.5 μm in diam.

This species was considered extremely rare until Kowalski and Hinchey (1972) pointed out that it can be common in alpine situations, but has been overlooked because of its small size. The present specimens agree with their description of American material, with the exception of the sporangial size, which in the Finnish material is distinctly greater. The habitat is similar, liverworts growing on decorticated wet logs in northern boreal conditions.

Cribraria macrocarpa Schrad.

Satakunta: Viljakkala, Hirviniemi, decayed stump of *Picea*, VIII.1981 *Härkönen* 3199 (H). — Widely distributed. Reported from Sweden, Norway and Denmark.

Sporangia gregarious, stalked, globose, 1.3–2.5 mm high, 0.6–1 mm in diam., colour on top 13 H 7 'Yellow, Beige', cup darker and iridescent. Stalk black, furrowed. Hypothallus thin, brown, transparent, small or shared with neighbouring sporangia. Cup covering about 1/3 of sporangium, having dark longitudinal ribs with perforations between. Cup merging into peridial net without distinct margin. Nodes of net irregular, flat, dark. Dictydine granules dark, 1–2.3 μm in diam. Spores beige yellow in mass, nearly hyaline in transmitted light, very finely warted 5.5–6–7 μm in diam. Plasmodium in coalescence black.

Cribraria minutissima Schw.

— Fig. 4

Pohjois-Häme: Saarijärvi, Pyhä-Häkki National Park, on rotten trunk of coniferous tree, VIII.1987 *Göttsche* 1140 (H). — Widely distributed. Reported from Sweden.

Sporangia scattered, stalked, erect, oval, 0.4–0.9 mm high. Head of sporangium 0.1 x 0.3 mm or somewhat smaller, coppery brown. Stalk concolorous, furrowed, translucent in transmitted light. No hypothallus. Cup well developed, covering about 1/2–3/5 of sporangium, smooth under dissecting

microscope, in transmitted light covered by a very fine reticulum of pale granules. Margin of cup straight, dark. Peridial net regular, without expanded nodes or free ends; dictydine granules few, pale. Spores pale yellowish in transmitted light, at first regularly stellate collapsed, after swelling somewhat angular in outline, very finely spinulose, 6–6.5–7 μm in diam.

All sporangia in the present specimen have a cup. I have collected, specimens of this species from Gambia, which look quite different (see fig. 4 in Härkönen 1981a); all sporangia are globose and totally without cups. In the original description by de Schweinitz (1834) only sporangia with cups are mentioned. In the plates of handbooks (Lister 1925, Martin & Alexopoulos 1969, Emoto 1977), however, two types of sporangia are displayed, those with a well-developed cup and those without any cup at all. The legends do not mention whether the different types originate from the same or different specimens.

Diderma trevelyanii (Grev.) Fries

— Fig. 6

Uusimaa: Nurmijärvi, Kirkonkylä, yard of the Askola house, on dead leaves of *Betula*, V.1985 *Askola* 1599, 1600, 1654 (H). — Widely distributed. Reported from Sweden, Norway and Denmark.

Sporangia gregarious in large groups, at first globose, 1–1.5 mm in diam., after dehiscence stellate like a small *Geastrum*. Hypothallus brown, membranous, continuous to stout 0–1 mm tall stalk. Outer layer of peridium ochre brown with whitish netlike lines. In most sporangia outer layer cannot be seen because of stellate dehiscence and rolling of edges of peridial petioles. Inside of peridium very thin glossy membrane, through which shines thick white calcareous middle layer. Columella in some sporangia small, ochre, in some lacking. Capillitium abundant, branching and anastomosing, dark brown with dark nodules and turning hyaline at extremities. Spores black in mass, brown in transmitted light, rather sparsely warted with lighter edge, 11–12.3–13 μm in diam.

Hemitrichia calyculata (Speg.) M.L. Farr, *Mycologia* 66:887. 1974.

H. stipitata (Masse) Macbr.

Oulun Pohjanmaa: Oulu, Kuivasjärvi, Kotisaari garden, on earth in *Begonia* pot, VII.1981 *Metsänheimo* (OULU). — Widely distributed. Reported from Sweden.

Sporangia scattered, 2–3 mm tall, turbinate. Peridial cup olivaceous ochre, glossy, longitudinally plicate, very finely reticulate in transmitted light, reach-

ing about half-way up sporangium; edge narrowly petaloid. Stipe about 1 mm long, slender, glossy reddish black, translucent in transmitted light and filled with regular smooth sporelike cells. Capillitium and spores in mass olivaceous yellow (12, I 8 TOPAZ). Capillitium originating at top of stipe, first smooth, then twisting into bands with regular smooth spirals. The bands branch and anastomose, but few free ends can be found. Spores pale yellow in transmitted light, minutely spinulose, with oil immersion a fine reticulum can also be seen, 6–6.4–7 µm in diam.

Lepidoderma chailletii Rost.

Etelä-Karjala: Vehkalahti, Pyhältö, Ämmänmäki, on ground in mixed forest, X.1982 *Fagerström* (H). — Found in the U.S.A. and Europe, e.g., in England and Denmark.

Sporangia closely aggregated, sessile, globose or elongate, 1–2 mm in diam. Peridium thin, membranous, glossy, brown, covered with small greyish white lime scales. Capillitium abundant, glossy coppery brown in dissecting microscope, in transmitted light brown, slender, nodular, sparsely branched. Spores black in mass, brown in transmitted light, spinulose, 10–12–13.5 µm in diam.

Licea parasitica (Zukal) G.W. Martin — Fig. 2

Varsinais-Suomi: Kemiö, bark of living *Alnus glutinosa* (grown in moist chamber) III.1981 *Wikström* 5257 (H). — Widely distributed in northern temperate zone. Reported from Sweden, Norway and Denmark.

Sporangia scattered, pulvinate, 0.1–0.2 mm in diam. Peridium greyish black, opaque, somewhat glossy, dehiscing by lid along preformed fissure, in transmitted light filled with coarse amorphous matter. No capillitium or columella. Spores pale grey in transmitted light, smooth, thick-walled for about 2/3 and thin-walled for about 1/3 of the hemisphere, 13–14.5–17 µm in diam.

Physarum murinum A. Lister

Satakunta: Viljakkala, Hirviniemi, stump of *Pinus sylvestris*, VII.1981 *Härkönen* 3206 (H). — Widely distributed in northern temperate zone. Reported from Sweden.

Sporangia gregarious, stipitate, globose, 0.5–0.6 mm in diam. Stipe stout, 0.6–1 mm high, calcareous, beige. Peridium membranous, iridescent greyish and encrusted with pale ochre lime flakes, in most sporangia evanescent, leaving a petaloid collar around the stipe. Columella dome-like continuation of

stipe. Capillitium dense network of hyaline threads with small, round, beige-coloured lime nodes, which are dark brown in transmitted light. Spores dark in mass, pale greyish brown in transmitted light, minutely warted with some clusters of longer spines, 8–9–10 µm in diam.

Physarum rigidum (G. Lister) G. Lister

Varsinais-Suomi: Kemiö, bark of living *Alnus glutinosa* in moist chamber, V.1981, *Wikström* 5268 (H). — Reported from the U.S.A., Japan and several countries in South America. New to Fennoscandia.

Sporangia scattered, stipitate, lenticular, umbilicate above (resembling a doughnut), except for two sporangia, which are globose. Head of sporangium crude yellow, (9 L 4, Sunflower, Dandelion), rugose with lime, 0.4–0.6 mm in diam. Stipe 0.6–1 mm high, shiny, coppery brown, in transmitted light translucent above but black and opaque at base due to amorphous material. No columella. Capillitium arising from base; nodes yellow, slender, needle-like. Spores greyish in transmitted light, very minutely spinulose with groups of longer and denser spines, 7.5–8–9 µm in diam.

The peculiar capillitium with long and narrow nodules of lime is indicative of *P. rigidum*, although the spores are somewhat smaller than those in Lister's (1925) description (9–12 µm). The shape of the sporangium is umbilicate above as in the drawing in Emoto (1977).

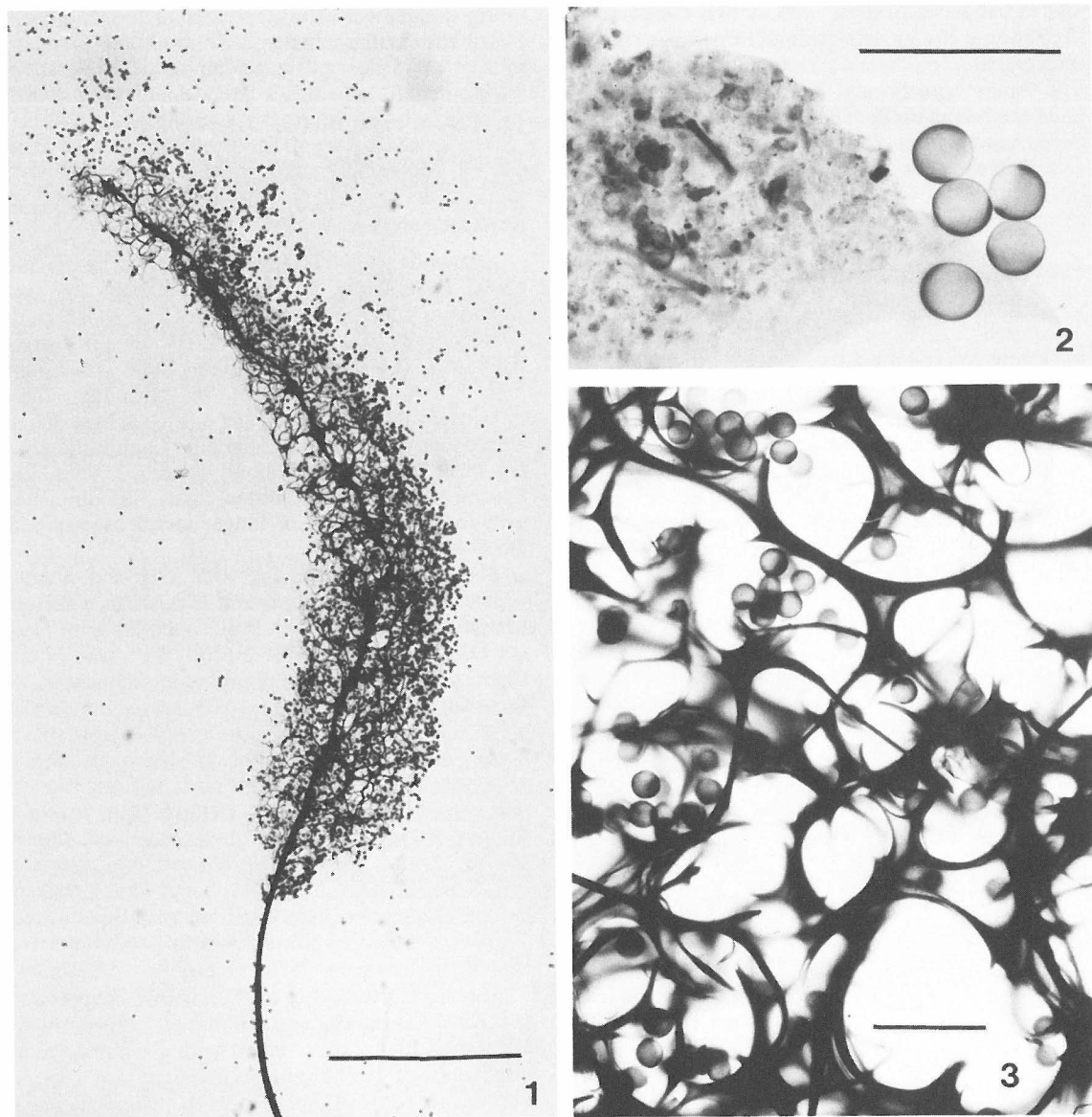
Stemonaria irregularis (Rex) Nann.-Brem., Sharma & Yamam. — Fig. 1

(*Comatricha irregularis* Rex)

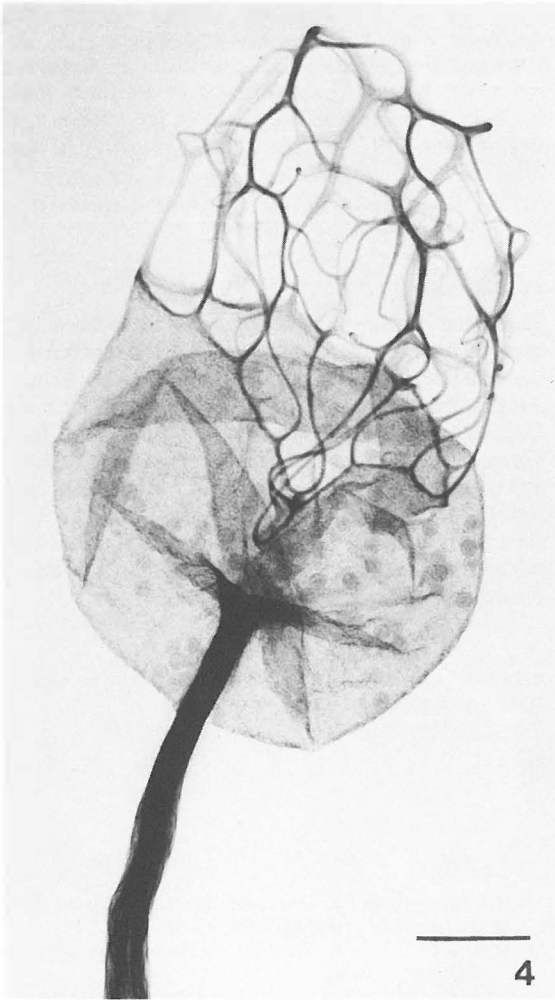
Uusimaa: Vantaa, Keimola, Vestra, stump of *Salix caprea*, X.1981 *Kotiranta* 3751 (H). — Widely distributed, reported from Norway.

Sporangia crowded in tufts on common hypothallus. Head of sporangium cylindrical 2–3 mm high, 1/2 mm in diam., dark brown with a white tinge at utmost tips of capillitium. No peridium. Stalk weak, hair-like, black, 2–4 mm long. Hypothallus membranous, glossy, orange-brown. Columella twisting, uneven, reaching apex of sporangium. Capillitium brown in transmitted light, hyaline at extremities, forming internal net with large expansions. No surface net. Spores dark brown in transmitted light, paler on one side, minutely spinulose, 7.5–8–9 µm in diam.

In Martin & Alexopoulos (1969) this species was recognized under the name *Comatricha irregularis*.



Figs. 1–6. Some myxomycete species new to Finland. — 1: *Stemonaria irregularis* (Kotiranta 3751). — 2: *Licea parasitica* (Wikström 5257), fragment of peridium and spores. — 3: *Amaurochaete tubulina* (Lönnebohm), capillitium and spores. — 4: *Cribraria minutissima* (Götsche 1140). — 5: *Barbeyella minutissima* (Kotiranta 3484). — 6: *Diderma trevelyani* (Askola 1599), nodular capillitium and spores. Scale 500 µm (Fig. 1), 50 µm (Figs. 2–6).



Nannenga-Bremekamp et al. (1984) described a new genus, *Stemonaria*, which differs from *Comatricha* in the horny, longitudinally fibrous or homogeneous structure of its stalk and columella, and the present species was transferred to the new genus.

***Trichia decipiens* (Pers.) Macbr. var. *olivacea* Meylan**

Kainuu: Sotkamo, Vaarakylä, Kiviranta, E of the farm Puitola, *Alnus* forest, on deciduous wood, IX.1986 *Ohehoja* (OULU). — Distribution poorly known, reported from Japan, Switzerland and the Netherlands, at least.

Sporangia gregarious, stalked, turbinate, dehiscent by lid, 1.2–1.5 mm high. Stipe about 1/3 of total height, widening gradually into cup, filled with amorphous material. Peridium membranous, thin, translucent, glossy brownish yellow. Capillitium and spores olivaceous brown (14 L 9, BRONZE Beeswax+). Elaters consisting of regular smooth spirals, 4.5–5 µm wide, gradually tapering to long slender tips. Spores pale yellowish in transmitted light, minutely and unevenly spinulose, 10–11–12 µm in diam. Spore wall lighter and thinner for about 1/3 of hemisphere.

The specimen differs from *Trichia decipiens* var. *decipiens* in the following respects: smaller size, dehiscent along preformed lid and with spinulose, not reticulate, spores. These differences are fairly great for a taxon recognized only as a variety. Nannenga-Bremekamp (1974) gives a good drawing of var. *olivacea*.

Discussion

Reference to several monographs and check-lists from different parts of the world showed that none of the taxa listed here is rare. All of them, except *Trichia decipiens* var. *olivacea*, have been reported from the U.S.A., and all, except *Lepidoderma chailletii*, from Japan. Seven of the taxa have been found in India and eight in Central America. On the other hand, only one of the species, *Diderma trevelyanii*, has been found in Tierra del Fuego and none in Iceland. One of the species, *Physarum rigidum*, has not been reported from the Scandinavian countries.

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