

Rare species of fungi parasitizing on algae. IV.

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The following parasites of the genera *Spirogyra* Link, *Mougeotia* Agardh and *Oedogonium* Link are described: *Myzocyttium irregulare*, *Woronina glomerata*, *Harpothyrium tenuissimum*, *Woronina polycystis*, *Chytridium acuminatum*. *Myzocyttium irregulare* and *Chytridium acuminatum* are new to Poland. Also, the first information on *Woronina polycystis* as a parasite on algae is presented. The figure of cystosori in a cell of *Mougeotia mysoarensis* is the first graphic documentation of this species.

Key words: aquatic fungi parasites, *Spirogyra*, *Mougeotia*, *Oedogonium*

INTRODUCTION

The present study is a continuation of the investigations concerning the fungi parasitizing on algae, first of all on *Zygnemaceae* (Kadłubowska 1968, 1998, 1999, 2000). It has been revealed that parasitizing fungi attack the species of *Spirogyra* and *Mougeotia* (Kadłubowska 2001) and destroy cellular protoplasm, making identification of the host specimens more difficult. The investigations presented enrich our knowledge on the morphology, development and new hosts of these fungi. The samples of algae were collected in various parts of Poland. Dr. Andres Langangen sent the samples from Norway to the author of the present article.

DESCRIPTION OF THE SPECIMENS

Myzocyttium irregulare Peterson

Thallus endobiotic, irregular in shape, forming short branches. Sporangia short-cylindrical, ca. 5 μm broad. Discharge tube 2 μm wide, distinctly expanded beneath the host wall. Oospore globose 10 μm in diameter. Zoospores 1 μm in diameter (Fig. 1).

Habitat: a cell and conjugating tube of *Spirogyra varians* (Hass.) Kützing; a pond in Morelowa street (Łódź), 25.05.1970.

The dimensions of *M. irregulare* from Łódź correspond with the description by Batko (1975) and the figure by Skirgiełło (1954).

Sparrow (1960) mentioned this fungus among the "Imperfectly known species of *Myzocyttium*" despite of its branched thallus characteristic of the genus *Lagenidium*. However, this feature can be found also in *Mezocyttium zoophthorum* Sparrow (Sparrow 1960). Morphological features and dimensions of *M. irregulare* given in the present paper allow numbering this species among "perfectly known species of *Myzocyttium*". The species is new to Poland. Also, this is the first information about *M. irregulare* as a parasite on the genus *Spirogyra*. It is known from Europe and the United States as a parasite on *Cosmarium* sp. and *Micrasterias* sp. (Sparrow 1960), and on *Micrasterias rotata* (Grev.) Ralfs (Cejp 1933).

Harpochytrium tenuissimum Korschikov emend. Jane

Numerous uni- and tetra-nucleate thalli on the surface of *Spirogyra maxima* (Hassall) Wittrock. Thalli erect, elongate, 70-110 μm long, 3-4 μm broad. Two uninucleate thalli with a swollen base were observed (Fig. 2).

Habitat of *Spirogyra maxima*: a ditch near the Pond Lipowy (Experimental Pond Farm of the Polish Academy of Sciences at Golysz) (near Cieszyn) 10.05.1965. Morphological features of *H. tenuissimum* from Golysz correspond with the description of Batko (1975) and Karling (1977).

Woronina polycystis Cornu

Three cystosori of 37.8, 38.0 and 45.0 μm in diameter in a cell of *Mougeotia mysorensis* Iyenger. Cystosori composed of globular, compact masses of angular resting spores. Resting spores small, angular, ca. 4.0 μm in diameter (Fig. 3).

Habitat: in *Mougeotia mysorensis* in a small river by the mainroad in Nordland (Norway), 16.07.1993. Neither Sparrow (1960) nor Batko (1975) give the dimensions of the fungus cystosori.

The present report is the first information on this species as a parasite of algae, namely in a cell of *Mougeotia mysorensis*, the species described a few years ago as new for the European Flora (Kadłubowska and Langangen 1997).

Woronina polycystis is reported from Europe quite often; it is a common parasite of the fungi *Saprolegnia* and *Achlya* (Shen and Siang 1948; Sparrow 1960; Batko 1975). Czeczuga (1999) reported this species from springs in the vicinity of Białystok (on plant seeds used as baits).

Woronina glomerata (Cornu) Fischer

Numerous sphaerical sporangia 20-30 μm in diameter, with a smooth colourless wall in a cell of *Spirogyra majuscula* Kützing. Zoospores and cystosorus not observed.

Habitat: cells of *Spirogyra majuscula* Kützing; peat bog at Marysin (Łódź), 16.06.1958. Morphological features and dimensions of *W. glomerata* from Marysin correspond with the descriptions by Sparrow (1960). *W. glomerata* is often reported from Europe as a parasite on the *Vaucheria* sp. The author frequently observed sporangia of this fungus in cells of the genus *Spirogyra*.

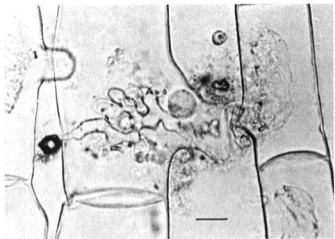


Fig. 1. *Myzocythium irregulare*. Thallus and sporangium with discharge tube and oospore in cell of *Spirogyra varians*. Scale bar - 10 μ m.

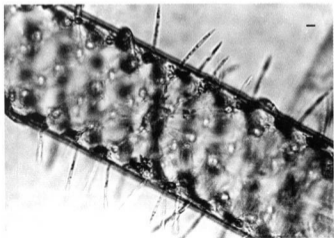


Fig. 2. *Harpochytrium tenuissimum*. Numerous thalli on the surface of *Spirogyra maxima*. Scale bar - 10 μ m.

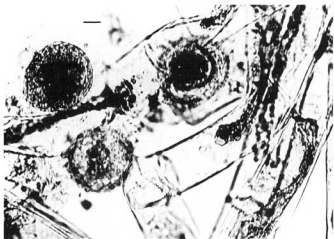


Fig. 3. *Woroniina polycystis*. Three cystosori: one in a cell, two near deformed cell of *Mougeotia mysorensis*. Scale bar - 10 μ m.

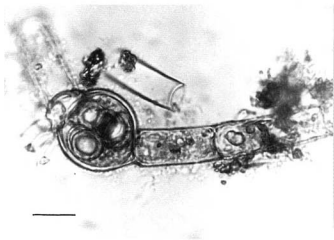


Fig. 4. *Chytridium acuminatum*. Three sporangia on the oogonium of *Oedogonium* sp. with haustoria attached to three endobiotic resting spores in the oospore of the host. Resting spores with oil globules. Scale bar - 10 μ m.

Chytridium acuminatum Braun

Three epibiotic, sessile sporangia, 8.0 μm high (16.6 μm according to Sparrow 1960), 3.0 μm in diameter, with a pronounced umbonate operculum. Sporangium wall smooth, colourless. Zoospores not observed. Three endobiotic resting spores, 7-8 μm in diameter with a double, colourless wall and a single large oil globule (Fig. 4).

Habitat: on the oospore of *Oedogonium* sp., pond Okręt (near Łowicz), 3.08.1968. The height of sporangia of *Ch. acuminatum* found in the pond Okręt differs significantly from that given by Sparrow (1960). The sporangia from the pond Okręt are probably young and immature. The figure of resting spores with a double wall presented in this paper is the first graphic documentation of this species. *Chytridium acuminatum* is a species new to Poland. It has been cited from Germany, Asiatic Russia and France (citation after Sparrow 1960).

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Rzadkie gatunki grzybów pasożytujących na glonach. IV.

Streszczenie

Opisano następujące gatunki grzybów pasożytujące na *Spirogyra*, *Mougeotia* i *Oedogonium*: *Mycocytium irregulare*, *Harpochytrium tenuissimum*, *Woronina polycytis*, *Woronina glomerata*, *Chytridium acuminatum*. *Mycocytium irregulare* i *Chytridium acuminatum* są gatunkami nowymi dla Polski. Dane o *W. polycytis*, grzybie pasożytującym na *Mougeotia mysorensis*, są pierwszą informacją w piśmiennictwie o występowaniu tego gatunku na glonach. Fotografia cystosorusów w komórkach *M. mysorensis* jest pierwszą ilustracją tego gatunku.