

Mitochytridium regale sp. nov.
a new keratinophilic water fungus from Poland

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A new species of *Mitochytridium* Dangeard — *M. regale* sp. nov. is described. The fungus has been obtained by baiting with snake skin a sample of the pond water collected from Łazienki Royal Garden in Warsaw, Poland. This new species differs from the type species of the genus (*M. ramosum* Dangeard) by the saprophytic behaviour, persistent zoospore case in the sporangial wall and some other minor differences.

The fungus under consideration here was isolated for the first time from the samples of pond water collected from Łazienki Royal Garden in Warsaw by Błaszczczyńska in April 1979.

It was identified by her as an undeterminable species of *Mitochytridium* Dangeard (1911). An additional abundant material obtained by the present author from the same locality in June 1980, allow to describe more completely the fungus under consideration as a new species, *Mitochytridium regale* sp. nov.

***Mitochytridium regale* sp. nov.**

Thallus endobioticus, eucarpicus, monocentricus, ex lata, cylindrica et non ramosis vel ramosis aut irregularis lobatus tubus constans. Spo-

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rangium in substrato inclusum, nonnulli vix visibiles in pagina matricis extubi habens, inoperculatum, irregulare, rectum et ramosum aut non ramosum, tortile et parvilobatum. Longitudo sporangii bis $106 \times 264 \mu\text{m}$, diametrum $52 \times 128 \mu\text{m}$. Zoosporae ovatae vel elongatae, $4 \times 4,5-9,5-11 \mu\text{m}$ diametro (Fig. 1 A), cum uno flagello postice, unam globulam consistens, perfecte in sporangiis formatae, quibus per unum brevem tubum evadens. Fungus aquaticus saprophyticus keratinophylicus.

Type: Figs. 1-4, Pl. I, 1-4, Type slide no 25701 deposited in the Herbarium of Botany Institute of Warsaw University, Poland.

Type locality: Warszawa, Łazienki Royal Garden.

Thallus endobiotic, eucarpic, usually monocentric, consisting of a broad, cylindrical and unbranched, branched or irregular lobate tube, develops from rather wide germ tube which invade the substratum (Fig. 1A, Pl. I, 3). Sporangium with the thick walled persistent zoospore case, (Figs 1B, 2A, B, 4A, 8) built up into the wall, with some exit tubes which are hardly visible and range up to the surface of the snake skin, inoperculate, irregular, straight and unbranched or branched, twisted and bearing short lobulation up to $106 \times 264 \mu\text{m}$ in length, $52 \times 128 \mu\text{m}$ in diameter (Fig. 4B, C).

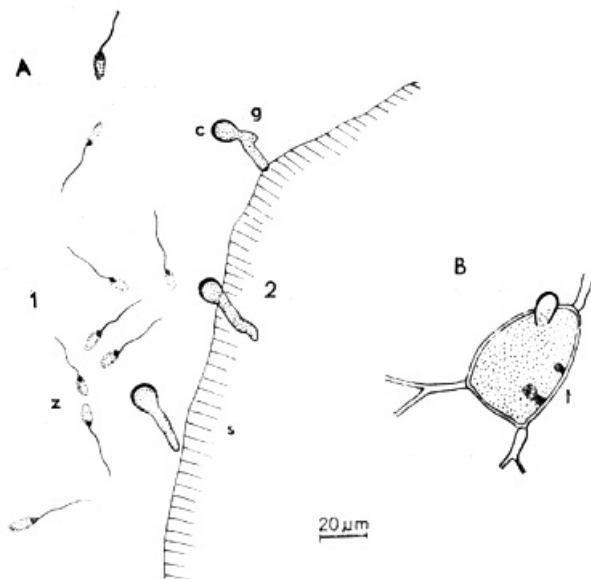


Fig. 1. *Mitochytridium regale*

A_1 — free-swimming zoospores; A_2 — encysted germinating zoospores; B — young thallus with protoplasmic content; c — zoospore case; g — germ tube; s — substrate; t — trabe-cula; z — zoospores

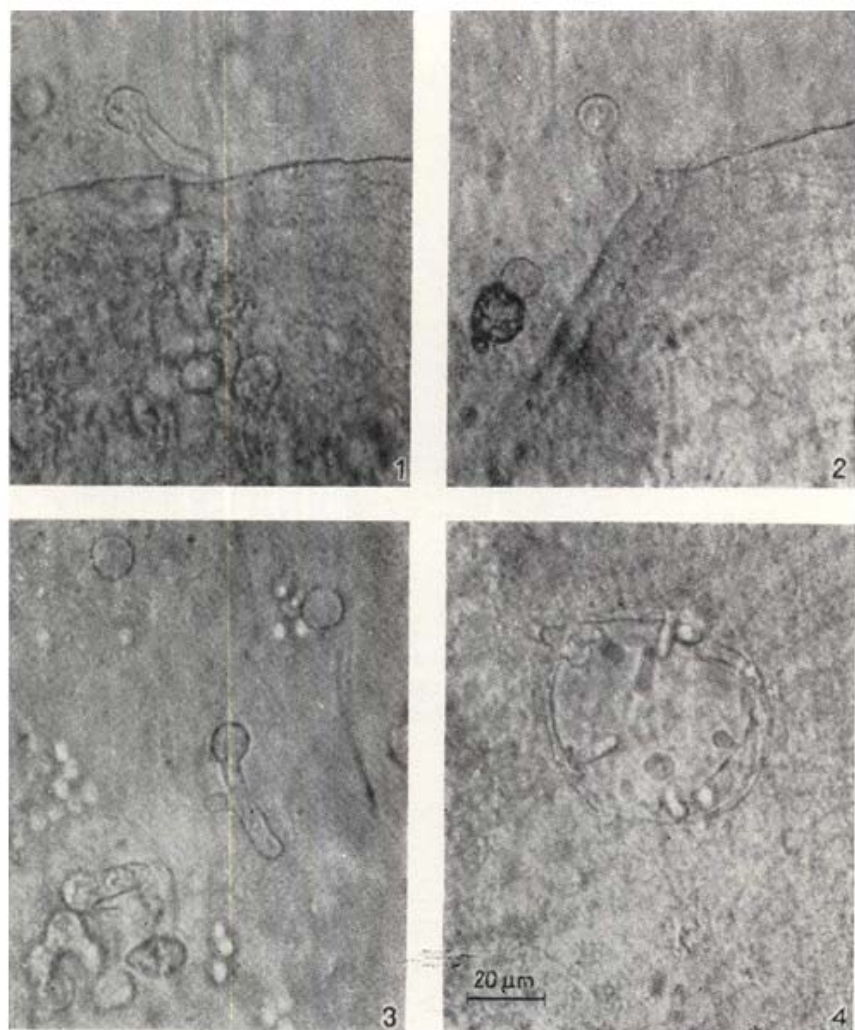


Plate I

Mitocytridium regale

1, 2, 3 — encysted germinating zoospores, note the markedly thickened of zoospores, the germ tube on photo; (3 — has yet invaded the substratum); 4 — small empty zoosporangium with visible trabeculae inside

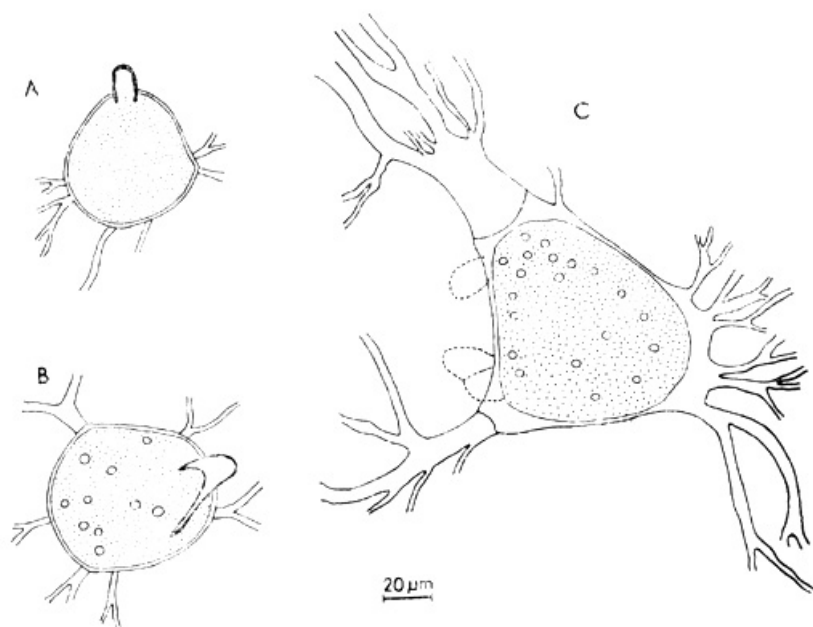


Fig. 2. *Mitochytridium regale*

A — young thallus with homogeneous content; B — an older thallus with coarsely granular content; C — growing thallus with richly branched rhizoidal system

The internal surface of the zoosporangial wall often irregular, with thickenings or trabeculae (Figs 1B, 4A and Pl. I, 4). Zoospores ovate or elongate, $4 \times 4.5-9.5 \times 11 \mu\text{m}$ (Fig. 1 A), posteriorly uniflagellate, containing a single basal globule, completely formed within the sporangium, escaping successively to the outside by one short tube. An aquatic saprophytic fungus, isolated on snake skin from the pond water.

Some sterile snake skin baits were put in five sterile Petri-dishes, each one containing 20 ml of the water sample. The baits were incubated at room temperature ($23-25^\circ\text{C}$). The fungus was observed after 14-18 days, since few thalli have been observed and subcultured on the same substrate.

The genus *Mitochytridium* has been established by Dangeard (1911), for the peculiar parasite of the desmid *Docidium* sp. and remains monotypic up to present time.

The type species *Mitochytridium ramosum* has been observed only twice, by Dangeard (1911) in France and Couch (1935) in USA.

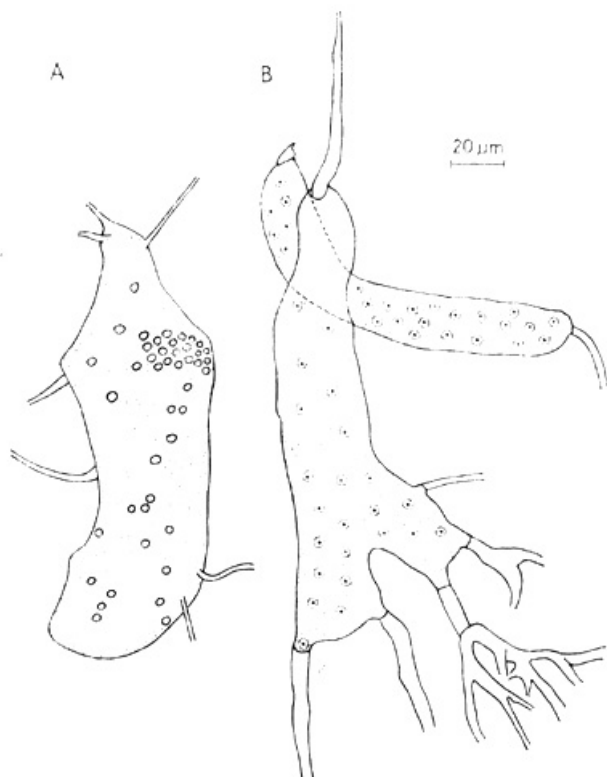


Fig. 3. *Mitochytridium regale*

A — nearly full-sized thallus; B — two mature thalli from the worte of Mrs. Błaszczynska

Couch (1935), indicates that the tubular part of the thallus — the rudiment of the future sporangium — is laid down before the purely vegetative part.

The present fungus differs from *M. ramosum* by saprophytic behaviour, type of thallus development and few morphological features.

The shape of sporangia of both species are markedly similar, nearly the same, and so characteristic that we consider purposeful to put them in one genus.

The endobiotic type of thallus development in the present fungus enables us to recognize it as a member of the family *Phlyctidiaceae*, sub-family *Entophlyctoideae* sensu Sparrow (1960).

In this family, *M. regale* may be compared also with some species of *Entophlyctis* Fischer (1892), which form also sporangia with

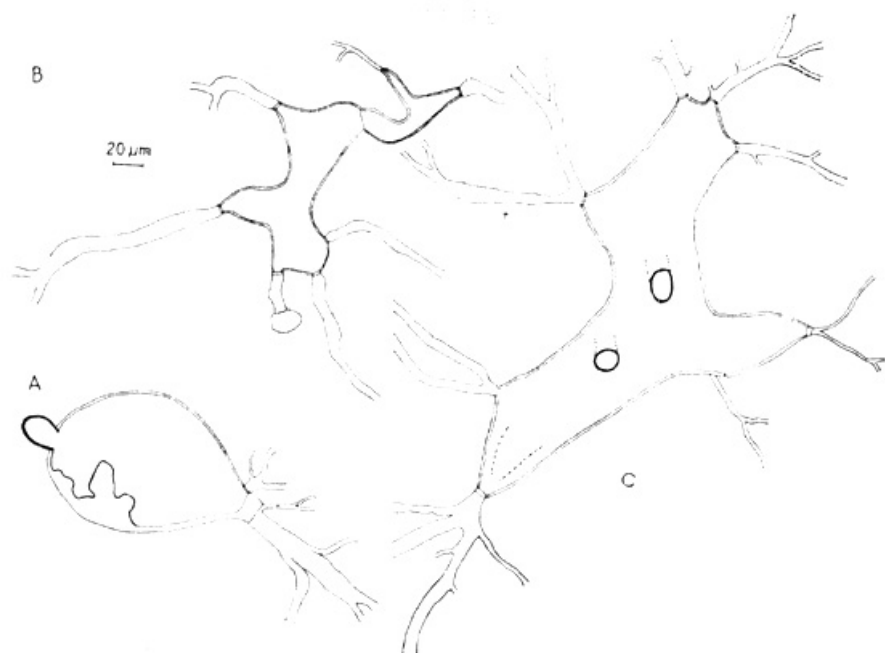


Fig. 4. *Mitochytrium regale*

A — three empty sporangia, showing morphological variability of the fungus. Thallus in B is bicentric and the other in C has two evacuation tubes; r — rhizoids

mostly one exit papilla or tube. With this genus however, only *E. bulligera* (Zopf) Fischer (1892) has persistent zoospore case, but this species differs from the present fungus by the shape of sporangia and many other features.

Barr (1971b), has recently showed that the limits of morphological variability of Entophlyctis-like fungi are widely range, especially, in cultures, but the very characteristic although variable shape of the thallus of my fungus suggests rather the above formulated taxonofical position.

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Mitochytridium regale sp. nov.

Streszczenie

M. regale sp. nov. wyizolowano z wody stawu Łazienkowskiego w Warszawie. Od gatunku-typu tego rodzaju nowy gatunek różni się saprofitycznym trybem życia, zachowaniem trwałego szczątka cystospory w ścianie zarodni i innymi cechami morfologicznymi.