

## MASSIVE INFECTIONS WITH FUNGUS OF THE ROTIFER *BRACHIONUS PLICATILIS*

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Widely used to feed fish larvae, rotifers are cultured at relatively high population densities (Lubzens, 1985). Rotifer mass cultures are complex ecosystems characterised by a certain instability. Suppressed growth and sudden decrease of animals density are occasionally observed in culture tanks. Often unexplained these problems could be related to infectious diseases as recently reported about the rotifer *Brachionus plicatilis* (Comps *et al.*, 1990; Yu *et al.*, 1990; Colorni *et al.*, 1991).

During the culture of rotifer (*Brachionus plicatilis*) in a commercial fish hatchery, several population crashes were noted in July and August 1991. The animals were not infected with the RB virus as previously noted in similar circumstances. In the other hand examination revealed an acute fungal invasion up to 85-95 % of rotifers.

Light microscopy confirmed that the fungus developed inside the rotifer (Fig. 1). Thallus occupied the spaces bordered by the lorica and the organs and caused a progressive break of the internal structures of the animal. In advanced stage of the infection, it invaded the major part of the body, leaving undamaged the lorica only.

Thallus was extensive, myeloid, irregularly branched and measured 7-15 µm in diameter. Exhibiting a thin wall, it was coarsely granular. Sporogenesis occurred on the anterior part of the rotifer or near the foot, and a spherical vesicle formed at the end of the discharge tube. Within the vesicle, the protoplasm appeared more granular and became cleaved. Simultaneously the zoospores formed and initiated movement. They were paraspherical in shape and

flagellate and measured 6-10 µm. The zoospores are liberated as the vesicle deliquesced (Fig. 2).

By its morphological characteristics and by the sequence of its sporogenesis, the fungus found in the rotifer could show lagenidiaceous affinities. However more information, particularly on the structure of the spore, should be required for a more accurate identification (Sparrow, 1960).

Various species of rotifers have been fortuitously found parasitised by Phycomycetes such as Chytridiales, Lagenidiales, Peronosporales, Blastocladiales and Plasmodiophorales (Sparrow, 1960). So, the Chytridiales *Olpidium gregarium* has been identified in *Brachionus* sp. (Shroeter, 1885). However, if in nature, rotifers exhibit a relative sensitivity to the Phycomycetes, there is evidence as demonstrated by the fungal infection here reported, that fungi could be also highly infectious pathogens for rotifers in mass culture.

The control of such infection needs a complete knowledge of the conditions of fungus reproduction before to experiment pesticides, like those used for treatment of marine crustacean mycosis (Armstrong *et al.*, 1976). A study of the fungus of *Brachionus plicatilis* is actually carried out in this prospect.

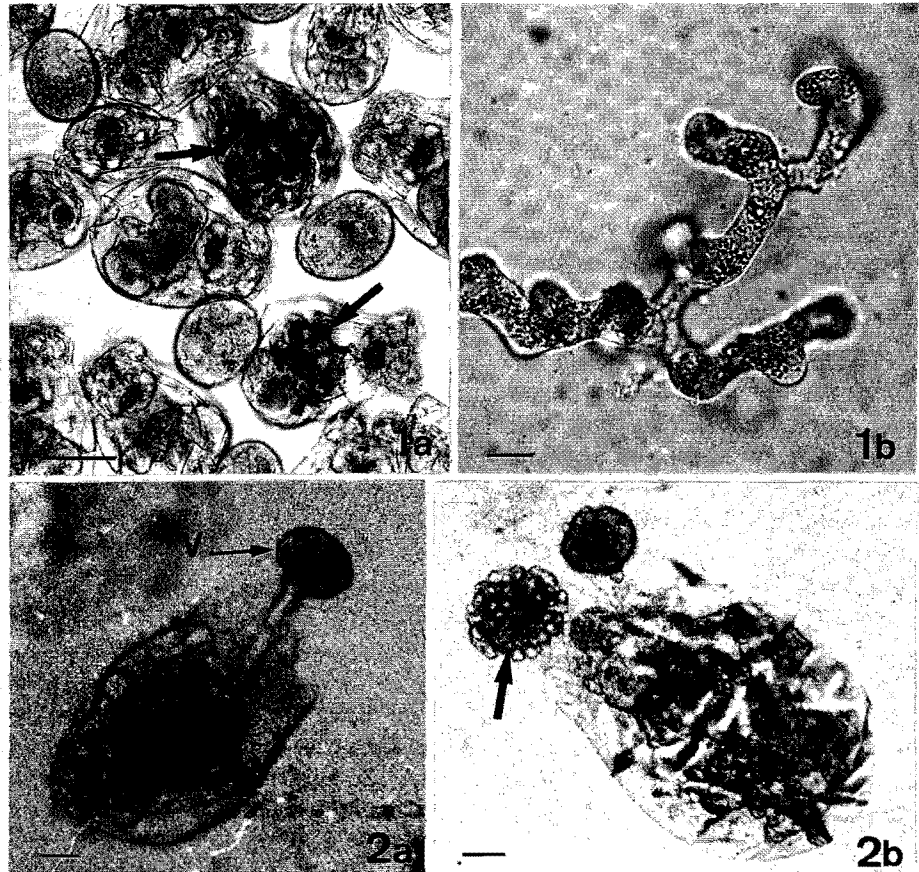
### Summary

Massive infections of a fungus exhibiting some characteristics of the Lagenidiaceae are described for the first time from rotifers (*Brachionus plicatilis*) reared in a hatchery as food for fish larvae. This fungal agent was associated with mass mortalities in the populations of cultivated rotifers.

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Figures 1 and 2 (1a) Fresh squash of rotifers *Brachionus plicatilis* parasitized by the fungus (arrows). (Bar = 100µm); (1b) Thallus isolated from infested rotifers (Bar - 10µm). Fig2 Fresh preparations of fungus infected rotifers; (2a): sporangial vesicles (V) formed at the end of discharge tube; (2b) discharge vesicle containing differentiated spores (arrow) (Bar = 20 µm).

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