Myxobolus absonus sp. n. (Myxozoa: Myxosporea) Parasitizing *Pimelodus maculatus* (Siluriformes: Pimelodidae), a South American Freshwater Fish

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A new myxoporean species is described from a freshwater fish in Brazil. Myxobolus absonus *sp. n. was found infecting* Pimelodus maculatus *captured in the river Piracicaba, State of São Paulo, Brazil. Cysts were found free in the opercular cavity. The spores are large (length-15.7 ± 1.5* µm*, width-10.2 ± 0.7* µm*; mean ± S.D.) and oval in shape, with the anterior end slightly pointed. The spore valves are relatively thin, smooth, and asymmetrical in a frontal view. The polar capsules are pyriform in shape, and unequal in size; the largest are 6.4 ± 0.7* µm *long and 3.6 ± 0.5* µm *wide, while the smallest are 4.2 ± 0.6* µm *long and 2.5 ± 0.5* µm *wide.*

Key words: Myxozoa - Myxosporea - *Myxobolus absonus* sp. n. - *Pimelodus maculatus* - Brazil - South America

The South American continent, with its numerous rivers, lakes and largest river basin in the world (Amazon basin), has the most diversified fauna of freshwater fish consisting of approximately 8,000 species (24% of all fish species) (Schaefer 1998). There are also numerous species of marine fishes in the continent's coastal waters. In spite of this variety of fish, only 71 (5.7%) of the more than 1,250 Myxoporea species described to date, have been reported in South America, a small number when compared to other regions of the planet. This low number of South American species probably reflects the general lack of studies in this field. In the last 10 years, 17 species of myxosporeans parasitizing South American fish have been described. In this paper, we describe a new Myxosporea species parasitizing *Pimelodus maculatus* Lecépède, 1803, a small feral catfish commonly known as "mandi-amarelo". So far, only two Myxosporea species have been reported to parasitize *Pimelodus* spp.: *Henneguya linearis* Gurley, 1893, found in *Pimelodus sebae* and *Myxobolus cunhai* Penido, 1927, in *Pimelodus clarias* (Gioia & Cordeiro 1996).

MATERIALS AND METHODS

Adult specimens of *P. maculatus* were collected between March 1991 and February 1992 in the river Piracicaba, in the municipality of Piracicaba, State of São Paulo, Brazil. The fishes were preserved on ice and immediately transported to the laboratory for autopsy. Spores were obtained from mature cysts and studied fresh in Lugol's iodine solution (2%). The India-ink method was used to detect the mucous envelope of the spores. Dry smears were fixed in absolute methanol and stained with Giemsa before examined with an immersion lens. An average of 30 spores were measured using the dimensions recommended by Lom and Arthur (1989). Measurements were taken from fresh spores obtained from frozen fish and were expressed as the means ± standard deviation (S.D.). Drawing was done with the aid of a camera lucida. Photomicrographs were obtained using a standard Zeiss microscope and Kodak TMAX 100 film.

RESULTS

Myxobolus absonus sp. n.
Figs 1-2

Description: spherical whitish plasmodia (cysts) 1-2 mm in size occurred free in the opercular cavity. Spores oval, with the anterior end slightly pointed (Figs 1-2), length-15.7 ± 1.5 µm, width-10.2 ± 0.7 µm; mean ± S.D. The spore

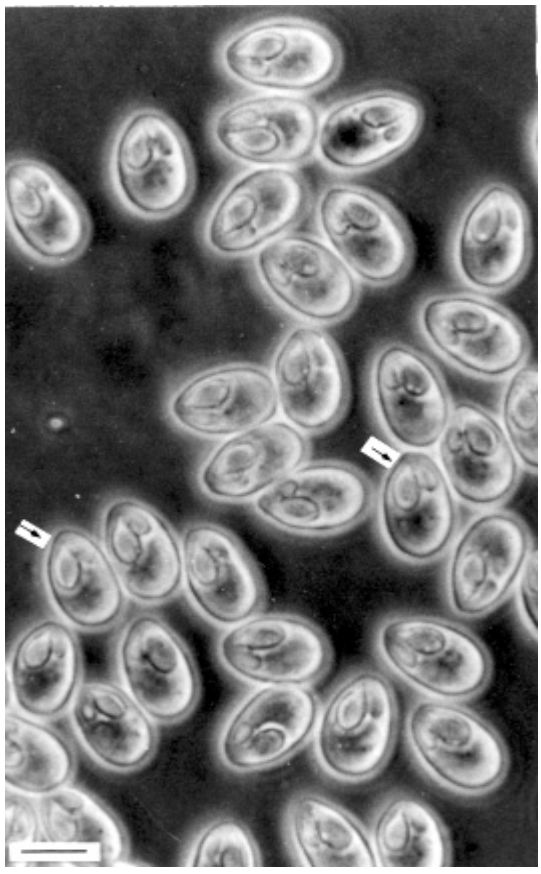

Fig. 1: light microscopic photograph of *Myxobolus absonus* sp. n. spores in a fresh preparation (phase contrast). Note the unequal size of the polar capsules and curved border of the valve. Bar = 10 µm

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valves are thin, smooth and asymmetric in a frontal view (Fig. 1); their sutural end is relatively narrow. The two polar capsules are pyriform in shape, and of unequal size (Figs 1-2), the largest being 6.4 ± 0.7 µm long and 3.6 ± 0.5 µm wide and the smallest being 4.2 ± 0.6 µm long and 2.5 ± 0.5 µm wide. In lateral view, the polar capsules are in the same plane as the suture line. The polar filament is closely coiled, and aligned perpendicularly to the longitudinal axis of the capsules. In the large capsule, the polar filament has five turns compared to only three in the small capsule. The sporoplasm is large, with two nuclei visible in stained preparations. The iodinophilous vacuole and mucous envelope are absent.

Type host: *Pimelodus maculatus* Lacépède, 1803 (Siluriformes: Pimelodidae).

Site of infection: opercular cavity (coelozoic parasite).

Prevalence: 8.3% (3 parasitized fishes out of 36 examined).

Locality: river Piracicaba, near Piracicaba city, State of São Paulo, Brazil.

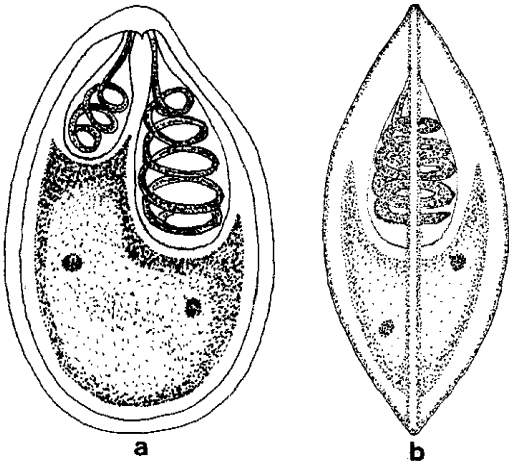

Fig. 2: line-drawing of a mature spore of *Myxobolus absonus* sp. n. - a: frontal view; b: lateral view. Bar = 10 µm.

Type material: the slides with stained spores of *M. absonus* sp. n. (Syntipe) are deposited in the collection of the Museum of Natural History of the Institute of Biology of the State University of Campinas, State of São Paulo, Brazil (accession No.: ZUEC 01; 02; 03).

Etymology: the species name is based on the unequal size of the polar capsules.

DISCUSSION

Comparison of *M. absonus* sp. n. with *Myxobolus* spp. found parasitizing South American and other freshwater fishes shows that the distinctive features in *M. absonus* sp. n. are unequal size of the polar capsules and the asymmetric shape of the valves in frontal view. Of the South American species of *Myxobolus*, only *Myxobolus inaequalis* Gurley, 1893 and *Myxobolus inaequus* Kent and Hoffman, 1948 have polar capsules of unequal size. However, the spores of *M. inaequalis* are much smaller (5.5 µm x 3.3 µm) than in *M. absonus* sp. n., while in *M. inaequus* the spores are larger (19.8 µm x 8.6 µm) than in *M. absonus* sp. n. and more elongated.

Of the *Myxobolus* spp. from other regions of the world which have spores with polar capsules of unequal size, those of *M. bilongi* Fomena and Bouix, 1994 have dimensions similar to *M. absonus* sp. n., but the anterior end of the spores is slightly truncated, and the polar filament of the large polar capsule has 9-10 turns while that of the smaller has 6-7 turns, compared to the 5 and 3 turns, respectively, in *M. absonus* sp. n.

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