

HEART INFECTIONS DUE TO MYXOSPOREAN (MYXOZOA) PARASITES IN MARINE AND ESTUARINE FISHES FROM SENEGAL

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Abstract

The investigations of myxosporidian parasites from marine and estuarine fishes of Senegal revealed four species parasitising the heart of their hosts. *Henneguya* sp 1 in *Brachideuterus auritus*, *Henneguya* sp 2 in *Sparus caeruleostictus*, *Henneguya* sp 3 in *Mugil cephalus* and *Myxobolus* sp. in *Mugil curema*. These myxosporidia induced the formation of cysts and caused the lysis of the heart muscle.

Introduction

Brachideuterus auritus, *Sparus caeruleostictus*, *Mugil cephalus* and *Mugil curema* are commercially important fishes in Senegal. Parasitological investigations of these fishes revealed the presence of four myxosporidian parasites. The present paper is the pathological descriptions of these parasites.

Materials and methods

A total of 610 specimens of *Brachideuterus auritus* (Haemulidae), 69 specimens of *Sparus caeruleostictus* (Sparidae), 381 specimens of *Mugil cephalus* and 51 specimens of *Mugil curema* (Mugilidae) from Senegal (West Africa) were examined for the presence of myxosporidian spores. Infected hearts were fixed in Carnoy's fluids and embedded in paraffin. The sections were stained with Heidenhain's azan.

Results

22 of 610 (3.6 %) *B. auritus* were infected by *Henneguya* sp 1 (Fig. 1), 37 of 69 (53,62 %) *S. caeruleostictus* were infected by *Henneguya* sp2 (Fig. 2), 11 of 381 (2,88 %) *M. cephalus* were parasitised by *Henneguya* sp3 (Fig. 3) and 9 of 51 (17,64%) *M. curema* were parasitised by *Myxobolus* sp.(Fig. 4). In *B. auritus*, *Henneguya* sp 1 forms numerous cysts of variable size within the atrium and the ventricle (Fig. 5).

It seems that this myxosporidian renders unfunctional the heart of its host because the cysts were often numerous in number. In *M. curema*, *Myxobolus* sp. form cysts within the ventricle but the infection is not intensive; only 3 to 5 small cysts were observed (Fig. 6). Infection of *Henneguya* sp 2 causes the necrosis of the atrium and the ventricle of *S. caeruleostictus*. Numerous cysts were observed within the pericardium (Fig. 7). In *M. cephalus*, the cysts of *Henneguya* sp 3 cause the erosion of ventricle muscle (Fig. 8).

Discussion

The myxosporidia found in *B. auritus*, *M. cephalus*, *M. curema* and *S. caeruleostictus* are historic species which are known to cause serious or fatal infections (Hoffman *et al.*, 1965; Schulman, 1966; de Kinkelin, 1985; Hedrick *et al.*, 1989; Lom and Dyková, 1992; Eiras, 1994). The histopathology of these myxosporidian infections gives clear evidence of the pathogenicity of these species. The lesions caused by our four myxosporidia were comparable with the lesions provoked by *Kudoa shiomitsui* in the heart of *Takifugu rubripes* in Japan (Egusa and Shiomitsu, 1983) and with those caused by *Henneguya vitiensis* in the heart of *Leiognathus fasciatus* in Fiji (Laird, 1950).

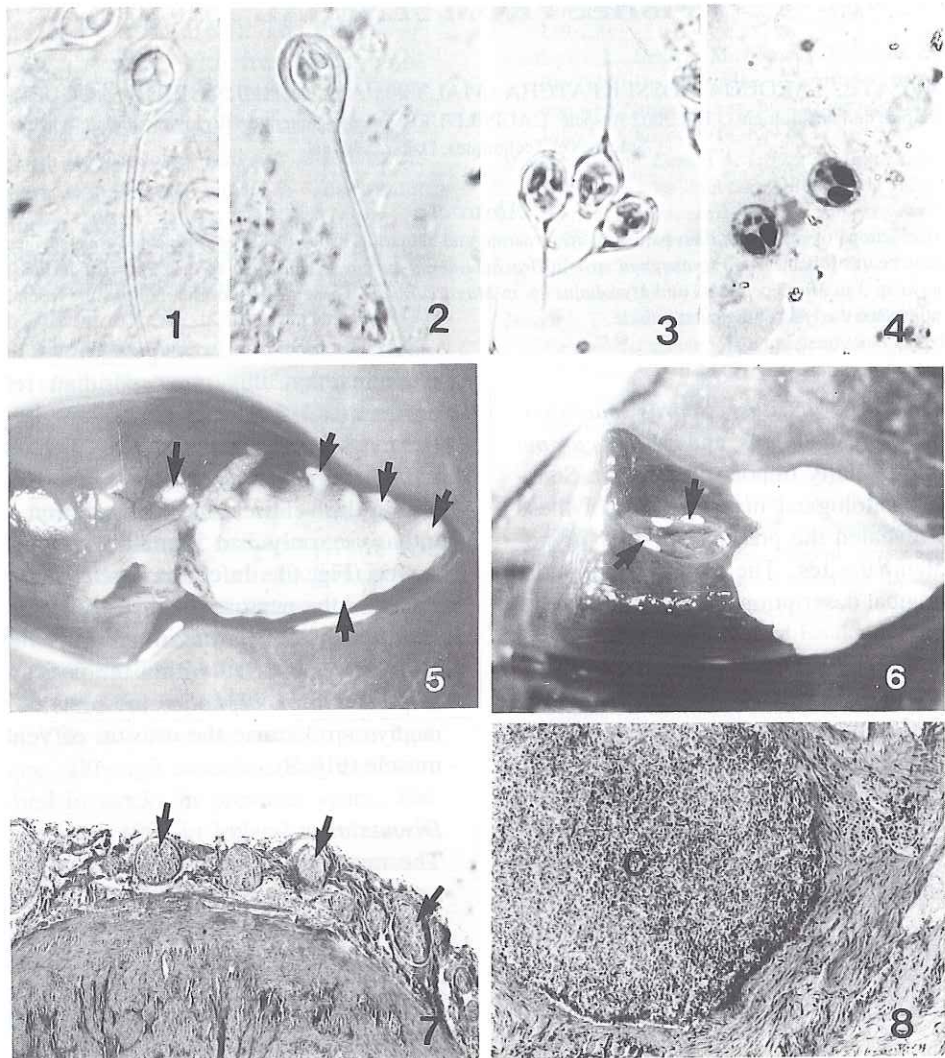


Fig. 1. Fresh spore of *Henneguya* sp 1 from *Brachideuterus auritus* (X 750). **Fig.2.** Fresh spore of *Henneguya* sp 2 from *Sparus caeruleostictus* (X 750). **Fig. 3.** Fresh spores of *Henneguya* sp3 from *Mugil cephalus* (X 750). **Fig. 4.** Spores of *Myxobolus* sp. from *Mugil curema* stained with Giemsa (X 750). **Fig. 5.** Cysts (arrows) of *Henneguya* sp 1 within the atrium of *Brachideuterus auritus* (X 30). **Fig. 6** Cysts (arrows) of *Myxobolus* sp. within the ventricle of *Mugil curema* (X 30). **Fig. 7.** Massive infection of *Sparus caeruleostictus* pericardium with cysts (arrows) of *Henneguya* sp2 (X 150). **Fig. 8.** Large cyst (K) of *Henneguya* sp 3 within the ventricle of *Mugil cephalus* (X 150).

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