Infection of *Penaeus monodon* (Fabricius, 1798)(Crustacea, Decapoda, Penaeidae) by *Agmasoma penaei* (Microspora, Thelohaniidae) in Senegal, West Africa

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**Abstract**

*Penaeus monodon*, the giant tiger prawn, introduced into Senegal, was found to be infected by a microsporidium, *Agmasoma penaei*. The infection was characterized by alteration of the muscles. Infestation rate was low, but we draw attention to this parasite which has potential to cause significant problems in Prawn culture in Senegal.

*Penaeus monodon* was caught in marine and estuarine waters in Senegal. 120 specimens of the species were examined for the presence of microsporidian parasites. Infected tissues were studied by light and electron microscopy as described previously (Clotilde-Ba and Toguebaye, 1994).

In *P. monodon*, 1 of the 120 specimens examined (0.8%) was found to be parasitized. The infected specimen exhibited a whitish colouration of the muscle spreading from the cephalothorax to the whole medio-dorsal part of the abdomen (Fig. 1). The microsporidium fresh spores were pyriform, measured 3.94 +/- 0.52 x 2.13 +/- 0.34 µm and were contained within a sporophorous vesicle (Fig. 2 & 3). By electron microscopy, the sporogonial plasmodia had unpaired nuclei, exhibited membranous fragments in the cytoplasm and were surrounded by a thick membrane (Fig. 4). Sporogony occurred in the sporophorous vesicle (Fig. 5). Spores were uninucleated with an anisofilar polar filament (8 to 9 coils) and lamellar and vesicular polaroplast (Fig. 6).

*Penaeus monodon* is a species of economic importance, generally recorded in the Indian and Pacific oceans. Its presence in the marine and estuarine waters of Senegal could be explained by specimens escaping from experimental farms in Senegal and Gambia (Clotilde-Ba et al., 1997) This species now co-habits in Senegal with the native species *P. notialis* which is parasitised by *Agmasoma penaei* (Clotilde-Ba and Toguebaye, 1994,1995).
Figures 1-6. 1) Dorsal view of *P. monodon* showing whitish discolouration (arrow)(Bar = 2 cm). 2) and 3) Fresh spores of *Agmasoma penaei* (x 2,200; x 100). 4) TEM showing sporogonial plasmodium of *A. penaei* (N) nucleus (x20,000). 5) TEM showing a sporophorous vesicle with sporoblasts (S) of *A. penaei* (x 20,000). 6) TEM showing longitudinal section of mature spore. (N) nucleus, (P) polaroplast, (PF) polar filament (x 28,000).
The microsporidian parasite found in *P. monodon* is undeniably *Agmasoma penaei* due to the morphology and ultrastructure of its development stages and spores (Hazard and Oldacre, 1975, Clotilde-Ba and Toguebaye, 1994). We think that *P. monodon* was infected by ingestion of spores arising from infected *P. notialis*. The disease observed in *P. monodon* is characterized by invasion of the muscles which are altered, becoming whitish with accumulation of spores. Theses symptoms were also described in *P. notialis* infected with *A. penaei* in Senegal (Clotilde-Ba and Toguebaye, 1994).

The infection observed was probably of low prevalence and does not cause serious economic loss. However, we call attention to this parasite because its presence in the populations of *P. monodon* and *P. notialis* may provide the source from which an outbreak or epizootic could erupt, should conditions favour transmission. Future intensive prawn culture may provide perfect conditions for the spread of this parasite.

**References**


