

A SPOROZOAN INFECTION IN *PENAEUS SEMISULCATUS*  
AT MANDAPAM

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ABSTRACT

A few specimens of *Penaeus semisulcatus* collected from Mandapam area were found infected with a microsporidian parasite tentatively identified as *The-lohania duorara* Iversen and Manning which has been earlier reported only from the U.S.A. Although these parasites resemble *T. duorara* closely, they differ significantly from the American specimens in the shape of the spores and pansporoblasts.

During the collection of samples of *Penaeus semisulcatus* for biological studies from the Gulf of Mannar and Palk Bay, specimens with white translucent body musculature and darker colour pattern were encountered in the commercial trawl catches at Mandapam (09° 17'N and 79° 08'E). On close

examination, they were found to be infected with a sporozoan parasite which was later tentatively identified as *Thelohania duorara* Iversen and Manning. The musculature and gonads were found to be invaded by these parasites. The infected prawns could readily be detected, and were rejected by the dealers as they were not accepted by the processing firms. The incidence of these parasites in the samples examined was, however, negligible. How far the infection has affected the growth and reproduction of the prawns could not be ascertained due to lack of enough material. Moreover, all the specimens obtained were in dead condition. Since there has been no published record of such microsporidian infection in Indian penaeid prawns this is reported.

*The parasites:* The parasites were dead at the time of observation and as such it was not possible to make them extrude the polar filaments although chemical reagents such as hydrogen peroxide, acetic acid, hydrochloric acid, ether, etc. were used and moderate pressure applied.

The spores are ovoid (Fig. 1, A). The spore membrane is unstriated. Under high magnification, the spores show a clear round vacuole towards the broader end. No polar capsules are present. The protoplasm appears to be granular. The spores measured 4.5 to 5.5  $\mu$  in length and 3.13 to 3.75  $\mu$  in breadth. In highly infected prawns the spores are of the same size and the sporonts exhibit different sizes and stages of development.

The sporonts are round (Fig. 1, B-D), measuring 8 to 13  $\mu$  in diameter. Each pansporoblast has eight spores of similar size enclosed in the membrane, which is characteristic of the genus *Thelohania*.

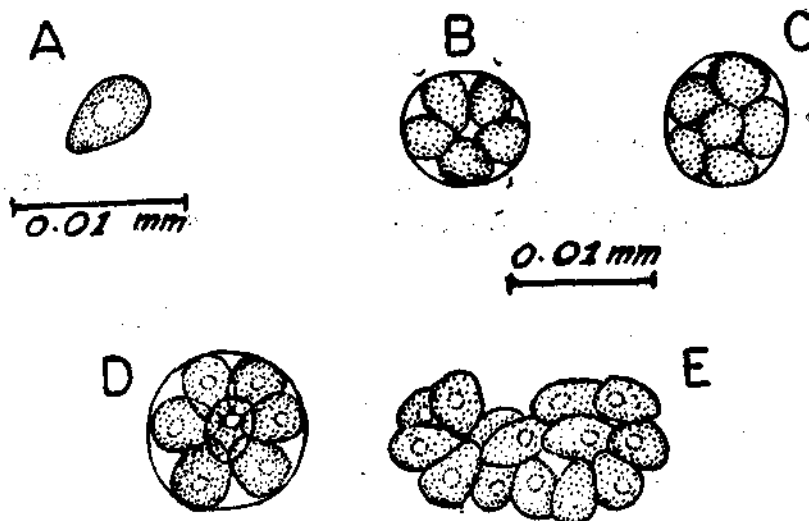


FIG. 1. *Thelohania duorara* Iversen and Manning. A: spore with vacuole. B-D: sporonts in different stages of development. E: spores just released by reapture of enveloping membranes of sporonts.

The specimens on hand agree well with *T. duorara* described from the pink shrimp, *Penaeus duorarum* (Iversen and Manning 1959), causing in the latter the condition called "Cotton shrimp", in the Gulf of Mexico, although, it has affinities to *T. penaei* Sprague infecting the brown shrimp, *P. aztecus* and white shrimp, *P. setiferus* from the Barataria Bay, Louisiana (Sprague 1950) and Boca Ciega Bay, Florida (Hutton *et al* 1959). The general shape and larger size of the spores and pansporoblasts of the specimens from these geographically far off places are the same. But, the pansporoblasts of the present material are more or less spherical, while they are oblong in the American specimens. The spores inside the pansporoblasts of *T. duorara* as shown in the figure of Iversen and Manning (1959) are unequal in size. However, in the present material these spores are of more or less same size. The free spores are slightly more pointed than those of *T. duorara* of Iversen and Manning. Considering these differences in the structure of the parasites and also of the host specificity and geographical differences, Dr. Victor Sprague has expressed the view (personal communication) that this could be treated as a new species, although, Dr. Iversen thinks (personal communication to Dr. Sprague) that this is identical with *T. duorara*. Since fresh live material were not available, a confirmation on the identity was not possible and so the present specimens are tentatively treated as *T. duorara*. However, more detailed studies will be carried out to elucidate the taxonomic position of the species.

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