ECTO AND ENDO PARASITES OF FIN FISH FROM TWO LOCATIONS OF THE BATTICALOA LAGOON

By

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ABSTRACT

The parasite fauna of some economically important fish caught at two locations in the Batticaloa lagoon was investigated in their natural habitat. The infection levels of the two localities were surveyed for a period of two years from May 2001 to August 2003. Location 1 is Koddai Kallar, and location 2 is in Thuraineelavanai.

The ecology of the parasitic fauna of the following fish were studied: *Etroplus suratensis*, *Etroplus maculatus*, *Ambassis gynocephalous*, *Channa striatus*, *Ompok bimaculatus*, *Oreochromis mossambicus*, *Punctius dorsalis*, *Airus* sp., *Glossogobius giuri*, *Anabas* sp., *Sillago sihama*, *Hemirhampus* sp., *Mugil cephalus*, *Chanos chanos*, *Pertica filamentosa*, *Solida* sp., *Therapan jarbua*, *Gerres abbreviates*. From these hosts three monogeneans, five digeneans, six nematodes, one acanthocephalans, and crustaceans species were identified.

The understanding of the water quality parameters influence is of prime importance in forecasting the possible fluctuations of parasite populations and their possible effect on fisheries and aquaculture systems. The parasite fauna of some economically important fish caught at two locations in the Batticaloa lagoon was investigated with water quality parameters such as pH, dissolved oxygen, conductivity, temperature, rain fall, nitrate concentration and phosphate concentration from over the study period at the two locations.

Results revealed that at both localities, the mean intensity of some parasites found in some hosts showed positive correlations with water pH, while some other parasites showed negative correlations with pH. There will be a possibility for a particular parasite to show positive correlation for a parameter, in

one host and then for it to differently in another host. This is due to variation of host specificity and water quality parameters.

This study is a comparison of parasites in different fish species at two locations of the Batticaloa lagoon. *Ergasilus parvitergum, Dermoergasilus amplectens, Caligus curtus, Lernaeenicus sparattae, Procamallanous lonis,* and *Acanthocephala* sp. were the most common, and the occurrence of parasites among the fin fish of Batticaloa lagoon was wide spread. *Ergasilus parvitergum* was prevalent in *Etroplus suratensis* where as *Procamallanous lonis* and *Caligus curtus* were more common on *Glssogobius giuris, Lernaeenicus sparattae* were more common on *Oreochromis mossambicus* and *Caligus curtus* and *D .amplectens* in *Ambassis commersoni* and *Acanthocephala* sp. and *Procamallanous lonis* were more common on *Airus* sp. suggesting that they were specific for such fish species. Some of the parasites were absent in some species may be due to competition of the parasites.

This study provides information on the histopathology of *Ceylonotrema colombensis* on gills of *Etroplus suratensis*, *Gerres abbreviatus* and *Oreochromis mossambicus.* The *Procamallanous lonis*, of the following fish, Siganids, *Glossogobios giuris,* and *Airus* sp. found in the Batticaloa lagoon, and the *Ergasilus sieboldi* in gills of siganids *Glossogobios giuris Hemirhampus* and *Therapan jarbua,* while *Ergasilus parvitergum* in gills of *Etroplus suratensis, Puntius dorsalis, Oreochromis mossambicus.* and Siganids; *Dermoergarsilus amplectens* of the following fish : *Etroplus maculatus*, *Glossogobios giuris Hemirhampus* and *Therapon jarbua*

Infected tissue samples, notably those from the intestine, liver, kidney and gills were fixed in 10% formalin and processed for wax embedding. All tissues were cassetted, labeled and processed for histological sectioning. Five micrometer thick cut

sections were stained with haemotoxylin and eosin. In the intestine, infections elicited an inflammatory response leading to a light epitheloid encapsulation of the parasite. The encysted parasite causing pressure changes to the surrounding tissue. Heavy nematode infections were accompanied by hypertrophy of the tissue and the formation of a hyperplastic tissue reaction. Such marked tissue reactions may alter the absorptive nature of the intestine, and presumably, the health condition of the host.

Host specificity was also studied. Specificity to the host was assessed by comparing the parasitic fauna in a particular species that live in the same location.

The main aim of this study is to provide information about the population density of the parasites, which helps to find suitable measures to control such parasites in aquaculture as these two locations are new venture for studying of parasites.

The site preference of the gill parasite *Ergasilus parvitergum* on *Etroplus suratensis* was studied and its distribution was found to vary across the gill arches. More *E. parvitergum* were found on the left than on the right set of gills. Comparing the four gill arches, most parasites occurred on the first arch, with decreasing numbers on arches II, III, and IV in that order. This study showed no significant difference in the numbers of *E. parvitergum* between the gill arches of *Etroplus suratensis*, although many authors have recorded such differences in other host parasite systems.

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