

# Histopathological study of *Trygon zugei* infected with tapeworm from Ratnagiri district (M.S.) India.

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## Abstract

The marine water fish *trygon zugei* collected from Ratnagiri district during the period of June 2009 to may 2010. After dissection their intestinal passage was examined for tapeworm parasite. The tapeworm, *tetragonocephalum* sp. Shipley (1905). The histopathological studies were carried out and observation clearly shows that the parasite, *Tetragonocephalum* sp. was approaching to the intestinal villi, embedded in the fibroblast cell and is attached to the intestinal villi. The histopathological studies of tapeworm *Tetragonocephalum* sp. have been studied to find the pathological changes and extend of damage of the intestinal layers of *trygon zugei*.

**Keywords:** Histopathology, *Tetragonocephalum* sp, *Trygon zugei*, intestinal villi.

## INTRODUCTION

In aquaculture the health of fish is of at most important. The health of fish can be affected by environmental factors, nutrition as well as by pathogens. The presence of large population of a particular species provide ample habitats for parasite and the stress condition associated with such crowding will also affect the health and subsequent susceptibility of the fish to parasite are affected by both the macro and micro environment. The environmental factors are important in the recruitment, transmission, colonization fecundity and survival of both the adult and larval parasites (Esch et al. 1977 [5]). The tapeworm *Tetragonocephalum* sp. is one of tapeworm which cause the severe damage to *trygon zugei* which results in to the anemia weight loss and decreased production. The extensive study on the host parasite relationship has been carried out by *Amoebotaenia* Indiana (Mitra And Shinde, 1980 [12]) *Hymenolepis nana* (Bailey, 1951 [2]) host response to implanted adult *H nana* as studied by Coleman and Sa.L.M. 1962 [4] and experimental immunization of dog against *E.granulosas* was first observed (Foresk and Rukavina 1959 [6]) histopathology of *Acanthobothrium uncinatum* was observed from a fish *Rhynchobatus Ajeddensis* (Murlidhar And Shinde 1987 [13]) They have studied the histopathology of intestine of fish caused due to cestode (Hayunga, 1977 [10]) and the caryophyllaeidiasis in fish host (Ahmed and Sanaullah. 1975 [1]).

## MATERIAL AND METHODS

For the histopathological study *trygon zugei* marine water

fishes were collected from mirkarwada ratnagiri district during period of June 2009 to may 2010. These fishes were brought to the laboratory, dissected out the intestine, examined for the cestode infection. Some fishes were found to be infected were as few were not. Both infected non infected host intestine were Fix in Bouin's Fluid to study histopathological changes. The fixative inhibits the post mortem changes of tissue. Then tissues were washed, dehydrated through alcoholic grades cleared in xylene and embedded in paraffin wax (58-62°C). The blocks were cut at 7µ by rotary microtome and slides were stained in Eosin Haematoxyline double staining method and the section were mounted in the D.P.X. Best slides or sections were selected and observed under the microscope for histopathological study. The photomicrographs were taken with the help of camera.

## RESULT AND DISCUSSION

From the present communication the result indicate that some of the intestines were found to be infected with cestode parasite. The plate no A show the healthy intestine in which villi and all layers are clearly observed. Were as in plate no B infected intestine shows that the worm attached mucosal layer of intestine and slowly invades to the deeper layers of the host tissue. The worm *Tetragonocephalum* sp. is having scolex with suckers, which are used for attachment with the intestine of host *trygon zugei* in L.S.of intestine it has been observed that the *tetragonocephalum* sp. attached to the mucosal sub-mucosal and muscularis mucosa of intestine and slowly damaged the host intestinal tissue and it destroys the intestinal epithelium of villi showing they are highly destructive to intestine of *trygon zugei*. On closer observation the parasites turned out to be *Tetragonocephalum* sp. these cestodes are found in the anterior part of the intestine. The transverse section of healthy intestine of host *trygon zugei* shows intact histological architecture and all layers observed. Were as in the infected intestine with cestode parasites *Tetragonocephalum* Sp. causing damaged the epithelium. In the longitudinal section of the cestode *Tetragonocephalum*. sp infected with the intestine of *trygon zugei* are clearly observed that the anterior end of the cestode parasite. *tetragonocephalum*.sp was

Received: Jan 04, 2012; Revised: March 03, 2012; Accepted: April 08, 2012.

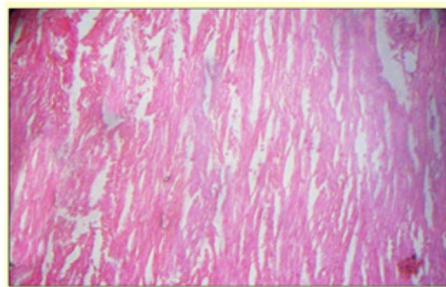
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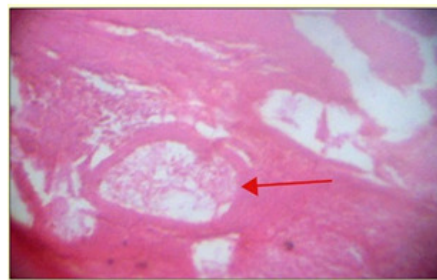
approaching the intestinal villi and damage the epithelial layer, embedded in the fibroblast, lymphocytes, plasma cells, and attached to the intestinal villi therefore, causing inflammation, vacuolation and damage the intestinal villi. The Worm is not only successful to enter in to the intestine forming the ulceration in the intestinal wall causing damage to the host tissue but the parasite may affect hosts physiology in many ways that induce stress in the host the parasitic infection in turn disturbs the metabolic pathway. (Esch G W et al 1977 [5]) the present study showing that the *Tetragonocephalum* sp. damages the epithelial layer, these results are matching in accordance with the studies carried out by (Gopal Krishnan 1968 [7]) patterns of scolex invasion in *Serranus* showed as previous report. Haque and Siddiqi (1978) [9] have reported the infection of *F. buski*

causes surface desquamation of mucosal epithelium infiltration of eosinophils and plasma cells. They have also observed the destruction of mucosal epithelium and villi of intestine. These findings are similar to those of Haque and Siddiqi (1978) [9] who observed surface desquamation and damage lamina Propria. It is also observed that inflammatory nodulation in the intestinal wall and increased no of goblet cell. The atlantic salmon (salmon solar ) had an anisakid larva partly embedded in the wall of an intestinal caecum (Hammerschmidt, K 2007 [8]) however, the helminths crosses majority of the intestinal layers (internal epithelium, sub mucosa, muscularis Layre) and come to lie near serosa suggesting that it is very Dangerous and Destructive parasite to the definitive host (C.J Hiware 2008 [3]).



**T.S. of Non Infected Intestine**

Plate A.



**T.S. of Infected Intestine**

Plate B.

Parasite affect the productivity of the fish in the system through mortalities by decreasing growth rate, reducing the quality of the fish and making the hosts more susceptible to more pathogens From above histopathological discussion it can be concluded that the tapeworm parasites like *tetragonocephalum*.sp Spare finds the nutritive material from the intestine of hosts. *Trygon zugei* which is essential for their nourishment and growth.

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