

## Histopathological studies on cestode parasites in marine fishes

Khodke A. B.

Department of Fishery Science,  
Pratishthan Mahavidyalaya, Paithan, Dist Aurangabad (MS), India  
abkhodke1991@gmail.com

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### Abstract

Interest in the study of host-parasite relationships has declined sharply with the development of antihelminthic, antibiotic and chemotherapeutic treatment of parasitic diseases. The study of the interactions of potential hosts and potential parasites remains one of most interesting and important aspects of the natural sciences. It is indeed doubtful whether investigations of host-parasite interrelationships are less pertinent today from the perspective of human health. Present study reveals the Histopathological changes in cestode parasites of marine water fishes of Alibagh and adjoining areas.

### INTRODUCTION

The parasites can find their suitable host, some thoughts on these incresption of host parasite integration. Long normal distribution of parasitization index and gastro parasitic index in the birds and mammals cestode relationship and fish cestodes relationship of hill steam fishes was observed. The host parasitic relationship in cestodes is complex one involving inter actions between at least two and some times more genital system namely those of the parasites it's intermediate and its definitive host ( Lillie, 1965). Thus a cestode if it has to survive must be suitably adapted to the morphology, physiology, biochemistry, immunology and ecology of its hosts. There is also an extensive literature on the pathogenesis of larval cestodes in fishes. The study of contact, interaction and relationship between the hosts and parasites is known as histopathology. Scolex of cestode worked as hold fast organ, adapted for attachment to mucosa of gut of the host. The diets of the host have profound effect the growth of the cestodes (Hiware and jadhav, 1999).

Helminths live in a hazardous environment where the parasitic movement towards gut and passage of food make the possession of an efficient form of attachment is a prerequisite for survival.

Taxonomic studies reveals that the hold fast organ is beautifully developed and adapted which are help them to attach the mucosa of specific hosts where as there are other species which are having weakly developed scolex. They do not prove to reside in any particular host intestine but have a wide host spectrum; there is increasing evidence in the genus *Echinococcus* at least such strains occur in different hosts (Ray, 1980).

During the life cycle of cestode, it is accomplished twice in different host. In marine fishes the mechanism of parasites establishment varies from species to species and also depends on the stage of parasite, host tissue and environmental conditions. The degree of the response by each host to this tissue contact is related to the nature of the tissue site invasion and also to the intimacy of the host or parasite contact it is also related to the stage of development of the invading organisms whether it is an adult or larva eg. the host parasitic contact established in the life cycle of *Taenias aginata*.

Parasites when make contact with a host at cellular level, the host reacts bringing into cellular and serological reaction, which is an inflammatory reaction.

It is thought that the host is able to distinguish between self and non-self material, it is

not clear as to how these recognition is carried out at molecular level. Recognition must occur on or near the surface of the susceptible cells and probably it may require contact between the material and the recognizing cells. Sprent, has given an excellent account about it the onset of inflammation is characterized by local dilation of the capillaries (vasodilatation). The host-parasites relationships in case of helminth parasites result into large scale damage at the site of attachment.

A successful parasite usually does not cause death to the host must cause diseases and the same time produce a low degree immunity so that the host become susceptible to the same infection over and over again. The researchers not yet area of host-parasite relationships will become more aware of the special approaches, difficulties and challenges which characterize this field (Mitchell, 1998).

## MATERIALS AND METHODS

Both infected and uninfected hosts intestine were dissected and fixed in Bouin's fluid to study histopathological changes. The fixative inhibits the post mortem changes of the tissues. Then tissues were washed, dehydrated through alcoholic grades, cleared in xylene and embedded in paraffin wax (58-62°C).

The blocks were cut at 7 $\mu$  and slides were stained in Eosin haematoxylin double staining method. Best slides or sections were selected and observed under the microscope for histopathological study (Culling, 1974).

## RESULTS AND DISCUSSIONS

Parasitism of cestodes with their respective hosts is shown in the histopathological studies. This study is carried out with micro-technique where the sections were cut at 7 $\mu$  on a rotary microtome and stained with Haematoxylin & Eosin stain (Chauhan and Malhotra, 1981).

Healthy intestine showed, healthy villi and all layers are clearly observed, where as infected intestine has been observed that the worm attached to the mucosal layer of intestine and slowly invades to the deeper layers of the host tissue.

In T.S. of intestine of *Trygon zugei* it has been observed that the cestode attached to the mucosal, sub-mucosal and muscularis mucosa of intestine and slowly damaged the hosts intestinal villi, invaded deep and forming the cyst like structure and pad formation took place for invading and sucking the content in the region of villi. Parasitism of cestodes with their respective host is

shown in histopathological studies. Study is carried out by microtechnique.

Healthy intestine showed, healthy villi and all organs are clearly observed, where as infected intestine has been observed that the worm attached to the mucosal layer on intestine and slowly invades the deeper layers of host tissue (Murlidhar and Shinde, 1987)

## PLATE - I:

### 1) *Tylocephalum shrivardhanasis* n.sp.

The worm *T. shrivardhanasis* n.sp. having non Penetrative scolex, so they have close intimate contact with intestinal tissue of host.

In T.S. of intestine, it shows *Trygon walga* cestode attached to mucosal, sub mucosal and muscularis mucosa or intestine and slowly damaged the host intestinal tissue, destroys the intestinal epithelium

In *P. shrivardhanasis* n.sp. scolex is medium with 10-12 tentacles, which are used by parasite for attachment to host i.e. *Trygon walga*.

The attached part of intestine shows damaged villi, forming cyst like structure and sucking the content from the region of villi.

*P. shrivardhanasis T. walga* finds the nutritive material in intestine which is essential for nourishment and growth from *Tygon zugei* and *Trygon sephen*.

*Tylocephalum shrivardhanasis* n.sp

T. S. of infected intestine of *Trygon walga* it has been observed that the cestode attached to the mucosal, sub-mucosal and muscularis mucosa of intestine and slowly damaged the host intestinal tissue causing very less breakage but it destroys the intestine epithelium of villi showing that cestodes are highly destructing to *Trygon walga*.

a) T. S. of non-infected Intestine of *Trygon walga*.

b) T. S. of infected Intestine of *Trygon walga*.

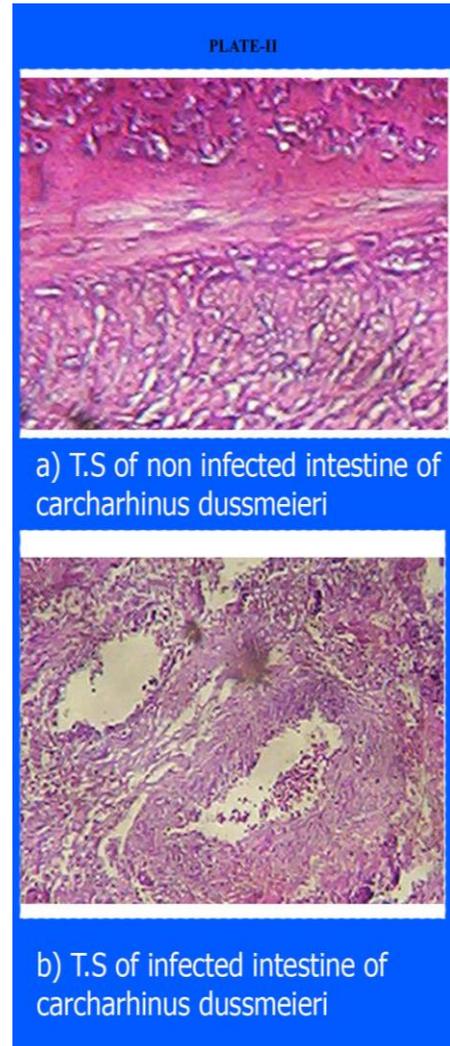
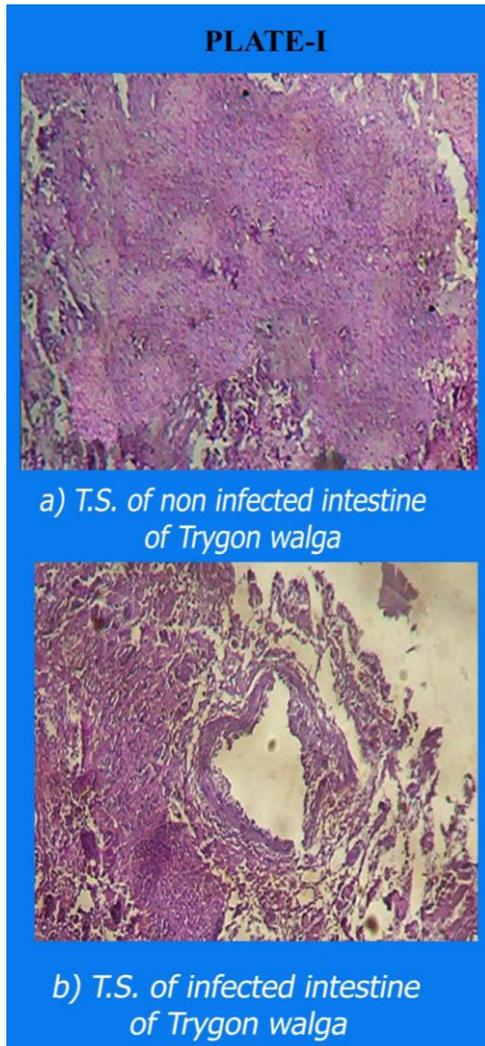
## PLATE – II

### *Polycephalus alii* Shinde and Jadhav .

T.S. intestine of *Carcharhinus dussumieri* is infected with *Polycephalus alii* Shinde and Jadhav (1981). Scolex is medium with 10-12 tentacles which are used for attachment of worm to host i.e. *Carcharhinus dussumieri* the attached part of intestine by parasite shows damage of intestinal villi, invaded deep and forming the cyst like structure and pad formation took place for invading and sucking the content in the region of villi.

a) T. S. of non-infected Intestine of *C. dussumieri*.

b) T. S. of infected Intestine of *C. dussumieri*.



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