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HISTOPATHOGICAL STUDY OF FRESH WATER FISHES INFECTED WITH CESTODE PARASTE FROM GODAVARI RIVER, PAITHAN (M.S.) INDIA.

Zoology

Dr. Satish Saraf Department of Zooloy, Pratishan Maavidyalaya Paitan, Dist. Aurangabad.

ABSTRACT

The fresh water fish *Mastacembelus armatus* (Lecepede, 1800) collected from Godavari river, Paithan, Dist. Aurangabad and after dissection their intestinal passage was examined for cestode parasites. The cestode *Circumoncobothrium* Sp., Shinde, 1968 was recovered from intestine. The histopathological studies were carried out and observation clearly shows that the parasites, *Circumoncobothrium* Sp. approaching the intestinal villi embedded in fibroblast cell, plasma cell and are attach to the intestinal villi. The histopathological studies of cestode *Circumoncobothrium* sp. have been studied to find the pathological changes & extend the damage of the intestinal layers of *Mastacembelus armatus*.

KEYWORDS

Cestode, *Circumoncobothrium* Sp., *Mastacembelus armatus*, Paithan.

INTRODUCTION

The infection of helminth parasites are found plenty of in fishes which reduce the food value of fishes and decrease in their production and result in mortality and morbidity, so the study of helminth parasites is neccessity today. Histopathology is the microscopic study of tissue affected by disease. Histological and anatomical changes in parasitized organism have been studied in various ways and by a number of workers. And yet a detailed cytological study of the effect of parasitism upon the host is nearly a virgin field (H. P. Kjbrschow Agersborg, 1924).

Fish diseases and histopathology, with a broad range of causes, are increasingly being used as indicators of environmental stress since they provide a definite biological end point of histological exposure, it is a mechanism which can provide an indication of fish health by determining early injury to cells and can therefore be considered an important tool to determine the effect of parasites on fish tissue. The pathogenicity of cestode adjacent various order described by Rees, G.in 1967. Mcvicar (1972) studied of host parasite relationship described in fishes *Acanthobothrium*, *Phllobothrium*, *Echinobothrium*. Murlidhar and Shinde, 1987 observed histopathology of *Acanthobothrium uncinathum* from the fish *Rhynchobatus djeddensis*. Borucinska and Caira, 1993 subsequently described the histopathogenicity of two adult *Trypanorhynchus* from the muscosa of the nurse shark. Swati Jadhav et. al., 2014 observe histopathology of *Circumoncobothrium osmanabadensis* from the *Mastacembelus armatus*, Fartade A.M. and Fartade M.M. 2016 studied histopathology of *Circumoncobothrium govindii* from fish *Channa marulius* and Asha Bidkar, Amol Thosar, Sunita Borde and Rahul Khawal, 2017 observed histopathology of *Senga* Sp. From *Mastacembelus armatus.*

The present investigation deals with the study of histopathology of fresh water fish *Mastacembelus armatus*, (Lecepede, 1800) infected with the cestode parasite i.e. *Circumoncobothrium* Sp. From Godavari river, Paithan, (M.S.) India.

MATERIAL AND METHODS

For the histopathological study, fresh water fish *Mastacembelus armatus* were dissected to observe the rate of infection. Some fishes were found to be infected and some normal. Both infected and normal hosts intestine were cut in to small pieces and were fixed in Bouin's fluid to study histopathogical 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 ^{0}C). The blocks were cut at 7 µ and slides were stained in Eosin Hematoxylin double staining method. Best slides or sections were selected and observed under the microscope for histopathology study.

RESULT AND DISCUSSIONS

After cestode parasite infection there is a drastic alteration which leads to the destruction of the internal anatomy, resulting in the total change of its appearance. Normal intestine showed, healthy villi and all layers are clearly observed. Infected fish intestine includes shortening of villi, thickening of the muscle layer, destruction of the villi, hold fast penetration of the mucosa and the damage of both the mucous and submucous membranes.

Fig. No.1 :- The host parasite relationship between *Mastacembelus armatus* and *Circumoncobothrium* Sp.
A. T.S. of non infected Intestine of *Mastacembelus armatus.*
B. T.S. of infected Intestine of *Mastacembelus armatus.*

In T.S. of non-infected intestine of *Mastacembelus armatus* it has been observe normal intestinal villi and other layers of intestine.

In T.S. of infected intestine of *Mastacembelus armatus* it has observed that the cestode is having penetrative type of scolex and there is no doubt that they cause heavy mechanical tissue damage to their host. Scolex of worm deeply penetrated through layers causing heavy mechanical injury to mucosa, sub mucosa, come to lie near the muscularis mucosa. The intestinal villi encircle the scolex of worm and intestinal architecture get destructed and also it forms cyst like structure, pad formation took place.

A. T.S. of non infected Intestine of *Mastacembelus armatus.* B. T.S. of infected Intestine of *Mastacembelus armatus.*

Fig. No. 1:- The host parasite relationship between *Mastacembelus armatus* and *Circumoncobothrium* Sp.

CONCLUSION

From above histopathological examination depicted that the cestode parasites i.e. *Circumoncobothrium* are extensively destructed in intestine of fresh water fish *Mastacembelus armatus*. Being parasitic in nature, they damage the organ on which they survive. Due to the occurrence of these parasites, the physiological activities of the infected fish are hindered and their growth is retarded which cause economic loss to the fishery industry. Parasite affect the productivity of the fish in the systems through mortalities by decreasing growth rate reducing the quality of flesh and making the hosts more susceptible to more pathogens.

From the above histopathological discussion it can be concluded that cestode parasites i.e. *Circumoncobothrium* Sp. finds nutritive material from the intestine of hosts i.e. *Mastacembelus armatus* which is essential for their nourishment and growth. While taking nourishment parasites invade host tissue resulting tissue damage causing mechanical injury to the host at the attachment site.

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