

ULTRASTRUCTURAL STUDY OF HELMINTH PARASITES *SENGASP.* INFECTING THE *MASTACEMBELUS ARMATUS*

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Abstract

The present study was undertaken to determine the ultrastructure of helminth parasite *Senga* species from freshwater fish *Mastacembelus armatus*. The present study deals with the survey of freshwater fishes from Latur District (M. S.) India. This study summarizes the data of freshwater fishes associated with helminth parasites from February 2011 to January 2012. Fish samples were collected from different localities of Latur District. All fishes were examined for the presence of internal helminth parasites in the digestive tract. Scanning electron microscope observations revealed some differences between the present species and other related helminthes detected before.

Keywords: *Mastacembelus armatus*, *Senga* species, SEM.

Introduction

Despite the economic importance of freshwater fish in our national economy and a significant component of food security system in India, considerable attention has not been paid to improve the fish health and saving them from infections of helminth parasites. Fishery industry is waiting for proper eradication of infectious agents of fishes. Parasites are extremely abundant and diverse in nature, representing a substantial portion of global biodiversity. Helminthes are an important group of animal parasites occurring in the adult stage usually in vertebrate host, practically invading every organ system of the host and larval stage in the invertebrate hosts. These worms are widespread in almost all animals in every part of the world, though the intensity of infection may differ from time to time or place to place and they produce a wide variety of direct effects, thus they play a vital role in welfare of man and animals with which is associated to smaller or greater extent. Srivastava, (1975) stated that most species of helminths in adult stage live in the alimentary canal these, parasites have detrimental effects upon fish in more ways than one. Hoffman and Bauer (1971) stated that the life cycle of most helminth parasite are so complex involving more than one intermediate host including fish that their study enable one to better understand the dynamics of aquatic system as a whole.

Materials And Methods

Collection of host fish species:

The freshwater fishes were collected from different localities of Latur district during the period of July 2010 to June 2014. The hosts were caught randomly for every month, usually during daytime and some at night and noted down their taxonomic data properly. Some of them were also obtained from local animal suppliers. From them, relevant information was also obtained with respect to the host's locality, date of collection, etc. and then brought to the laboratory. During observation of population dynamic of *Senga* sp. a total 186 fishes of *Mastacembelus armatus*, out of which 94 females and 92 males were examined. Among them 21 females and 13 males found infected, resulting in 37.50 % prevalence of infection in males and prevalence of infection in females for year 2012-13.

Examination of fish for collection of parasites:

Examination of intestinal parasites was carried out by using the method described by Hassan *et al.*, (2010). After the separating and counting the population of different helminth parasites from different freshwater fishes the parasites were preserved in separate bottles. Some of these were used for the taxonomic study.

Preparation of cestode specimens for Electron Microscopy (SEM)

Specimen for scanning electron microscopy (SEM) were fixed in cold 4% glutaraldehyde in buffer (pH 7.2) and kept in it for 24 hours, then dehydrated through a graded series of alcohol, infiltrated with amyl acetate, after critical drying mounted on stubs, coated with gold and photographs were taken with the help of SEM. Joel Japan JSM 6380A at an accelerating voltage of 20KV at Icon analytical laboratory, Warli, Mumbai (M.S) India. The SEM measurements were in micrometer. The identification is made with the help of "Systema Helminthum" by Yamaguti (1958, 1961).

Observations And Results

During observation of population dynamics of *Senga* sp. a total 186 fishes of *Mastacembelus armatus*, out of which 94 females and 92 males were examined. Among them 21 females and 13 males found infected, resulting in 37.50 % prevalence of infection in males and prevalence of infection in females for year 2012-13

Host: *Mastacembelus armatus*

Prevalence: highest monthly prevalence (28.57) in male and (42.86 and 37.5) in female

Location: intestine

Locality: Latur, AUSA, Udgir (MS).

Total No. of fish examined: 182

Total No. of fish infected: 33

No. of specimens collected: 67

The genus *Senga* was established by Dollfus (1934) with its type species *S. bensardi* from *Bettasplendeus*, at Vincennes, France. Johri (1956) reported *Sengalucknwensis* from *Mastacembelus armatus* in India. Later Deshmukh and Shinde (1980) described new species *S. khami* from fresh water fish *Ophiocephalus marulius* from Kham River at Aurangabad, India. Jadhav and Shinde (1980) described a new species *Sengagodavari* from *Mastacembelus armatus*, at Nanded, India. In the same year again, Jadhav and Shinde (1980) added *S. aurangabadensis* in *Mastacembelus armatus* at Aurangabad, India. Tat and Jadhav (1997) added a new species *Sengamohekare* from the host *Mastacembelus armatus* at Parli, Dist. Beed, India. Hiware (1999) described *S. armatusae* from *Mastacembelus armatus* at Pune, India. Bhureet *al* (2007) described a new species *S. jadhavae* from *Mastacembelus armatus*. Pardesi and Hiware (2011) described *Sengarupchandensis* from *Channa striata* at Jalna, India. The present species falls under genus *Senga*. Because rectangular scolex. Bothria were shallow, oval with thickened borders. Neck absent, segments are not well developed.



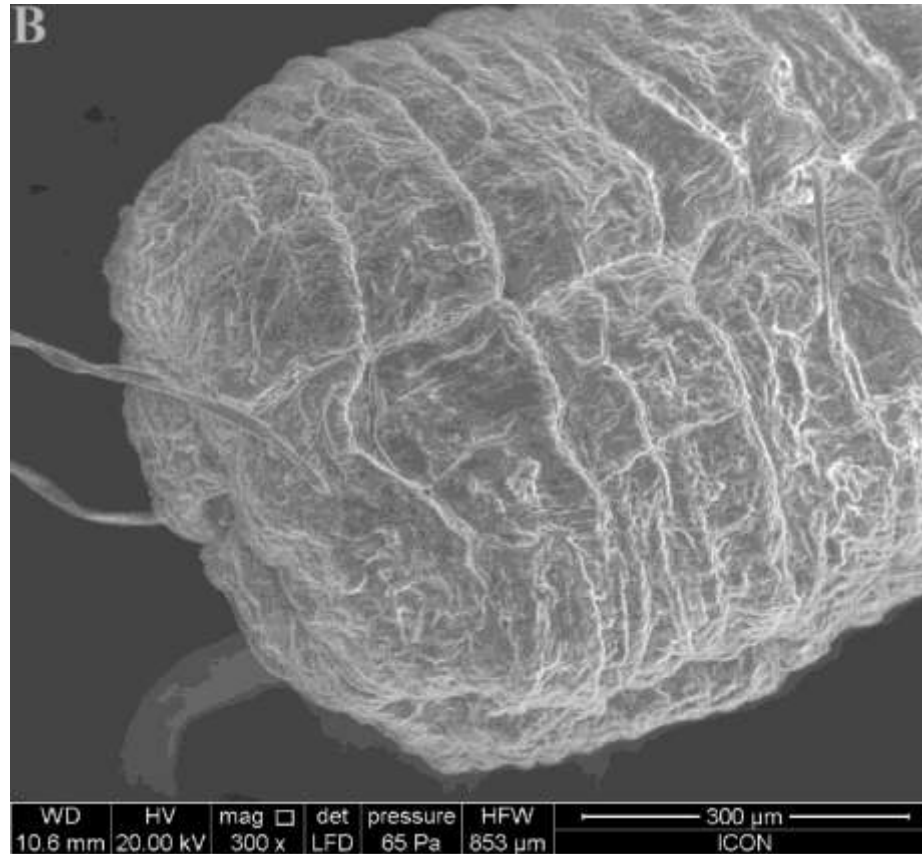


Figure 1: Scanning electron micrograph of *Senga sp.A*. **A.** Scolex and neck. **B.** Scolex and rostellum.

Discussion

The present studies on parasite fauna of fishes of Latur district would increase its relevance to understand key roles in ecosystems, regulating the abundance or density of helminth parasite populations and structuring host communities. Thus, the present study would be a useful tool to understanding of the biodiversity of fish parasites and consequently, fisheries management and conservation of aquatic resources. Bhure and Nanware (2011) described *S. satarensis* from *M. armatus* at various places of India. The worm comes closer to all the known species of this genus in general topography of organ but differs due to scolex pear shaped, tapering anteriorly and broad posteriorly, rostellum medium, rounded, bearing 28-30 rostellar hooks, mature proglottids six to seven times broader than long, testes 175- 200 in numbers, scattered throughout the segment, cirrus pouch oval, ovary distinctly bilobed, vagina thin, runs posteriorly, genital pores oval in shape, vitellaria granular, uterus saccular and egg elongated.

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