A redescription of *Senga armatusae* (Hiware, 1999) (Cestoda: Phychobothridae) from freshwater teleost *Mastacembelus armatus* in Mula dam reservoir (Maharashtra) India

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**Abstract**

The present study deals with a redescription of *Senga armatusae* from Fresh Water fish *Mastacembelus armatus* in Mula dam reservoir (M.S.) during June 2013 to July 2015. Alimentary canal of the fishes was removed, cut open in normal saline water in petridish. the Cestode parasites were preserved in 4 % formalin; Borax carmine and Haematoxylin stain were used for staining of parasites. The worms were passed through various alcoholic grades, cleared in xylene and mounted in DPX. The present form having many closely resembling characters such as scolex is medium in size and triangular, the scolex bears bothria, hooks are 32-40 in number, mature proglottids are broader than long, testes are 190–200 in number, Cirrus pouch is oval shaped, ovary is transversely elongated; bilobed with irregular margin placed near the posterior margin of the proglottids, Vitellaria are follicular in 3-4 rows. Gravid segments are five to six times broader than length. Except few known as additional characters as in the number of testes, shape of testes and rows of vitellaria.

**Keywords:** Cestode, *Mastacembelus armatus*, *Senga armatusae*, Teleost

1. Introduction

The study area (Mula dam) is an earth fill and gravity dam on Mula River near Rahuri in Ahmednagar district of the state of Maharashtra in India. Have canals on either bank flowing downstream through the Ahmednagar district towards Aurangabad district irrigating the water deficient central eastern region of the Ahmednagar district. It is also the principal source of water for the Mahatma Phule Krishi Vidyapeeth. It also provides drinking water supply to perennially water deficient Ahmednagar city. Fish is correctly regarded as a healthy component of the diet; it is an excellent source of protein and is low in saturated fats. In rural area rearing of the *M. armatus* is the common business for the fish farmers. The repeated use of water bodies has resulted in organic pollution of bottom and eventually resulted in outbreak of parasitic diseases in culture medium. Today fish farmers are combating with various types of fish parasites such as fungal, protozoan, bacterial, viral, crustacean and helminthes.

*Senga* was established with type species *S. besnardi* [1], redescribed by [7], *S. ophiocephalina*, as *Anchistrocephalus, Ophiocephalinus, S. pycnomerus* [8, 9] as *Botriocephalus pycnomerus, S. lucknowensis* [4], recorded *S. malayana* from *Channa striata*; *S.parva* and *S. filiformis* from *Channa micropeltes* at Malacca [2]. Reported the plerocercoid of *Senga* sp. from *Panchax panchax* [6], described the life cycle of *S.vishakhapatnamensis* from Ophiocephalus punctatus in a lake at Konadakaria [8], A.P. India. The present study deals with the Redescription of *Senga armatusae* collected from a fresh water fish *Mastacembelus armatus*. 

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For the taxonomical study of Cestode parasites, the fish *Mastacembelus armatus* were collected through different areas of Mula dam Reservoir, Ahmednagar District, Maharashtra. The alimentary canal of the fishes were removed and cut open in normal saline water in petridish. The alimentary canals observe under binocular microscope (recorded infected and non-infected hosts) the collected worms were washed in distilled water to render them free from intestinal contents. The Cestode was preserved in 4 % formalin. Borax carmine and Haematoxylin stain were used for staining of parasites. The worms were passed through various alcoholic grades i.e. 30 %, 50 %, 70 %, 90 % and 100 % cleared in xylen and mounted in DPX. All the drawing was made with the aid of camera Lucida. All measurements are in millimeters, unless otherwise indicated.

2. Description
Two hundred Eighty eight intestines are dissected, out of them one hundred forty one intestines were infected in freshwater fish *Mastacembelus armatus* from Mula dam reservoir Dist. Ahmednagar (M.S.) India during July 2013 –June 2015.

Cestode Parasites are separated from infected intestines. Out of them eight worms were stained with Harris Haematoxylin and after closer observations they turned out to be the species of the genus *Senga*.[1]

The scolex is medium in size, triangular broader at the base and tapering towards anterior end and measures 0.08397-0.08543mm in length and 0.02087-0.08640 mm in breadth. The scolex bears bothria, which extends from anterior end to posterior end of the scolex and measures 0.06747 - 0.07669 mm in length and 0.00679 -0.04028 mm in breadth. The anterior end of the scolex terminals in to a rostellum, which is armed with hooks, round to oval in shape and measures 0.01601 -0.01698 mm in length and 0.01407 – 0.01601 mm in width. The hooks are 32 - 40 in number, circularly arranged, which are of two types larger and small; large hooks measures 0.00582 mm in length and 0.009708 mm in breadth and smaller hooks measures 0.00388 mm in length and 0.00048 mm in breadth.

The mature proglottids are broader than long, almost four times broader than long and measures 0.0533-0.0636 mm in length and 0.2476-0.2921mm in breadth. Testes are oval to rounded medium, distributed on the either lateral side of the ovary. Testes are 190 – 200 in number, and measures 0.00568 mm in diameter. Cirrus pouch is oval shaped, situated just anterior to the middle of the proglottids, obliquely placed and measures 0.01249-0.01476 mm in length and 0.00454-0.008467 mm in breadth. Vas deferens thin, short and measures 0.01249-0.01476 mm in length and 0.001138- 0.00227 mm in breadth. Cirrus pouch is oval shaped, situated just anterior to the middle of the proglottids, obliquely placed and measures 0.01249-0.01476 mm in length and 0.00454-0.008467 mm in breadth. Vas deferens thin, short and measures 0.01249-0.01476 mm in length and 0.001138- 0.00227 mm in breadth. Cirrus pouch is oval shaped, situated just anterior to the middle of the proglottids, obliquely placed and measures 0.01249-0.01476 mm in length and 0.00454-0.008467 mm in breadth. Vas deferens thin, short and measures 0.01249-0.01476 mm in length and 0.001138- 0.00227 mm in breadth. Cirrus pouch is oval shaped, situated just anterior to the middle of the proglottids, obliquely placed and measures 0.01249-0.01476 mm in length and 0.00454-0.008467 mm in breadth. Vas deferens thin, short and measures 0.01249-0.01476 mm in length and 0.001138- 0.00227 mm in breadth. Cirrus pouch is oval shaped, situated just anterior to the middle of the proglottids, obliquely placed and measures 0.01249-0.01476 mm in length and 0.00454-0.008467 mm in breadth. Vas deferens thin, short and measures 0.01249-0.01476 mm in length and 0.001138- 0.00227 mm in breadth. Cirrus pouch is oval shaped, situated just anterior to the middle of the proglottids, obliquely placed and measures 0.01249-0.01476 mm in length and 0.00454-0.008467 mm in breadth. Vas deferens thin, short and measures 0.01249-0.01476 mm in length and 0.001138- 0.00227 mm in breadth. Cirrus pouch is oval shaped, situated just anterior to the middle of the proglottids, obliquely placed and measures 0.01249-0.01476 mm in length and 0.00454-0.008467 mm in breadth. Vas deferens thin, short and measures 0.01249-0.01476 mm in length and 0.001138- 0.00227 mm in breadth.

The ovary is transversely elongated, Bilobed with irregular margin placed near the posterior margin of the proglottids, lobes almost equal in size and measures 0.0284- 0.03180 mm in length and 0.01590-0.02612 mm in breadth. Ootype is small, posterior, rounded and measures 0.00467 mm in diameter. The uterus is compact, conical transversely, located anteriorly in the proglottids, filled with eggs and measures 0.01476-0.01704mm in length and0.001136-0.003408 mm in breadth. Genital pore small in size, rounded in shape and measures 0.00340 mm in diameter.

The Vitellaria are follicular, in 3-4 rows, anterior to posterior region of the proglottids. Gravid segments are five to six times broader than length.

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<th>Table 1: Taxonomic summary</th>
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<tr>
<td><strong>Genus</strong></td>
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<td><strong>Species</strong></td>
</tr>
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<td><strong>Host</strong></td>
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<td><strong>Habitat</strong></td>
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<td><strong>Locality</strong></td>
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<td><strong>Date of collection</strong></td>
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**Fig 1:** Senga armatusae  Hiware, 1999
3. Result and Discussion

After going through the literature, the worm under discussion turned out to be *Senga armatusae* [3]. The present form, has many closely resembling characters such as the shape of scolex, number of hooks, absence of neck, mature segment, Ovary post-equatorial, bilobed with irregular margin, shape of cirrus pouch, vagina, Follicular vitellaria and Eggs.

However, there are few different characters, known as additional characters as

1. The present worm differs from *Senga armatusae* [3] in the number of testes (190-200 vs. 230-240).
2. The present worm differs from the same in Vitellaria (3 - 4 rows vs. 2 rows).
3. The present worm differs from the same in shape of testes (Oval to rounded vs. rounded)

As the above characters are minor, the present worm is redescribed here as *Senga armatusae* [3]; both are being reported from the same host *Mastacembelus armatus*.

4. Conclusion

The present taxonomical study revealed that freshwater fish, *Mastacembelus armatus* is infected by the species of Cestode parasite of genus Senga. The Cestode

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Fig 2: *Senga armatusae* Hiware, 1999

A- Scolex  
B - Mature Proglottids  
C- Gravid Proglottids
A parasite is redescribed here as *Senga armatusae*. This parasite damages fish in many ways like decreasing productivity, growth rate and reducing the quality of flesh.

5. Acknowledgement
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6. References


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