



On a new species of the genus *Senga* (Dollfus, 1934) (Cestode: Ptychobothridae, Luhe, 1902) from fresh water fish *Mastacembelus armatus*

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Abstract

The present paper deals with a new species of the genus *Senga* (Dollfus, 1934) from freshwater fish *Mastacembelus armatus* (L.) Kaigaon toka, Dist Aurangabad (M.S) India, in the month of March 2007. It differs from all the earlier reported species in having scolex triangular, anterior end pointed, rounded and posterior end broad., hooks 36 in number, mature segment broader than longer, test 285-295 in number, cirrus pouch pre-ovarian, obliquely placed.

Keywords:- *Senga*, *Mastacembelus armatus*

Introduction

The genus *Senga* was established by Dollfus (1934) with its type species *S. besnardi* from *Betta splendens*, the Siamese fighting fish in an aquarium at Vincennes, France, *S. ophioccephalina* Tsengshen (1933) as *Anchistrocephalus ophioccephalina* from *Ophioccephalus argus* at Tsinan, China and identified as *Anchistrocephalus polyptera* (*Anchistrocephalus Monticelli* *Anchistrocephalus*) from *Ophioccephalus straiatus* in Bengal, India *S. pycnomerus* Woodland (1924) as *Bothriocephalus pycnomerus* from *Ophioccephalus marulius* at Allahabad, India. *S. lucknowensis* (Johri, 1956) from *Mastacembelus armatus* in India, Fernando and Furtado (1963) recorded *S. malayana* from *Channa striatus*, *S. parva* and *S. filiformis* from *Channa micropeltes* at Malacca. Ramadevi and Rao (1966) reported the plerocercoid of *Senga* sp. from *Panchax panchax*. Furtado and Chau-lan (1972) reported *S. pahangensis* from *Channa micropeltes* at Tasek Bera. Shinde (1972) redescribed *S. besnardi* from *Ophioccephalus gachua* in India and Ramadevi (1977) reported another species *S. visakhapatnamensis* from *Ophioccephalus punctatus* at Visakhapatnam, India. Ramadevi (1976) described the life cycle of *S.*

visakhapatnamensis from *Ophioccephalus punctatus* in a lake at Kondakaria, Andhra Pradesh, but they do not agree with Tadros' statement. Wardle *et al.* (1974) put *Senga* as a distinct genus in the family Ptychobothridae. Later on Shinde and Deshmukh (1980) added *Senga khami* from *Ophioccephalus marulius*; Shinde and Jadhav (1980) added two new species of the genus *Senga*, i.e. *Senga godavari* and *Senga aurangabadensis* from *Mastacembelus armatus*, *Senga paithanensis* was reported by Kadam *et al.* (1981) from *Mastacembelus armatus*. *Senga gachuae* reported by Jadhav (1991) from *Channa gachua*. Jadhav (1991) described *Senga maharastrii* from *Mastacembelus armatus*. Hasnain (1992) described *Senga chauhani* from *Channa punctatus*. *Senga armatusae* was reported by Hiware (1999) from *Mastacembelus armatus*. Later on Patil and Jadhav (2003) added *Senga tappi* from *Mastacembelus armatus*. Recently Bhure *et al.* (2007) added *Senga jadhavae* from *Mastacembelus armatus*.

Materials and Method

Twenty cestode parasites were collected from the freshwater fish *Mastacembelus armatus* (Lacepede) from Kaigaon toka, Dist. Aurangabad (M.S.) India, in the month of March 2007. Out of 20 cestodes, four worms are stained with Harris

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haematoxylin stain and on closer observations it has been found that they belong to the genus *Senga* (Dollfus, 1934).

These cestodes were flattened, preserved in 4 % formalin, stained with Harris haematoxylin, passed through various alcoholic grades, cleared in xylol, mounted in D.P.X. and whole mount slides were prepared, for further anatomical studies. Drawings were made with the camera lucida and all measurements are in millimeters.

Description

The complete strobilae measure 86-145 mm in length and 3.8 – 4.4 mm in width. The scolex is triangular shaped being broader at the base. It measures 1.22 - 1.25 mm in length and 0.32–0.33 mm in width, it contains two bothria which are narrow at the anterior and broader at the posterior end which measures 1.18-1.20 mm in length and 0.28-0.29 mm in width. The rostellum is disc like, bears a crown of 36 hooks, the apical disc measures 0.3-

0.35 by 0.19-0.21 mm in size. The larger hook measures 0.065 – 0.085 mm by 0.01-0.012 mm in size and the smaller hooks measure 0.031-0.035 mm by 0.01-0.01 mm in size. All the segments, right from the base of the scolex up to the end of the strobila are much broader than long, including immature segments and partly mature segments. In immature segments there is no trace of any reproductive organ and in the partly mature segment besides the developing ovary, vitelline follicle are observed which are arranged in the lateral fields of the proglottids. In more differentiated segment, the vitelline follicles appear to be arranged in clusters at the lateral fields and the testes appear to occupy the medullary region around the ovarian lobes.

In most of the mature segment which lie just after the partially mature segments are three times broader than longer which measures 0.15 mm in breadth and 0.024 mm in length, the vitelline follicle are well distinct from the testes being arranged separately i.e. of the segment. The testes 285-295 in numbers which measure 0.03-0.04 mm by 0.01-0.014 mm, they are arranged in two lateral fields. The ovary is differentiated into bilobed structure with a long thin and strip like isthmus between the two lobes is median in position, each lobe consists of 5 acini and it measures 0.09-0.12 by 1.25-1.45 in size. The gravid segments are broader than longer and measure 0.20 mm in breadth and 0.01776 mm in length, tubular uterus is present in these segments which measures 0.075 mm in breadth and 0.0155 mm in length, greater space is occupied by the uterine sacs, which are transversely elongated in accordance with the shape of the proglottids. The eggs are oval to elongated, thin-shelled and non-operculated and measure 0.00- 0.00774 in size.

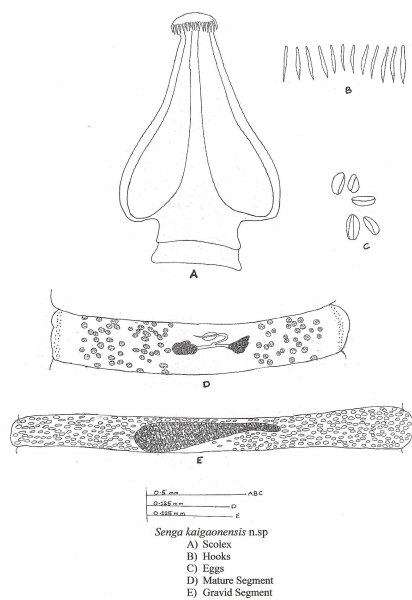


Fig. 1: Sections of different segments of *Senga kaigaonensis* n.sp.

Results and Discussion

Dollfus erected the genus *Senga* in 1934 as a type species *S. besnardii* from *Betta splendens*. Later on the following species are added to this genus. The present cestode comes closer to *S. lucknowensis* (1956), *S. khami* (1971), *S.*

aurangabadensis Jadav and Shinde (1980) and *S. maharashtrii* Jadhav (1991), but the same differ from *S. khami*, in the shape of scolex (triangular vs rectangular) in the number of hooks (36 vs 55-57). The present cestode differs from *S. aurangabadensis* in the shape of scolex (triangular vs oval) and arrangement of follicles (4-5 rows vs 2-3 rows). The present parasites worm differs from *S. godavari* in the shape of scolex (triangular vs pear shaped), arrangement of hooks (circular vs semi- circular), in the shape of ootype (round vs oval) and vitellaris (follicular vs granular). The present worm differs from *S. paithanensis* in the number of rostellar hooks (36 vs 54), in the number of testes (45-50 vs 130-135) and position of vagina (anterior vs posterior). The present tapeworm differs from *S. maharashtrii* in the shape of scolex (triangular vs oval), in the number of testes (45-50 vs 80-90) and the position of the genital pore (in the anterior half of the segment vs in the posterior half of the segment). The present worm differ from *S. maharashtri*, in the shape of the scolex (Triangular vs Oval), in number of hooks (36 vs 45-47), and in the number of testes (45-50 vs 90). The present worm differs from *S. chauhani* in the shape of the scolex (Triangular vs Oval), in the number of hooks (36 vs 40-44), in the number of testes (45-50 vs 300-310). Neck is present. The present worm differs from *S. armatusae* in the number of hooks (36-40), testes (distributed in two lateral field vs. densely distributed). The present worm differs from *S. tappi* in the number of hooks (36 vs 40), in numbers of testes (45-50 vs 285-295). These distinct characters are more than enough to erect a new species from this genus and hence the name *Senga kaigaonensis* n.sp is proposed as it is reported from Kaigaon Toka, Dist Aurangabad, (M.S.) India.
Genus : *Senga* Dollfus (1934)
Species: *Senga kaigaonensis* n. sp
Type host: *Mastacembelus armatus* (L.)
Locality: Kaigaon Toka. Dist Aurangabad (M.S.) India
Date: March 2007.

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