

Occurrence of Pseudophyllid Cestode, *Senga maharashtrii* n.sp. in *Mastacembellus armatus* from Chandrabhaga River at Daryapur in Maharashtra

B.W. Sawarkar

Department of Zoology, G. S. Science, Arts and Commerce College, Khangaon Dist. Buldana 444 312(M.S.)

Abstract- The present communication deals with *Senga maharashtrii* n.sp. collected from *Mastacembellus armatus*, a fresh water fish from Chandrabhaga River at Daryapur, district Amravati, Maharashtra. Four mature worms of the cestode were collected from a freshwater fish, *Mastacembellus armatus* Cuv. and Val. The scolex is oval in shape, highly muscular broader posteriorly, narrow anteriorly and measures 0.63 x 0.372 – 0.513 in length and breadth. It bears two oval bothria, broader posteriorly, narrow anteriorly and which extend up to the posterior and of the scolex. The bothridium is thickened at the margin and measures 0.419 x 0.01 – 0.199 in length and breadth. The worm is fully described in this paper.

Index Terms- Fish Parasites, Fish Diseases, Pseudophyllid Cestode, *Senga maharashtrii* n.sp. *Mastacembellus armatus* Chandrabhaga River, Maharashtra.

I. INTRODUCTION

The genus *Senga* was established by Dollfus (1934) with type species *S. besnardi* from, *Betta splendens*, the Siamese fighting fish. The study was carried out in an aquarium at Vincennes, France. *S. ophiocephalina*, Tseng (1993) as *Anchistrocephalus ophiocephalina* from *Ophiocephalus argus*, at Tsinan, China and identified with a form previously recorded by Southwell (1993) as *Anchistrocephalus polyptera* (*Anchistrocephalus* Monticelli, 1890. Syn *Anchistrocephalus*, Luhe, 1899) from *Ophiocephalus striatus* at Bengal, India. *S. pycnomerus* from *Ophiocephalus marulius* at Allahabad, India. *S. Lucknowensis*, Johri (1956) from *Mastacembellus armatus* in India. Furnando and Furtado (1963) recorded *S. malayana* from *Channa striatus*; *S. parva* and *S. filliformis* from *Channa micropeltes* at Malacca. Ramadevi and Hanumantha Rao (1966) reported the pterocercoid of *Senga* sp. from *Panchax panchax* at Waltair, India. Tondros (1968) synonymized the genus *Senga* with the genus *Polyonchobothrium* and proposed new combs, for the species. Furtado and Lau Chau-Lan (1972) reported *S. pahangensis* from *Channa micropeltes* at Tasek Bern. Shinde (1972) redescribed *S. besnardi* from, *Ophiocephalus gachua* in India. Recently Ramadevi and Rao (1973) reported another species *S. visakhapatnamensis* from *Ophiocephalus punctatus* in a take at Kondakaria, Andhra Pradesh, India. But they do not agree with Tadros's statement. Wardle Mcleod and Radinovsky (1974) put *Senga* as a distinct genus in family Ptychobothriidae. Deshmukh (1980) reported *S. khami* from *Ophiocephalus marulius*, a freshwater fish, from Kham River, at Aurangabad,

India. Jadhav and Shinde (1980) reported *Senga godavarii* from *Mastacembellus armatus* at Aurangabad, India.

II. DESCRIPTION

Four mature worms of the cestode were collected from a freshwater fish, *Mastacembellus armatus* Cuv. and Val. From Chandrabhaga river, at Daryapur, district Amravati, in the month of January, 1984. Scolex is oval in shape, highly muscular broader posterior, narrow anteriorly and measures 0.63 x 0.372 – 0.513 in length and breadth. It bears two oval bothria, broader posteriorly, narrow anteriorly and which extend up to the posterior and of the scolex. The bothrium is thickened at the margin and measures 0.419 x 0.01 – 0.199 in length and breadth. The anterior region of the scolex is having rostellum, armed with 45-46 hooks, arranged in two half crowns. The rostellum measures 0.169 x 0.280 in length and width. The hooks of two semicircles overlap on each other in lateral view. There are 33 large and 12 small hooks. The small hooks measure 0.017 x 0.002 in length and breadth and are situated at the bothridial notches. Away from the notches, the large hooks gradually increase in size and have maximum length 0.075 and maximum breadth 0.007. the small hooks are fusiform, while the large ones are stout, distended distally and slightly curved neck absent.

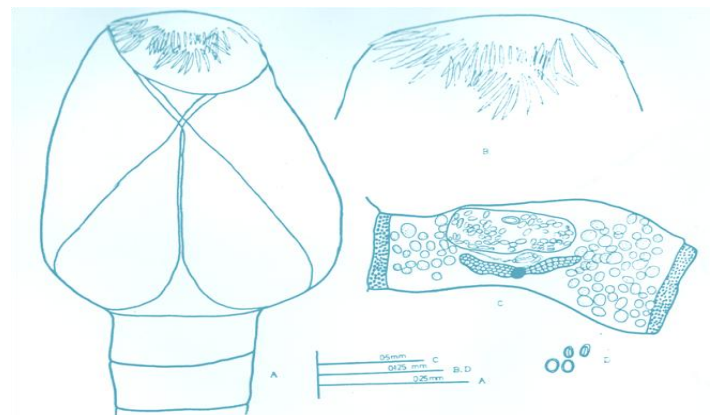


Fig.1 *Senga maharashtrii* n.sp. A) Scolex, B) Rostellar hooks C) Mature proglottid and D) Eggs.

The mature segments are broader than long, almost double in width than length and measure 0.043-0.62 x 1.369 in length and breadth. The testes are oval, arranged in two fields, on either side of the uterus and ovary and are evenly distributed. These are 80-90 in number and measure 0.0389---0.087 x 0.033-01.067 in length and breadth the cirrus pouch is small, oval situated in the posterior half of the segment, in the medullary region and just anterior to the ovary. It opens at its distal end by a common genital pore and measures 0.106 x 0.063 in length and breadth. The genital pore is small, oval and measures 0.029 x 0.014 in lengths and breadth.

The ovary is in the posterior half of the segment, bilobed, elongated, medullary, oblique and measures 0.567 x 0.067 in length and breadth. The lobes are compact, oblique, slightly curved, extend anteriorly. The vagina is thin, coiled a short tube, reaches and opens into the ootype and measures 0.13 x 0.004 in length and breadth. The common genital pore measures 0.027 x 0.014 in length and breadth. Uterus is saccular, occupying the medullary region of the segment, in anterior half, anterior to the ovary and opens through a thick walled pore at anterior region. It measures 0.502 x 0.246 in length and breadth.

The vitelline follicles are small, round, in corticular region, lateral to the testicular field and arranged in 4-5 rows on each side. The uterus contains operculated eggs, which measure 0.017 x 0.013 in length and breadth.

III. DISCUSSION

1. The genus *Senga* is established by Dollfus in 1934 as *Senga besnardi* form splendens.
2. The worm under discussion is having scolex oval in shape, highly muscular, broader posteriorly, rostellar hooks 45-46 in number, neck absent, testes 80-90 in number, ovary bilobed elongated, medullary, lobes compact, oblique, slightly curved, extends anteriorly and vitellaria follicular, small, round in corticular region, in 4-5 rows.
3. The present cestode differs from *S. besnardi* which is having scolex rectangular, rostellar hooks 50, neck absent mature segments wider than long anteriorly and longer than broad posteriorly, testes 165-175, ovary compact, not bilobed and vitellaria granular.
4. The present worm differs from *S. ophiocephalina* which is having rostellar hooks 57, testes 50-55, ovary bilobed but equatorial in position and vitellaria lobate.
5. The present worm differs from *S. pcyonera* which is having rostellar hooks 68, indistinct segmentation and vitellaria discontinuous, in two groups.
6. The present cestode differs from *S. lucknowensis* which is having the rostellar hooks 36-48, ovary bilobed post-equatorial and vitellaria lobulated.
7. The present worm differs from *S. malayana* which is having rostellar hooks 60, ovary slightly bilobed and vitellaria lobulated.
8. The present form differs from *S. pahagensis* which is having rostellar hooks 52, neck short, testicular lobes situated laterally, in the medulla, ovary bilobed medullary and vitellaria lobate.

9. The worm under discussion differs from *S. visakhapatnamensis* which is having scolex rectangular, rostellar hooks 46-52, testes 50-55, and absence of continuous arrangements of vitellaria in mature segments.
10. The worm under discussion differs from *S. khami* which is having the scolex rectangular, (pear to oval shaped) rostellar hooks 55-67, neck short testes 155 and vitellaria follicular.
11. The present cestode differs from *S. aurangabadensis* which is having the rostellar hooks 50-52 in number, testes 240-260 and vitellaria follicular, in 2-3 rows.
12. The present worm differs from *S. godavarii* which is having rostellar hooks 40-42, testes 220-223, ovary bilobed, with short acini and vitellaria follicular, in 1-2 rows.
13. The present worm differs from *S. bhuleshwarii* n.sp. described, earlier is having scolex globular, rostellar hooks 55-56 in number, testes 165-175 in number, ovary bilobed, elongated, medullary and at posterior margin of segment, vitellaria follicular, small, round, corticular, in 4-5 rows.

In view of the differentiating characters, the present worm is regarded as a new species and the name *Senga maharashtrii* n.sp. is proposed, after the locality, where the author has done the collection of different worms.

Type: *Senga maharashtrii* n.sp.

Host: *Mastacembellus armatus* Cuv. and Val.

Habitat: Intestine

REFERENCES

- [1] Bhure D.B., N.D. Padwal and B.V. Jadhav (2007): A new tapeworm *Senga jadhavii* N.sp. (Cestoda: Pseudophyllidea) from *Mastacembellus armatus* at Aurangabad. *Proc. Zool.Soc. of India Vol 6 N-2 45-52*.
- [2] Bhure D.B., S.S. Nanware, D.M. Pathan and R.M. Dhondge (2010)- Morpho-taxonomic observation of new Pseudophyllidean tapeworm *Senga Dollfus, 1934* from *Mastacembellus armatus*. *The Asian Journal of Animal Science Vol.5 (2) 147-152*.
- [3] Dollfus, R. Ph. (1934): Sur un cestode pseudophyllidae parasite de poisson en ornement. *Bull.Sac. Zool. France 69: 476-490*.
- [4] Fernando, C H. and Furtado, J. I. (1964): Helminth parasites of Some Malayan freshwater fishes. *Bulletin of the National Museum of states of Singapore, 32: 45-71*.
- [5] Fernando, C. H. and Furtado, J. I. (1963): A study of some helminthes parasites of freshwater fishes in Ceylon. *Zeit. Parasitenkunde (23) 141-163*
- [6] Hiware C.J. (1999): On a new tapeworm *Senga armatusae* from freshwater fish, *Mastacembellus armatus* at Pune (M.S.). *Rivista di para XVI (LX) N-1 9-12*.
- [7] Jadhav and Shinde (1980): On a new cestode *Senga aurangabadensis* n.sp. from the fish *Mastacembellus armatus*. *Bioresearch, 43(2) 25-27*.
- [8] Jadhav B.V., S.B. Deshmukh and A.B.Gavhane (1991): A new tapeworm *Senga gachuae* n.sp. from the fish *Channa gachua* at Aurangabad. *India. J. Inv.Zool and Aqua Biol. 3 (1) 39- 41*.
- [9] Jadhav, B.V., Ghavane, A.B. and Jadhav A.P. (1991): On a new Pseudophyllidean cestode from *Mastacembellus armatus* at Daryapur (M.S.) *India. Rivista Di Parasit Vol. VIII: 1:19-22*.
- [10] Johri G.N. (1956): A New cestode *Segna lucknowensis* from *Mastacembellus armatus* (Lecep.). *Supplement to Current Science (15) 193-195*.

- [11] Kadam, S. S., B. V. Jadhav and G. B. Shinde (1981): On a new cestode *Senga paithanensis* n.sp. (Cestoda; Ptychobothriidae) from *Mastacembellus armatus*. *BioResearch*, 1981 5 (1) 95-96.
- [12] Khadap R.M., B.V. Jadhav and N.V. Surayawanshi (2007): A new species of the genus *Senga* (Dollfus,1934) (Cestoda: Ptychobothriidae) from fresh water teleost *Mastacembellus armatus*. *Nat. Jr. of Life Sci.* 4(3): 77-79.
- [13] Majid, M. A. and Shinde, G. B. (1984): Two new species of the genus *Senga* Dollfus, 1934 (Cestoda-Pseudophyllidea) from fresh water fishes at Jagannathpuri, Orisa. *India. J. of Para.* (1) 169-172.
- [14] Pande P. N., Mamta Tripathi and Neetu Mittal (2006): On two 28 Dhanraj Balbhim Bhure and Sanjay Shamrao Nanware new species of genus *Senga* Dollfus, 1934 (family-Ptychobothriidae Luhe, 1902) from the intestine of freshwater fishes. *India J. Hel. (N.S.) Vol. 24 PP. 6-10*
- [15] Patil D. N. and Jadhav B.V. (2003): On a new species of the *Segna* Dollfus 1934 Cestoda- Ptychobothriidae Luhe, 1902 as *S. tappi* n.sp. from the Shirpur Dist. Dhule (M.S.) India. *J. Comp. Tox. Physiol* vol. (1) 68-72.
- [16] Ramadevi, P. (1973): On *Senga visakhapatnamensis* n.sp. (Cestoda - Pseudophyllidea) from the intestine of the freshwater fish *Ophiocephalus punctatus* Bloch. *Rivista Di. Para Vol. 34, N-4 281-286*.
- [17] Ramadevi, P. and Rao, K.H. (1966): Pleuroceroid of *Senga* (Pseudophyllidea: Ptychobothriidae) from the freshwater fish, *Panchax panchax* (Ham and Buch). *Current Sci.* 35 (24): 626-627.
- [18] Shinde G.B. (1972): Studies on Indian Cestode redescription of *Senga besnardi* Dollfus, 1934. *Mar. Uni. J. of Sci.* (2) 39-40.
- [19] Shinde G.B. and Deshmukh R.A. (1980): On *Senga khami* Cestoda Ptychobothriidae from the freshwater fish. *Ind. J. Zoology* (8) 1-2.
- [20] Shinde G.B. and Jadhav B.V (1980): A new tapeworm *Senga godavarii* n.sp. from *Mastacembalus armatus* at Aurangabad India. *Biology* (2) 46-48.
- [21] Srivastav A.K., R.K. Khare, Jitendra Khare, V.K. Sahu and A.R.Singh (2007): A new species of genus *Senga* Dollfus(1934) from *Punctius ticto* at Jhansi (U.P.). *Nat. Jr. of Life Sci.* 4(3): 129- 132.
- [22] Tat M.B. and Jadhav B.V. (1997): *Senga mohekarae* n.sp (Cestoda-Ptychobothriidae) from *Mastacembalus armatus*. *Riv. Di. Para. Vol XVII (LVIII) N-2 203-296*.
- [23] Tseng's (1933): Study on same Cestode from fishes. *J. of Sci. National Univ. Shantuma. Tsingtao, China* (2) 1-21.
- [24] Woodland W.N.F. (1934): On a new *Bothriocephalus* and a new genus *Bothriocephallidae* from Indian freshwater fishes. *Parasit.*(16) 441-451.

AUTHORS

First Author – Dr. B.W. Sawarkar, Associate Prof. , Department of Zoology, G. S. Science, Arts and Commerce College, Khamgaon, Dist. Buldana 444 312(M.S.) , email: bwsawarkar@gmail.com