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NEW SPECIES OF *SENGA LATAE* FROM FRESH WATER FISH *CHANNA PUNTATUS* OF MAHARASHTRA STATE (INDIA)

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ABSTRACT
The cestode parasites were collected from the freshwater fish *Channa puntatus* (Bloch, 1793) (total cestodes 386) at Kultabad, Dist Aurangabad (M.S) India. However the thirty two cestodes were collected. The present investigation deals with the taxonomy evaluation of the tapeworm genera *Senga* (Cestoda:Pseudophyllidea) from freshwater fish *Channa puntatus* of Maharashtra State provided new data on their morphology. The *Senga latae* Sp. Nov. differs from other by the shape of the body, scolex and morphology of internal organ.

KEYWORDS: *Senga latae* nsp, *Channa puntatus* Aurangabad, Maharashtra State.

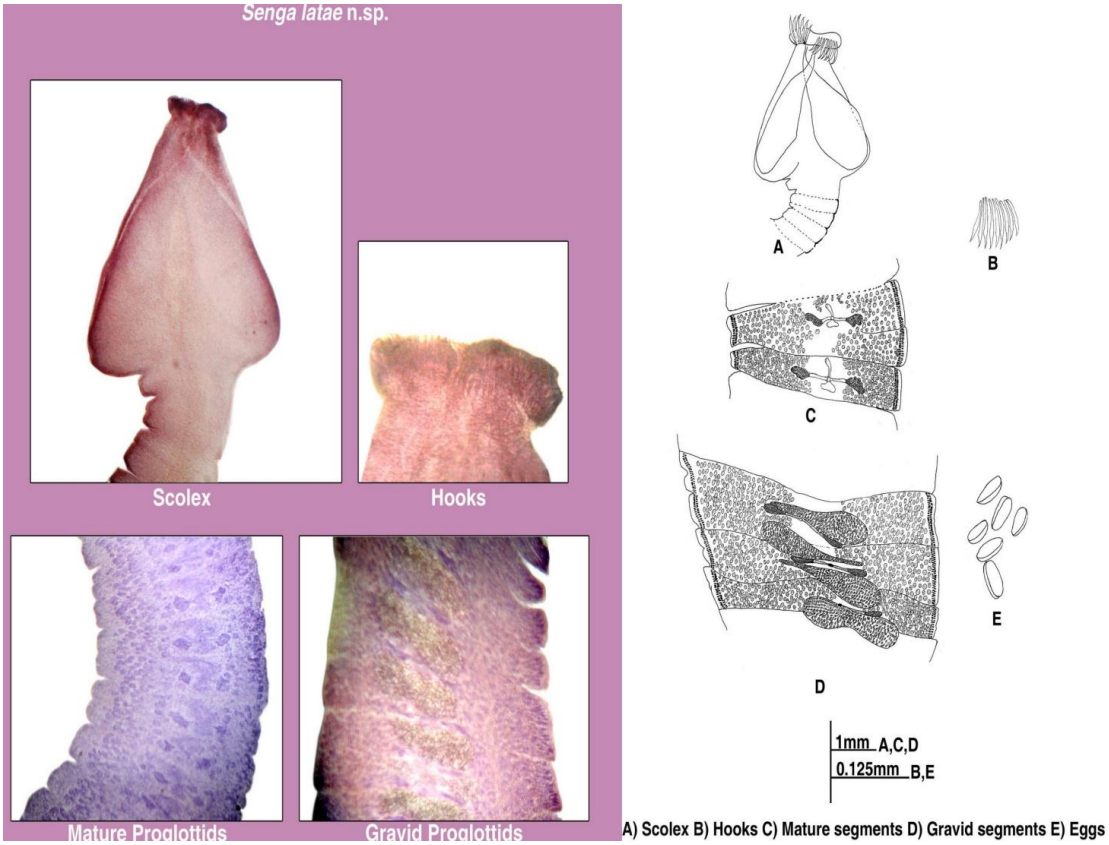
INTRODUCTION
The genus *Senga* was established by Dollfus, 1934 with its type species *S. besnardi* from *Betta splendens*, the Siamese fighting fishb in an aquarium at Vincennes, France. Tseng, 1933 reported *S. ophiocephalina* as *Anchistrocephalus ophiocephalina* from *Ophiocephalus argus* at Tsinan, China and identified with a form previously recorded by Southwell, 1913 as *Anchistrocephalus polyptera* (*Anchistrocephalus Monticelli* 1890- Syn. *Anchistrocephalus*), from *Ophiocephalus straiatus* at Bengal, India. Woodland, 1934 reported *S. pycnomera* as *Bothriocephalus pycnomera* from *Ophiocephalus marulius* at Allahabad, India. Johri, 1956 added *S. lucknowensis* from *M. armatus* in India, Fernando and Furtado, 1963 recorded *S. malayana* from *Channa straiatus*, *S. parva* and *S. filiformis* from *C. micropelles* at Malacca. Ramadevi and Hanumantharao, 1966 reported the plerocercoid larva of *Senga* from *Panchax panchax*. Tadros, 1968 synonymised the genus *Senga* with the genus *Polyonchobothrium* and proposed new combination for the species Furtado and Chauhan, 1971 reported *S. pahangensis* from *Channa micropeltes* at Tasek Bera. Shinde, 1972 redescribed *S.besnardi* from *Ophiocephalus gachua* in India and Ramadevi and Rao, 1973 reported another species *S. visakhapatnamensis* from *Ophiocephalus punctatus* at Visakhapatnam, India. Wardle, McLeod and Radinovsky, 1974 put *Senga* as a distinct genus in the family Ptychobothridae. Ramadevi, 1976 described the life cycle of *S. visakhapatnamensis* from *Ophiocephalus punctatus* in a lake at Kondakaria Andhra Pradesh India, but they do not agree with Tadros' statement. Later on Shinde and Deshmukh, 1980 added *S.khami* from *Ophiocephalus marulius;* Jadhav and Shinde, 1980 added two new species of the genus *Senga*, i.e. *S.godavari* and *S.aurangabadensis* from *M. armatus*, *S. paithenensis* was reported by Kadam et al., 1981 from *M. armatus* later on Majid et al., 1984 added two species i.e. *S. raoi* and *S. jagannathae* from *C. punctatus*. *S. gachuae* reported by Jadhav et al., 1991 from *C. gachua.* Jadhav et al., 1991 described *S. maharshtrii* from *M. armatus*. In 1992 Monzer Hasnain described *S. chauhani* from *C. punctatus.* Tat and Jadhav, 1997 added *S. mohekarae* from *M. armatus. S. armatusae* was reported by Hiware, 1999 from *M. armatus*. Later on Patil et al., 2003 added *S. tappi* from *M. armatus*. Bhure D.B et al., 2007 added *S. jadhavae* from *M. armatus.* Wankhede et al., 2009 added *S. kaigaonensis* from *M. armatus*. Namita K. Kankale 2008 added *S. nathsagarensis* from *M. armatus*. Mangale et al., 2009 described *S. panzaraensis* from *M. armatus*. Minaj et al., 2010 added *S. govindi* from *M. armatus.* Bhure et al., 2010 added *S. madhavi* from *M.armatus.* Recently Pardeshi et al., 2011 added *S. rupchandensis* from *C. striatus.* Dhole et al., 2011 added *S. rostellari* and *S. chandrashekhri* from *M. armatus.* Later on no more species is added to this genus.

MATERIALS AND METHODS
For the taxonomical study of tapworms, the fishes were collected from different places during the period of June 2009 to May, 2011 of Maharashtra state. The hosts are easily identified by Day.[39] The viscera were brought to the laboratory immediately, repeatedly washed in cold saline, cut and observed under binocular microscope. The collected worms were washed in distilled water and fixed in hot 4 % formalin for specific identification. The flattened parasites were washed thoroughly under

running tap water and subjected to Haematoxylin stain. All drawings were made with the aid of camera lucida.[40] All measurements are in millimeters, unless otherwise indicated. The identification is made with the help of "Systema Helminthum" by.[41]

DESCRIPTION

The cestode parasites were collected from the freshwater fish *Channa puntatus* (Bloch, 1793) in the duration June 2009 to May 2011 (total cestodes 386) at Kultabad, Dist Aurangabad (M.S) India. However the thirty two cestodes were collected in the month of May 2011. The scolex is well developed triangular being broader at the base tapering at the apex. It measures 0.157 (0.114-0.043) in length and 0.165(0.122-0.043) in width. The rostellum is crown shape disc like, bears 30 hooks, which are lancet shaped, in anteriorly rounded, middle part is broader and posteriorly pointed , two type hooks larger and smaller ,the larger hooks measures 0.010(0.006-0.004) in length 0.005 in width and the smaller hooks measures 0.007(0.005-0.002) in length and 0.05 in width. The apical disc crown shape measures 0.127 (0.052-0.070) by 0.041(0.008-0.043) in size. Bothria two in numbers right and left ,crossed with one another, which is situated at side occupying almost all part of the scolex , bag like or sac like ,narrow anteriorly and broad posteriorly, right bothria measures 0.184(0.114- 0.070) in length and 0.052 in width. Left bothria is 0.114 in length and 0.052(0.035-0.017) in width. All the segments are 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. Neck absent. Mature segments are 5-6 times broader than long, and becomes longer than wide in gravid segments, segmentation anapolytic, measures 0.227(0.184-0.043) in length and 0.148(0.070-0.078) in width The ovary is compacts distinctly bilobed with a 3-4 blunt acini, two ovarian lobes are attached with tube like isthmus and medially placed and measures right lobe 0.078(0.008-0.078) in length and 0.078 in width, left lobe measures 0.034(0.017-0.017) in length and 0.078 in width. Vagina small rounded and oval in structure it measures 0.017 to 0.008 in diameter. Cirrus pouch small oval bulb like pre-ovarian, middle of the segment and measures 0.051 in length and 0.06 in width. Vitellaria are follicular arranged in two layers in lateral fields of the proglottides. The vas deferens is short, thin, straight tube and measures 0.019 (0.014-0.024) in length and 0.009 (0.004-0.014) in width. The vagina and cirrus pouch opens into a common genital pore which is small. The testes small, oval to round, arranged in two lateral sides of the segments around the ovarian lobes.230-250 in numbers, it measure 0.035 in diameter. Gravid segments 7-8 times broader then long and tubular with barrel shape uterus, occupying in the middle part of the proglottides and greater space is occupied by the uterine sacs; uterus is full of eggs which are transversely elongated in accordance with the shape of the proglottids. The rest part of the segment occupied with the numerous testes, the ovary is much longer as compares to mature segment. Uterine sac alternately placed; narrow at one side and other side broader.



A) Scolex B) Hooks C) Mature segments D) Gravid segments E) Eggs

DISCUSSION

After going through the literature the present worm differs from *S.ophiocephaline*, T.senga, 1933, *S.besnardi* Dollfus, 1934, *S. pcynomera*, Woodland, 1934, *S.lucknowensis* Johri, 1951, *S.filiformis* Furnando and Furnando, 1963 *S. malayana* Furnando and Furnando, 1964, *S. parva* Furnando and Furnando, 1964, *S. pahangenis* Furtado et al., 1971, *S. visakhapatnamensis* Ramadevi et al., 1973, *S. khami*, Deshmukh and Shinde, 1980,*S. roai* Majid and Shinde, 1984, S. *maharshtrii* Jadhav and Tat, 1991,*S. chauhani* Monzer Hasnain, 1992, *S. mohekarae* Tat and Jadhav,1997, *S. armatusae* Hiware, 1999, *S.chandrashekhri* Dhole et al. 2011,*S. jadhavae* Bhure et al,2007 *S. nathsagarensis* Kankale, 2008, *S. panzaraensis* Mangale et al., 2009, *S. govindi* Minaj et al.,] 2010, *S. rupchandensis* Pardeshi et al, 2011, *S.rostellari* Dhole et al. 2011.But it resembles with S. *aurangabadensis* Jadhav et al., 1980, *S.godavari* Shinde et al., 1980, *S. paithaensis* Kadam et al, 1981, *S. jagannathae* Majid and Shinde, 1984,*S. gachuae*, Jadhav et al, 1991, *S. tappi*, Patil, 2003, *S, baughi*,Pande et al., 2006,*S.tictoi* ,Srivastav et al. 2007,*S. chandikarpurensis* Khadap et al. 2007,*S. kaigaonesnsis* ,Wankhede and Reddy 2009, *S. govindi* Minaj et al., 2010 .But differs in some characters which are summarized below.

Taxonomical Summary

Genus: *Senga Dollfus*, 1956

Species: *Senga latae* nsp.

Type host: *Channa puntatus* (Bloch, 1793).

Habitat: Intestine

Type locality: Khultabad, Dist Aurangabad (M.S) India May 2011.

Holotype and: Deposited in Helminthology Research Lab.

Para type: Dept. of Zoology, Dr. B. A. M. U. Aurangabad.

Etymology: As the species name is given in honour of my guide
Dr. Hemlata Janardhan Wankhede.

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