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"Taxonomic Study Of Genus *Senga* Dollfus, 1934 (Cestoda: Ptychobothridae) From The Intestine Of *Mastacembelus Armatus* In The Washim District"

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Abstract: This study focuses on the taxonomic investigation of tapeworm species from the genus *Senga* (Cestoda: Pseudophyllidea) found in the freshwater fish *Mastacembelus armatus* from the Washim District of Maharashtra, India. The present communication describes a new species, *Senga govindii*, identified in *Mastacembelus armatus* from the Penganga River. This species differs from known species of the genus in several characteristics, including the shape and size of the scolex, the number of hooks, the arrangement of the rostellum, the shape of the segments, the number of testes, the position of the cirrus pouch, and the arrangement of the vitellaria.

Keywords: *Mastacembelus Armatus*, *cestode parasites*, Pseudophyllidean, *Senga.*

Introduction

Fish consumption in India is steadily increasing; however, changes in biodiversity and water pollution have led to the emergence of various infections in aquaculture. Freshwater aquaculture, in particular, is significantly impacted by human-induced factors such as industrial waste, excessive use of fertilizers, domestic sewage, and drainage inflow into rivers.

Jadhav and Shinde (1980) recorded *Senga godavarii* from *Mastacembelus armatus* in Nanded, Maharashtra, and later identified *Senga aurangabadensis* from the same host in Aurangabad, Maharashtra. Kadam et al. (1981) introduced *Senga paithaenansis* from *M. armatus*. Jadhav et al. (1991) described two new species, *Senga maharashtrii* and *Senga gachuae*, from the intestine of *M. armatus*. Ramadevi and Hanumantha Rao (1966) documented the plerocercoid of *Senga sp.* in *Panchax panchax*, and in 1973, *Senga visakhapatnamensis was initially described in 1973, and in 1976, Ramadevi provided a comprehensive account of its life cycle from Ophiocephalus punctatus in Kondakaria Lake, Andhra Pradesh.* Tat and Jadhav (1997) Observed *Senga mohekarae* from *M. armatus* in Parli, Beed District, Maharashtra. Patil and Jadhav

(2003) described *Senga tappi*. Jadhav (2005) analyzed the genus *Senga* in freshwater fishes from Maharashtra. Pande et al. (2006) introduced *Senga ayodhensis* and *Senga baughi*. Kalse (2009) Observed *Senga panzarensis*, Bhure et al. (2010) added *Senga madhavii*, and Pardeshi (2011) introduced *Senga rupchandensis*. This study describes *Senga govindii* sp., collected from the intestine of *M. armatus* (Lacepède, 1800) in the Penganga River, Washim District, Maharashtra, India.

Materials and Methods:

The specimens were collected from the intestine of freshly killed *Mastacembelus armatus* from the Penganga River. Each fish was carefully dissected and thoroughly examined for parasites in various parts, including fins, gills, scales, and visceral organs, under a microscope. The fish were opened dorsoventrally, and the internal organs were meticulously inspected. The entire digestive system was carefully removed and placed in a Petri dish with physiological saline. For parasite identification, cestodes were collected from the intestine of *M. armatus*. These cestodes were preserved in hot 4% formalin, stained with Aceto-carmine or Harris haematoxylin, processed through graded alcohols, cleared in xylene, and mounted in D.P.X. Drawings were made using a camera lucida, with all measurements provided in millimeters. Identification was performed with the aid of *Systema Helminthum*.

Result:

Morphological Description: Three parasites collected from *Mastacembelus armatus* were flattened, preserved in 4% formalin, and mounted on slides for anatomical studies. Drawings were made using a camera lucida, with all measurements given in millimeters. The worms are notably long, thin, and milky white in color, consisting of a scolex, along with immature, mature, and gravid segments. The scolex is well-developed and triangular in form.The anterior part of the scolex features a prominent rostellum armed with 47 hooks, arranged in a semicircle. The scolex also possesses bothria that extend to the posterior end, with the neck absentThe mature segment is rectangular, broader than it is long. The testes are small, oval, and rounded. The cirrus pouch is oval-shaped, with the cirrus appearing as a slender tube. The ovary is bilobed, with each lobe connected by a long isthmus and situated in the middle of the segment. The vagina is a slender tube, and the genital pore is small and rounded. The uterus is densely packed with numerous eggs, while the vitellaria are follicular, strategically arranged along the two lateral margins of the segment in one to two rows.

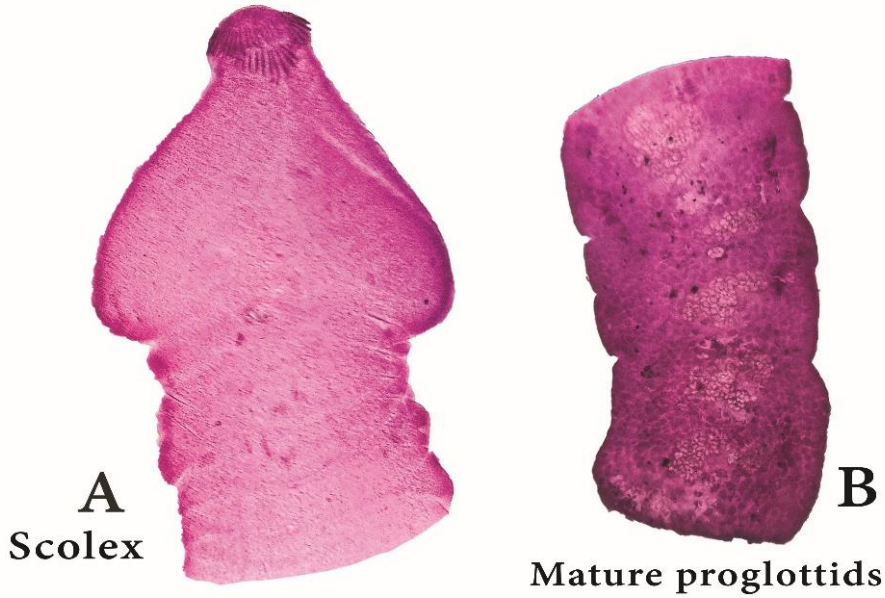

Fig.1- Micro-photograph of senga Govindii sp. Nov

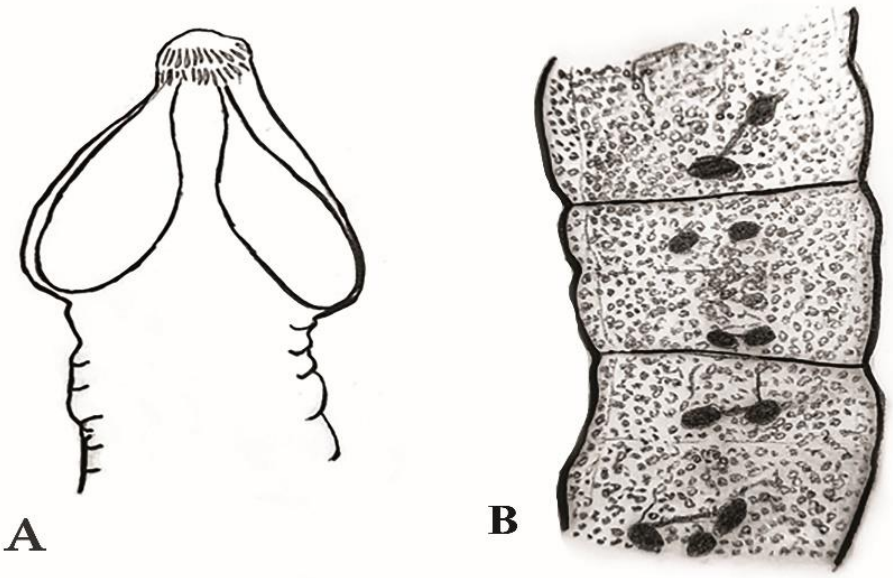

Fig. 2- Senga Govindii N. sp (Camera Lucida Drawing)
A) Scolex B) Mature Proglottids

Taxonomic Summary

Genus - *Senga*

Species - *Senga Govindii* Sp.

Type host - *Mastacembelus armatus*

Habitat (Site) - Intestine

Type locality – Penganga River Washim District

Discussion

The genus *Senga* was introduced by Dollfus in 1934, with *Senga besnardi* as the type species, originally described in *Betta splendens*. The general topography of the present worm's organs is similar to that of all known species in the genus *Senga*. However, it differs from the following species due to certain distinctive characteristics.

1. The current worm differs from *S. besnardi* Dollfus, 1934 in several characteristics: its triangular-shaped scolex, the presence of 50 hooks, 160-175 testes, a compact ovary, and its occurrence in *Betta splendens* from France.
2. The present cestode differs from In terms of several characteristics, *S. ophiocephalina Teseng*, 1933, stands apart with 47-50 hooks, 50-55 testes, an equatorially positioned bilobed ovary, and lobate vitellaria. It was reported from *Philocephalus argua argua* in China.
3. The present tapeworm differs from *S. pcynomera* Woodland, 1924, by having an elongated scolex, 68 hooks, indistinct mature segments, and a discontinuous ovary divided into two groups. It was reported from *Philocephalus marulius* in India.
4. The present parasite differs from *S. lucknowensis* Johri, 1956, by having 36-48 hooks, a post-equatorial ovary, and lobulate vitellaria that are discontinuous and divided into two groups.
5. The present tapeworm differs from *S. visakhapatanamensis*, as Observed by Ramadevi et al., 1973, by possessing a circular scolex, 46-52 hooks, 50-55 testes, and lobulated vitellaria. It was reported from *Ophiocephalus punctatus* in India.
6. The current worm differs from S. khami Deshmukh and Shinde, 1980, in having a rectangular scolex, oval and shallow bothria, 55-57 hooks, a short neck, 155 rounded testes arranged in two fields, an elongated cirrus pouch, and follicular vitellaria. It was reported in Ophiocephalus marulius from India.
7. The present cestode differs from *S. aurangabadensis* Jadhav et al., 1980, by having an oval scolex, 50-52 hooks arranged in two half-rows overlapping each other, mature segments that are broader than long, 240-260 testes, and follicular vitellaria.
8. The present tapeworm differs from *S. godavarii* Shinde et al., 1980, by having 40-42 hooks arranged in two half-rows, rounded testes (220-230 in number), an oval cirrus pouch located in the anterior half of the segment, and follicular vitellaria.
9. The present worm differs from *S. paithanensis* Kadam et al., 1981, by having a less prominent scolex, smaller in size, and not triangular. It also differs in the number of hooks (40-42), absence of a neck, oval to rounded testes (220-230 in number), and vitellaria which are arranged follicular instead of having lateral groups.
10. The present cestode differs from *S. raoi* Majid and Shinde, 1984, by having 46 hooks, 65-170 testes, and a vagina located posterior to the cirrus pouch. It was Observed in *Channa punctatus* from India.
11. The present parasite differs from *S. gachuae* Jadhav et al., 1991, by having 22-25 hooks, the presence of a neck, 60-70 testes, and follicular vitellaria. It was documented in *Channa gachua* from India.
12. The current cestode differs from *S. baughi* Pande et al., 2006, by having 28 hooks, the presence of a neck, 40-50 testes, a compact ovary, and follicular vitellaria. It was recorded in *Rita rita* in India.

13. The current worm differs from *S. panzarensis* et al., 2008, by having a non-triangular scolex, 58 hooks, the absence of a neck, 40-45 testes, a compact ovary, and 4-5 lateral vitellaria. It was Observed in *Mastacembelus armatus* in India.
14. The present worm *It differs from S. madhavii Bhure et al., 2010, by having a non-triangular scolex, 40-42 hooks, 200-225 testes, and granular vitellaria.* It was observed from *Mastacembelus armatus* in India.
15. The current worm differs from *S. rupchandensis* Pardeshi et al., 2011, by possessing a non-tubular scolex, 42-45 hooks, and 350-370 testes. It was reported in *Channa striatus*.
16. The present worm differs from *S. nandedensis* Asawari M. Fartade et al., 2014, by having a non-triangular scolex, 60-62 hooks, and mature segments that are not rectangular. Additionally, the genital pore is larger and irregular in shape, rather than rounded. It was observed in *Mastacembelus armatus* in India.

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