

# SYSTEMATIC OBSERVATION OF NEW SPECIES OF GENUS *SENGA* DOLLFUS, 1934 FROM INTESTINE OF *MYSTUS SEENGHALA*

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## ABSTRACT

Present investigation deals with the morpho - taxonomic observation of piscian tapeworm *Senga devarjensis* Sp.Nov collected from the intestine of *Mystus seenghala*. The worm has been described and compared with other known species of genus *Senga*, Dollfus, 1934 in having general topography of organ but differs from all known species of genus in having rectangular scolex, rostellar hooks 17 in number, mature segment border than long, testes 140 in numbers, ovary large distinctly bilobed, and vitellaria are follicular round small

**Key Words:** Systematic observation, *Senga*, *Mystus seenghala*.

## INTRODUCTION

Fishes are important protein food source in human life. Fishes show wide range of distribution in marine and freshwater, siluroid fishes are important naturally developed food fish group found in the catch in this region. It is found that various species of cestode worm invade in the small intestine of these fishes. Fishes are rich in protein and vitamins like A, D, E, B12.

Dollfus (1934) erected genus *Senga* with *S.besnardii* as its type species. Subsequently, genus *Senga* includes following species viz. *S.ophiocephalina* Tseng (1933), *S.pcnomera* Woodland (1924), *S.lucknowensis* Johri (1956), *S.malayana*, Furnando and Furtado (1964), *S.parva*, Furnando and Furtado (1964), *S.filiformis* Furnando and Furtado (1964), *S.pahangensis*, Furnado and Chawhan (1971), *S.visakhapatanamensis* Ramadevi and Rao (1973), *S.taunsaensis* Ali and Khan (1976), *S.punctati* Gupta and Sinha (1980), *S.mastacembali* Gupta and Sinha (1980), *S.khami* Deshmukh and Shinde (1980), *S.aurangabadensis* Jadhav and Shinde (1980), *S.godavari* Shinde and Jadhav (1980), *S.paihaensis* Kadam et al. (1981), *S.raoii* Majid and Shinde (1984), *S.jagannathae* Majid and Shinde (1984), *S.indica* Gupta and Parmar (1985), *S.gangesii* Gariola and Malhotra (1986), *S.pathankotensis* Duggal and Bedi (1989), *S.maharashtrii* Jadhav et al. (1991), *S.gachuae* Jadhav et al. (1991), *S.chauhani* Monzer Hasnain (1992), *S.jhasiensis* Mathur et al. (1994), *S.mohekarae* Tat and Jadhav (1997), *S.chiangmaiensis* Wangswad et al. (1998), *S.armatusae* Hiware (1999), *S.tappi* Patil and Jadhav (2003), *S.sharpiloi* Polyakova and Kirin (2005), *S.ayodhensis* Pande et al. (2006), *S.baughui* Pande et al. (2006), *S.jadhavae* Bhure et al. (2007), *S.chandkapurensis* Khadap et al. (2007), *S.tictoii* Srivastava et al. (2007), *S.nathsagarensis* Kankale (2008), *S.kaigaonensis* Wankhede and Reddy (2009), *S.madhavae* Bhure et al. (2010), *S.satarensis* Bhure and Nanware (2011), *S.mangalbaiiae* Bhure and Nanware (2011), *S.rupchandensis* Pardeshi and Hiware et al. (2011), *S.rostellariae* Dhole et al. (2011), *S.chandrashekhari* Dhole et al. (2011), *S.govindii* Jadhav et al. (2012), *S.silcharensis* Puinyabati et al. (2013), *S.microrostellata* Bhure et al. (2014), *S.nandedensis* Fartade and Fartade et al. (2014), *S.rotellata* Deshmukh et al. (2016), *S.triangullata* Nanware et al. (2016) and *S.banshelkinesis* Bele et al. (2019).

## MATERIALS AND METHODS

Seven specimen of the cestode parasite, were collected, from the intestine of Fresh water fish, *Mystus seenghala* (Sykes, 1839) for morpho- taxonomical study From Devarjan lake at Devarjan Tq. Udgir taluka M.S. India. The worm were flattened, preserved in 4% formalin, stained with Borax carmine, passed through various alcoholic grades, cleared in xylene, mounted in D.P.X. and whole mount slides were

prepared for further anatomical studies. Drawings are made with the aid of Camera lucida and all measurements are recorded in millimeters. The identification done by “systema Helmithum” Vol.II by Yamaguti 1959.

## **RESULTS**

### **(Description *Senga devarjensis* Sp.Nov.)**

The Structure of scolex is rectangular in shape, it is having large size, it looks narrow at anterior side and posterior side it is broad. Scolex is measures in 2.45 mm lengths and 0.4652 to 1.711mm in the breadth. Two bothria is seen saccular in shape and extend from anterior to posterior side of the scolex, large in size , in 2.12 mm length and 0.121mm to 0.736 mm in breadth. Scolex contain disc like rostellum present at the tip, armed hooks on the tip, it measures 0.47 mm in length and 0.23 mm in breadth. There are 17 rostellar hooks arrange in a single row on the rostellum, These hooks are tapering at both the end, Broad at middle, it measures in length 0.027-0.085mm and in the breadth of 0.003 – 0.009 mm . Mature segment cestode is looked like rectangular shape, it is medium in size. The length of mature segment larger than the breadth, length two times larger than breadth.it measures in 1.369 mm and in breadth 0.354 mm .

Testes is oval and there number is 140, small to medium, it measures 0.05 to 0.07 mm and 0.010 to 0.012 mm in length & breadth. The oval shape cirrus pouch is bulb like at anterior end of the vagina, and measures 0.259 to 0.568 mm length and 2.587 to 2.689 mm in breadth. Ovary is large , distinctly bilobed, situated near the posterior margin of the segment, lobes are equal in size, lobes extend up to the longitudinal excretory canals, on both the lateral sides and measures 0.239 to 0.289 mm in length and 0.0786 mm in breadth. The short isthmus connects the two ovarion lobes which measures 0.0391mm to 0.0443mm in breadth. Vagina thin tube like, it is measures in length 0.0145 – 0.0157 mm and 0.00485 – 0.00493 mm in breadth. Genital pore is small rounded 0.08 mm in length and 0.06 in breadth. Uterus large saccular , Vitellaria are follicular, round small in size single row of each side of the lateral margin of the segment.



Fig.1 Microphotoplate of *Senga devarjensis* Sp.Nov

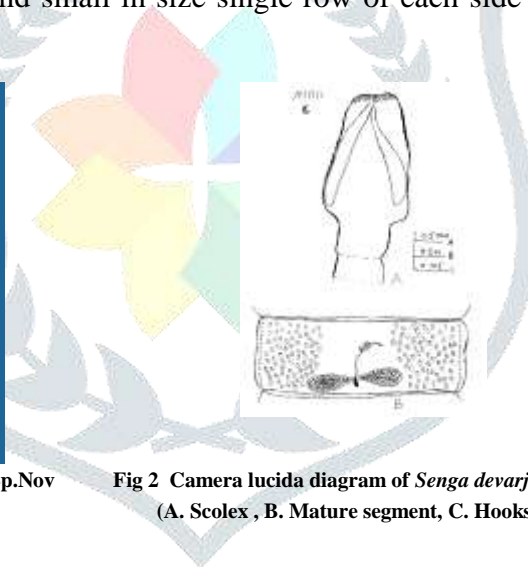


Fig 2 Camera lucida diagram of *Senga devarjensis* Sp.Nov  
(A. Scolex , B. Mature segment, C. Hooks )

## **DISCUSSION**

The worm under discussion is having the scolex is large rectangular in shape, rostellum disc shape, hooks 17 in number testes are small, medium oval in shape 140 in number. Dollfus (1934) erected genus *Senga* with *Senga besnardi* as its type species *Betta splendens* . The present worm shows some similar characters to all known species of the genus *Senga* Dollfus, (1934) in general topography of organs they shows some of the similarity but distinguished from the following characteristics of the acknowledged species. The present tapeworm are distinguished from *S. besnardi* Dollfus, (1934) in the structure of the scolex is triangular with 50 hooks. The count of testes is 160-175, ovary compact. It differs from *S. ophioccephalina* (1933) in some character like hooks 47-50 in numbers. The count of testes is 50-55, ovary bilobed and situated equatorial position, vitellaria found lobate. The present worm is distinguished from *S. pynomera* (1924) in having the structure of scolex is elongated with 68 hooks. Mature segments are unclear, undefined, ovary discontinuous into two groups. The present tapeworm differs from *S. lucknowensis* bears

36 to 48 hooks, ovary situated post equatorial, two groups of discontinuous lobate vitellaria are existent. It differs from *S. malayana* in the structure of scolex is circular with 60 hooks, position of the ovary is post equatorial and slightly bilobed, two groups of discontinuous lobate vitellaria are existent. The worm differs from *S. parva* in having 38-40 hooks with count of 100 testes. It differs from *S. pahangensis* in the structure of triangular scolex with 52 hooks, in the proglottids testes are situated laterally, lobulated Vitellaria. It differs from *S. visakhapatnamensis* in the structure of scolex is circular with 46 to 52 hooks, the count of testes is 50 to 55, position of the ovary is post equatorial and slightly bilobed, two groups of discontinuous lobulate vitellaria. It differs from *S. khami* in the structure of scolex is rectangular, oval, shallow bothria with 55 to 57 hooks, the count of testes is 155 arranged in two fields. It differ from *S. aurangabadensis* in the structure of scolex is oval in shape with 50 to 52 hooks, situated in two half rows overlapping on each other. The length of mature segment is larger than breadth, the count of testes is 240 to 260 and follicular vitellaria. The present tapeworm differs from *S. godavarii* in the structure of scolex bears 40 to 42 hooks, situated in two half rows overlapping on each other. The length of mature segment is larger than breadth, the count of testes is 220 to 230 and follicular vitellaria, cirrus pouch is oval. It differs from *S. paithanensis* with 54 hooks and the count of testes 130 to 135 with ovoid or rounded in shape, arranged in two lateral groups, the vagina is present posterior side of the cirrus pouch and vitellaria is follicular. It differs from *S. raoii*. the structure of scolex bears 46 hooks and the count of testes 65 to 170 with oval or rounded in shape, arranged in two lateral groups, the vagina is present posterior side of the cirrus pouch and vitellaria is follicular. It differ from *S. jagannathae* the structure of scolex bears 44 hooks and the count of testes 240 to 250, compact, ovary is seen at the anterior side of the cirrus pouch, vagina is present. The newly proposed cestode are distinguished *S. gachuae* the structure of scolex bears 22 to 25 hooks and the count of testes 60 to 70, vitellaria is follicular. The newly proposed cestode are distinguished from *S. maharashtrii* the structure of scolex is muscular and bears 45 to 46 hooks large arranged in two half crowns, and the count of testes 80 to 90, vitellaria is follicular. The newly proposed cestode are distinguished from *S. chauhani* the structure of scolex is ovoid, with 40-44 hooks and the count of testes 200-210. The newly proposed cestode are distinguished from *S. mohekarae*, the structure of scolex is elongated with 151 hooks, neck short and broad, the count of testes is 300-310 and vitellaria follicular. The newly proposed cestode are distinguished from *S. armatusae* the structure of scolex is triangular with 32-40 hooks, vagina anterior to cirrus pouch and vitellaria follicular. The newly proposed cestode are distinguished from *S. tappi* the structure of scolex is triangular with 42-44 hooks, neck is very short and squarish, the count of testes is 285-295, these are small, rounded and distributed in two fields, at the anterior side of cirrus pouch the vagina is present, and vitellaria follicular. The newly proposed cestode are distinguished from *S. ayodhensis* the structure of scolex is conical with 29 hooks, the count of testes numerous, vitellaria follicular. The newly proposed cestode are distinguished from *S. baughi* the structure of scoles bears 28 hooks, neck present, the count of testes 40 to 50 in numbers, ovary compact, vitellaria follicular. The newly proposed cestode are distinguished from *S. panzarensis* the structure of Scolex is triangular with 58 hooks, the shape of mature segment is seen acraspedot, rectangular and the count os testes is 42-45. The newly proposed cestode are distinguished from *S. madhavii* the structure of scolex is conical with 40-44 hooks and the count of testes are 200-225 in numbers. The newly proposed cestode are distinguished from *S. rupchndensis* the structure of scolex is cylindrical tubular with 42-55 Hooks and the count of testes is 350-370, follicular vittellaria is extinct The newly proposed cestode are distinguished from *S. banshelkinsis* the structure of scolex is large triangular with 37 rostellar hooks and the count of testes is 160, follicular vittellaria

As the characters, of the present tape worm are distinct, it is desirable to erect proposed a new species, for these worms and hence the name *Senga devarganesis* Sp .Nov. after the locality.

#### Taxonomic Summary

<b>Genus</b>	-	<i>Senga</i> Dollfus, 1934
<b>Species</b>	-	<i>Senga devarjanensis</i> Sp. Nov.
<b>Type host</b>	-	<i>Mystus seenghala</i>
<b>Habitat (Site)</b>	-	Intestine
<b>Type locality</b>	-	Devarjan lake
<b>Date of collection</b>	-	14/06/2009
<b>Etymology</b>	-	Named after the locality of the host.



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