

*Senga kolhapurensis n.sp.*

Cotyloda	Wardle, McLeod and Radinovsky 1974.
Pseudophyllidea	Carus, 1863.
Ptychobothridae	Luhe, 1902.
Senga	Dollfus, 1934.

***Senga kolhapurensis* n. sp.**

**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. ophiocephalina*, Tseng, 1933 syn. *Anchistrocephalus ophiocephalina* from *Ophiocephalus argus* at Taimen, China and identified with a form previously recorded by Southwell, 1913 as *Anchistrocephalus polyptera* (*Anchistrocephalus*). Monticelli 1890 - Syn. *Anchistrocephalus*, Luhe 1899, from *Ophiocephalus striatus* in Bengal, India. *S. pycnomera*, Woodland, 1924 as *Bothriocephalus pycnomera* from *Ophiocephalus marulius* at Allahabad, India. *S. lucknowensis*, Johri, 1956 from *Mastacembellus armatus* in India. Fernando and Furtado, 1963 recorded *S. malayana* from *Channa striata*, *S. parva* and *S. filiformis* from *Channa micropeltes* at Malacca. Ramadevi and Hanumantrao, 1966 reported the *Plerocercoid* of *Senga* sp. from *Panchax panchax*. Tadros, 1968 synonymised the genus *Senga*, with the genus *Polyonchobothrium* and proposed new combinations for the species. Furtado and Chauhan, 1971 reported *S. pahangensis* from *Channa micropeltes* at Tesak Bera. Shinde, 1972 redescribed *S. besnardi* from *Ophiocephalus*

*gachua* in India. Ramadevi and Rao, 1973 reported another species *S. vishakapatnamensis*, India. Ramadevi, 1976 described the life cycle of *S. vishakapatnamensis* from *Ophiocephalus punctatus* in a lake at Kondakaria, Andhra Pradesh, India, but they do not agree with Tadors statements. Wardle, McLeod and Radinovsky (1974) put *Senga* as a distinct genus in the family Ptychobothridae. Deshmukh, 1980 reported *S. khami* from *Ophiocephalus Marulius* a fresh water fish from Kham river at Aurangabad.

Jadhav and Shinde, 1980 reported *S. godavari* from *M. armatus* at Nanded, M.S., India. One more species *S. aurangabadensis* was added by Jadhav and Shinde, 1980 from *M. armatus* at Aurangabad, M.S. India. A new addition made by Kadam *et al.*, 1981 as *S. paithaniensis* from host *M. armatus*. Majid *et al.* 1984 added *S. raoii* and *S. jagannathae* from *Channa punctuatus*. Two more new species erected by Jadhav *et al.*, 1991 as *S. maharashtrii* and *S. gachuae* from the intestine of *M. armatus*. Monzer Hasnain, 1992 added *S. chauhani* from *Channa punctuatus*. Tat and Jadhav (1997) added *S. mohekarae* from the intestine of the *M. armatus* at Parli, Dist. Beed, M.S., India. Patil and Jadhav added *S. tappi* from *M. armatus* in 2003. Jadhav, 2005 made the review article of the genus *Senga* from fresh water fishes from Maharashtra State, India. Recently Pande *et al.* 2006 added two new species i.e. *Senga ayodhensis* from *Amphinuous cuchia* and *Senga baughi* from *Rita- rita*.

Recently, Bhure *et al.* reported *S. jadhave* from *Mastacembellus armatus* in 2007.

The present communication deals with the description of two new species viz. *Senga kolhapurensis* and *Senga bhauraoae*, collected from the intestine of fresh water fishes *Mastacembellus armatus*, at Rukadi, Tal. Hatkanagale, Dist. Kolhapur and at Kolhapur, M.S. India.

### DISCRIPTION

Five cestode parasites were collected from the intestine of *Mastacembellus armatus*, a freshwater fish in Panchaganga river at Rukadi, Tal. Hatkanangale, Dist. Kolhapur, M.S., India in the month of November 2007.

Two cestodes were stained with Harris haematoxylin for anatomical studies.

The scolex is large in size, long, narrower anteriorly, broader in middle and posteriorly, with armed rostellum and two bothria; distinctly marked off from the strobila and measures 1.771 [1.116 - 2.427] in length and 0.616 [0.291 - 0.941] in width. The rostellum is medium in size, measures 0.252 (0.247 - 0.257) in length and 0.230 [0.169 - 0.291] in width. The rostellar hooks are pointed, curved 50-60 in number measures 0.089 in length and 0.007 in width. The two bothria are large in size, extending upto to the posterior end of the scolex, measure 1.553 [1.504-1.601] in length and 0.390 in breadth.

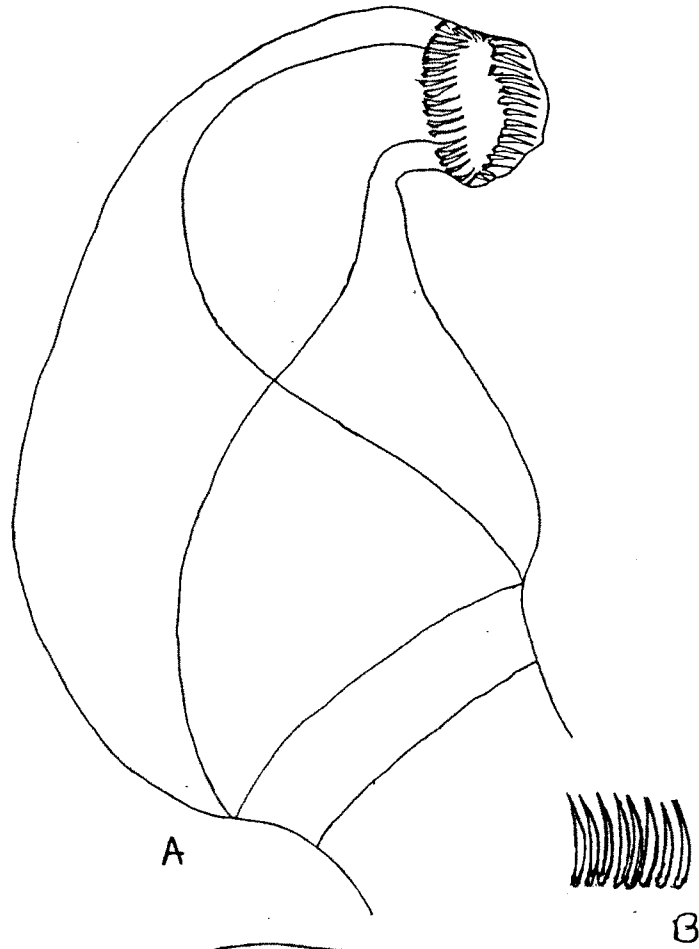
Neck is absent.

Mature segments are large in size, broader than long, five times broader than long with lateral margins measures 0.334 [0.330 - 0.339] in length and 1.116 [1.067 - 1.164] in width. The testes are 70-80 in numbers, small in size, oval in shape, preovarin, scattered in lateral sides of the segment, evenly distributed.

The cirrus pouch is small, oval in shape, preovarian antero-posteriorly elongated and measures 0.046 [0.043 - 0.048] in length and 0.004 in breadth. The cirrus is thin, stout tube, contained within the cirrus pouch, measures 0.116 x 0.007. Vas deferens is short, thin, slightly curved runs anteriorly.

The ovary is large in size, distinctly bilobed, dumb-bell shaped in appearance, in the posterior half of the segment; lobes connected with each other by short isthmus, measure 0.131 [0.126 - 0.135] in length and 0.121 [0.097 - 0.145] in width. Vagina is long, thin tube arises from the genital pore, runs posteriorly crosses the isthmus reaches and open into the ootype, measures 0.116 in length and 0.007 in breadth. The ootype is small in size, rounded in shape, compact, situated in the constriction of ovarian lobes.

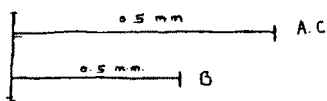
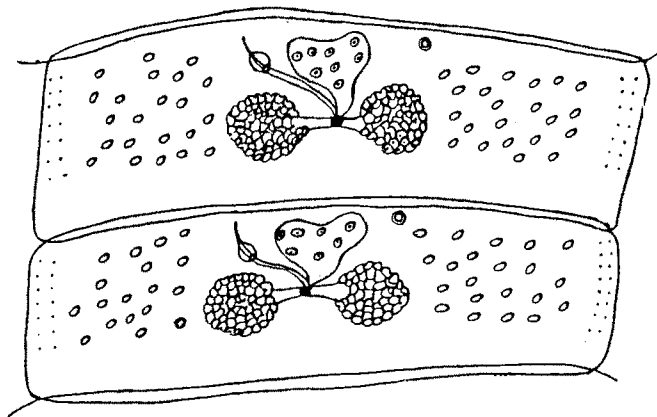
The genital pores are small in size, oval in shape, 0.016 in length and 0.0060 in width. The uterus originating from ootype, balloon shaped extends longitudinally upto anterior margin of the segment and measures 0.131 [0.126 - 0.135] in length and 0.121 [0.097 - 0.145] in width.



A



B



C

The uterus originating from ootype, sac like extends longitudinally upto anterior margin of the segment and measures 0.131 [0.126 - 0.135] in length and 0.128 [0.063 - 0.194] in width.

The vitellaria are granular, thin strips corticular and from the anterior to the posterior margin of the segment on each lateral side of the segment.

### DISCUSSION

The genus *Senga* was established by Dollfus, 1934 as a type species *S. besnardi*.

Later on the following species are added to this genus by different workers in the world.

1. *Senga ophiocephalina* Tseng, 1933
2. *Senga pycnomera*, Woodland, 1924
3. *Senga lucknowensis*, Johri, 1956
4. *Senga malayana* Fernando & Furtado 1964
5. *Senga parua*, Fernando & Furtado 1964
6. *Senga pahangensis*, Furtado *et al.* 1971
7. *Senga vishakhapatanamensis* Ramadevi *et al.*, 1972
8. *Senga khami*, Deshmukh 1971.
9. *Senga aurangabadensis*, Jadhav *et al.* 1980
10. *Senga godavari* Shinde *et al.* 1980
11. *Senga paithanensis*, Kadam *et al.*, 1981
12. *Senga jagannathae*, M.A. Majid and G.B. Shinde, 1984
13. *Senga raoii*, M.A. Majid and G.B. Shinde, 1984

14. *Senga maharastrii*, Jadhav & Tat 1991
15. *Senga gachuae* Jadhav *et al.* 1991
16. *Senga chauvani*, Monzer Hasnain 1992
17. *Senga mohekarae* Tat *et al.* 1997
18. *Senga armatusae* Hiware, 1999
19. *Senga tappi*, D.N. Patil 2000
20. *Senga ayodhensis*, Pande *et al.* 2006
21. *Senga baughi*, Pande *et al.* 2006
22. *Senga jadhavae* Bhure *et al.* 2007

The worm under discussion, *Senga kolhapurensis* n. sp. is having large scolex, rostellar hooks are 50-60 in numbers; testes small, oval, 70-80 in numbers; ovary dumb-bell shaped; Vitellaria granular, thin strips on the lateral side.

1. The present tapeworm differs from *S. besnardi* in the shape of scolex, which is triangular, rostellar hooks 50 in number; testes 160-175 in number; ovary is not bilobed.
2. The present cestode differs from *S. ophiocephalina* which bears pear shaped scolex, rostellar hooks 47-50 in number; testes 50-55 in number and lobate vitellaria.
3. The present worm differs from *S. pycnomera* in the shape of elongated scolex, rostellar hooks 68 in number, indistinct segmentation and ovary discontinuous in two groups. Mature segments are indistinct.



4. The worm under discussion differs from *S. lucknowensis*, which shows pear shaped scolex, rostellar hooks are 36-48 in number which are large in size; vitellaria lobulate and discontinuous in two groups.
5. The present cestode differs from *S. malayana* in not having circular scolex, rostellar hooks 60 in number, slightly bilobed ovary and lobate vitellaria.
6. The present tapeworm differs from *S. parua* as *S. parua* has pear shaped scolex, rostellar hooks 38-40 in number.
7. The cestode under discussion differs from *S. pahansensis*, which bears triangular scolex, rostellar hooks 52 in number. Neck present. Testicular lobes situated laterally in the medulla.
8. The worm differs from *S. vishakhapatanamensis* which shows circular scolex, number of hooks 46-52, two large rudimentary hooks; neck absent; testes 50-55 in number.
9. The worm under discussion differs from *S. khami* which has rectangular scolex, rostellar hooks 55-57 in number. Cirrus pouch is elongated in shape.
10. The tapeworm under discussion differs from *S. aurangabadensis*, which bear oval scolex, rostellar hooks 50-52 in number, in two half crowns; testes 240-260 in number; vagina short.
11. The present cestode differs from *S. godavari* in having pear shaped scolex, rostellar hooks 40-42 in number in two half crowns overlapping each other; testes

rounded, 220-230 in number; vagina anterior to cirrus pouch.

12. The present worm differs from *S. paithenensis* which shows prominent triangular scolex, rostellar hooks 54 in number; neck is present. Testes are rounded, 130-135 in number.
13. This tapeworm differs from *S. jaggnathae* which bears large, oval scolex, rostellar hooks are 40-44 in numbers; neck is short. Testes 200-210 in number and vitellaria non lobate to lobate.
14. The cestode differs from *S. raoii* in not having pear shaped scolex, rostellar hooks 46 in number; cirrus pouch present at anterior side of the segment.
15. The present tapeworm differs from *S. maharashtrii* which shows oval muscular scolex, rostellar hooks 45-47 in number; thin coiled tube like vagina; testes 80-90 in number. Vitellaria follicular and rounded.
16. This cestode differs from *S. gachuae* in not having oval, elongated, scolex, rostellar hooks 22-25 in number. Testes medium in size 300-310 in number; vitellaria follicular, arranged in 3-4 rows.
17. The tapeworm under discussion differs from *S. chauvani* in large, oval shaped scolex, rostellar hooks 40-44 in number; neck is short; testes 200-210 in number and non lobate to lobate vitellaria.
18. The present tapeworm differs from *S. mohekarae* in pear shaped scolex, rostellar hooks 22-26 in number; neck present; testes 60-70 in number; elongated ovary and follicular vitellaria arranged in 5-6 rows.

19. The tapeworm under discussion differs from *S. armatusae* which bears triangular scolex, testes are small in size and follicular vitellaria.
20. The tapeworm differs from *S. tappi* which shows triangular scolex, rostellar hooks are 42-44 number. Neck is present. Testes are rounded with 285-295 number and vitellaria follicular.
21. The worm under discussion differs from *S. ayodhensis* in not in conical shaped scolex, rostellar hooks are 29 in number and numerous testes are present. Prequatorial ovary and small follicles of vitellaria.
22. The cestode differs from *S. baughi* which shows pear shaped scolex, two bothria, fleshy notched on two sides, rostellar hooks are 28 in number. Neck is present. Testes 310-320 in numbers and ovary compact, oval, unilobed; vitellaria follicular.
23. The tapeworm under discussion differs from *S. jadhavae* which bears triangular scolex and rostellar hooks 50-54 in numbers. Neck present. Testes 40-50 in number and large ovary, follicular vitellaria on lateral side of proglottid.

The above noted characters are valid enough to accommodate these worms under the genus *Senga*, as a new species of the genus and hence the name *Senga kolhapurensis* n. sp. is proposed after the name of the Kolhapur district, a famous historic city, now become a milestone in respect of education and business.

Type species	<i>Senga kolhapurensis</i> n. sp.
Host	<i>Mastacembellus armatus</i>
Habitat	Intestine
Locality	Rukadi, Dist. Kolhapur, M.S., India
Date of collection	15 <sup>th</sup> Nov. 2007