# "Senga Snehalatae Sp. Nov. (Cestoda; Pseudophyllidea), A New Intestinal Tapeworm from Freshwater Fish Koradi Dam of Buldhana District (MS), India"

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**Abstract**
Senga, a new species of cestode, is described from a freshwater fish that was caught at Koradi Dam. While conducting systematic surveys in the research area, the parasites were retrieved from the host's intestine. A close look at the morphology showed that the current form differs from previously documented species of the genus due to unique features in the rostellar hooks, bothria, scolex, and segment organization. Measurements of ovary anatomy, testicular distribution, and mature and gravid proglottids provide additional evidence for its taxonomic originality. In order to document diagnostic features, camera lucida illustrations were created. It is confirmed by comparison with other known species that the specimen is a new species of Senga. The discovery highlights the rich but understudied helminth biodiversity of freshwater ecosystems in Maharashtra. This finding contributes to the knowledge of cestode diversity and host–parasite relationships in Indian freshwater fishes.

**Keywords:** Senga snehalatae sp. nov.; Pseudophyllidea; freshwater fish; cestode taxonomy; intestinal parasite; Koradi Dam; Maharashtra.

## 1. Introduction

Freshwater fishes harbour a rich diversity of helminth parasites, particularly cestodes, which form an important component of aquatic biodiversity and parasite–host interactions (Scholz et al., 2004; Chubb et al., 2010). Members of the genus Senga Dollfus, 1934 (Cestoda: Bothriocephalidea) are intestinal parasites primarily infecting freshwater teleosts in South and Southeast Asia (Scholz & Kuchta, 2017). Species of Senga are characterized by an elongated strobila, scolex bearing bothria, numerous proglottids, medullary testes, bilobed ovary, and a distinct uterine structure (Kuchta et al., 2008).

India possesses a wide diversity of freshwater fishes, creating favourable ecological conditions for cestode radiation and host specificity (Jayaram, 2010). Several species of Senga have been reported from Indian freshwater fishes, especially from mastacembelid and perciform hosts (Tandon et al., 2009; Jadhav & Shinde, 1981). However, many earlier descriptions were brief and lacked detailed morphometric comparisons, resulting in taxonomic ambiguities (Scholz et al., 2004). Modern systematic approaches emphasize detailed morphological documentation, comparative taxonomy, and standardized measurements for species validation (Kuchta et al., 2008; Bray et al., 2014).
Koradi Dam in Buldhana District, Maharashtra, represents a freshwater ecosystem with diverse ichthyofauna, yet its helminth fauna remains insufficiently explored. During a parasitological survey of freshwater fishes from this locality, specimens of a cestode belonging to the genus Senga were recovered from the intestine of the host fish. Detailed morphological and morphometric evaluation indicates that these specimens represent a previously undescribed species. The present study provides a formal description and taxonomic account of this new species, contributing to the understanding of freshwater cestode diversity in India. The present study describes Senga snehalatae sp. nov., a new pseudophyllidean cestode from freshwater fish of Koradi Dam.

## 2. Materials And Methods

**Study Area**: Fish specimens were collected from Koradi Dam, a freshwater reservoir located in Buldhana District, Maharashtra, India. The dam supports diverse freshwater fish fauna and provides favourable ecological conditions for parasite transmission.

**Collection and Identification of Host:** Fish hosts were collected monthly using gill nets and cast nets with the assistance of local fishermen. Immediately after capture, fish were transported live to the laboratory in aerated containers. Host specimens were identified using standard taxonomic keys (Jayaram, 2010; Talwar & Jhingran, 1991). Morphometric data including total length and weight were recorded prior to dissection.

**Examination and Recovery of Parasites:** Fish were dissected by ventral incision, and the alimentary canal was removed and examined in physiological saline under a stereomicroscope following standard helminthological procedures (Chubb et al., 2010). Cestodes recovered from the intestine were carefully detached, washed in saline solution, and relaxed in lukewarm distilled water.

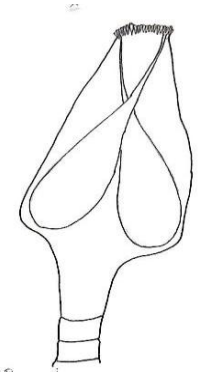
**Fixation, Staining and Mounting:** Specimens intended for morphological study were fixed in hot 4% formalin under slight cover slip pressure to maintain natural shape. Fixed worms were stained with Harris' hematoxylin or acetocarmine, differentiated in acid alcohol, dehydrated through ascending grades of ethanol, cleared in xylene, and permanently mounted in DPX (Kuchta et al., 2008). Measurements were taken using an ocular micrometer attached to a compound microscope and expressed in millimetres unless otherwise stated.

**Morphological Analysis and Illustration:** Detailed morphological examination focused on scolex structure, bothria, neck region, segmentation pattern, arrangement of reproductive organs, testes distribution, ovary configuration, vitellaria, uterus and egg morphology. Line drawings were prepared with the aid of a camera lucida attachment to illustrate diagnostic characters. All measurements represent ranges followed by mean values in parentheses.

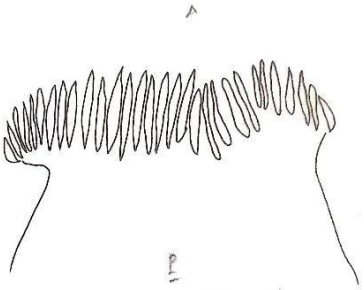
Taxonomic Criteria: Species identification and differentiation were carried out by comparing morphological characters with previously described species of Senga reported from Indian and Asian freshwater fishes (Jadhav & Shinde, 1981; Tandon et al., 2009; Scholz & Kuchta, 2017). Nomenclature follows the guidelines of the International Code of Zoological Nomenclature (ICZN, 1999). Type specimens were deposited in the departmental museum collection for future reference

**Scolex**

**Mature Segment**



**scolex**



**Hooks**

**Mature Segment**

**3. Description:**

The intestine of the freshwater fish Channa striata Bloch, 1793, which was captured from Koradi Dam in Buldhana District, Maharashtra, India, yielded five mature cestode specimens in 2023.

After being flattened and preserved in 4% formalin, the cestodes were dyed with acetocarmine and Hematoxylin. For whole-mount anatomical analysis, the specimens were dehydrated using a sequence of graded alcohols, cleaned in xylene, and then mounted in DPX. A camera lucida was used to help create the illustrations. Millimeters (mm) are used for all measurements.

The specimens were elongated, composed of a scolex, immature, and mature proglottids. The scolex was pear-shaped, tapering anteriorly and broadening posteriorly, with a length of 7.448 mm (range: 7.220–7.676 mm) and a width of 1.729 mm (range: 0.988–2.470 mm).

The anterior region of the scolex bore a distinct rostellum armed with 30 hooks, each measuring 0.095 mm in length (range: 0.087–0.102 mm) and 0.009 mm in width (range: 0.003–0.015 mm), arranged in two semicircular rows. Bothria were also present, extending posteriorly along the scolex, measuring 5.054 mm in length (range: 4.978–5.130 mm) and 0.665 mm in width (range: 0.228–1.102 mm). The neck is short.

The adult proglottids measured 4.313 mm in length (range: 4.256–4.370 mm) and 2.793 mm in width (range: 2.736–2.850 mm), making them around 1-2 times wider than their length.

The oval testes, which were 275–280 in number, were situated on either side of the ovary and measured 0.114 mm in length (0.076–0.152 mm) and 0.095 mm in breadth (0.076–0.114 mm).

It was an oval cirrus pouch that was located close to the uterus. It measured 0.304 mm long (range: 0.266–0.342 mm) and 0.114 mm wide (range: 0.076–0.152 mm).

The cirrus itself was a slender tubular structure within the pouch, 0.228 mm long (range: 0.190– 0.266 mm) and 0.029 mm wide (range: 0.019–0.038 mm).

The ovary was small, bilobed, and dumbbell-shaped, situated toward the posterior of the segment, with a length of 0.418 mm (range: 0.266–0.570 mm) and width of 0.589 mm (range: 0.380–0.798 mm).

The vagina was a narrow tubular structure running posteriorly to open into the ootype, measuring 0.228 mm in length (range: 0.190–0.266 mm) and 0.029 mm in width (range: 0.019–0.038 mm).

The genital pore was small and rounded, positioned posterior to the cirrus pouch, with dimensions of 0.029 mm in length (range: 0.019–0.038 mm) and 0.037 mm in width (range: 0.036–0.038 mm).

The uterus was saccular, located in the anterior region of the segment, densely packed with eggs, measuring 2.413 mm in length (range: 2.204–2.622 mm) and 0.494 mm in width (range: 0.228– 0.760 mm).

The vitellaria were granular and arranged along the lateral margins of each segment in two rows.

**4. Comparision with earlier species:**

In Southeast Asia, species of the genus Senga have been identified in cypriniform and labyrinth form fishes. The Siamese fighting fish (Betta splendens) housed in an aquarium in Vincennes, France, were the subject of the first description of Senga besnardi Dollfus in 1934. In Tsinan and Pieping, China, Ophiocephalus argus has been recorded to harbor Senga ophiocephalina Tseng, 1933 (also known as Anchistrocephalus ophiocephalina Tseng, 1933; A. polyptera Southwell, 1913, not A. polypteri (Leydig) of Montic, 1890).

Senga pcynomera (Woodland, 1924), which is seen in Ophiocephalus marulius in Allahabad, India, is thought to be interchangeable with Bothriocephalus pcynomera. From the spiny eel, Mastacembelus armatus (Lacepede), obtained in Lucknow, India, Johri (1956) described Senga lucknowensis. Many other Senga species have been described since these reports, and later researchers have documented their diagnostic traits.

1. The current worm exhibits general organ topography consistent with known Senga species (Dollfus, 1934), but can be distinguished from S. ophiocephalina Tseng, 1933 by its pear- shaped scolex, shallow bothria, absence of a neck, 50–55 testes, and lobate vitellaria.
2. Its triangular scolex with 50 hooks, lack of a neck, mature proglottids that are wider than long, 160–175 testes, a vagina located behind the cirrus pouch, a compact ovary, and granular vitellaria set it apart from S. besnardi Dollfus, 1934. In contrast to S. pcynomera Woodland, 1934, the current type, which has been identified from Ophiocephalus marulius in Allahabad, India, features granular vitellaria, an ovary divided into two discontinuous groups with uncertain segmentation, an elongated scolex with 60 hooks, and no neck.
3. In contrast to S. lucknowensis Johri, 1956, the present specimen has a body 210–212 mm long; a pear-shaped scolex narrow anteriorly and broad posteriorly; paired fleshy bothria (0.86–1.25 mm) ending anteriorly in a disc notched on both sides, bearing two half-crowns of 36– 48 hooks; no neck; square immature segments (0.61 × 0.78 mm); mature proglottids broader than long (0.39 × 1.27 mm); numerous testes (40 × 43–46 mm) surrounding a bilobed ovary (150–190× 100–113 µm); a muscular cirrus sac with coiled cirrus; cirro-vaginal opening positioned anterior to the ovary; uterus anterior to the ovary, irregularly coiled 7– 10 turns (200–230 µm); cortical grouping of vitelline follicles; and oval, thin- shelled eggs lacking opercula (46–60 × 24–28 µm), reported from Mastacembelus armatus in Lucknow, India.
4. In contrast to S. malayana Fernando and Furtado (1964), the current worm is 9.7–73.8 × 0.7–3.1 mm in size, has a tubular, cylindrical or circular scolex (0.68–1.8 × 0.24–0.35 mm) with an apical disc (0.15 × 0.23–0.32 mm) bearing 60 hooks (0.006–0.009 mm); bothria 0.49–0.91 × 0.2–0.225 mm; no neck; mature proglottids broader than long (100–500); 120–150 testes (0.045 mm); a bilobed ovary; a short tubular vagina; and lobate vitellaria (0.06 mm) grouped in two groups.
5. The worm differs from S. parva Fernando and Furtado, 1964 in that it has a body that measures5.17 × 0.362–0.832 mm; a pear-shaped scolex (0.46–0.53 mm) with an apical disc (0.1–0.12 × 0.12–0.3 mm) that has 42–44 hooks (0.01–0.015 mm); bothria 0.462–0.465 ×0.15 mm; no neck; mature segments that are wider than long (80–100 segments, 0.03–0.075× 0.09–0.4 mm); 150–180 testes; a globular ovary; and granular vitellaria, which have been observed in freshwater fishes from Malaya.
6. The round scolex of the current worm, which was taken from Ophiocephalus punctatus in Visakhapatnam, has 46–52 hooks, no neck, and 50–55 testes. These characteristics set it apart from S. visakhapattanmensis Ramadevi et al., 1973.
7. Compared to S. taunsaensis Zaidi Daulat Ali and Khan Daler, 1976, the worm has a body 39.15–41.76 × 1.218–1.228 mm; a rectangular scolex (0.855–0.955 × 1.152–1.252 mm) with two shallow bothria (0.099–

0.108 mm); an apical disc (0.177–0.197 × 0.038–0.051 mm) with 44–46 hooks, notched at both ends; 42–44 long hooks (0.050–0.082 × 0.010–0.015mm), 4 rudimentary hooks (0.023–0.041× 0.008–0.010 mm); no neck; acraspedote proglottids broader than long; numerous lateral testes (0.033–0.038 mm); bilobed submedian, medullary, post- equatorial ovary (0.155–0.159 × 0.090–0.094 mm); coiled uterus in medial medulla opening at the cirro-vaginal aperture; and numerous small oval eggs (0.043–0.051 × 0.020–0.028 mm), reported from Channa gachua at Taunsa Barrage, Pakistan.

8. The present specimen is different from S. khami Shinde et al., 1980 in that it has a body measuring 126 x 1.94 mm, a rectangular scolex measuring 1.13–1.21 x 0.37–0.39 mm, bothria measuring 0.65 x 0.22 mm, 55–57 hooks, a neck, mature proglottids that are slightly wider than long (1.36 x 1.94 mm), 155 testes, a bilobed post-equatorial ovary (0.73 x 0.35– 0.39 mm), and follicular vitellaria, which was reported from Mastacembelus armatus, Kham River, Aurangabad, India.
9. It is distinguishable from S. aurangabadensis Jadhav et al., 1980 by having an oval scolex with 50–52 hooks, absence of neck; mature proglottids twice as broad as long; medullary cirrus pouch; 240–260 testes; bilobed post-equatorial ovary; short tubular vagina; and cortically located follicular vitellaria.
10. According to Shinde et al. (1980), Mastacembelus armatus from Nanded, M.S., India, has a pear-shaped scolex, no neck, 220–230 rounded testes in two fields, an oval cirrus pouch in the anterior half of proglottids, a vagina positioned anterior to the cirrus pouch, and follicular vitellaria arranged in three to four rows.
11. The current worm can be distinguished from S. paithanensis Kadam et al., 1981 by its prominent triangular scolex with 54 hooks, presence of a neck, 130–135 rounded to oval testes distributed in two lateral groups, bilobed ovary with long blunt acini, thin tubular vagina, and follicular vitellaria arranged in 2–3 rows, collected from Mastacembelus armatus at Paithan, Aurangabad, M.S., India.
12. Compared to S. raoi Majid et al., 1984, the present cestode has a pear-shaped scolex, broad at mid-region and tapering at both ends, two shallow bothria extending posteriorly, 46 hooks, absence of a neck, 65–170 small rounded testes, oval cirrus pouch, post-equatorial bilobed compact ovary, and granular vitellaria, reported from Channa punctatus in Jagannathpuri, Orissa, India.
13. It differs from S. jagannathae Majid et al., 1984 in that it has a pear-shaped scolex that is wider posteriorly, two spoon-shaped bothria, 44 hooks, a short neck, 240– 250 small rounded testes, an oval cirrus pouch, a bilobed compact spatulate ovary, a vagina anterior to the cirrus pouch, and granular vitellaria. The worm was collected from Channa punctatus in Jagannathpuri, Orissa.
14. In contrast to S. gachuae Jadhav et al., 1991, it has a pear-shaped scolex with 22– 25 hooks and 60–70 oval testes arranged in two fields, according to Channa gachua from Solapur, M.S., India.
15. An oval scolex with 45–47 hooks, no neck, and 80–90 oval testes dispersed in two lateral fields distinguishes the current form from Mastacembelus armatus in Amravati (Daryapur), M.S., India (Jadhav et al., 1991).
16. In contrast to S. chauhani M. Hasnain, 1992, the cestode that was collected from Channa punctatus in Jamshedpur has a large oval scolex with 40–44 rostellar hooks, a short neck, mature proglottids that are broader than long, 200–210 oval testes, a thin tubular vagina, a bilobed ovary, and follicular vitellaria arranged in four to five rows.
17. The worm has a medium oval elongated scolex (0.670 × 0.398 mm) with 151 hooks in two semicircular groups, mature proglottids that are broader than long, 300–310 medium oval testes, a bilobed elongated ovary that is positioned posterior to mid-proglottid, and follicular vitellaria in three to four rows on each side, in contrast to S. mohekarae (Tat and Jadhav, 1997).
18. The triangular scolex with 42–44 rostellar hooks, oval to rounded testes (285–295) grouped in two lateral fields, and a vagina that extends anterior to the cirrus pouch are characteristics that set the current form apart from S. tappi Patil et al., 2003.
19. In comparison to S. ayodhensis Pandey, 2006, the worm exhibits a conical scolex with 29 hooks, absence of a neck, numerous rounded testes, a bilobed ovary, thin coiled vagina, and follicular vitellaria.
20. The present form can be distinguished from S. baghuai Pandey, 2006 by its pear- shaped scolex with 28 hooks, long neck, mature segments broader than long, 40– 50 testes, compact ovary, thin vagina, and follicular vitellaria.
21. The present worm can be distinguished from S. jadhavae Bhure et al., 2007 by its triangular scolex (1.332–1.458 × 0.258–0.918 mm), rounded rostellum (0.043–0.061 × 0.231–0.241 mm) bearing 50–54 hooks, short neck (0.230–0.295 × 0.390–0.565 mm), mature proglottids measuring 0.425–0.480 × 1.495–1.625 mm, 310–320 small rounded testes (0.020–0.025 mm), cirrus pouch 0.170–0.180 × 0.070–0.080 mm, bilobed ovary (0.095–0.245 × 0.410–0.425 mm), coiled vagina (0.245–0.255 × 0.010 mm), follicular vitellaria in 4–5 rows, and a saccular uterus; reported from Mastacembelus armatus in Aurangabad, M.S., India.
22. Compared to S. chandkapurensis Kahadap et al., 2007, the current form has a barrel-shaped scolex (0.730–0.854 × 0.175–0.301 mm), bothria measuring 0.577–0.579 × 0.024–0.160 mm, rostellum with 28–30 circularly arranged hooks (0.052–0.065 × 0.001–0.009 mm), short neck (0.010–0.087 × 0.180–0.194 mm), mature proglottids broader than long (0.735– 0.811 × 1.243–1.379 mm), 170– 180 small rounded testes, obliquely positioned oval cirrus pouch (0.121–0.174 × 0.023– 0.076 mm), large bilobed transversely placed ovary (0.023– 0.144 × 0.681–0.932 mm), vagina anterior to cirrus pouch (0.102 × 0.011 mm), cirrus (0.059–0.071 × 0.143–0.160 mm), saccular uterus, oval eggs (0.028–0.051 × 0.001–0.023 mm), and granular vitellaria; collected from M. armatus at Chandikapur, Bidar, Karnataka, India.
23. The worm differs from S. tictoi Shrivastava, 2007 by possessing an oval scolex narrow at both ends (0.474–

0.565 × 0.401–0.418 mm), bilobed rostellum (0.045– 0.061 × 0.151– 0.186mm) with 24–28 hooks (0.042–0.054 mm), elongated deep bothria (0.452–0.487 ×0.066–0.077 mm), absence of neck, craspedote proglottids broader than long (0.251–0.312 × 0.552–0.672 mm), 60–120 oval to round testes (0.020–0.026 × 0.027–0.038 mm), cirrus pouch bounded by thin membrane (0.036–0.037 × 0.037–0.041 mm), bilobed medial ovary posteriorly located (0.063– 0.103 × 0.212–0.345 mm), thin vagina (0.006–0.007 mm), absent receptaculum seminis, follicular vitellaria in two lateral bands (0.012–0.015 × 0.018–0.026 mm), median saccular uterus (0.075– 0.244 × 0.076–0.277 mm), and oval operculated eggs (0.020–0.023 × 0.030–0.033 mm); reported from Puntius ticto, Jhansi, U.P., India.

24. The present form differs from S. nathsagrensis Kankale, 2008 by having a long slightly conical scolex (0.3494 × 0.2909 mm), round to oval rostellum with 30–32 unequal hooks, long neck (0.2694 × 0.4368 mm), mature proglottids broader than long (0.213 × 0.309 mm), 200–250 testes (0.7766 mm), oval pre-ovarian cirrus pouch (0.1697 × 0.2038 mm), short thin curved cirrus (0.1698 mm), long thin vagina (0.2547 mm), long seminal receptaculum (0.1577 mm), bilobed dumbbell- shaped ovary, small ootype (0.5825 mm), gravid proglottids broader than long (0.5193× 0.9218 mm), saccular uterus at mid-proglottid (0.2111 × 0.1620 mm), 25–27 eggs, oval uterine pore, and follicular vitellaria in 2–3 rows; collected from M. armatus at Nathsagar Dam, Paithan, Aurangabad, M.S., India.
25. Compared to S. kaigaonensis Wankhede and Reddy, 2009, the worm has a triangular scolex with pointed anterior and broad posterior ends, 36 hooks, mature segments broader than long, 285–295 testes, and a pre-ovarian obliquely placed cirrus pouch; collected from M. armatus at Kaigaon Toka, Aurangabad, M.S., India.
26. The present worm differs from S. panzaraensis Mangale and Kalse, 2009 by having a triangular scolex (0.545 × 0.116–0.406 mm) with two bothria (0.428 × 0.161–0.299 mm), oval rostellum (0.054 × 0.071 mm) armed with 58 hooks, short neck (0.089 × 0.169 mm), mature segments five times broader than long (0.179– 0.210 × 1.089 mm), 40–45 small oval testes (0.017 mm), transversely oriented medium oval cirrus pouch (0.076 × 0.0402 mm), small oval genital pore (0.014 × 0.031 mm), large bilobed ovary (0.084–0.121 × 0.540 mm), thin slightly curved vagina (0.049 × 0.05 mm), rounded ootype (0.014 mm), follicular vitellaria in 4–5 rows, and oval operculated eggs (0.56 × 0.28 mm); collected from M. armatus at Panzara River, Dhule, M.S., India.
27. Compared with S. madhavae Bhure et al., 2010, the worm has a triangular scolex (0.910 × 0.519 mm) with two bothria (0.958 × 0.106 mm), rounded rostellum (0.101 × 0.247 mm) armed with 40–44 hooks in two semicircles, absence of neck, mature proglottids 5–6 times broader than long (0.271 × 2.199 mm), 200–220 small oval testes (0.021 × 0.031 mm), centrally located pre- ovarian cirrus pouch (0.058 × 0.024 mm), thin vagina (0.094 × 0.009 mm), straight receptaculum seminis (0.029 × 0.009 mm), oval medium ootype (0.024 mm), dumbbell-shaped ovary (0.992 × 0.116 mm), granular vitellaria, and saccular uterus (0.065 × 0.538 mm); collected from M. armatus, Pune, M.S., India.
28. The present worm differs from S. satarensis Bhure et al., 2011 by possessing a pear-shaped scolex tapering anteriorly (0.635 × 0.410 mm), pair of sessile bothria (0.684 × 0.067 mm), oval to rounded rostellum (0.030 × 0.070 mm) with 28–30 hooks, absence of neck, mature proglottids 6– 7 times broader than long (0.337 × 1.618 mm), 175–200 small oval testes (0.024 × 0.019 mm), oval cirrus pouch (0.065 × 0.021 mm), thin slightly curved vagina (0.065 × 0.009 mm), short vas deferens (0.019 × 0.009 mm), large ovary (0.497 × 0.055 mm), granular vitellaria, saccular uterus (0.145 × 0.342 mm), and elongated eggs (0.040 × 0.015 mm); collected from M. armatus, Satara, M.S., India.
29. Compared to S. mangalbaiae Bhure et al., 2011, the worm has a conical scolex tapering at the apex, broad at the base (2.038 × 0.878 mm), two fleshy bothria (1.662 × 0.349 mm), oval to rounded rostellum (0.116 × 0.266 mm) armed with 38–42 hooks, absence of neck, mature proglottids 2–3 times broader than long (0.449 × 1.084 mm), 70–80 oval to rounded testes (0.024 × 0.019 mm), small oval cirrus pouch (0.080 × 0.041 mm), thin straight cirrus (0.084 × 0.009 mm), small genital pore (0.019 × 0.012 mm), thin vagina (0.050 × 0.007 mm), short receptaculum (0.031 × 0.012 mm), small oval ootype (0.029 mm), distinctly bilobed ovary (0.439 × 0.077 mm), saccular uterus (0.196 × 0.415 mm), oval non- operculated eggs (0.034× 0.016 mm), and granular vitellaria in 2–3 rows; collected from M. armatus, Osmanabad, M.S., India.
30. The present worm differs from S. rupchandensis Pardeshi et al., 2011 by having a long body with flat cylindrical scolex (0.7159 × 0.2386 mm), overlapping sac-like bothria (right 0.4886× 0.1931 mm; left 0.4545 × 0.1477 mm), flat rostellum with two semicircular rows of hooks (42– 55), absence of neck, mature proglottids (1.2523 × 0.4514 mm), 350–370 rounded testes (0.09223 mm), sac-like oval cirrus pouch (0.05339 × 0.03883 mm), elongated tubular vagina (1.0873 × 0.08737 mm), bilobed ovary (right 0.2184 × 0.07766 mm; left 0.1601 × 0.1213 mm), follicular vitellaria, and oval non-operculated eggs (0.01925 × 0.01069 mm); collected from Channa striatus, Jalna, M.S., India.
31. The current worm differs from S. rostellare Dhole et al., 2011 by possessing a medium elongated pear-shaped scolex (1.08 × 0.57 mm), two large bothria (right 0.923 × 0.149 mm; left 0.981 × 0.271 mm), rostellum armed with 41 hooks, absence of neck, medium quadrangular mature proglottids (0.745 × 0.942 mm), 217–242 rounded testes (0.039 × 0.038 mm) crowded in a single field, elongated oval cirrus pouch (0.942 × 0.105 mm), short thin curved cirrus (0.082 × 0.008 mm), medium bilobed ovary with 2–3 blunt acini per lobe (0.253 × 0.069 mm), thin vagina (0.302× 0.008 mm), vitellaria in a single lateral row, slightly longer than broad gravid segments (0.841× 0.749 mm), saccular uterus (0.587 × 0.074 mm), and oval operculated eggs (0.052 × 0.016 mm); collected from M. armatus, M.S., India.
32. The worm differs from S. chandrashekhari Dhole et al., 2011 in having a large scolex, broad posteriorly and

narrow anteriorly (1.341 × 0.684 mm), two fleshy bothria (1.048 × 0.21mm), rostellum armed with 78 hooks in a semicircle (0.289× 0.245 mm), short neck (0.1 × 0.28 mm), slightly squarish mature proglottids broader than long (0.622 × 1.469 mm), 98– 117 medium rounded testes (0.056 ×0.038 mm) in two lateral fields, small cylindrical cirrus pouch (0.157 × 0.038 mm), transversely positioned bilobed ovary (0.135 × 0.157 mm), long broad vagina (0.442 × 0.135 mm), vitellaria 1–2 rows laterally, slightly broader than long gravid segments (0.846 × 0.941 mm), saccular uterus (0.653× 0.824 mm), and oval operculated eggs (0.035 × 0.016 mm); collected from M. armatus, M.S., India.

33. The present form differs from S. govindii Jadhav et al., 2012 by being a long thin milky-white worm with a triangular scolex (8.54 × 2.46 mm), rostellum armed with 45–50 hooks (6.12 × 1.28 mm), two sac-like bothria (2.01 × 0.72 mm), neck present (1.52 × 1.44 mm), rectangular mature proglottids three times broader than long (1.77 × 3.01 mm), 100–130 medium oval testes (0.05 × 0.12 mm), oval cirrus pouch (0.22 × 0.28 mm), thin tubular cirrus (0.19 × 0.03 mm), large bilobed ovary (0.57 × 0.61 mm), posterior thin vagina (1.75 × 0.03 mm), small rounded genital pore (0.09× 0.07 mm), gravid proglottids broader than long (1.94 × 5.49 mm), large saccular uterus (0.98 × 1.33 mm), oval non-operculated eggs (2.25 × 7.58 mm), and follicular vitellaria in 2–3 lateral rows; collected from M. armatus, Sina Kolegoan Dam, Osmanabad, M.S., India.
34. The worm differs from S. silcharensis Puinyabati et al., 2013 by possessing a pear-shaped scolex, bluntly rounded apically (0.50 × 0.27 mm), two shallow oval bothria extending posteriorly, anterior rostellum armed with 44 hooks in two semicircles (0.06 × 0.005 mm), absence of neck, mature segments 0.12–0.15 × 0.27–1.10 mm, gravid segments 0.11 × 1.21 mm, 60 small rounded testes (0.035 × 0.03 mm), post-equatorial bilobed ovary (right 0.07– 0.08 × 0.11–0.12 mm; left 0.07–0.10 × 0.12–0.13 mm), vitelline follicles (0.02 × 0.02 mm), and oval eggs (0.025–0.05 × 0.02 mm); collected from Channa punctatus, Chatla Haor, Silchar, Assam, India.
35. Compared to S. microrostellata Bhure et al., 2014, the worm has a triangular scolex tapering at the apex and broad at the base, distinctly separated from the strobila (1.218 × 0.686 mm), two sessile bothria (1.072 × 0.266 mm), oval rostellum (0.109 × 0.206 mm) with 18–20 circularly arranged hooks (long hooks 0.097 × 0.009 mm; short hooks 0.085 × 0.007 mm), absence of neck, mature proglottids 8–9 times broader than long (0.211 × 3.407 mm), 250– 300 small oval to rounded testes scattered laterally, small elongated transversely placed cirrus pouch (0.060 × 0.029 mm) with thin straight cirrus (0.038 × 0.012 mm), short thin vas deferens (0.016 × 0.009 mm), small oval genital pore (0.016 × 0.012 mm), posteriorly directed thin vagina (0.055 × 0.012 mm), short receptaculum seminis (0.021 × 0.012 mm), oval to rounded ootype (0.019 mm), large bilobed dumbbell-shaped ovary (0.538 × 0.041 mm), saccular uterus (0.050 × 0.40 mm), oval non- operculated eggs (0.044 × 0.019 mm), and lateral line follicular vitellaria; recovered from M. armatus, Parbhani, M.S., India
36. The worm differs from S. nandedensis Fartade & Fartade, 2014 by having a large triangular scolex (5.57 × 3.24 mm), prominent rostellum armed with 60–62 semicircular hooks (0.083 × 0.009 mm), two spatulate bothria extending posteriorly (6.38 × 2.07 mm), absence of neck, small rectangular mature proglottids eight times broader than long (0.89 × 8.86 mm), 150– 200 small oval testes (0.20 × 0.11 mm), medium oval cirrus pouch (0.13 × 0.133 mm) with thin tubular cirrus (0.09 × 0.05 mm), small bilobed dumbbell-shaped ovary (2.07 × 0.038 mm), thin posterior vagina (0.61 × 0.17 mm), small rounded genital pore (0.038 mm), and lateral follicular vitellaria; collected from M. armatus in the Godavari basin, M.S., India.
37. The worm differs from S. rostellata Deshmukh et al., 2016 by having a triangular scolex (1.180 × 0.494 mm) with paired bothria, rostellum armed with 20–22 hooks (0.084 × 0.264 mm), long neck (0.365 × 0.348 mm), wide mature proglottids (0.325 × 1.236 mm), 25–30 small pre-ovarian testes (0.056 mm), cirrus pouch (0.123× 0.078 mm) with thin cirrus (0.109 × 0.016 mm), short thin vas deferens (0.061 × 0.028 mm), small oval genital atrium (0.039 × 0.028 mm), slightly curved thin vagina (0.089 × 0.016 mm), medium compact oval ootype (0.044 mm), ovary lobes (0.264 × 0.067 mm), saccular uterus containing 30–35 eggs (0.280 × 0.702 mm), and elongated tapering eggs (0.045 × 0.025 mm) with anterior rounded uterine pore.
38. A triangular scolex (2.388 × 0.494 mm), rostellum (0.258 × 0.550 mm) with 28–30 hooks, mature proglottids broader than long (0.429 × 2.725 mm), testes (0.045× 0.067 mm), cirrus pouch (0.264 × 0.107 mm), vagina originating from genital atrium (0.298× 0.017 mm), ovary (0.534 × 0.197 mm), and broad gravid segments (0.559 × 3.162 mm) are among the characteristics that set the worm apart from S. triangullata Nanware et al., 2016.
39. he worm's triangular scolex (1.537 × 0.901 mm), rostellum (0.212 × 0.450 mm) with 20–22 hooks, mature proglottids that are about five times wider than long, 50–55 testes, and a bilobed ovary set it apart from S. follicularae Barshe et al., 2023.
40. The worm was recovered from Channa striata, Bloch, 1793, India, and differs from S. anusayae Sp. Nov. in that it has a conical scolex, 60 hooks, mature segments that are broader than long, and 95–100 testes.
41. The worm differs from S. koradinesis Sp. Nov. by having a triangular scolex, 30– 35 hooks, mature segments broader than long, and 45–50 testes; collected from M. armatus, India.

The combination of these unique morphological features justifies the description of a new species, which is proposed as Senga snehalatae Sp. Nov., in honor of the author's mother, Mrs. Snehalata Khushalrao Gawai.

Taxonomic Summary

Genus - Senga Dollfus, 1934.

| | | |
|---|---|---|
| Species | - | Senga snehalatae, Sp. Nov. |
| Typehost | - | Channa straita, Bloch, 1793. |
| Habitat (Site) | - | Intestine. |
| Typelocality | - | Koradi Dam District Buldhana (M. S.) India |
| Holotype and | - | Deposited in the Research Lab., Department of |
| Paratype | - | Zoology, Lal Bahadur Shastri College, Partur Dist -Jalna |
| Etymology | - | Named proposed in honor of mother name auther Mrs. Snehalata Khushalrao Gawai |

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