

# A review of Genus Senga from freshwater fish

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## Abstract:

The present study is a review article work which was done by another researcher. For this review, the study selected the genus *Senga* of Cestode parasites from freshwater fish. Various researchers did work on different freshwater fishes like *Clarius batrachus*, *M. armatus*, *Mystus seenghala*, *Channa sp.* etc in Maharashtra and they found various species of the *Senga* genus. In this review study observation is that till the year 2020, 31 species of the *senga* genus are reported in India.

**Key Words:** Genus *Senga*, Freshwater fishes,

## Introduction:

“Parasites play a crucial role as pathogens, causing infections and diseases in both freshwater and marine fish. With growing interest in aquaculture, parasitic infestations pose a threat to fish health management and sustainable aquatic crop production worldwide. Scientists must pay close attention to this essential area for successful aquaculture production.” (Chandra, 2006). It can be categorized into two types: ectoparasites and endoparasites. Endoparasites reside inside the body of an organism and are found across various classes, from Pisces to Mammals.” In this review article, we discuss the cestodes that belong to the phylum Platyhelminthes. Also called a tapeworm. They inhabit the intestinal tract of vertebrates, including humans. Cestodes have dorsoventrally flat, segmented bodies. Specialized endoparasites with no digestive system; absorb nutrients from the host's intestine. Highly developed in each mature segment (proglottid). Certainly! Let's rephrase the information into a more concise paragraph:

Tapeworms, a diverse group of parasitic flatworms, are classified into two main classes: Cestoda and Cestodaria. Wardle and McLeod initially proposed this division in 1952, with 11 orders in Cestoda and three in Cestodaria. Later, Wardle, McLeod, and Radinovsky redefined the classification into two classes: Cotyloda and Eucestoda. Cotyloda includes six orders found in marine and freshwater fish, characterised by monozoic or polyzoic forms. In contrast, Eucestoda comprises almost all polyzoic tapeworms with well-developed reproductive organs per proglottid. These parasites infest fish, amphibians, birds, and mammals. The subclass Eucestoda, which includes 15 orders, is particularly significant. Most adult tapeworms affect cartilaginous or bony fish, while certain groups like the Taeniidae can cause problems during their larval stages. (Richard Lucius et al., 2017). Many genera are found in the freshwater fishes i. e. *Lytocestus*, *Gangesia*, *Senga*, *Circumoncobothrium*. Etc.

The genus ***Lytocestus*** was established by Cohn, with its type species being *L. adhaerens* found in *Clarias fuscus* from Hong Kong. Woodland confirmed this genus in 2011. Another genus, ***Gangesia***, was founded by Woodland in 1924, with its type species *G. macrons* separated from *Macrones seenghala* in India. Over time, additional species were documented, including *G. parasite* by Yamaguti in 1934. Wardle and McLeod recognized Verma's *G. pseudotropii*, initially proposed as a new genus (*Vermala*) by Nybelin in 1942. Later, Dhar et al. contributed to a reviewed analysis of the genus *Gangesia*, proposing to split it into two sub-genera: *Gangesia (Gangesia)* and *Gangesia (Vermaia)*. Notably, *G. wallaguae*, *G. jayakwadensis*, *G. shivajiraoi*, and *G. intestinalis* were subsequently added. Additionally, the newly described *Gangesia orientalis* and *Gangesia marathwadensis* have contributed to our understanding of these proteocephallidean tapeworms. The genus ***Senga***, initiated by Dollfus in 1934, has seen the addition of numerous species. For instance, *Senga panzaraensis* and *Senga madhavae* were reported from freshwater fish in India. Furthermore, *Senga rupchandensis* was described from *Channa straitus* in Maharashtra, India. In this review article, we focused mainly on the genus *Senga* from freshwater fishes which is work done by another researcher.

## Material and Methodology:

During the present study, I have referred to different sources. Such as published and unpublished research papers, journals, theses etc of the last ten years. From the various online as well as offline. Online mode usually refers to Google Scholar, Research Gate, Science Direct Shodhganga, etc. All the cestodes are studied in freshwater fishes such as Catla-catla, Labeo rohita, Channa striatus, Wallago attu, Mastacembalus armatus, Mystus seenghala etc.

## Discussion and result:

The **genus Senga** was erected by Dollfus in 1934, with its type species being **Senga besnardi** from the Siamese fighting fish (*Betta splendens*) in an aquarium at Vincennes, France. Species Diversity: Numerous species have been added to this genus over time, each associated with different host fish and geographical locations. Morphological and Molecular Studies: Morphologically, *Senga* exhibits characteristics typical of cestodes. Molecular analyses have revealed that *Senga* is closely related to other cestodes, including *Bothriocephalus*. Tseng, 1933 reported *Senga ophiocephalina*, (syn. *Anchirocephalus o.*); Woodland, 1924 described *S. pycnomena* (syn. *Bothriocephalus p.W.*) from *Ophicephalus marulius* at Allahabad, India. **Senga lucknowensis** (Johri, 1956): Host: *Mastacembelus armatus* from Lucknow, India. **Senga malayana** (Fernando and Furtado, 1964): Host: *Channa striatus*. **Senga parva** and **Senga filiformis** (Fernando and Furtado, 1964): Host: *Channa micropeltes* in Malacca. **Senga pahangensis** (Furtado and Chauhan, 1971): Host: *Channa micropeltes* at Tesak Bera. **Senga vishakapattanensis** (Ramadevi and Rao, 1973): Host: *Ophiocephalus punctatus*. **Senga punctati** and **Senga mastacembali** (Gupta and Sinha, 1980): Hosts: *Ophiocephalus punctatus* and *Mastacembelus armatus*, respectively. **Senga khami** (Shinde and Deshmukh, 1980): Host: *Ophiocephalus marulius* at Kham River, Aurangabad, India. **Senga aurangabadensis** (Jadhav and Shinde, 1980): Host: *Mastacembelus armatus* from Aurangabad. **Senga godavari** (Shinde and Jadhav, 1980): Host: *Mastacembelus armatus* from Aurangabad. **Senga paithanensis** (Kadam, Jadhav, and Shinde, 1981): Host: *Mastacembelus armatus*. **Senga raoii** and **Senga jagannathe** (Majid and Shinde, 1984): Host: *Channa punctatus* at Jagannathpur, Orissa. **Senga indica** (Gupta and Parmar, 1985): Host: *Mastacembelus armatus* at Lucknow, India. **Senga gangesii** (Gariola and Malhotra, 1986): Host: *Mystus vittatus* found in the Ganga river at Allahabad. **Senga nathsagarensis** (Kankale, 2008): Host: Not specified. **Senga kaigaonensis** (Wankhede and Reddy, 2009): Host: *M. armatus*. **Senga panzaraensis** (Mangnale and Kalse, 2009): Host: *Mastacembelus armatus* caught at Panzara river, Dhule, Maharashtra, India. **Senga madhavae** (Bhure et al., 2010): Host: *Mastacembelus armatus*. **Senga satarensis** and **Senga mangalbaiiae** (Bhure and Nanware, 2011): Host: *Mastacembelus armatus* from different localities in Maharashtra State. **Senga rupchandensis** (Pardeshi and Hiware, 2011): Host: *Channa straitus* at Jalana, Maharashtra, India. **Senga rostellarae** and **Senga chandrashekhari** (Dhole et al., 2011): Host: *Mastacembelus armatus* in Maharashtra, India. **Senga govindii** (Jadhav et al., 2012): Host: *Mastacembelus armatus* from Sina Kolegaon Dam, Osmanabad District, Maharashtra, India. Then added **Senga maharashtrii** by B.W. Sawarkar; in 2012. **Senga bhuleshwarii** (B.W. Sawarkar 2013). **Senga nandedensis** (Asawari M. Fartade et al, 2014). **S. rostellata** (Deshmukh et al., 2016) and **S. triangullata** (Nanware et al., 2016) were reported from *Mastacembelus armatus*. A. D. Lakhe in 2017 reported one more new species of **Senga mohkhedensis** in *Mastacembelus armatus* from AT MOHKHED DAM, TQ.DHARUR, DIST.BEED, M.S., INDIA.

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