

Short Review Paper

Description of a new species *Gangesiashindei* from a fresh water fish *Barbusticto* (Cestoda: Proteocephalidae)

Sadhana D. Deshpande

Department of Zoology, Vidya Pratishthan's ASC College, Vidyanagari, Baramati-413133, Dist.- Pune, MS, India
deshpande.vpsc@gmail.com

Available online at: www.isca.in, www.isca.me

Received 2nd December 2016, revised 4th October 2017, accepted 10th January 2018

Abstract

In 1924 Woodland described new genus *Gangesia*. After that Southwell (1913) described the genus *Gangesia* but the description was not enough. In 1928 Verma gave a detailed explanation of the genus. In his paper, he explained detailed about *Gangesiapseudotropii* from *Silurusgangia* and *Gangasiaagraensis* from *Wallagoattu*. In 1930, South well described some synonyms and four valid species. From the intestine of fresh water fish *Barbusticto*, five specimens of cestode parasites were collected from Aurangabad in the month of February. All parasites were stained with Mayer's carmalum. The measurements are given in millimeters. The new species is described with affinities and differences with some related species.

Keywords: *Gangesia*, Aurangabad, *Barbusticto*, Proteocephalidae.

Introduction

The cestode parasites are found in plenty in aquatic and terrestrial animals. Fishes also carry heavy helminth infections, which reduces the food value of it and results in their mortality. Majority of human being consume the fishes as one of the nutritious food. If it is not properly cooked the cestode parasites cause many diseases to human beings. Since the work on the cestode parasites in India has left a great deal of scope for researchers.

Materials and methods

The freshwater fishes *Barbusticto* collected from Kham River, Aurangabad. Five specimens of cestode parasites were found in the intestine of *Barbusticto*. All the parasites were stained with Mayer's carmalum stain and preserved in 4% formalin, cleaned with xylol and fixed in canadabalsam for the systematic study. All the dimensions are in millimetres and the figures are traced with the help of camera lucida. Identification takes place by referring Systema Helminthum Yamaguti¹.

Scolex distinct, somewhat triangular, it measure 0.27 - 0.72 in width and 0.51 in length. Scolex is having rostellum quadrangular, broader posteriorly narrow anteriorly, measure 0.28 in width and 0.20 in length. Rostellum is armed with a single circle of hooks, which are 28 in number and are of two types- triangular and diamond shaped. Triangular hooks measure 0.032 in length and 0.002- 0.019 in width while diamond shaped hooks measure 0.012-0.018, in length and 0.008-0.01 in width. Shape of the suckers is oval and measure 0.10-0.06 in width and 0.24 in length. Those on left side

overlap each other, where as those on right side are little away from each other. Mature segments are having length slightly more than the breadth almost squarish, with lateral margins slightly convex and measures 1.2 in length and 0.98-1.1 in width.

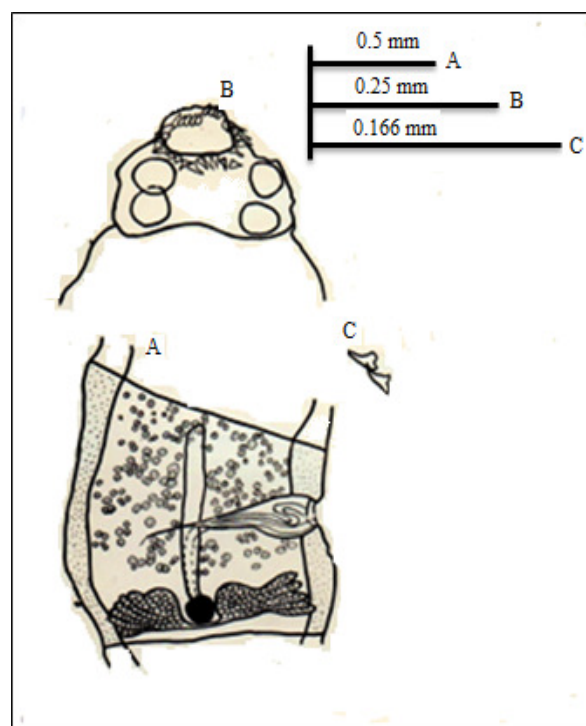


Figure-1: *G. Shindei* n. sp. (A=Mature segment, B=Scolex, C=Hooks).

Testes preovarian small and medium size, evenly distributed and are 180-190 in numbers measuring 0.033 in width and 0.014 in length. Cirrus pouch large, conical, just anterior to middle of segment opens in genital pore, measures 0.17 in width and 0.42 in length. Cirrus is coiled and thick and measures 0.0014-0.033 in width and 0.53 in length. Vas deferens thin, straight, runs transversely and measures 0.30 in length. Vital atrium opens just anterior half of the segment.

Ovary is two lobed, lobes almost quadrangular in shape. They have 5-6 acini on each side placed near the posterior margin and measures 0.017-0.043 and in width 0.85 in length. Isthmus is a long and thin tube measures 0.019 in width and 0.13 in length. Vagina is posteroventral to cirrus pouch, is a thick tube runs up to the centre of the segment takes a curve and opens in to the ootype and measures 0.029 in width and 0.77 in length.

Uterus is tubular, cylindrical, runs almost to the anterior margin of the segment and measures 0.07 in width and 0.76 in length. Ootype rounded, large, situated into the concavity of the ovarian lobes, anterior to isthmus and measures 0.12 in diameter. Vitellaria extend from anterior to posterior margin of the segments and granular in nature having wide strips.

Results and discussion

The tape worm under discussion differs from *G. bengalensis* Southwell², *G. parasiluri* Yamaguti³, *G. macrons* Woodland⁴, *G. pseudotropii* Verma⁵, *Gangesia* (*Gangesia*) Wankhede⁶, *Gangesiaorientalis* Deshmukh⁷ in shape of scolex, structure of ovary and structure of uterus, number of testes and number of hooks. The worm under discussion is compared as follows:

Table-1: Comparative chart showing affinities and the differentiating characters of the new species *G. shindei* from the genus *Gangesia*⁴.

Parameter	<i>Gangesia-shindei</i> sp.	<i>Gangesia-bengalensis</i> ²	<i>Gangesiamacrons</i> ⁴	<i>Gangesiapseudotropii</i> ⁵	<i>Gangesiaparasiluri</i> ³	<i>Gangesia</i> (<i>Gangesia</i>) ⁶	<i>Gangesiaorientalis</i> ⁷
Scolex	Triangular, narrow anteriorly, broad posteriorly, neck absent.	Narrow anteriorly and posteriorly broader at the middle, short neck.	Broader at the middle. Neck absent.	Broader at the middle short. Short neck.	Tapering to both the ends and broader at the centre.	Triangular	Oval, narrow anteriorly broad posteriorly.
Hooks	28 in number of two types, in a single circle.	28 to 42 in a single row.	33 in a single complete ring.	17 to 20 in a complete ring.	34 in two rows.	18 in single circle.	20-22 in single circle.
Number of Testes	180 to 190 in a single field.	100	100	100 to 160 in two lateral fields in front of ovary.	80-85, distributed in two lateral fields.	103 in numbers arranged in one to two rows.	20-25 in numbers scattered throughout anterior region.
Vas Deferens	Carry within the cirrus pouch.	Do not carry within the cirrus pouch.	Do not carry within the cirrus pouch.	Carry within the cirrus pouch.	Carry within the cirrus pouch.	Long, coiled extends upto middle of segment.	Short tube.
Ovary	Two lobes with 5 to 6 acini on each side.	Two lobes with compact structure.	Two lobes with compact structure.	Two lobes with compact structure.	Two lobes with many acini.	Two lobes with 4-6 acini.	Two lobes occupies posterior part of seg.
Vagina	Posterior/ventral toward cirrus pouch. Wider towards genital pole.	Posterior/Anterior to cirrus [posteroventral toward cirrus pouch]	Posterior near to cirrus pouch.	-----	Posterior near to cirrus pouch.	Posterior to cirrus pouch, enlarges towards genital pole.	Thin tube, slightly curved posterior to cirrus pouch.
Uterus	Tubular, cylindrical in the center of segment.	20-28 lateral diverticula on each side.	20-30 lateral diverticula on each side.	30-40 lateral diverticula.	11 lateral fields on each side.	Tubular, long up to the anterior end of the segment.	Saccular
Host	Barbusticto	Ophiocephalus striatus	Macronsseenghala	Pseudotropiusg arua	Parasilurusalotus	Mastacembalusamatus	Wallagoattu

Conclusion

The differences justify the recognition of this cestode as distinct and therefore the name *Gangasiashindei n. sp.* is named in honour of Dr. G.B. Shinde, guide to the author.

Type's species : *G. Shindei n. sp.*

Host : *Barbustictio* Ham & Buch

Habitat : Intestine

Locality : Aurangabad, Maharashtra, India.

Acknowledgement

I am thankful to Principal, Arts, Science and Commerce College Baramati India, my colleague Mr. Shekhar Phadtare and Dr. G. B. Shinde.

References

1. Yamaguti S. (1956). Sytemahelminthum: Thecestode of vertebrates. Interscience Publ., New York and London, 2, 1-180.
2. Southwell T. (1913). Parasites from fish notes from the Bengal fisheries Laboratory. *Re. Ind. Mus.*, 9, 79-103.
3. Yamaguti S. (1934). Studies on the helminth fauna of Japan. Part 4. Cestodes of fishes. *Japanese Journal of Zoology*, 6(1), 1-112.
4. Woodland W.N.F. (1924). On a new Bothriocephalus and a new genus of Proteocephalidae from Indian fresh-water fishes. *Parasitology*, 16(4), 441-451.
5. Verma S.C. (1928). Some cestodes from Indian fishes, including four new species of Tetrphyllidea and revised keys to the genera Acanthobothrium and Gangesia. *Allahabad University Studies*, 4, 119-176.
6. Wankhede H. (2004). On a new species of the genus, Gangesia (Gangesia), from freshwater fish Mastacembelus armatus from Godavari river at Aurangabad (MS) India. *J. Curr. Sci*, 5(2), 607-610.
7. Deshmukh V.S. and Nanware S.S. (2016). Taxonomic Studies on Proteocephallidean Cestode Genus Gangesia (Woodland, 1924) from Wallago attu (Bleeker, 1851) With Description of a New Species. *Asian Journal of Agriculture & Life Sciences*, 1(1), 15-25.