

FIRST RECORD OF *GENARCHOPSIS MACROCOTYLE* COIL AND KUNTZ, 1960 (PLATYHELMINTHES: TREMATODA: DEROGENIDAE) FROM INDIA

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ABSTRACT

The present species *Genarchopsis macrocotyle* Coil & Kuntz, 1960 is found to be new record in India. Earlier 6 species of the genus *Genarchopsis* Ozaki, 1925 had been reported from India. Previously present species *Genarchopsis macrocotyle* Coil & Kuntz, 1960 was reported from Bangladesh and Pakistan. Present species is found to be first report from India. List of Indian species of the genus *Genarchopsis* Ozaki, 1925 earlier reported from India along with their distribution and also a comparative chart of key characters of present species with the original description has been discussed here.

Keywords: *Genarchopsis macrocotyle*, Derogenidae, West Bengal, New record, India.

INTRODUCTION

Genus *Genarchopsis* belongs to the family Derogenidae, class Trematoda. It was described by Ozaki (1925) with the type species *Genarchopsis goppo* Ozaki, 1925. More than 18 species had been reported so far from the genus *Genarchopsis* Ozaki, 1925, among which 6 species had so far been recorded from India (WoRMS, 2025). The species *Genarchopsis macrocotyle* Coil & Kuntz, 1960 had been earlier reported from Bangladesh (Coil and Kuntz, 1960) and Pakistan (Saeed and Bilqees, 1972) and present document shows the first report of this species from India. The specimen was collected from the intestine of the fish *Channa punctata* (Bloch, 1793) from Shivsahar fishery pond, Binpur, Jhargram, West Bengal. Diagnostic characters of the present trematode parasite along with its images have been discussed. Morphological characters of the present species have been compared with original description of the species (Table 1). List of species of the Genus *Genarchopsis* Ozaki, 1925 earlier reported from India along with their distribution (Table 2) have also been discussed in the present communication.

MATERIAL AND METHODS

The host fish *Channa punctata* (Bloch, 1793) were collected from Shivsahar fishery pond, Binpur, Jhargram,

West Bengal through fish catch by local fisherman during the survey and the live fishes were dissected to collect the parasites so that parasites are alive and could be collected easily. Dissected parts of the fish were kept in normal saline for easy release of the specimen from the intestine of the host as well as relaxation of the specimens. Infections were found there and trematodes were collected. Trematodes were then slightly pressed in between a slide and a coverslip so that morphological characters of these parasites can be properly visible under microscope. FAA solution is used for fixation of the specimen and after fixation trematodes were transferred in small vials in 70% alcohol and brought in the laboratory for further processing of the specimen. Trematodes were stained with Borax Carmine stain and acidified Ethyl Alcohol was used for differential staining of the specimen. Gradations of ethyl alcohol (70%- 100% Ethyl alcohol, Xylol) were used for dehydration of the specimens. Specimens were then cleaned in Clove oil and mounted in Canada Balsam. Morphological characters of the specimens were observed by using compound microscope (LEICA DM 1000) and identification of trematodes done on the basis of standard work of Gibson, Jones and Bray (2002). Measurements were taken in mm. Identified species have been deposited in National Zoological Collections of Zoological Survey of India.

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RESULTS AND DISCUSSION

The trematode *Genarchopsis macrocotyle* Coil and Kuntz, 1960 collected from *Channa punctata* (Bloch, 1793) from Shivsahar fishery pond, Binpur, Jhargram, West Bengal is found to be first record from West Bengal as well as from India Taxonomic Account: Phylum PLATYHELMINTHES Minot, 1876, Class TREMATODA Rudolphi, 1808, Order PLAGIORCHIIDA La Rue, 1957, Suborder HEMIURATA Skrjabin and Guschanskaja, 1954, Family DEROGENIDAE Nicoll, 1910, Subfamily HALIPEGINAE Poche, 1926, Genus *Genarchopsis* Ozaki, 1925.

Diagnosis: Body elongated with smooth cuticle, maximum width at acetabular region, 3.107 x 1.030; oral sucker well developed, subterminal, muscular, 0.325 x 0.362, prepharynx absent, pharynx well developed, transversely oval, 0.112 x 0.189; oesophagus absent, intestinal caeca unite posteriorly just above the vitellaria, ventral sucker post equatorial, much larger than oral sucker, 0.740 x 0.817, sucker ratio 1: 2.28, distance between two suckers 1.268; testes entire, oval, symmetrical, just below the acetabulum separated by uterine coils; right testis 0.333 x 0.293, left one 0.260 x 0.286; genital pore just post bifurcal, ovary entire, oval in shape, post testicular, 0.285 x 0.191, situated far below from right testis, just anterior to vitellaria, near posterior extremity; eggs thin shelled, elongated, 0.041-0.048 in length; vitellaria in two large compact masses, symmetrical, situated at the posterior extremity.

Genarchopsis macrocotyle Coil and Kuntz, 1960

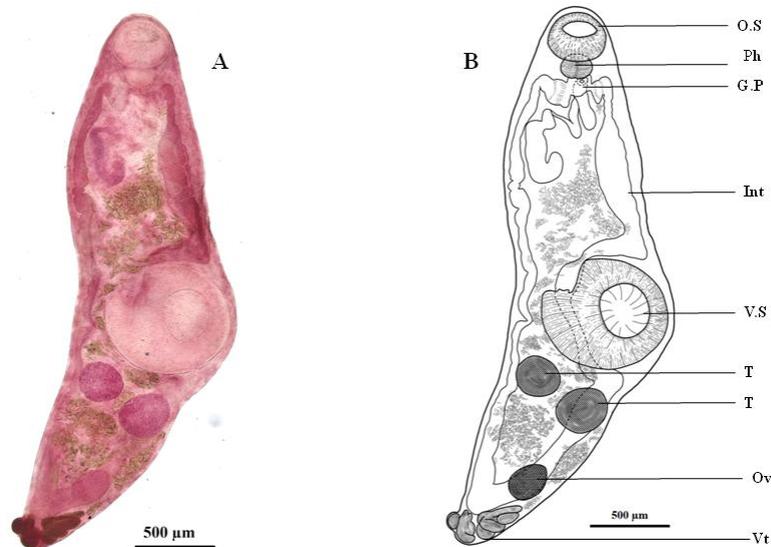


Figure 1. *Genarchopsis macrocotyle* Coil & Kuntz, 1960. A. entire worm. B. line Drawing (O.S: oral sucker. Ph: pharynx. G.P: genital pore. Int: intestine. V.S: ventral sucker. T: testes. Ov: ovary. Vt: vitellaria)

Genarchopsis macrocotyle Coil and Kuntz, 1960 was previously recorded from Bangladesh and Pakistan only. Present species was first reported by Coil and Kuntz (1960) from Bangladesh from the fish host, *Channa punctata* (Bloch, 1793). Later in 1972 Saeed and Bilquees reported the same species from Pakistan. Earlier 6 species of the genus *Genarchopsis* Ozaki, 1925, *G. goppo* Ozaki, 1925, *G. avitellarium* Varma and Sahay, 1985, *G. cameroni* Kakaji, 1969, *G. paithanensis* Pardeshi and

Hiware, 2012 and *G. punctati* Agrawal, 1966 had been reported from India (Table II). Thus, present document shows first report of *Genarchopsis macrocotyle* Coil and Kuntz, 1960 from India. List of Indian species of the genus *Genarchopsis* Ozaki, 1925 earlier reported from India along with their distribution (Table 2) and also a comparative chart of key characters of present species with the original description have been discussed here (Table 1).

Table 1. Comparative Chart of Morphological Characters of the species with original description of *Genarchopsis macrocotyle* Coil & Kuntz, 1960.

Morphological Characters	Original Description	Present Description
Oral sucker	Subterminal	Subterminal
Sucker ratio	1 : 2.36	1:2.28
Prepharynx	absent	absent
Oesophagus	absent	absent
Intestinal Caeca	Cyclocoel, extends upto the level of vitellaria	Cyclocoel, extend posteriorly just above the vitellaria
Testes	Symmetrical, just below the acetabulum	Symmetrical, just below the acetabulum
Ovary	Situated in posterior quarter of the body	Situated far below from right testis, just anterior to vitellaria, near posterior extremity
Genital Pore	Post bifurcal	Post bifurcal
Vitellaria	Follicular; follicles distributed between pharynx or sometimes oral sucker and posterior extremity of body	Two large compact masses, symmetrical, situated at the posterior extremity

Table 2. List of Species of the genus *Genarchopsis* Ozaki, 1925 earlier reported from India.

S. No.	Species	Host	Distribution in India	Global Distribution
1	<i>Genarchopsis goppo</i> Ozaki, 1925	<i>Monopterusuchia</i> (Hamilton, 1822), <i>Channa gachua</i> (Hamilton, 1822), <i>Channa punctata</i> (Bloch, 1793), <i>Channa striata</i> (Bloch, 1793), <i>Gambusia affinis</i> (Baird & Girard, 1853), <i>Glossogobius giuris</i> (Hamilton, 1822), <i>Mastacembelus armatus</i> (Lacepède, 1800),	Andhra Pradesh, Bihar, Madhya Pradesh, Manipur, Meghalaya, Telangana, Rajasthan, Uttar Pradesh, West Bengal	Bangladesh, China, Japan, Thailand, India
2	<i>Genarchopsis avitellarium</i> Varma & Sahay, 1985	<i>Channa punctata</i> (Bloch, 1793)	Assam	-
3	<i>Genarchopsis cameroni</i> Kakaji, 1969	<i>Sperata seenghala</i> (Sykes, 1839)	Uttar Pradesh	-
4	<i>Genarchopsis cameroni</i> Kakaji, 1969	<i>Mastacembelus armatus</i> (Lacepède, 1800)	Madhya Pradesh	-
5	<i>Genarchopsis paithanensis</i> Pardeshi & Hiware, 2012	<i>Mastacembelus armatus</i> (Lacepède, 1800)	Maharashtra	-
6	<i>Genarchopsis punctati</i> Agrawal, 1966	<i>Channa punctata</i> (Bloch, 1793)	Uttar Pradesh, West Bengal	-

CONCLUSION

The present study documents the first record of *Genarchopsis macrocotyle* Coil and Kuntz, 1960 from India, thereby extending the known geographical distribution of this species. Earlier, *G. macrocotyle* was reported only from Pakistan, and Bangladesh, with its original description by Coil and Kuntz (1960) from the fish host *Channa punctata* and a subsequent record from

Pakistan by Saeed and Bilquees (1972). With this new record, India is added as a confirmed locality for the species. Prior to the present finding, six species of the genus *Genarchopsis* Ozaki, 1925 were known from India, namely *G. goppo*, *G. avitellarium*, *G. cameroni*, *G. paithanensis*, and *G. punctati*. The inclusion of *G. macrocotyle* increases the diversity of the genus in India and contributes to a better understanding of its distribution in the Indian subcontinent. The comparative analysis of key

morphological characters with the original description further confirms the taxonomic identity of the present species. This record highlights the need for continued parasitological surveys to uncover the hidden diversity and distribution patterns of digenetic trematodes in Indian freshwater fishes.

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CONFLICT OF INTERESTS

The authors declare no conflict of interest

ETHICS APPROVAL

Not applicable

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AI TOOL DECLARATION

The authors declares that no AI and related tools are used to write the scientific content of this manuscript.

DATA AVAILABILITY

Data will be available on request

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