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RECORDS OF SOME LITTLE KNOWN NEMATODES FROM INDIAN FISHES

N. C. DE, M. GHOSH and G. MAJUMDAR
Laboratory of Parasitology, Department of Zoology, University of Burdwan, Burdwan

Abstract. One ascarid and two spirurids from three piscine hosts of India have been recorded. The nematodes are *Lappetascaris lutjani*, *Heliconema longissimum* and *Camallanus mastacembeli*. Of these, *Lappetascaris lutjani* has been recorded from a new host and from a new geographical region. The variations in the morphometry have been mentioned.

An investigation on parasitemia of fishes was carried out in West Bengal, India in the year 1970. During that survey work some nematodes were collected along with other helminth parasites. The present study concerns three of these nematode species which show important differences in the morphology and morphometry. All measurements are in mm. All nematodes are deposited in the Laboratory of Parasitology, Department of Zoology, Burdwan University.

Family Anisakidae (Railliet et Henry, 1912)

Subfamily Lappetascaridinae Rasheed, 1965

Lappetascaris lutjani Rasheed, 1965 Figs. 1 A—C

Host: *Kurtus indicus* (Bloch). Location: stomach. Locality: Coast of river Hooghly, Sagar islands, West Bengal, India.

Two of the fishes examined were found to harbour three male and two female (one immature) nematodes.

Table 1. Metrical range of *Lappetascaris lutjani*

Regions	After Rasheed (1965)		Present data		Range	
	♂	♀	♂	♀	♂	♀
Body length	8–21	12–35	13.86	11.17–21.34	8–21	11.17–35.00
Body breadth	0.1–0.55	0.2–1.1	0.38	0.32–0.66	0.1–0.55	0.2–1.1
Oesophagus length	1.5–1.8	1.9–3.5	1.84	1.48–2.31	1.5–1.84	1.48–3.5
Small spicule length	2.4	–	1.77	–	1.77–2.4	–
Large spicule length	3.2	–	1.90	–	1.90–3.2	–
Vulva from head end	–	5.6–5.8	–	4.23–7.80	–	4.23–7.80
Egg	–	0.043–0.047 x 0.036–0.037	–	0.045 x 0.045		0.043–0.047 x 0.036–0.045

The genus *Lappetascaris* was established by Rasheed (1965) on the type species *L. lutjani* Rasheed, 1965 from marine fishes, *Lutjanus* sp. and *Hilsa ilisa* at Karachi, Pakistan. So far no other species have been added to this genus. The present nematodes resemble *L. lutjani* in general size and body forms (Table 1), but they differ from this species in the presence of two large single papillae on the dorsal lip, a large single papilla and an amphid in both the ventral lateral lips. The rows of small frills or spines between the collar ring and the lips (Rasheed 1965) are lacking in the present forms. The number and dispositions of the postcloacal papillae also differ. The present forms bear eight small postcloacal papillae instead of six as in Rasheed's specimens. Again the papillae are slightly asymetrically placed and the first pair is doubled in nature. The spicules are subequal and the spicular ratio to the body length is 1 : 7.57. Rasheed's (1965) data show this to be 1 : 5.17. Moreover, the vulval ratio to the body length is 1 : 2.7 in the present females instead of 1 : 3.26 as recorded earlier. These are suggested to be individual variations within the species. The present parasites have been recovered from a different site of a new host and also from a different locality.

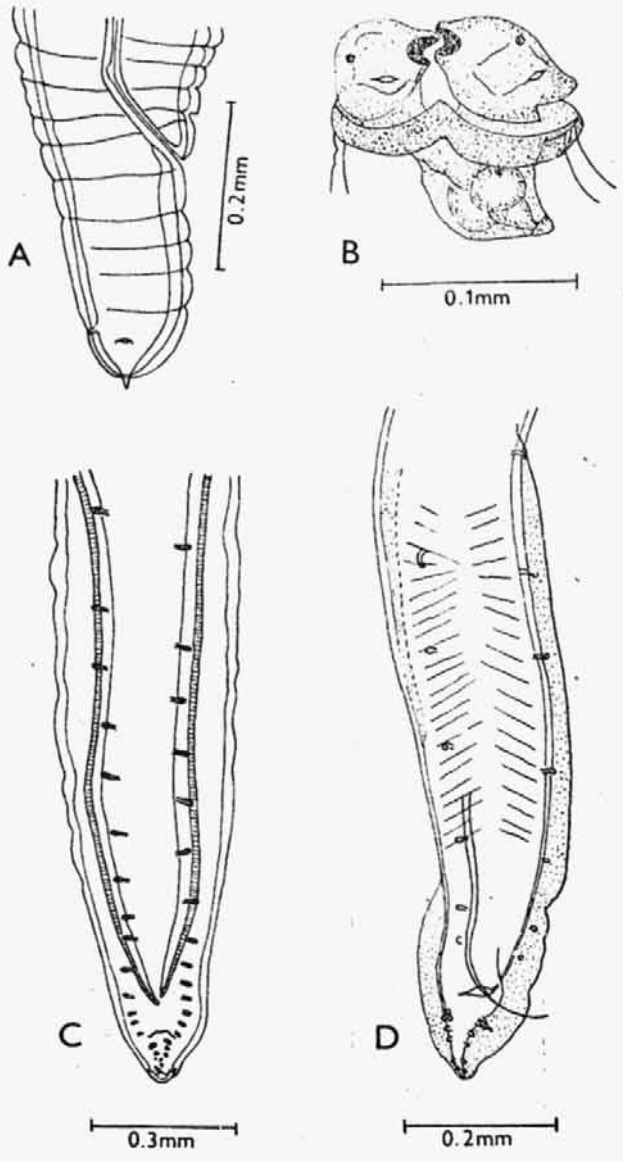

Fig. 1. A—C — *Lappetascaris lutjani*. A — tail of female, lateral view, B — head end, lateral view, C — posterior end of male, ventral view, D — *Camallanus mastacembeli*, posterior end of male, ventral view.

Family Physalopteridae Railliet, 1893

Subfamily Proleptinae Schulz, 1927

Heliconema longissimum Ortlepp, 1923 Fig. 2

Host: *Mastacembelus armatus* (Lacep). Location: stomach and intestine. Locality: Sonarpur, 24 Parganas, West Bengal, India.

Seven fishes were found to harbour thirteen male and twenty-one female nematodes.

Description. Large, whitish worms with prominent transverse cuticular striations. Well developed cuticular inflation at anterior end. Two large lateral lips, each having an anteriorly directed conical tooth on inner surface (Fig. 2B). Mouth opening in the form of dorso-ventral slit (Fig. 2C). Pointed, bristle-like deirids present at level of nerve ring. Excretory pore located below the level of deirids. Nerve ring situated at about mid-region of anterior part of oesophagus. Divided type of oesophagus with larger posterior part. Ratio of total oesophageal complex to body length 1 : 8.09 and 1 : 7.32 in male and female respectively.

Male. Length of body 18.36—31.68, maximum width 0.31—0.48. Length of anterior part of oesophagus 0.36—0.48, maximum width 0.07—0.12. Length of posterior part of oesophagus 1.98—3.37, maximum width 0.13—0.19. Distance of nerve ring from anterior extremity 0.22—0.30, of deirids 0.22—0.36, of excretory pore 0.37—0.52. Ventrally bent caudal end with broad and continuous alae (length 0.76—1.29, breadth 0.03—0.07). Length of tail 0.31—0.45. Longitudinal rows of elongate quadrangular cuticular elevations present on ventral surface for some distance above cloacal level. Spicules unequal and dissimilar, larger left spicule (length 0.49—0.60) tapering and gutter-like distally (Fig. 2D), shorter right spicule (length 0.19—0.27) with broad base and rounded distal tip bearing a hyaline cap (Fig. 2E). Out of eleven pairs of caudal papillae, 4 pairs preanal and 7 pairs postanal. Preanal papillae pedunculate and bearing large rounded heads; first and second on each side close together, same pattern of arrangement for third and fourth one. Postanal papillae: first four pairs morphologically similar to preanal, only second and third close together, fifth pair devoid of head-like swelling, sixth pair and seventh pair (phasmids) sessile and subventral.

Female. Length of body 20.32—34.50 width 0.41—0.79. Length of anterior part of oesophagus 0.37—0.45, length of posterior part of oesophagus 2.80—3.87. Distance of nerve ring 0.25—0.30, of cervical papillae 0.25—0.36 of excretory pore 0.37—0.48. Short tail with bluntly rounded tip; length of tail 0.15—0.24. One pair of small papillae (phasmids) located subterminally. Vulva in form of transverse opening, located in midbody, 9.27—18.16 from posterior extremity. Vagina directed caudally. Eggs ovoid, thick shelled and embryonated, size 0.037 × 0.022.

The present nematodes come under the genus *Heliconema* Travassos, 1919. Chabaud (1975) in key to the genera of subfamily Proleptinae Schulz, 1927 mentioned the genus *Proleptus* Dujardin, 1845 with vulva near anus and the genus *Heliconema* with pre-equatorial vulva. Specian et al. (1975) also diagnosed the genus *Proleptus* with vulva adjacent to tail but they used the position of vulva at about 1/3 of the body length anterior to anus as key character for *P. malayi* Sandosham, 1954. *H. longissima* (Ortlepp, 1922) was first recorded by Ortlepp from "snakes" in Australia. Chabaud and Campana-Rouget (1956) suggested that the host (snakes) of Ortlepp's type material of the species is doubtful. This view was supported by Ogden (1969). The recorded piscine hosts of this species are *Anguilla pekinensis*, *A. japonica*, *A. mossambica*, and *Mastacembelus armatus*. The present worms are also recovered from *M. armatus* and come within the metric ranges of *H. longissimum*. The shape of the spicules and arrangement of the caudal papillae are also similar. The absence of subventral and subdorsal labial teeth in the present forms corroborate with the findings of Li (1934) and Yamaguti (1935). The variations recorded in the present nematodes is in the possession of an extra pair of small subventral papillae near the tail end. However, this variations is suggested to be intraspecific in nature. Sood (1970) recorded *Paraleptus komiyai* from *M. armatus* and from the same geographical region as in the present case. According to the recent key to genera of subfamily Proleptinae by Chabaud (1975) *P. komiyai* should come under the genus *Heliconema* as the females bear vulva in the mid-body. Sood's specimens agree with the present form of nematodes as also

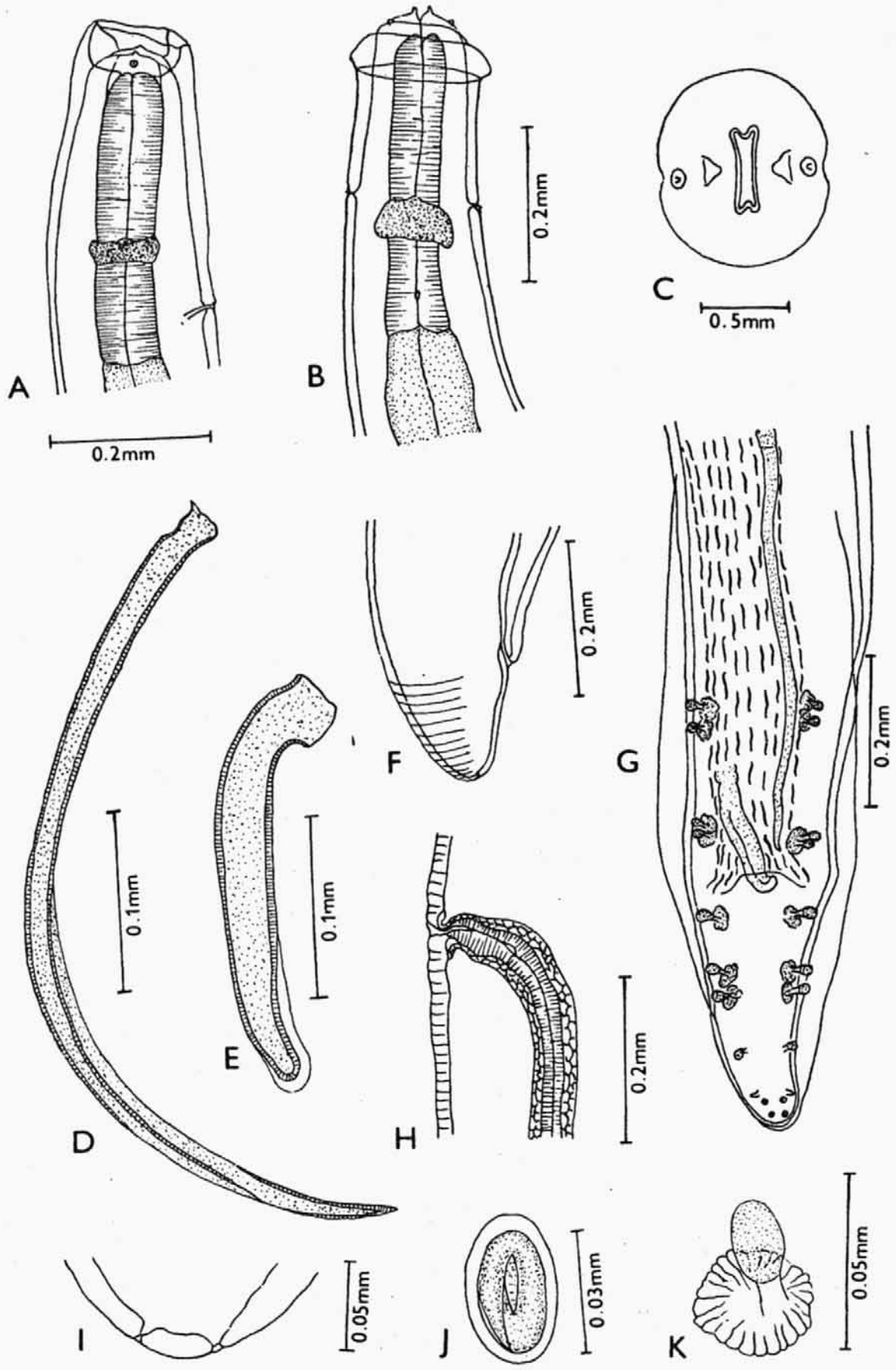

Fig. 2. *Heliconema longissimum*. A, B — cephalic end, lateral and ventral view, C — "en face" view, D, E — left and right spicule, lateral view, F — tail of female, lateral view, G — posterior end of male, ventral view, H — vulva, lateral view, I — tail end of female, ventral view, J — egg, K — preanal papilla, enlarged, ventral view.

with *H. longissimum* in general size and body form. They also possess four pairs of preanal and five pairs of postanal papillae as in *H. longissimum*.

However, the first pair of postanal papillae are small and placed just behind the cloacal margin in case of *P. komiyai* and the phasmids are also not observed in it. The present authors think that *P. komiyai* should be synonymized with *H. longissimum* to which also the present nematodes should be assigned.

Fam. Camallanidae Railliet et Henry, 1915

Camallanus mastacembeli (Sahay et Sinha, 1966) Fig. 1D

Host: *Mastacembelus armatus* (Lacep.). Location: intestine.
Locality: Sonarpur, 24 Parganas, West Bengal, India.

Two of the fishes examined harboured two male and three female nematodes.

The piscine host, *Mastacembelus armatus* was reported to harbour both *Zeylanema mastacembeli* Sahay et Sinha, 1966 and *Camallanus mastacembeli* Agrawal, 1967. Sinha and Sahay (1971), however, treated *C. mastacembeli* as a synonym of *Z. mastacembeli*. Nevertheless, the validity of the genus *Zeylanema* Yeh, 1960 is debatable and Chabaud (1975) did not accept this genus as a valid one and treated *Zeylanema* as a synonym of *Camallanus*. The present authors also agree with this view.

The present worms conform to Sahay and Sinha's (1966) specimens in morphological details except for bearing thirteen pairs of papillae and an unpaired caudal papilla in male instead of eleven pairs. Agrawal (1967), however, recorded the presence of the thirteen pairs of caudal papillae having different arrangement. The present authors think that Agrawal's specimens as also the present worms are conspecific with those described by Sahay and Sinha (1966) the correct name of which will be *Camallanus mastacembeli* (Sahay et Sinha, 1966) Agrawal, 1967. The measurements of males (12.22–14.97×0.22) and females (35.58–39.19×0.37–0.40) are recorded.

НАХОДКА НЕКОТОРЫХ МАЛОИЗВЕСТНЫХ НЕМАТОД ОТ ИНДИЙСКИХ РЫБ

Н. Ц. Де, М. Гош и Г. Маджумдар

Резюме. У трех хозяев в Индии найдены три вида нематод: *Lappetascaris lutjani*, *Heliconema longissimum* и *Camallanus mastacembeli*. Это первая находка *Lappetascaris lutjani* у нового хозяина и в новой географической области. Отмечены морфометрические изменения.

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