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On a new digenetic trematode *Neopodocotyle mastacembelli* n. sp. (Family: Opecoelidae Ozaki, 1925) from the intestine of fresh water fish *Mastacembelus armatus* (Lacepede.) of Matatila Reservoir Bundelkhand region, Jhansi (UP), India.

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Abstract

The present study was aimed that determining the intestinal digenetic trematodes found in fishes of Matatila Reservoir Bundelkhand region, Jhansi. The new species *Neopodocotyle mastacembelli* n.sp reported from fresh water fish *Mastacembelus armatus* (Lacepede.). *N. mastacembelli* n.sp. Characterized by having aspinose body; presence of short, tubular, pre-pharynx; globular, muscular pharynx; post-equatorial, intercaecal, apart from each other, unequal, tandem testes. Anterior testis was larger than posterior one. Ovary, oval, post-equatorial, pre-testicular, intercaecal; elongated sac like cirrus sac extends from right side of equatorial region, occupying the entire posterior-lateral margin of ventral sucker and finally ends at the middle level of oesophageal region on its right side; opening of genital pore at oesophageal region on its right side; vitelline follicles, spherical extends from little anterior to intestinal bifurcation up to hind end of the body; eggs, oval and operculated. *N. mastacembelli* n.sp. was collected from *M. armatus* (Lecepede.) on added one more host to the list of hosts recorded from India.

Keywords: *Mastacembelus armatus* (Lacepede.), Matatila reservoir and Helminth parasite.

1. Introduction

Fishes are the apex of predator-prey pyramid within fresh water, therefore tend to be infected with a considerable range of helminth parasites. It has been fully realized that fish constitutes an important item of human food as the fish protein is a kind of the boom to patients with high blood pressure and cardiac diseases as the fish protein has low cholesterol in comparison to eggs and meat. The present paper includes the description of a new species of genus *Neopodocotyle*, Dayal, 1944 found in the intestine of *M. armatus* (Lacepede.) was quite different from previously described ones.

2. Material and Methods

Fishes for the present investigation have been collected from the Matatila reservoir Bundelkhand region, Jhansi. Fishes were examined for intestinal parasites. The intestine was removed from the body cavity and contents were then examined under microscope. The parasites taken out and fixed in 70% ethanol. These were stained in Aceto-alum carmine, dehydrated and mounted in Canada balsam. The figure was drawn with aid of a Camera Lucida device and all measurements done in micrometer. Identification and classification of the parasite were done using Yamaguti, (1958).

3. Result

3.1 Description of *Neopodocotyle mastacembelli* n. sp.

Body elongated, smooth, aspinose, with narrow anterior end and broad posterior end, 0.93-1.1 mm long, 0.34-0.38 mm wide. Oral sucker sub-terminal, sub-spherical, 0.09-0.11 mm long, 0.08-0.1 mm wide. Pre-pharynx, tubular, 0.04-0.06 mm long, 0.02-0.04 mm wide. Pharynx, globular, muscular, 0.05-0.07 mm long, 0.06-0.08 mm wide. Oesophagus long, tubular, 0.09-0.1 mm long, 0.03-0.05 mm wide, dividing in to two un-branched intestinal caeca, reaching up to the hind end of the body.

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Ventral sucker oval, pre-equatorial, just below the intestinal bifurcation and overlapping by cirrus sac, 0.09-0.11 mm long, 0.13-0.15 mm wide, at 0.32-0.34 mm from anterior extremity. Testis elongated, post-equatorial, intracecal, apart from each other, unequal, tandem. Anterior testis was larger than posterior one. Anterior testis 0.06-0.08 mm long 0.17-0.19 mm wide, at 0.5-0.52 mm from anterior extremity. Posterior testis 0.08-0.1 mm long, 0.14-0.16 mm wide, at 0.6-0.62 mm from anterior extremity. Ovary oval, post-equatorial, pre-testicular, intercaecal, 0.06-0.08 mm long, 0.08-0.1 mm wide, at 0.47-0.49 mm from anterior extremity.

Cirrus sac elongated, sac like, 0.28-0.3 mm long, 0.04-0.06 mm wide extended from right side of equatorial region,

occupying the entire posterior-lateral margin of ventral sucker and finally ended at the middle level of oesophageal region on its right side, enclose, bilobed vesicula seminalis, 0.14-0.16 mm long, 0.04-0.06 mm wide, an elongate pars-prostatica 0.09-0.11 mm long, 0.03-0.06 mm wide, surrounded with numerous prostate glands cells. Ejaculatory duct narrow, long, 0.03-0.05 mm, and opened by a small genital pore at oesophageal region on its right side.

Vitelline follicles, spherical, extended from little anterior to intestinal bifurcation up to hind end of the body. Eggs, oval, operculated, 0.04-0.07 mm long, 0.01-0.02 mm wide.

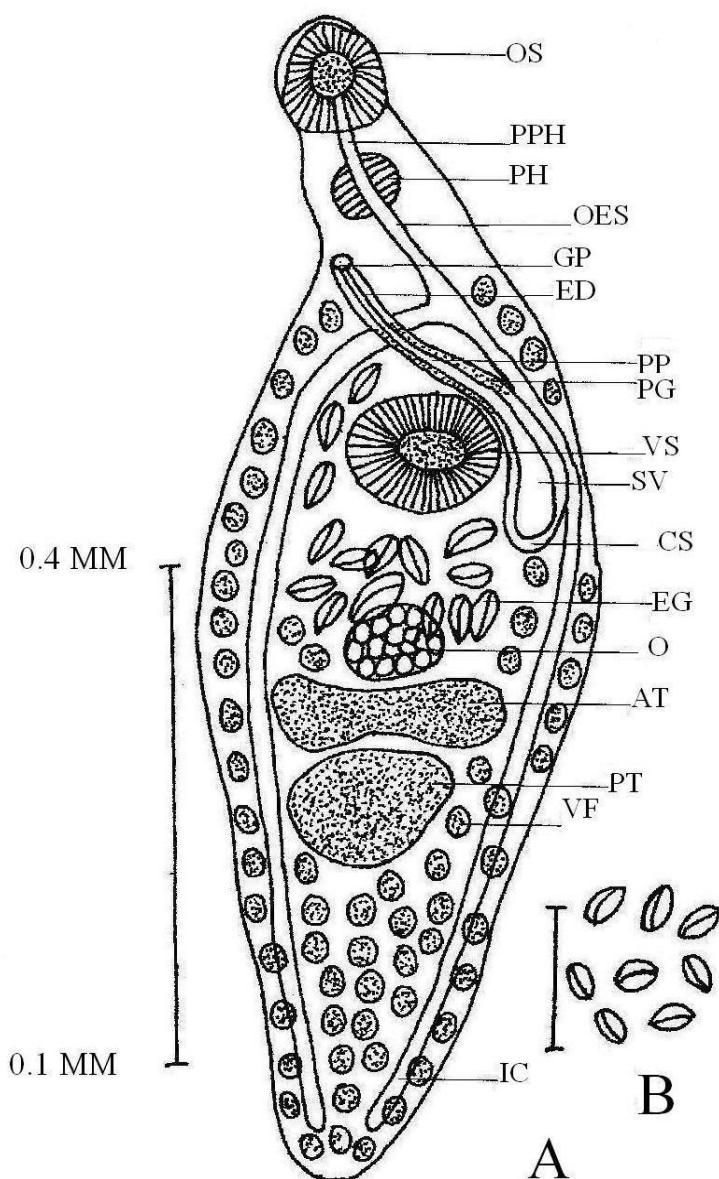


Fig.(A) *Neopodocotyle mastacembelli* n.sp.
Fig. (B) Eggs

4. Discussion

The genus *Neopodocotyle* was erected by Dayal in, 1944, in a

note with *N. indica* as type species which was obtained from the intestine of *Callichrous bimaculatus*. Its detailed account,

however, was published by him in 1950. Yamaguti, 1958 reduced it to a rank of subgenus under *Podocotyle* (Dujardin, 1845) Odhner, 1905 and placed under the sub-family *Allocreadinae* Looss, 1902 of the family *Allocreadiidae* (Looss, 1902) Stossich, 1903. He divided the genus into three sub-genera namely *Podocotyle*, *Podocotyloides* and *Neopodocotyle*. He distinguished *Neopodocotyle* from *Podocotyle*, *Polycotylid* in having ovary separated from anterior testis by uterus. Further, he distinguished *Podocotyloides* from *Podocotyle* in having acetabulum pedunculate surrounded by a puckered margin of peduncle and having excretory vesicle long and reaching beyond ovary.^[10] regarded *Podocotyle*, *Podocotyloides* and *Neopodocotyle* as distinct genera under sub-family *Plagioporinae*.^[9] of the family Opecoelidae Ozaki, 1925. Furthermore,^[11] transferred *N. indica* under the genus *Allocreadium* as *A. indica*. Subsequently,^[8] described *N. lucknowensis* and^[12] added *N. mehraei* from the intestine of *Puntius sarana*.^[16] included under the genus *Podocotyle* five sub-genera viz. *Podocotyle* (Dujardin, 1845) Odhner, 1905, *Neopodocotyle* Dayal, 1944, *Apopodocotyle* Pritchard 1966, *Neopodocotyloides* Pritchard, 1966 and *Pedenculotrema* Fischal and Thomas, 1970.^[5] Erected a new genus *Puntiotrema* on the basis of presence of genital sucker and named *N. lucknowensis* (Gupta and Chakrabarti, 1966) as *P. lucknowensis*.^[12] differed from Pritchard's view and considered *Neopoocotyle* as a distinct genus. However, the author agreed with^[16] and regards *Neopodocotyle* as a sub-genus of *Podocotyle* because the position of uterus in between ovary and anterior testis was of sub generic condition.

To the best of my knowledge so far twelve species of the sub-genus *Neopodocotyle* Dayal, 1944 are known viz. *N. indica*, Dayal, 1944 from *C. bimaculatus*; *N. lucknowensis* Gupta and Chakrabarti (1966) from *Barbus sarana* (Ham.); *N. spinopora* Sircar and Sinha, 1969 from *Rita rita*; *N. mehraei* Rai, (1971) from *Puntius sarana* and *P. sophor*; *N. chauhanii* Agrawal and Agrawal (1983) from *P. sarana*; *N. kulpaharnsis* Agrawal and Agrawal (1980) from *Channa punctatus*; *N. gorakhpurnsis* Agrawal and Kumar (1986) from *Amphipnous cuchia*; *N. matatilaensis* (Agrawal and Agrawal, 1989) from *P. sophore*; *N. hanumanthai* and *N. laxmibai* Sachan and Agrawal (1993) from *labeo rohita*; *N. betwai* from *Ambasis nama* (Ham.) and *N. jhansiensis* from *Rita rita* Sultan and Agrawal (1996).

The present form chiefly differs from all the known species in aspinose body; sub-spherical shape of oral sucker; pre-equatorial, oval, ventral sucker, oral sucker is smaller than ventral sucker; oval muscular pharynx.

The present form differs from *N. lucknowensis*, *N. kulpaharnsis*, *N. gorakhpurnsis*, *N. matatilaensis*, *N. betwai*, *N. jhansiensis* in having post-equatorial, intercaecal, apart from each other, unequal tandem testes. Anterior testis was eight shaped and larger than posterior one; ovary, oval, post-equatorial, pre-testicular and intercaecal; cirrus sac elongated, extends from right side of equatorial region, occupying the entire posterior lateral margin of ventral sucker and finally ends at the middle level of oesophageal on its right side.

The new form differs from *N. indica*, *N. mehraei*, *N. chauhanii*, *N. kulpaharnsis*, *N. kulpaharnsis*, *N. gorakhpurnsis*, *N. matatilaensis*, *N. hanumanthai*, *N. laxmibai*, *N. jhansiensis* in having short, tubular, pre-pharynx; opening of genital pore at esophageal region on its right side; extension of sub-spherical vitelline follicles from little anterior to intestinal bifurcation up to the hind end of the body and oval operculated eggs.

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