

RESEARCH ARTICLE

A new species of cestode *Lytocestus paithanensis* (*Lytocestus* Cohn, 1908) from *Clarias batrachus* at Paithan, MS, India

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ABSTRACT

The present communication deals with description of new species *Lytocestus paithanensis* n.sp. is reported from *Clarias batrachus* at Paithan Dist. Aurangabad. It differs from all known species of the genus, with the characters like, head is spatulate, narrower than body, broad base and narrow apex; neck medium, wide narrow anteriorly and posteriorly wide; gonads located near the posterior end of the worm, testes 220-250 in number, oval, preovarian, scattered in middle of worm; ovary medium H-shaped; large ootype; uterus tubular and wide.

Key words: Tape worm, *Lytocestus paithanensis* n.sp., *Clarias batrachus*.

INTRODUCTION

The genus *Lytocestus* was erected by Cohn, 1908 with its type species *L. adhaerens* found in *Clarias fuscus* in Hong-Kong. This genus was first confirmed by Woodland (1926) who included four more species in addition to the type species. They are *L. filiformis* Woodland (1923) in *Murmurscasehive Egyptiansudan*, *L. Clamersius* Woodland (1924), *L. Cunningtoni* Fuhrmann and Bear (1925) and *L. indicus* Moghe (1925) (*Syn. Caryophyllaeus indicus*) from *Clarias batrachus* in India. The same were recorded by Mehra (1930) from *Clarias magur* and Ramadevi (1973) from *Clarias batrachus* in India. Hunter (1927) placed the genus in sub-family of his own namely Lytocestinae and retained only three species i.e. *L. Adhaerens*, *L. filiformis* and *L. indicus*. He put the species *L. chalmersius* in the genus Monobothriodides.

Subsequent workers Gupta (1961), Murhar (1963) have adhered to these changes. Wardle and McLeod (1952) followed Hunter's classification, but raised the status of Lytocestinae from sub-family to a family. Wardle, McLeod and Radinovsky (1974) suggested a new system of classification of cestodes, who used the term Cotyloda as a class and the order Caryophyllidea is kept in this class. Mackiewicz (1972) included the species *L. iavanicus* Bovine, 1926, Furtado, 1963, Lynsdale, 1956 and *L. parvulus* Furtado, 1963 in this genus. Johri (1959) considered *L. alestesii* Lynsdale, 1956 concluded that it should be considered a synonym of *L. filiformis* Woodland.

(1923), Ramadevi (1973) described *L. longicollis* from *Clarias batrachus* in India. Later on Shinde and Phad (1988) added *L. marathwadaensis* from *Clarias batrachus* in India. All the nine species come from east Asian countries.

MATERIALS AND METHODS

The present species were collected from the intestine of fish *clarias batrachus* from Nathasagar dam, paithan, Dist. Aurangabad in the month of September 2007. The cestode were fixed in 4 % formalin and stained with Harris haematoxylin. The drawing are made with aid of camera lucida. All measurement in mm.

DESCRIPTION:

Nine specimens, of the cestode parasites, were collected from the intestine of a fresh water fish, *clarias batrachus* at paithan' Dist. Aurangabad, M.S. India in the month of Septeber, 2007. The parasites are stained with Harris haematolixin and prepared whole mount slides, for anatomical studies.

The head is spatulate, marked by narrower than the body, broad at the base, narrow at the apex, with blunt tip and measure 1.250 in length and 0.714 to 0.357 in breadth.

The neck is medium in length, wide, narrow anteriorly, wide posteriorly, with irregular lateral margin, curved, longer than broad and measure 3.124 in long and 1.963 to 0.982 in breadth.

The gonads are situated in the posterior region and near the posterior end of the worm. The testes are numerous, small and large in size, oval in shape, 220-250 in number, preovarian, scattered in middle region of the worm, unevenly distributed, not distributed in the posterior region of the worm, in 4-5 rows, from the base of neck to anterior region of the cirrus pouch and measure 0.0714 to 0.178 in length and 0.0892 to 0.160 in breadth. The cirrus pouch is medium size, oval in shape, antero posteriorly placed, preovarian, opens posteriorly, in the middle of the worm, curved and measure 0.982 in length and 0.320 to 0.178 in breadth. The cirrus is a thin tube, slightly curved, colied, contained within the cirrus pouch and measures 0.839 in length and 0.053 is breadth. The vas-deferens is

short, thin, slightly curved, extends anteriorly and measures 0.396 in length and 0.35 is breadth.

The ovary in medium in size, H-shaped in appearance, bilobed, lobes with irregular margin, due to the presence of numerous short, blunt, round acini, antero-posteriorly elongated, extends laterally upto the corticular region of worm and measure 0.410 in leangth and 1.028 in breadth. The lobes are connected by a wide, short, curved isthmus. The isthmus is short, a wide tube, which measure 0.482 in length and 0.125 in breadth. The vagina is a thin tube, starts from the genital pore, runs medially and posteriorly, slightly curved, extends posterior to the isthmus, reaches and opens into the ootype and measure 1.142 in length and 0.053 in width. The ootype is large in size, oval in shape, situated behind the isthmus of the ovary, slightly obliquely placed and measure 0.417 in length and 0.267 to 0.357 in breadth.

The genital pores are large in size, oval in shape, anterior to the uterine coils, in the middle region of the worm, opens in the middle of the same and measure 0.071 in length and 0.035 to 0.053 in breadth.

The vitelline follicles are small in size, oval in shape, in one to two rows, on each lateral side, lateral to the testes, in corticular region and measure 0.035 to 0.089 in length and 0.035 to 0.053 in width.

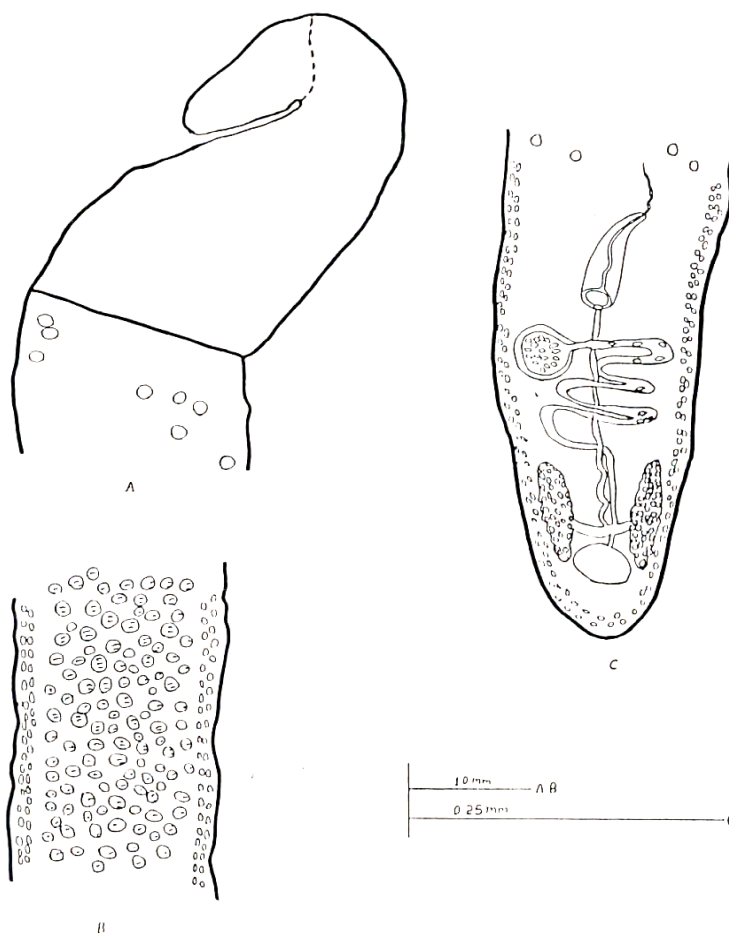
The uterus is tubular, a wide, transverse, convoluted tube, coiled, loope-shaped, pre-ovarian, starts from the ootype' narrow proximally, wider distally, crosses and extends anterior to the isthmus, coils arranged in the pre-ovarian region, opens separately by an uterine pore and measure 5.801 in length and 0.053 to 0.089 in breadth. The uterine pore is large in size, oval in shape, double walled, preovarian and measure 0.353 in length and 0.535 to 0.514 in breadth.

RESULTS AND DISCUSSIONS

The Genus *Lytocestus* was established by Cohn in 1908, as *L. adhaerens* from *Clarias fuscus* at Hong-Kong. Later on the following species are added to this genus.

1. *L. filiformis* wooland, 1923 in *Morlmsruscaschive, Egyptian Sudan*.
2. *L. indicus* Moghe, 1925 in *clarias betrachus Nagpur, India*.

3. *L. Alttestesi* Lynsdale, 1956 in *Alestes inurse* Sudan.
4. *L. birmaicus* Lynsdale, 1956 in *clarias batrachus*, Burma.
5. *L. javanicus* (Bovian, 1926) Mackiewicz, 1972.
6. *L. parvulus* (Furtado 1963) Mackiewicz, 1972.
7. *L. logicollis* remade, 1973 in *Clarias batrachus*, India.
8. *L. marathwadaensis* shinde and phad, 1988 in *clarias batrachus*, India.



A. Anterior region

B. Middle region

C. Posterior region

The worm under discussion is having head spatulate, narrow at apex, broad at base; nape medium, narrow anteriorly, wide posteriorly, testes 220-250, large, pre-ovarian, in the central medulla; cirrus pouch medium, oval, placed antero-posteriorly, in middle of the worm; cirrus thin, slightly curved, vas- deference short, thin; ovary medium, 'H' shaped in appearance, with numerous short, round acini, in cortical region of the worm, with short isthmus; vagina a thin tube, runs medially; ootype large, oval; seminal receptaculum absent, genital pore large, oval; seminal receptadulum absent, genital pore large, oval, anterior to uterine coil, in middle reason of the worm; uterus tubular, wide,

convoluted, loop-shaped and vitellaria follicular, small on each lateral side, in 1-2 rows.

After going through the literature, the worm under discussion in having testes 220-250 in number (numerous) come closer to *L. filiformis*, *L. indicus* and *L. longicollis*.

The present cestode, differs from *L. filliformis* which is having testes numerous round, in the central medulla; cirrus pouch small, bent between the oval concavity of ovarian lobes, ovarysmall, each lobe with 6-11 spearate, large follicles, with big spindle shaped isthmus; vagina short, wide, a thick tube; uterus with small and large convolutions, open by uterine pore; vitellaria

numerous, large, rounded, all around the testicular zone, in medullary parenchyma.

The present tape-worm, difference from *L. indicus* which is having body length 27.0-40.0 and width 0.3-0.5, testes 230-270, round, 0.17-0.19 in diameter extending upto cirrus sac and some extend lateral to cirrus sac; vas-deferens followed by a ductus ejaculatorius, ovary with numerous follicles, connected with pipe shaped isthmus; ootype round, posterior to ovarian follicles; wall of the uterus thick and coiled and vitellaria pre-ovarian, cortical, rounded and 0.13-0.19 in diameter.

The present cestode, difference from *L. longicollis* which is having 10.8-20.0 length, 0.50-0.84 width, neck 5.3-7.6, testes 105-140, in two layers, spherical, broad; vas-deferens much convoluted, ovary cortical, with closely packed follicles; receptaculum seminalis oval, slightly anterior to isthmus and vitellaria large, all around the testes, extending from the base of the neck to the anterior tip of the ovary.

The distinct and differentiating characters, as noted above, justify the recognition of the present worm, as a new species and hence the name *Lytocystus paithanensis* n. sp. is proposed after the locality.

Type species - *Lytocystus paithanensis* n. sp.

Host - *Clarias batrachus*.

Habitat - Intestine.

Locality - Paithan, Dist. Aurangabad, Maharashtra state, India.

Conflicts of interest: The authors stated that no conflicts of interest.

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