



**LYTOCESTUS GODAVARIENSIS N.SP. FROM FRESHWATER FISH
CLARIAS BATRACHUS FROM GODAVARI RIVER AT
PRAVARASANGAM, TALUKA NEWASA, DISTRICT
AHMEDNAGAR, M.S.**

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Abstract:

The present study deals survey of cestode parasites from fresh water fishes like *Clarius batrachus* from Godavari river at Pravarasangam in district Ahmednagar during January 2012 to December 2012. The present communication deals with the new species *godavariensis* from the genus *Lytocestus* is worm having head long. Testes numerous (400-500) in numbers. Cirrus pouch small, oval, pre-ovarian, transversally placed, cirrus straight thin, vagina long, coiled tube, vas deferens short, thin. Genital pores small, oval, obliquely placed. Ootype is small and oval. Ovary bilobed, on posterior side, each lobe contains 24-26 ovarian follicles, two lobes connected to each other by isthmus. Uterus wide convoluted tube filled with numerous eggs. Uterine pore is median and rounded. Eggs are operculated, oval in shape. Vitellaria are granular and cortical in position.

Keywords: *Lytocestus*, *Clarius batrachus*, Godavari River.

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. filiformes* Woodland (1923) in *Mormynus caschive* Egyption Sudan *L. calmersius* (Woodland, 1924), *L. cunningtoni* Fuhrmann and Bear (1925) and *L. indicus* Moghe (1925) (syn. *Caryophyllaeceus indicus*) from *Clarias batracus* in India. The same species was recorded by Mehra (1930) from *Clarias magur* and Ramdevi (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. filiformes* and *L. indicus*. He put the species *L. cunningtoni* and *L. calmersius* in the genus. *Monobothrioides*. Subsequent work of 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 family, Wardle, McLeod and Radinovsky (1974) suggested a new system of classification of cestodes, who used the term cotyloda as a class and order caryophyllidae is kept in this class MACKIEWICZ (1972) INCLUDED THE SPECIES *L. javanicus* (Bovien, 1926), Fartado (1963), Lynsdale (1950) considered *L. alestes* as syn. Of *L. barmanicus*, Lynsdale (1956), but Mackiewicz (1962) after examination of original

material *L. alestes* Lynsdale (1956) concluded that it should be considered as synonym of *L. filiformis* Woodland (1923), Ramdevi (1973) described *L. longicollis* from *Clarias batrachus* in India.

Later on Shinde and Phad erected *L. marathwadensis* from *Clarias batrachus* in (1988). Jadhav and Gavhane added *L. alli* as well as *L. clariasae* in *Clarias batrachus* (1991) from India. *L. naldurgensis* erected by Kadam, Hiware and Jadhav (1991) in *Clarias batrachus*. *L. teranaensis* was erected in 1999 by Kolpuke and Shinde in *Wallago attu*. Recently *L. caryophyllid* was added by D.N. Patil and B.V. Jadhav (Dec. 2002) in the host *Clarias batrachus*. Later in 2002 Shinde and Pawar added *L. batrachusae*. Later in 2004, *L. shindei* was erected by Khadap, Jadhav and Suryavanshi. Tandom et. Al. in 2005 erected four new species *L. clariae*, *L. allenuateus*, *L. assamensis* in *Clarias batrachus* and *L. heteropneustii* in *Heteropneustes fossilis*. Later on no species is added to this genus.

Materials and Methods

The present study deals survey of cestode parasites from fresh water fishes like *Clarias batrachus* from Godavari River at Pravarasangam in district Ahmednagar during January 2012 to December 2012 and brought in to laboratory. The worms were flattened, preserved in 4% formalin, stained with Harris hematoxyline, passed through various alcoholic grades, cleared in xylol, mounted in D.P.X. All

drawing was drawn to scale with the aid of camera lucida and wholemount slides were prepared for anatomical and morphological studies. All measurements are in millimeter.

Description

Three hundred and eleven specimens of the cestode parasites were collected from the intestine of *Clarias batrachus* (Linneus, 1758) at Pravarasngam, Tal Newasa, Dist. Ahmednagar, M.S. India, during the period of Jan 2012 to Dec. 2012. Out of these fifteen were stained for taxonomical studies.

The mature, flattened specimens are long and measures 124. 100-24.230mm in length and 2.100 to 4.200mm in weadth. The head is long, well marked off from the body and measures 3.116(2.385-3.847) in length and 1.999(0.727-2.271) in width. The testes are numerous (400-500) in numbers, pre-ovarian, placed centrally, evenly distributed, round to oval in shape, small in size and measures 0.151(0.121-0.182) in length and 0.103(0.091-0.114) in width.

The cirrus pouch is small, oval pre-ovarian, transversely placed and measures 0.121 (0.114-0.129) in length and 0.019 (0.015-0.023) in width. The cirrus is straight, thin and measures 0.057 (0.053-0.060) in length and 0.012(0.005-0.015) in width. Vagina is a long, coiled tube, starts from genital pores and runs posteriorly in the body, measures 0.084(0.076-0.098) in length and 0.012(0.005-0.015) in width. The vas deferens is short, thin and measures 0.055(0.053-0.058) in length and 0.075(0.005-0.01) in width. Ootype is small, oval, situated in between the ovarian lobes and measures 0.0141(0.114-0.167) in length and 0.121(0.098-0.144) in width.

Ovary is bilobed, present at the posterior region of the body. Each lobe measures 0.352(0.228-0.477) in length and 0.364(0.265-0.462) in width. Each lobe contains 24-26 ovarian follicles. The two lobes are connected to each other by isthmus which measures 0.065(0.048-0.082) in length and 0.378(0.364-0.388) in width. Uterus is wide, convoluted tube, widens and filled with numerous eggs open separately outside the body by uterine pore and measures 0.167(0.159-0.174) in length and 0.034(0.023-0.045) in width. Uterine pore is medium, rounded and measures 0.038 in diameter. The eggs are operculated oval in shape and measures 0.181(0.172-0.191) in length and 0.220(0.210-0.230) in width. Vitellaria are granular and corticular in position.

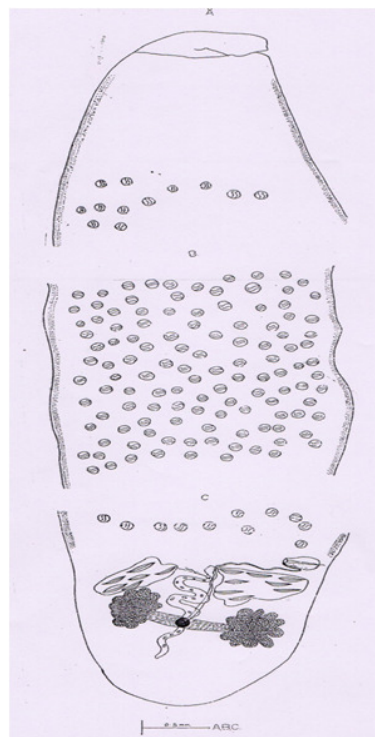


Fig: *Lytocestus godavariensis* n.sp. A: Anterior region, B: Middle region, C: Posterior region

Discussion

The present worm has head long, well marked off from the body. Testes numerous (400-500) in numbers, per-ovarian, placed centrally, evenly distributed, oval in shape. Cirrus pouch small, oval, pre-ovarian, transversally placed, cirrus straight thin, vagina long, coiled tube, vas deferens short, thin. Genital pores small, oval, obliquely placed. Ootype is small, oval situated between ovarian lobes. Ovary bilobed, on posterior side, each lobe contains 24-26 ovarian follicles, two lobes connected to each other by isthmus. Uterus wide convoluted tube filled with numerous eggs. Uterine pore is median and rounded. Eggs are operculated, oval in shape. Vitellaria are granular and corticular in position.

The present worm differs from *L. indicus* which is having length of the body 27 to 40 and width of the same 0.30 to 0.50, testes 230-270 in numbers, round in shape, extends up to the cirrus pouch region, vas deferens followed by ductus ejaculates, ovary with numerous follicles connected by bagpipe shaped isthmus, the wall of uterus is thick, coiled and vitellaria follicular, in 2-3 rows on each side. The present cestode differs from *L. filiformis*, Woodland, 1923 testes is numerous, large rounded in central medulla, ovary bilobed, small containing 6-11 large follicles connected by spindle shaped

isthmus near posterior margin, vitellaria, follicular, arranged all along testicular and medullary parenchyma, uterus convoluted, tubular pre-ovarian opens by uterine pore anterior to cirrus pouch. The present worm differs from *L. indicus*, Moghe, 1925 *Clarias batrachus*, India. In testes 230-270, rounded up to cirrus sac. Some are at lateral side, ovary with numerous follicles connected by big pipe shaped isthmus. Vitellaria small, corticular, rounded in 2-3 round on each lateral side. The parasite differs from *L. alestei*, Lynsdale, 1956 in testes more or less spherical ovary is bilobed to the posterior side of the body. Vitellaria extend from short distance behind most anterior. Testes upto the anterior tip of the body. The present parasite differs from *L. biramanicus*, Lynsdale, 1956, in testes medullary, extend up to genital pores. Ovary wing like with numerous follicles. Uterus consist of number of loose cells, the most anterior loop reaching the space between the two genital openings, vitellaria up to the utero-vaginal pore. The present cestode differs from *L. longicollis*, Ramdevi, 1973 which is having the length 10.8-20.0 and width 0.50-0.84, neck long 5.3-5.6, testes 105-140 in numbers, spherical, broadly oval in shape, cirrus pouch oval in shape, vas deferens much convoluted, ovary 'H' shaped and vitellaria corticular, large, all around, testes extending from the base of the neck to the anterior tip of the ovary, in 1-2 rows on each lateral side. The present worm differs from *L. fossilis*, Singh, 1975 in having sucker stumpy neck long, testes numerous, cirrus pouch oval, ovary follicular 'H' shaped, vagina and seminal receptaculum absent, uterus completely coiled, uterine coils behind ovarian isthmus. Extension or vitellaria up to posterior end of body. The present parasite differs from *L. marathwadensis*, Shinde and Phad, 1988 in arranged in 2 or 3 rows; cirrus pouch large, ovary 'H' shaped, vitellaria small and oval, single row on lateral side, uterus secular. The present worm differs from *L. alii*, Jadhav and Gavhane, 1991 in scolex bluntly rounded, cirrus coiled, number of testes 460-480, uterus convoluted tube. The present wall differs from *L. clariasae*, jadhav and Gavhane, 1991 in scolex bluntly rounded, ovary bilobed like bunch of grapes, number of testes 700-750. The present tapeworm differs from *L. naldurgensis*, Kadam, Hiware and Jadhav et al., 1991 in scolex conical, blunt spatulate, neck short, testes 500-600 in number, scattered in medullary region, cirrus pouch small, oval, vertical and obliquely placed, ovary bilobed, butterfly shaped, vagina

wide tube, uterus wide tube, convoluted, vitellaria follicular, smaller in 3-4 rows. The present worm differs from *L. teranaensis*, Kolpuke and Shinde, 1999 in testes numerous, round about, 1200-1500, pre-ovarian. Ovary bilobed, large, each lobe triangular. The present worm differs from *L. caryophyllid*, Patil and Jadhav, 2002 in head long well marked off from body. Testes numerous, 1425-1475 in numbers, pre-ovarian, evenly distributed, scattered in single field, small oval. Cirrus sac small, oval, pre-ovarian, obliquely placed and ovary bilobed, butterfly shaped, vagina long coiled. Uterus wide, convoluted, transversly situated, filled with eggs. The present cestode differs from *L. batrachusae* in head spatulate, neck long, wide, gonads situated in the posterior region or the worm, testes medium, round pre-ovarian 3800-4000 in numbers, cirrus pouch large ablong, pre-ovarian, ovary bilobed, butterfly shaped, lobes with irregular margins, vagina wide tube, runs medially, ootype medium, oval, runs posterior to isthmus; genital pores small, oval, central in position, vitellaria small, oval arranged in two rows. The present parasite differs from *L. shindei*, Khadp, Jadhav and Suryavanshi, 2004 in testes about 350-360, ovary bilobed, butterfly shaped near posterior region, uterus wide, convoluted tube transversly situated, filled with numerous eggs, vitellaria granular and corticular. The present worm differs from *L. nagapurensis*, Shinde et al., 2004 in having spatulate scolex, neck short, broader than long, testes 1100-1150, oval, vas deferens medium, thin, coiled, cirrus pouch medium, ovary bilobed with numerous oval follicles, connected by isthmus, vagina long, thin tube. The present worm differs from *L. clariae*, Tandon, 2005 in testes oval about 270-495 in numbers, ovary bilobed 'H' shaped and vitelline follicles ovoid, pre-ovarian in two rows. The present parasite differs from *L. attenuates*, Tandon et al. 2005 in having testes 155-398, ovary bilobed and follicular inverted 'A' shaped. Vitellaria ovoid, pre-ovarian arranged in two rows. The present worm is differs from *L. assamensis*, Tandon et al., 2005 in testes large, about 266-565 in numbers, ovary bilobed, inverted 'A' shaped, vitelline follicles cortical. The present parasite differs from *L. heteropneustii*, Tandon et al., 2005 in testes ovoid, large about 235-340 in numbers, ovary bilobed, vitelline follicles ovoid, spherical, cortical in deposition.

The above noted characters are valid enough to accommodate these worms as a new species *Lytocestus godavariensis* n. sp. Named

after the well known river Godavari which is ganges of South india, from where the author collected the worm.

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