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ON A NEW SPECIES OF THE GENUS *LYTOCESTOIDES* BAYLIS, 1928 (CESTOIDEA : CARYOPHYLLIDEA : LYTOCESTIDAE) FROM A COBITID FISH, *LEPIDOCEPHALUS GUNTEA* (HAM.), FROM WEST BENGAL

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ABSTRACT

A new species of monozotic cestode, *Lytocestoides lepidocephali*, is described from a freshwater fish *Lepidocephalus guntea* (Hamilton) (family Cobitidae) examined at Garapota, 24-Parganas, West Bengal. It is distinguished from the type species, *Lytocestoides tanganyikae* Baylis, 1928 and other existing species on the basis of far less number, arrangement, disposition and much shorter extent of distribution of testes. *Lytocestoides aurangabadensis* var. *minor* Shinde, 1970 and *L. aurangabadensis* var. *Minuta* Shinde, 1970 are considered as synonyms of *L. aurangabadensis* Shinde, 1970.

INTRODUCTION

The genus *Lytocestoides* was established by Baylis (1928) and the type species, *Lytocestoides tanganyikae* Baylis, 1928 was described from "a fish (probably *Alestes* sp.)" from Kirando, Tanganyika lake, Tanganyika. Shinde (1970) described *L. aurangabadensis* from a cyprinid fish *Puntius collus* (=*Barbus collus*) from Godavari river at Paithan and added two varieties *L. aurangabadensis* var. *minor* and *L. aurangabadensis* var. *minuta* from *Puntius Collus* (=*Barbus collus*) and *Labeo calbasu* respectively. Shinde and Deshmukh (1975) further added one species, *L. paithanensis*, from a catfish *proeutropiichthys taakree* (Sykes) (=*Pseudeutropius taakree*) from the same locality. Mackiewicz (1981) personally examined the type specimens of *L. aurangabadensis* and *L. paithanensis*. He found that the two species were described from decomposed and compressed specimens, and therefore, he could not adequately determine their genus. Whatever the conclutions of Mackiewicz (1981) one thing is certain that if the above mentioned two species have testes in the postovarian zone they cannot belong to the genus *Lytocestoides* Baylis, 1928. It is suspected that they are postovarian set of vitelline follicles as is found in the genus *Lytocestoides*, and not testes. Kanth, Sinha and Srivastava (1983) presented the account of a new species, *Lytocestoides fossilis* in the 2nd. National Convention of Indian Helminthologists held in October, 1983 at

Bodh-Gaya, Gaya, Bihar, in the fish *Heteropneustes fossilis* and differentiated it from the type species, *L. tanganyikae* only. They did not compare their species with *L. aurangabadensis* and *L. paithanensis* probably due to unawareness of the reports on these two species. They (1984) however published the full details of the species later on.

All measurements are in millimeters. Diagrams have been made with the help of a camera lucida. The material on the basis of which this paper has been written is deposited with the Zoological Survey of India, Calcutta. The system of classification as followed by Mackiewicz (1972) has also been followed in this paper.

Systematic Account

Class : CESTOIDEA RUDOLPHI, 1808
Order : CARYOPHYLLIDEA VAN BENEDEN (in Carus, 1863)
Family : Lytocestidae Wardle and Mcleod, 1952
Genus : **Lytocestoides** Baylis, 1928

Lytocestoides lepidocephali n. sp.
(Fig. 1-4)

Host : *Lepidocephalus guntea* (Ham.), Loach, (Pisces : Cobitidae).

Location : Intestine

Locality : Garapota, 24-Parganas, West Bengal.

No. of specimens : 5 mature, 2 young adults plus fragments of broken specimens on 6 slides specimen deposited : Z. S. I. Regd. No. W 7548/1 to W 7552/1

Description

(With measurements on one mature and good specimen) : The body is 4.77 long and 0.72 broad. Scolex is usually globular, may be variable in shape, generally larger in diameter than the width of the area immediately behind it and thus distinguishable from the rest of the body. Its surface is smooth and free from wrinkles, longitudinal folds or depression. Neck present. From the tip of the scolex up to about 0.63 posteriorly no organ of reproductive system are present ;

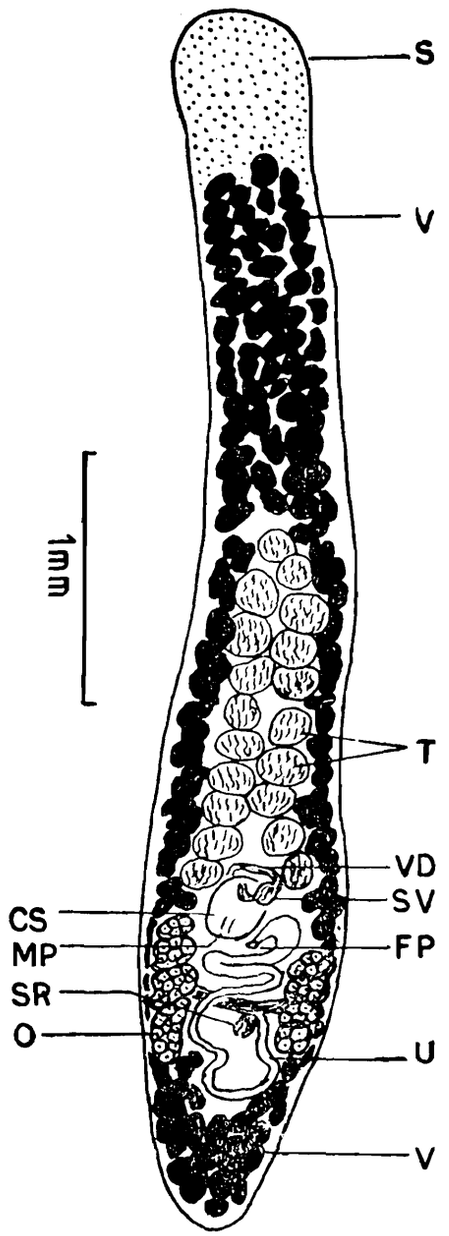

FIG. 1

Fig. 1. *Lytocestoides lepidocephali* n. sp. Holotype

beyond that upto the posterior end of the body extend vitellaria in the cortex surrounding the medullary testicular zone. It appears that initially the vitellaria are granular as is evident in the immature or young adult specimens, but later on, as the worm matures, the granules grow to form follicles. Testes 16-20, larger than vitelline follicles, disposed in two adjacent longitudinal rows in peripheral medulla one on either side of the median line extending from in front of the cirrus sac to almost middle of preovarian extent of vitellaria, follicles measuring 0.14-0.19 in diameter. In compressed specimens the longitudinal rows of testes are disturbed. Vas deferens immediately post testicular, coiled. Seminal vesicle not formed. Cirrus sac large, globular or oval, muscular, median, or submedian, opening by male pore at level of anterior margin of ovary. Genital atrium not clearly seen. Ovary in posterior part of body, distinctly H-shaped with two follicular lobes in the peripheral medullary region connected by an isthmus. The ovarian lobes measure 0.38-0.45 by 0.23-0.27, distance of bigger lobe from the posterior end being 0.81. Seminal receptacle formed in proximal part of vagina behind isthmus. Uterus long coiled, containing many eggs, decends into postovarian region and then ascends into the preovarian region. Vaginal course not clearly seen. Female genital pore opening posterior to the male pore. Post ovarian set of vitelline follicles present and are continuous with the preovarian set laterally in the ovarian zone. Eggs oval, measuring 0.04-0.05 × 0.02-0.03.

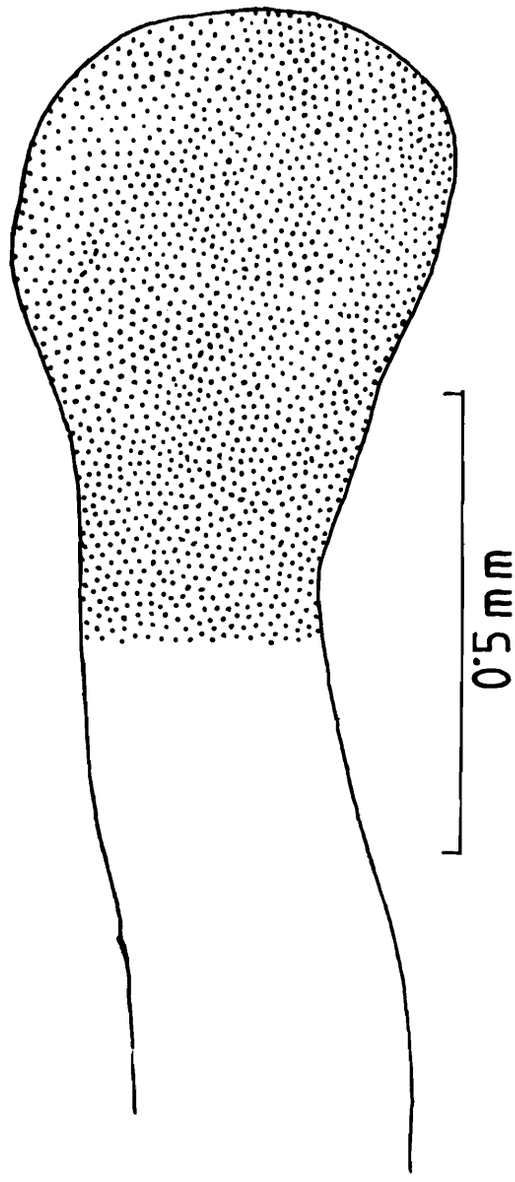

FIG. 2

Fig. 2. *Lytocestoides lepidocephali*, paratype, Scolex

DISCUSSION

As stated under introduction, Mackiewicz (1981) checked the type specimens of *Lytocestoides aurangabadensis* Shinde, 1970 and its two varities *minor* and *minuta* as well as *L. paithanensis* Shinde and *Deshmukh*, 1975. He could not adequately determine their genus due to the decomposed and compressed condition of their specimens. Moreover, if at all, a post-ovarian set of testes is present in *L. aurangabadensis* and *L. paithanensis*, they should belong to the

genus yet to be proposed. It seems that vitellaria in them are follicular and not granular as originally described, the follicles receiving the same intensity of stain as the testicular follicles.

Lytocestoides tanganyika Baylis, 1928 was described from material which was "in very indifferent condition, owing, apparently, to maceration". This explains why this form is inadequately known so far as the musculature, nervous system, seminal vesicle definite shape and structure of the ovary and the course of the vagina are concerned. The formation of a so-called constriction producing a fan-shaped appearance of the posterior end of the body in *L. aurangabadensis* and its two varieties *minor* and *minuta* and the shipping in of the follicles of testes into the region of scolex in *L. aurangabadensis* var. *minor* indicate that their specimens were overpressed during processing. The varieties *minor* and *minuta* of *L. aurangabadensis* have been compared and differentiated from the species proper on the basis of characters which either developed due to overpressing or they are characters of insignificance. Therefore, they should be regarded as synonyms of the species proper *L. aurangabadensis*. The appearance of longitudinal grooves or furrows on the scolex, and a constriction at some level of the body of the worm are not the characters of significance. They may or may not appear when treated with the fixature. These so-called characters should not be utilized for differentiating species. *L. aurangabadensis* Shinde, 1970 and *L. paithanensis* Shinde and Deshmukh, 1975 differ from *L. tanganyikae* mainly in the egg size, presuming of course, that the former two species have posttesticular vitellarian follicles instead of testicular follicles.

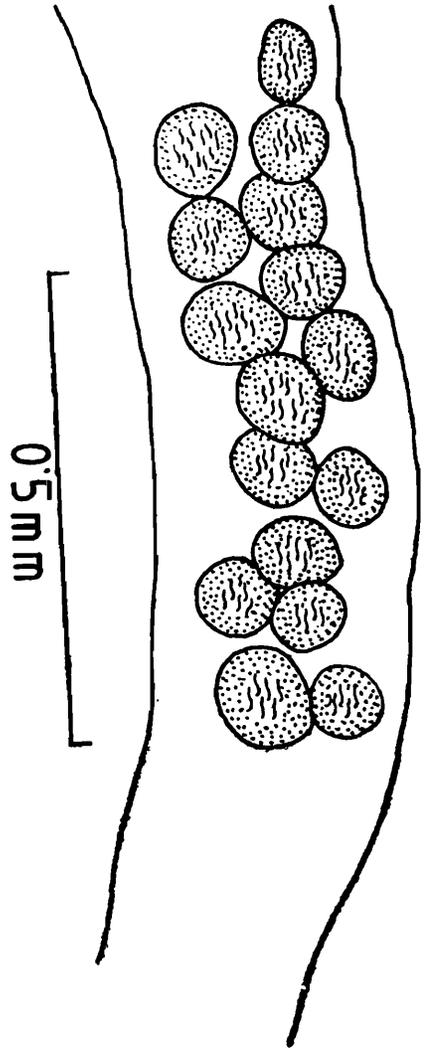

FIG. 3

Fig. 3. *L. lepidocephali*, paratype showing 16 testes

Thus, *Lytocestoides* has *L. aurangabadensis*, *L. paithanensis* and *L. fossilis* Kanth *et al.* besides the type species *L. tanganyika*. The present new species, *Lytocestoides lepidocephali* mainly differs from them in the (i) far less number, (ii) arrangement and (iii) extent of distribution of testes. It differs from the type species in the amaller size of the eggs also (in *L. tanganyika* the eggs are 0.11×0.08).

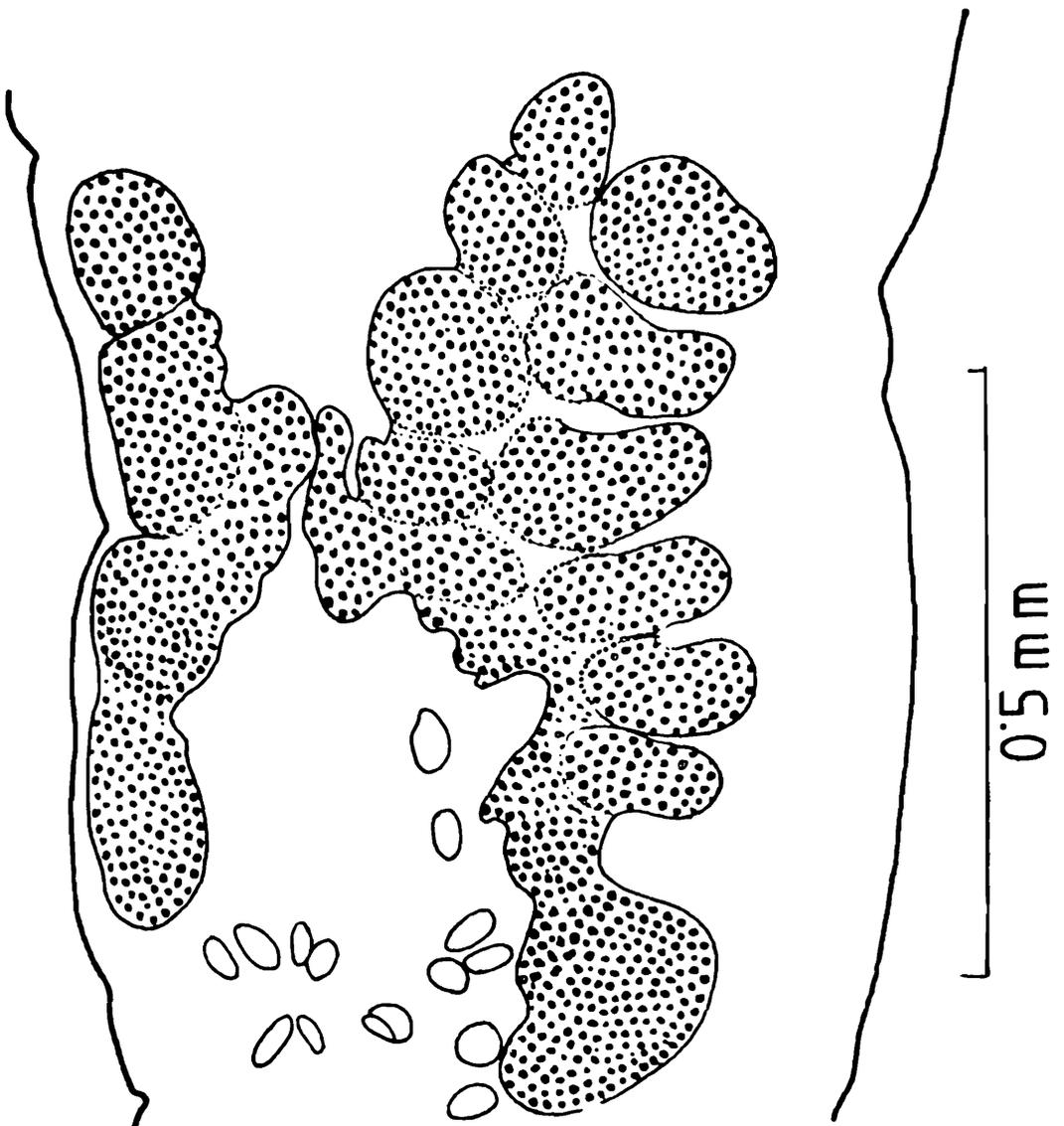

FIG. 4

Fig. 4. *L. lepidocephali*, paratype showing follicular ovary

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ABBREVIATIONS

CS=Cirrus sac FP=Female pore ; MR=Male pore ; O=Ovary ; S=Scolex ; SR=Seminal receptacle ; SV=Seminal Vesicle ; T=Testes ; U=Uterus ; V=Vitellaria ; VD=Vas deferens