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A tapeworm of the genus from fresh water fish Mastacembelus armatus from Moreh, Manipur, India

R.Khatun
Assistant Professor
Department of Life Sciences, Tezpur University,
Tezpur, India

Abstract

The present paper deals with a new Ptychobothridean tapeworm from the intestine of freshwater fish, Mastacembelus armatus Lacepede, 1800 from Moreh, a border- town of Manipur, India, collected during September - November 2016. The present form differs from all known species of the genus Circumoncobothrium in many characters, as in shape of scolex, shape and size of bothridia, number and size of testes, size and position of ovary and arrangement of vitellaria. Detailed are described under with figures.

Keywords:- 1.Circumoncobothrium, 2.Manipur, 3.Mastacembelus armatus, 4.Moreh, 5.Ptychobothridean tapeworm.

Introduction

The genus Circumoncobothrium was erected by Shinde in 1968 as a type species C. ophiocephali from ophiocephaluseuo punctatus. Since 1968 more than 30 species are added to this genus by the various workers and recently in 2017 Fartade and Chati added C. govindii from Channa marulius, I.V. Shaikh added C. jafrabadensis from Mastacembelus armatus and in 2018 A. D. Lakhe added C. devidasensis from Mastacembelus armatus. The present work was taken up to investigate the unexplored diverse parasites from Mastacembelus armatus (spiny eel) from border- town of Manipur.

Materials and methods

The cestodes were collected from the intestine of Mastacembelus armatus and kept in 0.7% normal saline, then fixed in AFA (Alcohol-Formaline-Acetate) and dehydrated in Glycerine Alcohol at room temperature. Bulluoy's Aceto – alum carmine is used for staining followed by ascending series of alcohol grades for dehydration. Then the specimens are cleared in xylene and mount in D.P.X. Photomicrographs were taken with Nikon Stereo-zoom microscope model no. SMZ1270. All measurements are given in millimetres unless otherwise stated. Other type specimens have been deposited in the Museum of Parasitology Section, Department of Life Sciences, Manipur University and few paratypes will be deposited in the Zoological Survey of India, Kolkata.

Description

The present tapeworm is long, consisting of scolex, immature, mature and gravid segments.

The scolex is distinctly marked off from the body, triangular in structure and measures 1.31 in length and 0.78 in breadth. It bears two bothridia that are tubular, elongated, starts from rostellum, extend up to the posterior margin of scolex and measures 1.08 and 1.16 in length. Rostellum bears 52 hooks arranged in two rows with dimension 0.03-0.05 length and 0.01width.

The neck is short and breadth is twice its length and measures 0.26 in length and 0.45 in width. The gravid segments are six to ten times broader than long, rectangular with slightly convex lateral margins and measures 0.30- 0.52 in length and 2.85- 3.37 breadth.

Testes are small oval, 135-160 in number, arranged on both lateral sides of ovary and covers almost entire segment and measures 0.05- 0.94 in length and 0.03-0.04 in width. Cirrus pouch is small in size, cylindrical to upper case omega shaped, transversely placed, pre-ovarian in position and measures 0.11-0.14 in length and 0.05 in breadth.

Ovary is bilobed, dumbbell shaped with isthmus and measures 0.29- 0.48 in length and 0.08 0.11 in breadth. Fully gravid segment consist of sacular uterus, transversely placed at one side of the segment which contain numerous eggs, near anterior margin and measures 0.54-0.69 in length and 0.19- 0.29 in breadth. Eggs are oval, small, operculated and measures 0.03-0.04 in length 0.02-0.03 in breadth.

The vitellaria are follicular, arranged in two to three rows along the lateral margin of the segment. Excretory system not seen in the lateral side. However, there are three tubular structure seen projecting downward in the last segment, probably for excretion.

Results

After deatailed analysis of the present tapeworm, it can be concluded that, the specimen, here, can be identified as a new species of the genus Circumoncobothrium Shinde, 1968 (Pseudophyllidae: Ptychobothridea).

Discussion

The present specimen is fairly large in size, scolex triangular and distinctly marked off from body, with two large size bothria, extending upto posterior margin of scolex, rostellum with 52 hooks arranged in two rows, neck short, mature segment six times broader than long, 135- 160 testes, ovary bilobed.

The genus Circumoncobothrium was erected by Shinde in 1968 as a type species C. ophiocephali from ophiocephaluseuo punctatus. The present specimen comes closer to the already known species under the genus Circumoncobothrium viz., C. purnae, C. thapari, C. hemlatae and C. jafrabadensis in the general morphological features but at the same times shows variations in the numbers of testes, hooks, etc.

The present specimen resembles Circumoncobothrium purnae Borde S. N. and Sushil Jawale, (2008) in having triangular scolex and 52 rostellar hooks and bilobed ovary but differs from the same in the absence of neck, number of testes i.e. 230-235, 3-4 rows of vitellaria arrangement and the size of the mature segments.

The present specimen resembles Circumoncobothrium thapari Menkudale and Jawale, (2010) in having triangular scolex and 52 rostellar hooks, 2-3 rows of vitellaria arrangement but differs from the same in having 95 testes, absence of neck and size of the mature segments.

The present specimen resembles C. hemlatae Yogesh Reddy et al.,(2011) in having triangular scolex, bilobed ovary but differs from the same in the number of rostellar hooks i.e. 54, mature proglottids 12-13 times broder than long, 200- 225 testes.

The present specimen resembles C. jafrabadensis I. V. Shaikh, (2017) in having triangular scolex, ovary bilobed, post- equatorial, vitellaria follicular, gravid segment six- seven times broader than long, eggs operculated but differs from the same in truncated rostellum with 44 hooks arranged in four quadrants, testes 140- 150 arranged in two lateral fields, vitellaria arranged in 2-4 rows.

In view of the above differences, it is justify to recognise this specimen as a new species to the genus Circumoncobothrium. Hence, the name Circumoncobothrium morehnus sp. nov. is proposed, based on the site of collection from where it has been recovered i. e. 'Moreh'.

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