

**A new tapeworm, *Circumonchobothrium (Postovilata) betwaensis* n. subg., n.sp. (Cestoda : Pseudophyllidea ) from freshwater fish in India**

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### ABSTRACT

The author in the present work divided the genus *Circumonchobothrium* of the family Ptychobothriidae into two new subgenera on the basis of vitellaria Viz. *Circumonchobothrium (Circumonchobothrium)* n. subg. and *Circumonchobothrium (Postovilata)* n. subg. The present new subgenus and its type species *Circumonchobothrium (Postovilata) betwaensis* n. subg., n. sp. is reported first time.

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KEY WORDS: *Circumonchobothrium betwaensis*, Jhansi, *Mastacembelus armatus*, Pseudophyllidea, Ptychobothriidae, Single postovarian vitelline gland.

### Introduction

Ptychobothriidae<sup>1</sup> is a well known family of the tapeworms belongs to the order Pseudophyllidea. In the year 1968 an Indian helminthologist included the genus, *Circumonchobothrium*<sup>2</sup> in the family as a type species *C. ophiocephali*.

In the present investigation, from river Betwa in district Jhansi, Uttar Pradesh, India, two hundred forty freshwater fish, *Mastacembelus armatus* caught for the collection of tapeworms and five were found infected with eight alike cestodes in their intestines having Single, Postovarian vitelline gland. Morphological studies of the cestodes revealed them to belong to a new subgenus *Circumonchobothrium (Postovilata)* n. subg. of the genus *Circumonchobothrium* of the family Ptychobothriidae; order Pseudophyllidea.

### Material and Methods

The alimentary canal of the hosts were removed and cut open in normal saline water. The worms were stretched in lukewarm water and preserved in 5% formalin. Whole mounts were stained in Haemalum, cleared in Xylol and mounted in Canada balsam. Figures were drawn with the help of Camera Lucida. All the measurements have been given in millimeters unless otherwise stated.

### Observations

Large sized, segmented worms. Scolex with two sac like bothria. Rostellum bears a single, continuous circle of hooks. Neck present. Proglottids broader than long. Testes partly cortical and partly medullary, arranged

in two lateral fields, cirrus pouch weak. External and internal seminal vesicles absent. Ovary bilobed, medial and postequatorial. Receptaculum seminis present. Vitelline gland single, compact and postovarian. Genital atrium medial. Eggs oval to round and nonoperculate. Parasites of fresh water fishes.

### ***Circumonchobothrium (Postovilata) betwaensis* n. subg., n.sp.**

Cestodes large sized and segmented measure 90.0-220.0 X 1.3-1.5 (155.0 X 1.4). Scolex well developed measures 1.0-1.15 X 0.625-0.751 (1.075 X 0.688), narrow anteriorly and broad posteriorly. Bothria sac like measure 0.675-0.937 X 0.24-0.312 (0.806 X 0.276). Rostellum cap like measures 0.15-0.20 X 0.18-0.22 (0.175 X 0.2). Rostellar hooks 30-32 in number, present in a single complete circle and variable in size. Smaller rostellar hooks measure 0.027-0.036 (0.031) in length while larger 0.048-0.063 (0.055). Neck small measures 0.125-0.168 X 0.22-0.25 (0.146 X 0.235).

Proglottids broader than long. Immature proglottids craspedote while mature and gravid proglottids acraspedote. Immature proglottids measure 0.15-0.35 X 0.187- 0.375 (0.25 X 0.281). Mature proglottids measure 0.187-0.437 X 0.75-1.5 (0.312 X 1.125) and gravid proglottids measure 0.312-0.437 X 0.125-1.5 (0.374 X 1.375).

Testes partly cortical, partly medullary, 180-340 in number measure 0.022-0.052 X 0.025-0.05 (0.037 X 0.037), in two lateral fields which separate anteriorly but touches posteriorly. Cirrus pouch weakly developed measures 0.026-0.062 X 0.029-0.066 (0.044 X 0.047).

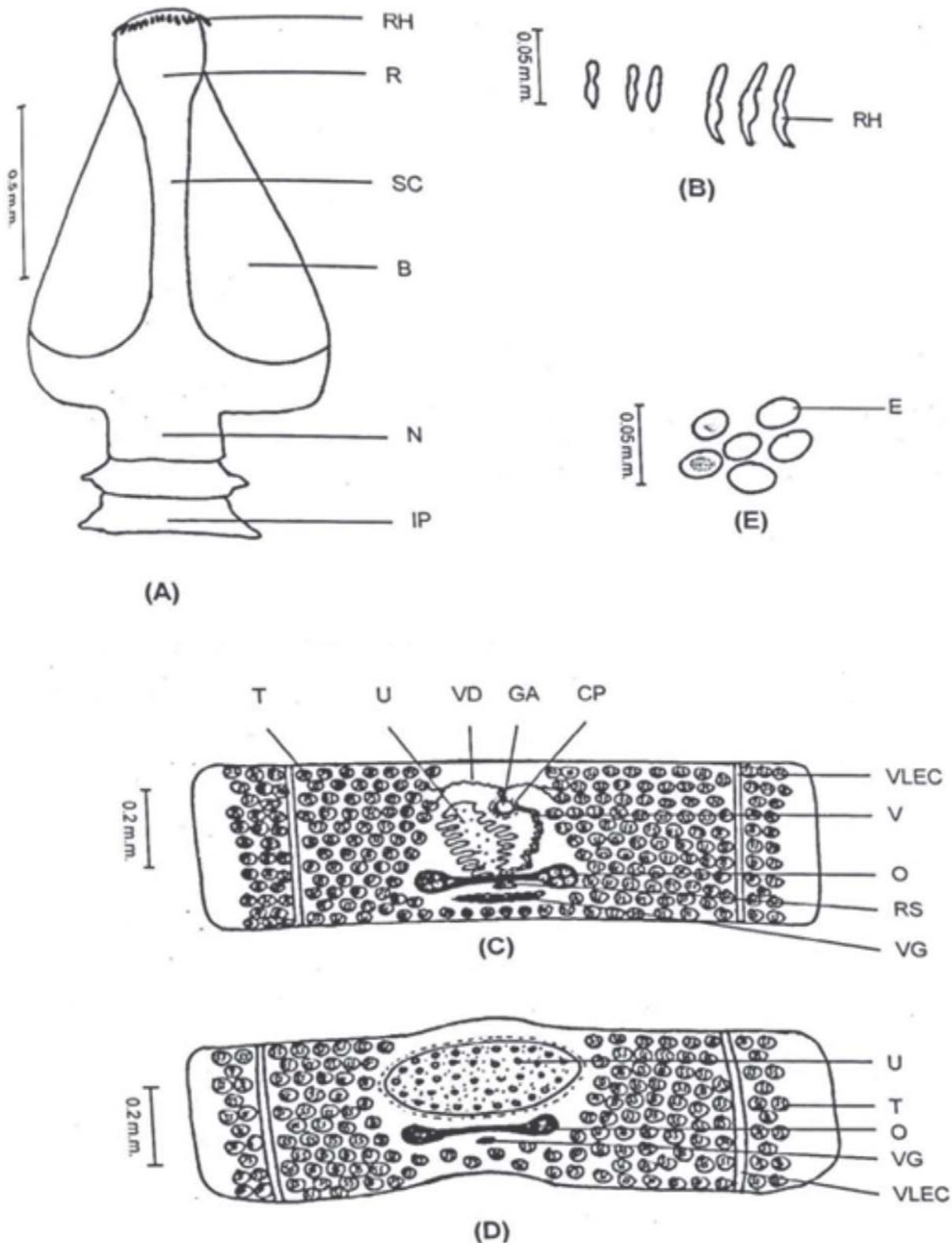


Fig.1: *Circumonchobothrium (Postovilata) betwaensis* n. subg., n.sp., A-Scolex with neck and immature proglottids (50X), B-Rostellar hooks (225X), C- Mature proglottids (50X), D-Gravid proglottids (50X), E-Eggs (225X)

Abbreviations: RH= Rostellar hooks, R= Rostellum, SC=Scolex, N=Neck, IP= Immature proglottid, E=Eggs, T=Testis, U=Uterus, VD= Vas deferens, GA= Genital atrium, CP= Cirrus pouch, VLEC= Ventral longitudinal excretory canal V=Vagina, O=Ovary, RS= Receptaculum seminis, VG= Vitelline gland.

**TABLE-1 : Differences between *Circumonchobothrium* and *Circumonchobothrium (Postovilata) n. subg.***

| S.No. | Characters      | <i>Circumonchobothrium</i>                 | <i>Circumonchobothrium (Postovilata) n. subg.</i> |
|-------|-----------------|--|---|
| 1.    | Bothria         | Shallow                                    | Sac- like   |
| 2.    | Neck            | Absent                                     | Present   |
| 3.    | Vitelline gland | In the form of numerous, lateral follicles | Single, Postovarian                               |

External and internal seminal vesicles absent.

Ovary bilobed, medial and postequatorial measures 0.06-0.125 X 0.20-0.525 (0.092 X 0.362). Vagina measures 0.006-0.015 (0.010) in diameter, opens laterally into genital atrium. Receptaculum seminis measures 0.009-0.016 X 0.036-0.06 (0.012 X 0.048).

Vitelline gland single, compact and postovarian measures 0.012 - 0.018 X 0.05-0.22 (0.015 X 0.135). Genital atrium medial measures 0.024 - 0.033 X 0.027-0.039 (0.028 X 0.033) in deep and wide respectively.

Uterus coiled in mature proglottids and sac like in gravid proglottids measures 0.187-0.3 X 0.162-0.425 (0.243 X 0.293).

Eggs oval to round and nonoperculate measure 0.018-0.033 X 0.021-0.039 (0.025 X 0.033). Ventral longitudinal excretory canals measure 0.011-0.025 (0.018) in diameter.

### Discussion

The present form comes closer to the genus *Circumonchobothrium*<sup>2</sup> of the family Ptychothriidae<sup>1</sup>.

The present form differs from *Circumonchobothrium* in having sac like bothria, presence of neck and single postovarian vitelline gland (Table-01).

Hence genus *Circumonchobothrium* is divided into two subgenera Viz. *Circumonchobothrium (Circumonchobothrium) n. subg.* and *circumonchobothrium (postovilata) n. subg.* on the basis of vitellaria.

In the light of above discussion the species *Circumonchobothrium (Postovilata) betwaensis n. subg., n. sp.* may be provisionally accommodated in the proposed new subgenus.

The name of the species is after the river from where the hosts were collected.

**Host** : *Mastacembelus armatus* (Lacepedes)

**Habitat** : Intestine

**Locality** : River Betwa, district Jhansi (U.P.) India

**Holotype** : Parasitological laboratory, Department of Zoology, Bipin Bihari College, Jhansi (U.P.) India.

### Key to the new subgenera of the genus *Circumonchobothrium* of the family Ptychothriidae; order Pseudophyllidea

1a. Vitellaria, numerous and lateral—————

—————*Circumonchobothrium (Circumonchobothrium) n. subg.*

1b. Vitelline gland, single and postovarian—————

—————*Circumonchobothrium (Postovilata) n. subg.*

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