

Study of a new tapeworm, *Probothriocephalus kuraraensis*, n.sp. From *Mastacembelus armatus*, from block Kurara district Hamirpur (U.P.) India

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ABSTRACT

Eight fishes, *Mastacembelus armatus* were examined from block Kurara, district Hamirpur (U.P.) India . Two alike cestodes were reported in its intestine. Scolex well developed with two sac like bothria. Apical disc armed with bothrial spines. Ovary bilobed, dumbell shaped with long isthmus.

Figure : 01 (A-E)

References : 07

Table : 01

KEY WORDS : Hamirpur, Kurara, *Mastacembelus armatus*, *Probothriocephalus*.

Introduction

Eight fishes, *Mastacembelus armatus* were examined from block Kurara district Hamirpur (U.P.) India. One of them yielded two alike cestodes in its intestine. Morphological studies of the cestodes revealed them to belong the genus, *Probothriocephalus* of the family Parabothriocephalidea of order Pseudophyllidea.

Materials and Methods

The hosts, *Mastacembelus armatus* were obtained from Kurara, Hamirpur (U.P.). Usual techniques for collection and preservation of the cestode were employed. Whole mount was stained in Mayer's Haemalum and cleared in xylol. Figures was drawn with camera lucida. All the measurements have been given in millimeters unless otherwise stated.

GENERIC DIAGNOSIS

Large sized, segmented worms Scolex well developed with two sac like bothria. Rostellum rounded and rostellar hooks present in single row. Neck absent, proglottids numerous in number, broader than long. Testes oval to round, medullary, as well cortical in double fields throughout the proglottids. Cirrus pouch marginal, oval, obliquely transverse. External and internal seminal vesicles absent. Ovary posteriorly located, bilobed, dumbell shaped with long isthmous in medullary region. Receptaculum seminis absent. Mehlis gland present. Vitelline follicles in two lateral bands in cortical region. Genital atrium deep and wide respectively. Uterus coiled and medial but later on sac like, pre-ovarian located in the middle of the proglottids. Uterus filled with numerous eggs. Eggs oval to round and operculate. Ventral longitudinal excretory canals presents. Parasites of fresh

water fishes.

Description

Cestodes large sized measure 69.12 - 90.27 X 1.25 - 1.50 (79.69 X 1.37). Scolex well developed, narrow anteriorly and broad posteriorly measure 0.67 - 0.92 X 0.39 - 0.60 (0.8 X 0.495). Bothria sac like measure 0.52 - 0.84 X 0.16 - 0.34 (0.68 X 0.25). Rostellum rounded measure 0.075 - 0.101 X 0.18 - 0.25 (0.088 X 0.21), rostellar hooks in single row with 20 - 22 in number measure 0.027 - 0.053 (0.04) in length. Neck absent.

Proglottids numerous in number, broader than long. Immature proglottids measure 0.062 - 0.12 X 0.27 - 0.42 (0.091 X 0.32), mature proglottids measure 0.15 - 0.31 X 0.90 - 1.2 (0.23 X 1.05) and gravid proglottids measure 0.32 — 0.45 X 1.19 - 1.35 (0.39 X 1.27).

Testes oval to round 150 - 200 in number in medullary as well as cortical region in double field throughout the proglottids measure 0.015 - 0.037 X 0.025 - 0.050 (0.021 X 0.044), cross the ventral longitudinal excretory canals. Cirrus pouch marginal, oval, obliquely transverse measure 0.029 - 0.0325 X 0.030 - 0.050 (0.307 X 0.040). External and internal seminal vesicles absent. Vas deferens measure 0.008 - 0.016 (0.012) in diameter. Vagina measure 0.009 - 0.015 (0.012).

Ovary posteriorly located bilobed, dumbell shaped with long isthmus in medullary region measure 0.045 - 0.068 X 0.24 - 0.31 (0.056 X 0.27). Receptaculum seminis absent. Mehlis glands measure 0.013 - 0.025 X 0.0375 - 0.048 (0.019 X 0.043). Vitelline follicles in two lateral bands in cortical region measure 0.012 - 0.036 X 0.015 - 0.0312 (0.0241 X 0.0231).

TABLE - 1 : Comparison of the present species from early reported species

S. No.	Characters	<i>Probothriocephalus muelleri</i> ²	<i>Probothriocephalus konchensis</i> ⁵	<i>Probothriocephaluspath akpurensis</i> ⁵	<i>Probothriocephalus kuraraensis</i> n. sp.	
01	Bothria	Shallow	Sac like	Sac like	Sac like	
02	Rostellum and rostellar hooks	Absent	Rostellar hooks in single row	Rostellar hooks in single row	Rostellar hooks in single row	
03	Shape of rostellum	-----	Cup shaped	Cup shaped	Round shaped	
04	Neck	Present	Present	Present	Absent	
05	Internal segmentation	Lacking	Well developed	Well developed	Well developed	
06	Proglottids	Immature	Not mentioned	0.18 - 0.27 X 0.47 - 0.57	0.10 - 0.24 X 0.43 - 0.85	0.062-0.12X 0.27-0.42
		Mature	Not mentioned	0.30 - 0.37 X 0.60 - 1.13	0.28 - 0.32 X 0.62 - 1.20	0.15 - 0.31 X 0.9-1.2
		Gravid	Not mentioned	0.31- 0.38 X 1.17- 1.40	0.32 - 0.34 X 1.23 - 1.40	0.32 - 0.45 X 1.19-1.35
07	Testes	Distribution	In single band in medullary region and never cross the ventral longitudinal excretory canal	In single band in medullary region and never cross the ventral longitudinal excretory canal	In four bands, partly cortical and partly medullary regions and cross the ventral longitudinal excretory canal	In two bands in medullary as well as cortical region and cross the ventral longitudinal excretory canal
		Number	Not mentioned	75-120	98-175	150-200
		Size	Not mentioned	0.017-0.028 X 0.028- 0.042	0.014-0.042 X 0.014-0.056	0.015-0.037 X 0.025-0.050
08	Cirrus pouch	Obliquely transverse	Elongated	Oval	Obliquely transverse	
09	External seminal vesicle	Absent	Present	Present	Absent	
10	Internal seminal vesicle	Absent	Present	Present	Absent	
11	Ovary	Not mentioned	0.056 - 0.084 X 0.27 - 0.46	0.042 - 0.084 X 0.20 - 0.40	0.045 - 0.068 X 0.24 - 0.31	
12	Vitelline follicles	Cortical	Cortical	Cortical	Cortical	
13	Receptaculumseminis	Not mentioned	Present	Present	Absent	
14	Mehlis gland	Absent	Present	Present	Present	
15	Uterus	Not mentioned	0.10 - 0.20 X 0.049 - 0.38	0.091 - 0.20 X 0.070 - 0.33	0.075 - 0.17 X 0.10 - 0.31	
16	Eggs	Not mentioned	0.016 - 0.025 X 0.037 - 0.05	0.021 - 0.028 X 0.056 - 0.077	0.015 - 0.04 X 0.018 - .046	

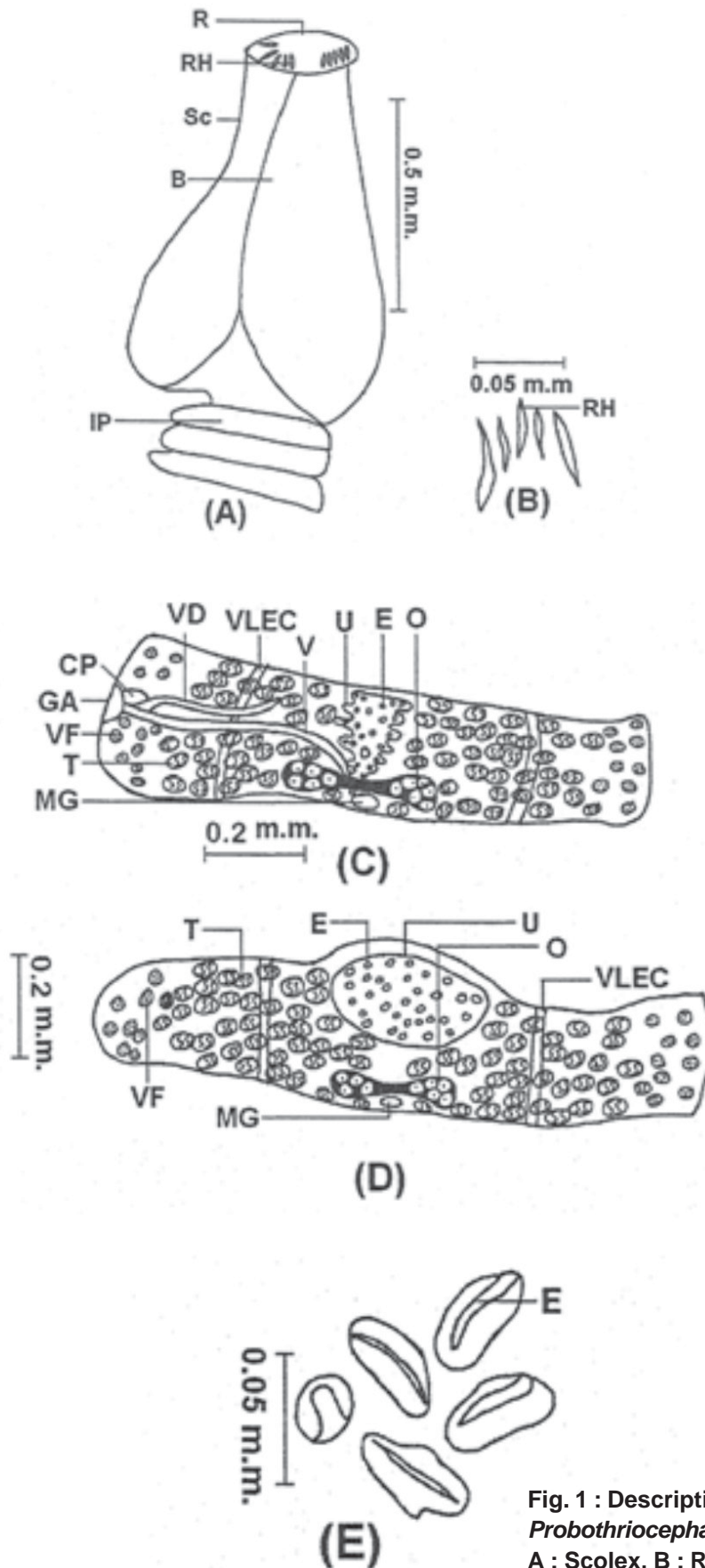


Fig. 1 : Description of *Probothriocephalus Kuraraensis* n.sp.
 A : Scolex, B : Rostellar hooks,
 C : Mature Proglottid,
 D : Gravid Proglottid, E : Eggs

Genital atrium, 0.056 - 0.075 X 0.016 - 0.035 (0.065 X 0.025), deep and wide respectively. Uterus coiled and medial measure 0.075 - 0.17 X 0.10 - 0.31 (0.12 X 0.20) but later on sac like preovarian located in the middle of the proglottids. Uterus filled with numerous eggs.

Eggs oval to round, operculate measure 0.015 - 0.04 X 0.018 - 0.026 (0.030 X 0.032). Ventral longitudinal excretory canals measure 0.015 - 0.029 (0.022) in diameter.

Discussion

The worm was basically compared with other known ones. It was very close to *Probothriocephalus muelleri*², *Probothriocephalus konchensis*⁵ and *Probothriocephalus pathalcpurensis*⁵. The present form differs from *Probothriocephalus muelleri*² in having sac-like bothria, prominent rounded rostellum with rostellar hooks in single row, absence of neck, well developed internal segmentation, testes in two bands, partly cortical and partly medullary regions and cross the ventral longitudinal excretory canals and presence of mehlis gland.

From *Probothriocephalus konchensis*⁵ it differs in having rounded rostellum, absence of neck, greater number of testes in two lateral bands which are partly cortical and partly medullar and cross the ventral longitudinal excretory canals, obliquely transverse cirrus

pouch, absence of external and internal seminal vesicles and absence of receptaculumseminis.

From *Probothriocephalus pathakpurensis*⁵ it differs in having rounded rostellum, absence of neck, greater number of testes in two bands, obliquely transverse cirrus pouch, absence of external and internal seminal vesicles and absence of receptaculumseminis.

In the light of above discussion the present form may be provisionally accommodated as *Probothriocephalus kuraraensis* n.sp.

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

Type species : *Probothriocephalus kuraraensis* n.sp.

Host : *Mastacembelus armatus*

Habitat : Intestine

Locality : Block-Kurara, District- Hamirpur (U.P.), India

Number of specimen: 02

Date of collection: 21 April 2008

Accession number : BBCZD/RS/1504 - 1505

Deposition : Parasitological Laboratory,
Department of Zoology,
Bipin Bihari (P.G.) College,
Jhansi (U.P.) India

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