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Study of a piscian cestode, *Probothriocephalus pathakpuraensis*, n.sp. from *Mastacembelus armatus* from Pathakpura Orai, district Jalaun (U.P.) India

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ABSTRACT

Twenty five fishes, *Mastacembelus armatus* were examined at Pathakpura, Orai, district Jalaun (U.P.) India. Seven alike cestodes were reported in it's intestine. After morphological study of the worm we reached on the conclusion that present species differs from all known species of genus *Probothriocephalus* in the presence of internal and external seminal vesicles, testes in four bands located in partly cortical and partly medullary regions which cross the ventral longitudinal excretory canals and prominent mehlis gland.

Figures : 06 References : 08 Table : 01
KEY WORDS : *Mastacembllus armatus,* Orai, Pathakpura, *Probothriocephalus*

Introduction

During the course of investigation of piscian tape worm, twenty five fishes, *Mastacembelus armatus* were examined from Pathakpura, Orai, district Jalaun (U.P.) . Four of them harboured seven cestodes in their intestines. Morphological studies of the cestode revealed to belong to a new species of the genus *Probothriocephalus* of the family Parabothriocephalidea of order Pseudophyllidea.

Materials and Methods

The alimentary canal of the host was removed and cut open in normal saline water in Petridish, it was lightly shaken and the contents decanted several times. The intestine and its contents containing parasites were examined thoroughly under a binocular microscope. The worm was stretched in luke warm water and later fixed in 5% formalin.

The whole mount was stained in Mayer's haemalum. Whole mount was cleared in xylol. Only camera lucida drawings were made. All the measurements were in millimetres unless other wise stated.

Observation

Probothriocephalus pathakpuraensis n.sp. (Figs. 1-6)

Large sized cestodes measure 55.0-66.0 X 1.0 – 1.4 (60.0 X 1.256). Scolex well developed, narrow anteriorly and broad posteriarly measures 0.749 – 1.42 X 0.414-0.6 (0.9X 0.5). Bothria sac like measures 0.556 -0.707 X 0.128 – 0.3 (0.684 X 0.2). Rostellum cup shaped measures 0.014-0.056 X 0.1 – 0.214 (0.035 X 0.184). Rostellum bears rostellar hooks in single row with 32-44 in number which measure 0.063-0.084 (0.072) in length. Neck district measures 0.391-0.484 X 0.142-0.214 (0.442 X 0.184).

Proglottids numerous in number, broader than long. Immature proglottids measure 0.1-0.242 X 0.428-0.856 (0.163 X 0.614), mature proglottids measure 0.284-0.321 X 0.621-1.2 (0.3 X 0.9) and gravid proglottids measure 0.321-0.342 X 1.228- 1.4 (0.335 X 1.314).

Testes oval to round 98-175 in number, measure 0.014- 0.042 X 0.014 -0.056 (0.028 X 0.035), located in partly cortical and partly medullary regions in four bands throughout the proglottides, few testes cross the ventral

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

S.N.	Character		*Probothrioceph -alus muelleri*[2]	*Probothriocephalus kuraraensis*[3]	*Probothriocephalus konchensis*[4]	*Probothriocephalus pathakpuraensis n.sp.*
1	Bothria		Shallow	Sac like	Sac like	Sac like
2	Rostellum and rosteller hooks		Absent	Rosteller hooks in Single row (20-22)	Rosteller hooks in Single row (32-38)	Rosteller hooks in Single row (32-44)
3	Shape of rostellum		-	Round Shaped	Cup shaped	Cup shaped
4	Neck		Present	Absent	Present	Present
5	Internal segmentation		Lacking	Well developed	Well developed	Well developed
6	Proglottids	Immature	Not mentioned	0.062-0.12 X –0.27-0.42	0.18-0.27X0.47-0.57	0.1-0.24X0.43-0.85
		Mature	Not mentioned	0.15-0.31X0.9-1.2	0.3-0.37X0.6-1.13	0.28-0.32X0.62-1.2
		Gravid	Not mentioned	0.32-0.45X1.19-1.35	0.31-0.38X1.17-1.4	0.32-0.34X1.23-1.4
7	Testes	Distribution	In single band in medullary region and never cross the ventral longitudinal excretory canal	In two bands in medullary as well as cortical regionand 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
		Number	Not mentioned	150-200	75-120	98-175
		Size	Not mentioned	0.015-0.037 X 0.025-0.050	0.014 - 0.028 X 0.028 -0.042	0.014 - 0.042 X 0.014 - 0.056
8	Cirrus Pouch		Obliquely transverse	Obliquely transverse	Elongated	Oval

S.N.	Character	*Probothrioceph -alus muelleri*[2]	*Probothriocephalus kuraraensis*[3]	*Probothriocephalus konchensis*[4]	*Probothriocephalus pathakpuraensis n.sp.*
9	External Seminal Vesicle	Absent	Absent	Present	Present
10	Internal Seminal Vesicle	Absent	Absent	Present	Present
11	Ovary	Not mentioned	0.045 -0.068 X 0.24 - 0.31	0.056 - 0.084 X 0.27 - 0.46	0.042 - 0.084 X 0.2 - 0.4
12	Receptaculum Seminis	Not mentioned	Absent	Present	Present
13	Mehlis gland	Absent	Present	Present	Present
14	Uterus	Not mentioned	0.075 -0.17 X 0.10 - 0.31	0.1- 0.2 X 0.049 -0.38	0.091 -0.2 X 0.070 – 0.33
15	Eggs	Not mentioned	0.015 - 0.04 X 0.018 - 0.026	0.016 - 0.025 X 0.037 - 0.05	0.021 - 0.028 X 0.056 - 0.077

longitudinal excretory canals and some testes postovarian. Cirrus pouch oval measures 0.056-0.091 X 0.035 – 0.063 (0.077 X 0.056). Internal seminal vesicle measures 0.056-0.084 X 0.021-0.049 (0.070 X 0.035). External seminal vesicle measures 0.170 -0.2 X 0.049 – 0.077 (0.184 X 0.063).

Ovary posteriorly located, bilobed with long isthmus in medullary region measures 0.042-0.084 X 0.2-0.4 (0.063 X 0.3). Vagina measures 0.007-0.021 (0.014) in diameter opens posterior to cirrus pouch in the genital atrium. Receptaculum seminis measures 0.014-0.028 X 0.014-0.028 (0.021 X 0.021). Mehlis gland measures 0.028-0.049 X 0.056-0.070 (0.035X0.063). Vetelline follicles in two lateral bands in cortical region measures 0.014-0.028 X 0.014-0.028 (0.021 X 0.021).

Genital atrium, 0.042-0.056 X 0.014-0.028 (0.049 X 0.021) deep and wide respectively. Genital pores irregularly alternating in the anterior half of the proglottid margin.

Uterus, 0.091-0.2 X 0.070-0.328 (0.156 X 0.228) preovarian, located in the middle of the proglottid, filled with eggs. Eggs oval to round, operculated measure 0.021-0.028 X 0.056-0.077 (0.024 X 0.063).

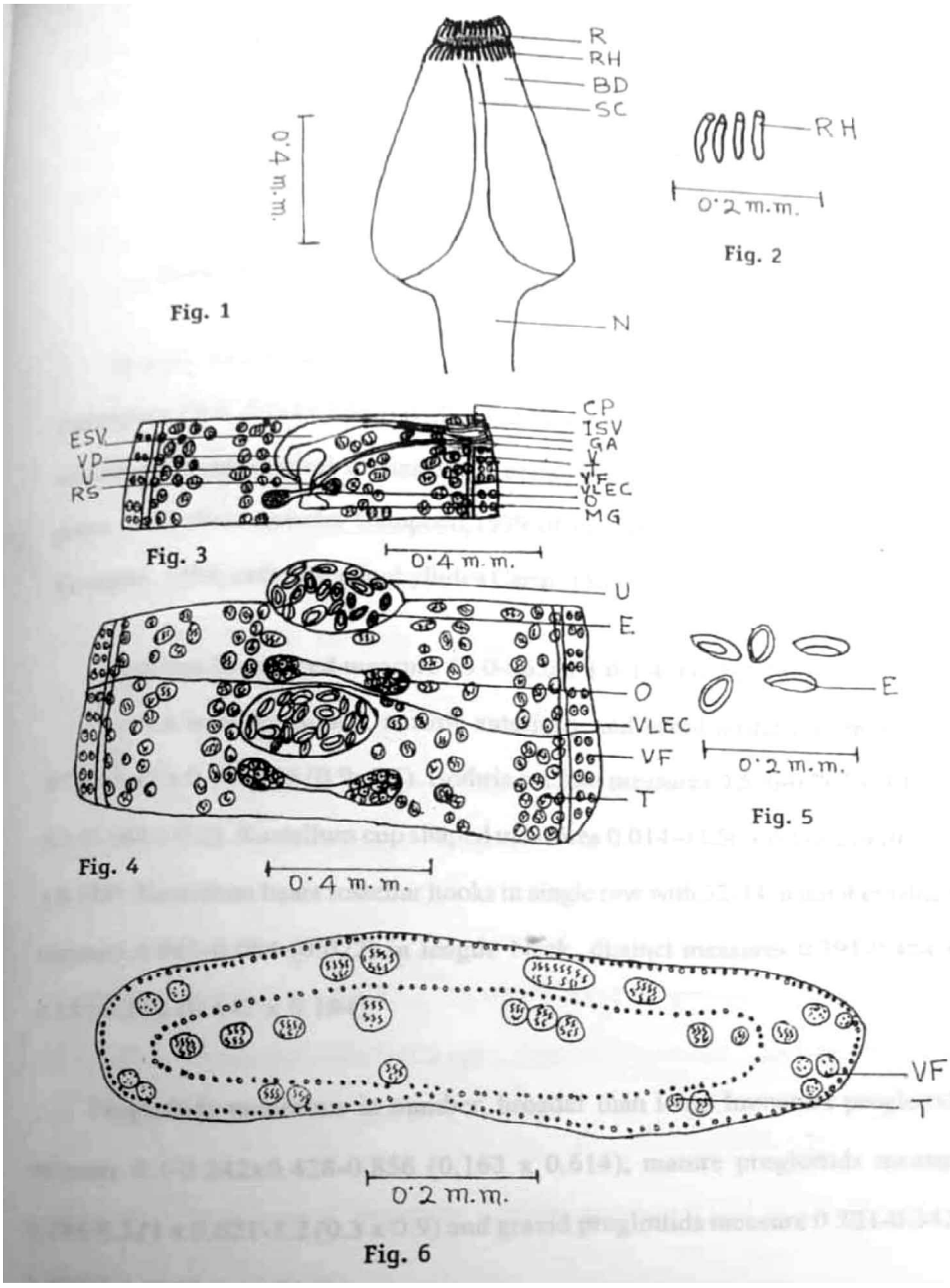
Ventral longitudinal excretory canals measures 0.021-0.028 (0.24) in diameter.

Result and Discussion

The present form comes closer to *Probothriocephalus mulleri*[2], *Probothriocephalus kuraraensis*[3] and *Probothriocephalus konchensis*[4]. (Table-1)

The present form differs from *Probothriocephalus mulleri*[2] in having sac like bothria, prominent rostellum with single row of rostellar hooks, district segmentations, internal and external seminal vesicles, testes in four bands located in partly cortical and partly medullary regions which cross the ventral longitudinal excretory canals and prominent mehlis gland.

From *Probothriocephalus kuraraensis*[3] it differs in having cup shaped rostellum, presence of neck, smaller number of testes in four bands, oval cirrus pouch, presence of external and internal seminal vesicles and presence of Receptaculum seminis. From *Probothriocephalus konchensis*[4] it differs in having smaller worm, smaller bothria, more rostellar hooks, greater number of testes in four



***Probothriocephalus pathakpuraensis* n.sp.**

Fig-1 : Scolex with neck (5 X 10), Fig-2: Rostellar hooks (10 X 10), Fig-3 : Mature proglottid (5 X 10), Fig-4 : Gravid proglottid (5 X10), Fig-5: Eggs (10 X 10), Fig-6 : Transverse section – A portion through testes and vitellaria (10 X 10)

bands located in partly cortical and partly medullary regions which cross the ventral longitudinal excretory canals.

In the light of above discussion, it may be proposed to accommodate the present form as a new species *Probothriocephalus pathakpuraensis n.sp.*

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

Type species	:	*Probothriocephalus pathakpuraensis n.sp*
Host	:	*Mastacembelus armatus*
Habitat	:	Small intestine
Locality	:	Pathakpura, Orai, district Jalaun (U.P.) India
Number of specimen	:	07
Date of collection	:	22/03/2000
Accession number	:	Parasitological Laboratory
Deposition		Department of Zoology, Bipin Bihari (P.G.) College, Jhansi (U.P.) India

Revised key to species of genus *Probothriocephalus*

1. ESV and ISV Absent_____2

   ESV and ISV Present_____3

2. Single bands testes in medullary region which never cross the VLEC_____ *Probothriocephalus mulleri*[2]

   Double bands testes in medullary as well as cortical regions which cross the VLEC _____ *Probothriocephalus kureraensis*[3]

3. Single bands testes in medullary region which never cross the VLEC_____ *Probothriocephalus konchensis*[4]

   Four bands testes in partly cortical and partly medullary regions which cross the VLEC _____ *Probothriocephalus pathakpuraensis n.sp.*

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