STUDIES ON NEW SPECIES OF CESTODE PARASITE *PHOREIOBOTHRIUM MUMBAIENSIS* OF *TRYGONZUGEI* FROM MUMBAI COAST

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ABSTRACT

The scolex is medium in size, quadrangular in shape, divided into two regions – anterior and posterior. The scolex bears four bothridia, which are medium in size, roughly oval in shape, broad posteriorly and narrow anteriorly. The hooks are bifurcated, each hook bearing two prongs the inner prong is small, short.The handle is short.A single, round, small accessory sucker is present, at the anterior extremity, on each bothridium. Testes are medium in size, rounded in shape, 38 in numbers, pre-ovarian, almost evenly distributed. The vas deferens is medium, straight, posteriorly directed. The ovary is large in size, bilobed, extend anteriorly, up to the testes. The vagina is narrow tube, posterior to the cirrus pouch, start from the common genital pores, runes in the middle of the segment reaches and open into the ootype. The genital pores are medium in size, oval in shape, placed just anterior to the middle of the segments.

KEYWORDS: CestodeParasites, *Phoreiobothrium mumbaiensis, Trygonzugei*, Mumbai Coast.

INTRODUCTION

The genus *Phoreiobothrium* was erected by Linton, 1889, toaccommodate a cestode, recovered from dusky Shark *Carchariasobscurusat*Woods hole, with its type species, *P. lasium*. Later on Linton reported threespecies, i.e. *P. exceptum* Linton, 1924, *P. pectinatum* Linton, 1924, *P. triloculatum*Linton, 1901 at Woods hole. Cheung, Nigrelli and Ruggieri, 1981 reported *P. tiburensis* from *Sahyrnatiburo* at Florida Key's, U.S.A., Shrivastava and Capoor,1982 reported *P. puriensis* from *Zygaenablochi* at Puri, Orissa, India. Later onJadhav and Shinde reported *P. arabiansis* in 1984. Shinde and Jadhav, 1987reported *P. ratnagiriensis* from *Carchariasacutus* at Ratnagiri, M.S., India.Jadhav, Shinde and Jadhav D.H., reported *P. carchariasae* from *Carchariasaeacutus* at Bombay, M.S., (west coast of India), India.Afterwards Shinde, Jadhav, D.H. Jadhav, 1990, reported *P. shindei*and*P. carchariasae*from *Carchariasacutusat* Bombay, M.S.

India. Pawar, 2005reported new species *P. bhagwantiensis*from *C. acutusat*Ratnagiri, M.S. (WestCoast of India).

MATERIALS AND METHODS

The scolex is medium in size, almost quadrangular in shape, having foursessile bothridia, somewhat narrow anteriorly and posteriorly and measures 0.495(0.485-0.504) in length and 0.514 (0.509-0.519) in breadth. The scolex bearsfour bothridia, which are medium in size, roughly oval in shape, broad posteriorlyand narrow anteriorly and measures 1.666 (1.593-1.739) in length and 1.679(1.640-1.718) in breadth. The hooks are bifurcated, each hook bearing two prong,the inner prong is small, short and measures 0.0026 (0.0021-0.0032) in lengthand 0.0015 (0.0010-0.0021) in breadth. The outer prong is big and measures0.541 (0.538-0.543) in length and 0.104 (0.101-0.106) in breadth. The handle is short, narrow and measures 0.0028 (0.0019-0.0038) in length and breadthrespectively. A single, round, small accessory sucker is present, at the anteriorextremity, on each bothridium, at the junction of the hooks and measures 0.0097in diameter. The scolex is followed by thin, short neck and measures 0.354(0.349-0.359) in length and 0.176 (0.174-0.179) in breadth.

The mature segments are large in size, longer than broad, with straight,lateral margins without spines. This segment varies in length and projection atthe anterior and posterior corners of the segments and measures 0.873 (0.864-0.883) in length and 0.611 (0.606-0.616) in breadth.

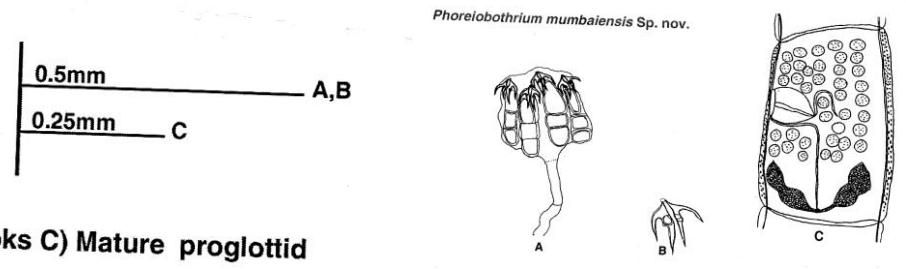
Testes are medium in size, rounded in shape, 38 in numbers, pre-ovarian,almost evenly distributed, central medulla, from ovary to anterior margin of thesegment and measures 0.286 in diameter. The cirrus pouch is medium in size,oval in shape and measures 0.189 (0.184-0.194) in length and 0.162 (0.160-0.165) in breadth. The cirrus is thin, straight, contained within the cirrus pouchand measures 0.191 (0.189-0.194) in length and 0.00028 (0.00019-0.00020) inbreadth. The vas deferens is medium, straight, posteriorly directed and measures0.269 (0.266-0.271) in length and breadth respectively.

The ovary is large in size, bilobed, extend anteriorly, up to the testes andmeasures 0.604 (0.601-0.604) in length and 0.0898 (0.0873-0.0922) in breadth.The vagina is narrow tube, posterior to the cirrus pouch, starts from the commongenital pores, runes in the middle of the segment reaches and open into theootype and measures 1.835 (1.796-1.875) in length and 0.086 (0.078-0.095) inbreadth. The ootype is small in size, rounded in shape, situated in the concavityof the ovarian lobes and measures 0.0019 in diameter.

The genital pores are medium in size, oval in shape, placed just anteriorto the middle of the segments, marginal and measures 0.0036 (0.0024-0.0048)in length and breadth respectively.

The vitellaria are granular on each lateral side and from the anterior tothe posterior margin of the segments. Longitudinal excretory canals are thinand measures 0.012 in width.

RESULT AND DISCUSSION



A) Scolex B) Hooks C) Mature proglottid

The genus *Phoreiobothrium*was erected by Linton, 1889, as a typespecies, *P. lasium* from *Carcharias obscures* at Wood Hole. Later on thefollowing species are added to this genus;

1) P. triloculatumLinton, 1901.
2) P. exceptumLinton, 1924.
3) P. pectinatumLinton, 1924.
4) P. puriensisShrivastava&Capoor, 1982.
5) P. arabiansisJadhav and Shinde, 1984.
6) P. ratnagiriensisShinde and Jadhav, 1987.
7) P. shindeiShinde et.al. 1990.
8) P. carchariasaeJadhav et.al. 1990.
9) P. marireiCaira et.al. 1996
10) P. bhagwantiensisPawar et.al. 2005.

The worm, under discussion, the genus *Phoreiobothriummumbaiensis*sp.nov.in having scolex quadrangular, with bothridia sessile, medium, neck ispresent, mature segments are broader than long, testes 38 in number, evenlydistributed, ovary bilobed in appearance, genital pores sub marginal, irregularlyalternate, vitellaria granular.

1) The present cestode parasite, differs from *P. lasium* (1889) which is havingbothridium tubular, posterior end, divided into number of loculi bytransverse septa, hooks paired, trifurcated, inner Prong small andsymmetrical, the neck present, ovary bilobed and vagina anterior to cirruspouch.

2) The present form, differs from *P. triloculatum* (1901) which is havingthe bothridium, whose posterior margin with three loculi, hooks paired,trifurcated, symmetrical, tubercle on middle prong, testes 150-160 innumber, ovary granular and other characters not mentioned.

3) The present cestode, differs from *P. exceptum* (1924) which is havingthe bothridium elongated towards the posterior end, six loculi present atthe posterior end, paired hooks, bifurcated and other characters notmentioned.

4) The present tapeworm, differs from *P. pectinatum* (1924) which is havingthe bothridia with 7 loculi at the posterior end, the septa in front of locule bordered with seven papillae, hooks trifurcated, symmetrical hook inmiddle prong and other characters not mentioned.

5) The present worm, differs from *P. puriensis* (1982) which is having scolexpyramidal in shape, bothridium with posterior end divided into 12 ormore loculi neck present with spines, testes 125-140 in number, vaginaanterior to the cirrus pouch, vitellaria follicular, in one or two rows, oneach side.

6) The present cestode, differs from *P. arabiansis* (1984) which is havingfour sessile, quadrangular bothridia with paired hooks trifurcated, testes60–75 in number, ovary bilobed, vagina anterior to cirrus pouch.

7) The present parasite, differs from *P. ratnagiriensis* (1984) which is havingthe scolex quadrangular with spines, bothrium with a single large loculusat posterior end, hooks paired, trifurcated, neck present, with spines,testes 180 (175-185) in number, mature segment with spines, vaginaanterior to the cirrus pouch, vitellaria follicular, in a single row.

8) The present cestode, differs from *P. shindei* (1990) which is having thescolex quadrangular with spines, bothridium with a single large loculusat posterior end, neck present with spines, testes 92-98 in number, cirruspouch oval, just posterior to middle of the segment, vagina posterior tocirrus pouch.

9) The present tapeworm, differs from *P. carchariasae* (1990) which ishaving the scolex rectangular without spines, bothridium sessile with asingle large loculus at it posterior end, neck present, without spines, testes180-190 in number, ovary 'U' shaped, with 38-41 acini and vagina posteroventral to cirrus pouch.

10) The present parasite differs from *P. marirei* (1996) which is having scolexelongated, hooks trifurcated, neck present, testes 92-98 in number, ovaryoval.

11) The present cestodediffers from *P. bhagwantiensis* (2005) which ishaving bothridium rectangular, hooks paired and trifurcated, testes 116-126 in number, ovary 'U shaped, mature segments longer than broad,vagina postero ventral to cirrus pouch, vitellaria granular.

CONCLUSION

By observing the above noted characters, it is desirable to erect a newspecies, to accommodate these worms and hence the name *P. mumbaiensis* sp.nov.is proposed after the city, Mumbai.

Type species: *Phoreiobothrium mumbaiensis* sp. nov.

Host: *Trygonzugei* (Muller &Henle, 1841). Habitat: Sprial valve. Locality: Mumbai coast.

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