



“SYSTEMATIC STUDIES ON A NEW SPECIES OF THE GENUS *PHOREIOBOTHRIUM* FROM *MOBULA MOBULAR*”

K. H. Rajput,

Department of Zoology, Madhavrao Patil Mahavidyalaya, Murum

ABSTRACT

The present study deals with a new species of the genus *Phoreiobothrium* with its type species *P. hemalatae* n.sp. which is collected from *Mobula mobular* a marine water fish from Ratnagiri (West Coast of India). The worm comes closer to all known species of the genus *Phoreiobothrium* in general topography of organ but differs due to quadrangular shaped scolex with four sessile bothridia, neck is long but without spines, mature proglottids two to three times longer than broad, ovary, massive compact mass placed transversely, cirrus pouch placed anterior 1/3rd part of proglottids, Testes 35 to 40 in number, pre and post ovarian, genital pore opens marginally, regularly alternate vagina posterior to cirrus pouch, uterus reaching almost to anterior extremity, sac like in shape. Vitellaria granular and corticular placed in two lateral fields all over the proglottids except the cirrus pouch region pre and post ovarian.

Key words- Cestode parasite, *Mobula mobular*, *Phoreiobothrium hemalatae* n.sp., Ratnagiri (West Coast of India).

INTRODUCTION

The genus *Phoreiobothrium* was erected by Linton 1889 to accommodate a cestode, recorded from a dusky Shark *Carcharias obscurus* at Woods Hole with its type species, *P. lasium* Later on Linton reported *P. triloculatum*, in 1901 and *P. exceptum*, *P. pectinatum* in 1924. Srivastav & Capoor (1982) reported *P. puriensis* from *Zugaena blochi* at Puri, Orissa, India. Later on Jadhav and Shinde reported *P. arabiensis* in 1984 and in 1987, Shinde and Jadhav reported *P. ratnagiriensis* from *Carcharias acutus* at Ratnagiri, India. Shinde et al in 1990 reported a new species i.e. *P. shindei* from *Carcharias acutus* from Bombay, India. Jadhav et.al., in (1990) recorded *P. carchariase* from *Carcharias acutus* at Bombay, India. Jadhav B.V. 1994 recorded *P. vinodae* from *Carcharias acutus* at Bombay, India. In 1996 Caira et.al. added one new species i.e. *P. monirei* from *Sphyrna mokarran* at West Coast of florida UK. Pawar in 2003 reported new species *P. bhagawatiensis* from Ratnagiri,

West Coast of India. The present communication deals with *P. hemalatae* n.sp. which is collected from *Mobula mobular* a marine water fish from Ratnagiri (West Coast of India).

MATERIALS AND METHODS

One hundred thirty seven specimens of worms were collected from the spiral valve of *Mobula mobular* (Bonnaterre, 1788) at Mirkarwada Ratnagiri (M.S.) India from June 2004 to May 2006.

RESULTS (Description based on Five specimens; Fig.1&2)

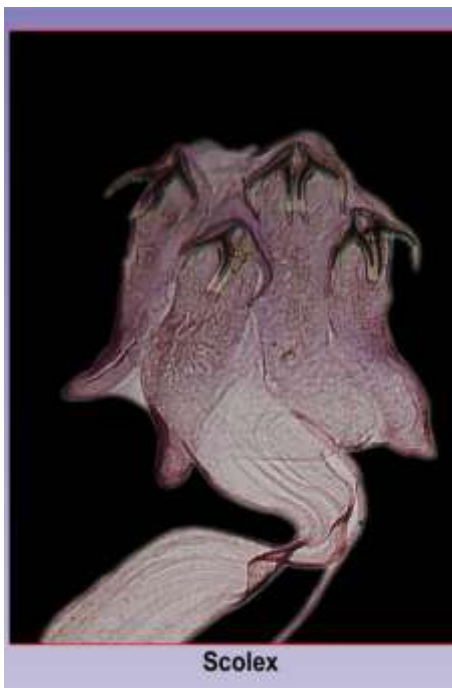
The tapeworm measures 35 in length and 0.7 in breadth. The scolex is large in size, quadrangular in shape, broad anteriorly and narrow posteriorly, It measures 0.7281 (0.6553-0.8009) in length and 0.5218 (0.3883-0.6553) in breadth. The scolex bears four sessile bothridia, each of which is concave on external surface and scalloped at the posterior end and measures 0.7281 (0.6310-0.8252) in length and 0.1577(0.1213-0.1941) in width, these are elongated, each armed with a pair of hooks, The hooks are bifurcated, the outer and inner prong. The outer prong is some what longer than inner prong. The outer prong measures 0.1663 (0.1317-0.2010) in length and 0.01126 (0.00519-0.01733) in breadth. The inner prong measures 0.1568 (0.1247-0.1889) in length and 0.00953 (0.00346-0.01559) in breadth. Neck is long, inner longitudinal muscles well developed, bundles but without spines, measures 1.4684 (1.4077-1.5291) in length and 0.2184 (0.1553-0.2815) in breadth.



Fig A : Scolex

Fig B : Hooks

Fig : Mature proglottids



Mature proglottids are two to three times longer than broad measures 0.5606 (0.5533-0.5679) in length and 0.2791 (0.2621-0.2961) in breadth. The testes are 35-40 in number, scattered all over the proglottids and it is pre and post-ovarian measures 0.02669 (0.0194-0.0339) in length and 0.01941 (0.01456-0.02427) in breadth. Cirrus pouch is oval in shape, anterior 1/3rd of the proglottids, marginal measures 0.09951 (0.08737-0.1116) in length and 0.06310 (0.04854-0.07766) in breadth. Cirrus long, slightly curved measures 0.0558 (0.05339-0.05825) in length and 0.01213 (0.09708-0.01456) in breadth and forms vas deferens which runs anteriorly and forms a knob like structure at the tip, measures 0.1480 (0.1213-0.1747) in length and 0.00728 (0.004854-0.009708) in breadth. Vagina arises from genital pore, posterior to cirrus pouch, run transversely takes turn and reaches up to seminal receptacle measures 0.2742 (0.2669-0.2815) in length and 0.01456 (0.09708-0.01941) in breadth. Seminal receptaculum is short, measures 0.05339 (0.04854-0.05825) in length and 0.02184 (0.01941-0.02427) in breadth. It opens into ootype which is oval in shape and measures, 0.02427 (0.01941-0.02912) in length and 0.03398 (0.02912-0.03883) in breadth. The ovary is compact mass placed transversely slightly above the posterior margin of the proglottids, measures 0.08737 (0.06796-0.1067) in length and 0.0364 (0.02427-0.04854) in breadth. Vagina and cirrus pouch open through a common genital pore, oval, marginally placed regularly alternate, measures 0.02912 (0.02427-0.03398) length and 0.01213 (0.09708-0.01456) in breadth. Vitellaria are granular, corticular, thin strips in two lateral fields all over the proglottids except the cirrus pouch region and pre and post ovarian

DISCUSSION

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

The present communication deals with a new species of the genus *phoreiobothrium hemlatae* n.sp. having quadrangular shaped scolex with four sessile bothridia, neck is long but without spines, mature proglottids two to

three times longer than broad, ovary, massive compact mass placed transversely, cirrus pouch placed anterior 1/3rd part of proglottids, Testes 35 to 40 in number, pre and post ovarian, genital pore opens marginally, regularly alternate vagina posterior to cirrus pouch, uterus reaching almost to anterior extremity, sac like in shape. Vitellaria granular and cortical placed in two lateral fields all over the proglottids except the cirrus pouch region pre and post ovarian.

The present tapeworm differs from *P. lasium* Linton, 1889 in which scolex elongated, bothridia tubular, posterior end divided into no. of loculi. Hooks trifurcated, ovary granular, accessory suckers present, vagina anterior to cirrus pouch. The parasite differs from *P. trilocolatum* Linton, 1901 with scolex rounded, hooks trifurcated, testes 150-160 in numbers. It differs from *P. exceptum* Linton, 1924 which is having scolex triangular, bothridia elongated towards posterior end, six loculi at posterior end. The present form differs from *P. pectinatum* Linton, 1924 in which rounded scolex, seven loculi at posterior end of bothridia, Hooks trifurcated. The present cestode differs from *P. puriensis* Srivastav and Capoor 1982, with Pyramid in shape scolex, bothridia posterior end divided into twelve or more loculi, hooks trifurcated, neck present with spines, testes 125-140 in number, ovary bilobed, vagina anterior to cirrus pouch, vitellaria follicular. The present worm differs from *P. arabiansis* Jadhav and Shinde, 1984 in which hooks trifurcated, accessory suckers present Neck present with spines, testes 60-75 in number, ovary bilobed, cirrus pouch middle of the proglottids, vagina anterior to cirrus pouch, vitellaria follicular 3-4 in rows. The present form differs from *P. ratnagiriensis* Shinde and Jadhav, 1987 is having scolex quadrangular with spines, single large loculum at posterior end of bothridia. Hooks trifurcated, neck present with spines, Testes 180 in number, cirrus pouch sub-marginal, ovary bilobed 'U' shaped, vagina anterior to cirrus pouch, vitellaria follicular. The present tapeworm differs from *P. shindei* Shinde G.B. et.al., 1990 in which bothridium single large loculi at posterior end trifurcated hooks, neck present with spines, testes 92-98 in numbers, ovary bilobed, vagina post ventral to cirrus pouch. The present worm differs from *P. vinodae*, Jadhav 1994, with bothridia consist of single large loculi paired trifurcated hooks, neck present with spines, testes 120-125 in numbers, ovary bilobed, vagina anterior to cirrus pouch. The present form differs from *P. manirei* Cairn et al, 1996 in which posterior portion of bothridia is sub-divided into subloculi, Hooks trifurcated, accessory suckers present, testes 92-98 in numbers. The present cestode parasite differs from *P. bhagawatensis* Pawar, 2003 is having bothridia rectangular, narrow anterior and broad posteriorly, hooks trifurcated, accessory suckers present. Testes 116-126 in numbers, ovary bilobed 'U' shaped vagina postventral to cirrus pouch.

The above justifying characters are valid enough to create a new species *Phoreiobothrium hemlatae* n.sp. proposed in honour of Dr. Hemlata Wankhede, authors guide and contributing a lot in the field of the Helminthology.

Taxonomic Summary:

Type species	<i>Phoreiobothrium hemlatae</i> n.sp.
Host	<i>Mobula mobular</i> (Bonnaterre, 1788).
Habitat	Spiral Valve.

Locality	Mirkarwada, Ratnagiri M.S. India.
Period of collection	June 2004 to May 2006.
No. of Specimens	07.

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