

DESCRIPTION OF CIRCUMONCOBOTHRIUM SINGHII N.SP. FROM CLARIAS BATRACUS OF SAVITRI RIVER AT DAPOLI DISTRICT RATNAGIRI (M.S.) INDIA

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Received : 18.08.2018; *Revised* : 16.09.2018; *Accepted* : 01.10.2018**ABSTRACT**

Present paper deals with study of cestode parasites of genus *Circumoncobothrium* from fresh water fish *Clarias batracus* at Savitri river, (Dapoli) for the percentages of infection occurrence during summer season, minimum during winter and tolerate during rainy season. The parasite mainly infected the intestine of host and fed on nutrients from digested food. It completed its life cycle in the intestine of host. By comparing different characters of it to identify that the species is new

Figure : 01

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KEY WORDS : Cestode, Formalin, Mature segments, Scolex

Introduction

The genus *Circumoncobothrium* was erected⁶. From the intestine of fresh water fish *Ophiocephalus leuconpunctatus* as a type species *C. ophiocephali*⁷.

Workers⁷ reported *Circumoncobothrium* with described two new species of this genus *C. aurangabadensis* and *C. raoi* from *Mastacembellus armatus*. More reported *C. gachuai* from *Ophiocephalus gauchua*.

Workers^{1,2} described two new species of this genus and two new species of the genus as *C. shindei* from fresh water fish *Mastacembellus armatus* and *C. bagariusi* from *Bagarius* sp. A worker² reported *C. khami* from *Ophiocephalus striatus*. Other workers^{3,4,5} added *C. vadgaonensis* and *C. vadgaonesis* as new species *C.* and added *C. baimaii* from *Mastacembellus armatus* and *C. manjari*. Later on no species was added to this genus.

The present communication, deals with the description of a new species as *Circumoncobothrium singhii* n sp. collected from fresh water fish *Clarias batracus* from Savitri river at Dapoli Dist. Ratnagiri.

Materials and Methods

The Collection of Cestodes from fish fresh water fish, *Clarias batrachus* was done from Savitri river at Dapoli Dist. Ratnagiri M.S. from January 2011 to

December 2011. The collected cestodes were fixed in 4% formalin for flattening. The drawing was made by camera lucida. All measurements are in millimeter

Description

Sixteen specimens of the cestode parasites were collected from the intestine of fresh water fish *Clarias batrachus* from Savitri river at Dapoli. The worms were considerably long. The scolex is large, pear shaped, slightly triangular tapering towards anterior end where as broad at the posterior end, measures 2.670 (2.499-2.840) in length and 0.092 (0.303-1.530) in breadth. It bears two bothria, which are large in size, sac like in appearance, start from the rostellum, extend posteriorly, almost upto the posterior margin of the scolex, narrow towards anteriorly and broad posteriorly, overlapping to each other and measures 2.075 (2.0681-0.083) in length and 0.0480 (0.166-0.795) in breadth.

The anterior region of the scolex end terminally in the truncated disc, armed with 45-47 hooks, arranged in semi circle, large hooks measures 0.104 (0.097-0.102) in length and 0.037 (0.0032-0.0043) in breadth, small hooks termed as rudimentary hooks, measures 0.034 (0.033-0.035) in length and 0.003 (0.002-0.004) in breadth. The scolex is followed by a short neck, measures 0.139 (0.090-0.189) in length and 0.303 (0.287-0.318) in breadth. The mature segments are broader than long measures 1.287 (1.164-1.407) in length and 1.434 (1.383-

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1.485) in breadth. Testes are unevenly distributed, 258-263 in number, measures 0.021 (0.019-0.024) in length and 0.014 (0.005-0.0097) in breadth. Cirrus pouch placed in anterior half of the segment, obliquely placed, submarginally oval in shape, opens at the distal end by a common genital pore, measures 0.1892 (0.1844-0.1941) in length and 0.072 (0.048-0.097) in breadth. The cirrus is thin, straight, obliquely placed, contained within the cirrus pouch and measures 0.126 (0.121-0.131) in length and 0.012 (0.0097-0.014) in breadth. The vas deferens is short, thin extends obliquely anteriorly and measures 0.045 b(0.043-0.048) in length and 0.009 (0.004-0.014) in breadth. The ovary is distinctly bilobed, large in size transversely placed near the posterior margin of the segment, measures 0.691 (0.679-0.703) in length and 0.094 (0.048-0.140) in breadth. The ovarian lobes are large in size, oval in shape, each lobe with many short blunt acini. The isthmus is short, connect the two ovarian lobes, measures 0.021 (0.019-0.024) in length and 0.035 (0.033-0.038) in breadth.

The vagina arises from the genital pore, runs posteriorly, slightly curved and opens into ootype, measures 0.631 (0.606-0.655) in length and 0.019 (0.014-0.024) in breadth. The shell gland is oval in shape and measures 0.019 (0.019) in diameter. The ootype is medium in size, oval in shape, present on the ventral side of the isthmus, measures 0.033 in diameter. Vagina and cirrus pouch open through a common pore known as genital pore, small oval in shape measures 0.026 (0.024-0.029) in length and 0.007 (0.005-0.0098) in breadth. Fully gravid segments are not available, but in the mature segment, the uterus is seen in developing stage, measures 0.649 (0.645-0.655) in length and 0.038 (0.0106-0.066) in breadth. The uterine pore oval towards anterior, measures 0.111 (0.106-0.116) in length and 0.053 (0.019-0.087) in breadth. Eggs are pear shaped, measures 0.031 (0.029-0.033) in length and 0.009 (0.005-0.014) in breadth. The vitellaria are follicular and cortically arranged placed in a line, pre-ovarian.

Discussion

The genus *Circumoncobothrium* was erected in 1968 as a type species *C. ophiocephali*. Later on the following species were added to this genus. The tapeworm under discussion having pear shaped, slightly triangular scolex, hooks are 45-47 in number, arranged in semicircle, neck short, mature segment broader than long, testes 258-263 in number, ovary bilobed, transversely placed nears posterior margin, vitellaria follicular, cortically arranged and pre-ovarian.

1} The present cestode differs from *C. ophiocephali*, which is having scolex broad in the middle and tapering at both the ends, rostellar hooks 80 in

number, neck present, testes 70- 80 in number, rounded in shape, ovary single conical mass to irregular shaped band, lobes with 2-3 well developed acini near posterior border and vitellaria in 14-15 rows on each side.2} The present cestode differs from *C. aurangabadensis* which is having the scolex broad in the middle, narrow at both the ends, the rostellar hooks 42 in number, neck present, testes 135-145 in number, rounded in shape, distributed throughout the segment and ovarian lobes with 3-4 acini, vitellaria granular near lateral margin.

3} The present parasite *C. singhiin.sp.* differs from *C. raoii* which is having scolex broad in the middle, narrow at both the ends, rod shaped rostellar hooks 46 in number, testes 210-215 in number, rounded in shape, in two fields, ovary is located almost near the posterior margin of the segments and at lateral side of the segment and granular vitellaria.4} The present tapeworm differs from *C. gachuai* which is having pear shaped scolex, rostellar hooks 46 in number, neck present testes 375-400 in number, rounded densely placed in two fields, ovarian lobes having 5-6 short, blunt acini, follicular vitellaria.5} The present tapeworm distinguishes from *C. shindei*, which is having rostellar hooks 49 in number, neck present, testes 260-275 (273) in number, rounded in shape, dumb-bell shaped ovary, rounded lobes, granular vitellaria.6} The present tapeworm differs from *C. bagariusi*, which is having rod shaped rostellar hooks 55 in number, rod shaped, testes 275-285 (276) in number in two fields, ovary in middle one third of the segment, ovarian lobes with 5-6 globular acini and vitellaria large, follicles with irregular shape in 4-5 rows on each side.7} The present form differs from *C. khami*, which is having the scolex cylindrical, with even width, apical disc separated by notch, rostellar hooks 48 in number, squarish shaped, testes 190- 200 (194) and vitellaria follicular, rounded in a single layer near the lateral margin.8} The present form differs from *C. yamaguti*, which is having rostellar hooks 56 in number, testes 130 – 150 in number, round in shape, ovary bilobed, centrally placed near posterior margin of the segment, vitellaria granular, corticular, along with lateral margin of the segment.9} The present cestode differs from *C. alii*, which is having rostellar hooks 34 in number, neck present, testes 230 –240 in number, evenly distributed, ovary bilobed, centrally placed, compact, vitellaria granular in the lateral fields.10} The present tapeworm differs from *C. vadgaonensis*, which is having scolex large in size, rostellar hooks 56 in number, arranged in four quadrants, neck absent, testes 490-510 in number, oval in shape, ovary bilobed, each lobe compact, in the posterior half of the segment, vitellaria follicular in 2 rows on each side.11} The present cestode differs from *C. baimaii* which is having pear shaped scolex, hooks 48 in single circle, mature segment broader than long testes 88-100, ovary compact and vitellrai follicular.

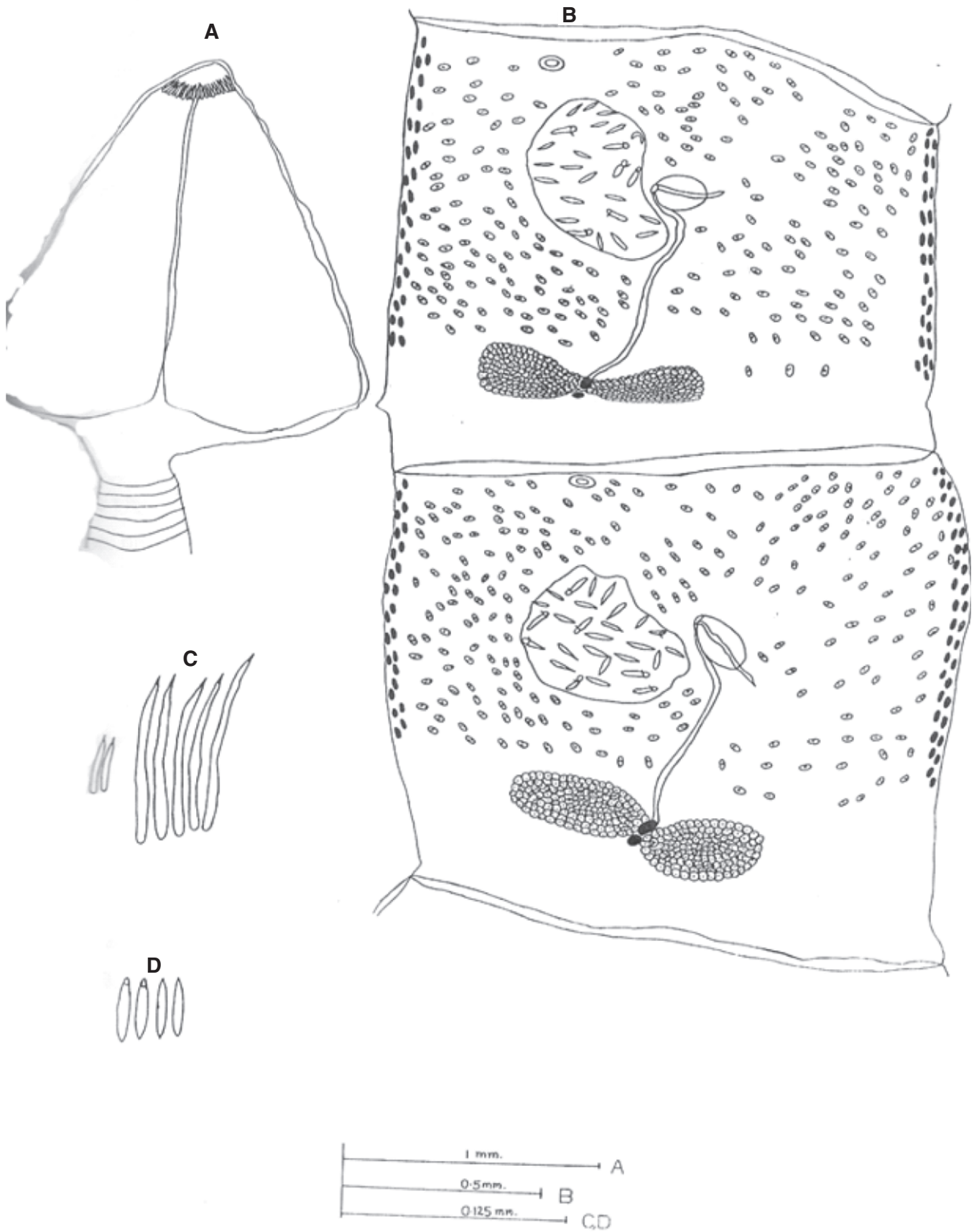


Fig.1 (A-D) : *Circumoncobothrium singhii* n.sp. A.Scolex B. Mature segments C. Hooks D. Eggs

12} The present form differs from *C. manjari*, which bears triangular, hooks 48, testes 128-145, bilobed ovary and follicular vitellaria. Later on a new species were added in this genus.

The above differentiating characters are valid enough to erect a new species for these worms and hence the name *C. singhii* n.sp. is proposed in honour of Prof. H.S. Singh a well known helminthologist of India.

Conclusion

In the present study, no relationship was observed between fish length and parasitism, given that the larger-sized fish were less affected by infection than the smaller-sized fishes. The highest numbers of fish infected by parasites were in the medium-sized (18.0-22.9 cm). The species is named after the well known Helminthologist, *Singhii* for his work in helminthology.

References

1. Chincholikar LN, Shinde GB. On a new species of *Circumoncobothrium* Shinde, 1968 from fresh water fish. *M.U.J. Sci. No. Sci.* 1976; **16** (9) : 183-188.
2. Chincholikar LN, Shinde GB. On a new species of *Circumoncobothrium*, Shinde 1968 (Cestoda: Pseudophyllidea Carus, 1863). From a fresh water fish in India. *Marathwada Uni. J. of Sci.* 1977; 177.
3. Jadhav BV, Wongsawad . *Circumoncobothrium baimalin*. sp. (Cestoda: Pseudophyllidea) from a fresh water fish, Maesa stream Chiang Mai, Thailand. *Rivista di parasitologia.* 1998.
4. Mokhtar Ibrahim Khalil. Studies on some fish parasites of public health importance in the southern area of Saudi ArabiMai, Thailand. *Rivista Di Parasitologia.* 1998; **XV** (LIX) : 132-133.
5. Shinde GB, Jadhav BV. New species of the genus *Circumoncobothrium*, Shinde, 1968 (Cestoda: Pseudophyllidea) from a fresh water fish, from MS. *M University J. of Sci.* 1976; **XV** (8).
6. Shinde GB. On a new species of *Circumoncobothrium*, Shinde 1968 (Cestoda: *Circumoncobothrium ophicephali* *Marathwada Uni. J. of Science.* 1968; **XVI** (9) : 131.
7. Tat MB, Jadhav BV. A new species of the genus *Circumoncobothrium* Shinde, 1968 (Cestoda: Pseudophyllidea, Carus (1963) from *Ophiocephalus gachua* at. *Beed N.J. of life Science.* 1997; **1** (1) : 129.