

A new Ptychobothridae cestode (Luhe 1902) of genus *Circumoncobothrium* from *Mastacembellus armatus*

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Abstract: This paper contains description of new species of genus *Circumoncobothrium* (Shinde, 1968), *C. gangapurensis* n. sp. Seven specimen of cestode parasite, collected from intestine of *Mastacembellus armatus* were used for anatomical studies. The present tapeworm differs from earlier reported species in having large, triangular scolex with two bothria, 42 rostellar hooks, testes 165 – 170 (167) arranged in two lateral fields; vitellaria follicular, small round, in 3 – 5 rows, on each lateral side.

Index Terms: Cestode, *Circumoncobothrium gangapurensis* n. sp., *Mastacembellus armatus*, Gangapur, Aurangabad.

I. INTRODUCTION

Circumoncobothrium genus was erected by Shinde in 1968 [17] from intestine of *Ophiocephalus leuconpunctatus* as type species *C. ophiocephali*. Jadhav [3] added *C. aurangabadensis* from *Mastacembellus armatus*. Shinde [20] added *C. raoii* from *Mastacembellus armatus*. Shinde *et al* [21] described *C. shindei* *Mastacembellus armatus*. Chincholikar and Shinde [2] described *C. bagariusi* from *Bagarius* species. Shinde [18] reported *C. khami* from *Ophiocephalus striatus*. Jadhav *et al.*, [4] added *C. gachuai* from *Ophiocephalus gauchua* Jadhav *et al.*, [5] described *C. yamaguti*, from *Mastacembellus armatus* Shinde *et al.*, [22] created *C. alii* from *Mastacembellus armatus*. Patil [13] added *C. vadgaonensis* from *Mastacembellus armatus*. Wongsawad *et al* [26] added *C. baimaii* from *Mastacembellus armatus*. Shinde *et al* in [19] added *C. armatusae* from *Mastacembellus armatus* and *C. punctatusi* from *Ophiocephalus punctatus*. Shinde [23] described *C. mastacembellusae* from *Mastacembellus armatus*. *C. armatusae* (minor) reported by Pawar [14] from *Mastacembellus armatus*. Tat *et al*, 2004 reported *C. manjari* from *Ophiocephalus gachuva*. Supugade [24] added *C. vitellariensis* from *Mastacembellus armatus*. Kharade [9] added *C. cirrhinae* from *Cirrhina mrigala*. Shelke, [16] added *C. mehdii* from *M. armatus*. Pardeshi [12] added *C. ambajogaiensis* from *Mastacembellus armatus*. Jawalikar [6] added *C. yogeshwari* from *M. armatus*. Borde [1] added *C. purnae* from *Mastacembellus armatus*. Kalse [8] added *C. naidui* from *M. armatus*. Shah [15] added *C. paithenensis* from *M. armatus*. Menkudale *et al* [10] added *C. thapari* from *Ophiocephalus stratus*. *C. jadhavae* added by Pardeshi [11] from *M. armatus*. Kadam [7] added *C. clariasi* from *Clarias batrachus* and Yogesh [27] added *C. hemlatae* from *Mastacembellus armatus* Fartade *et al* added *C. nathii* [28] in 2015 from *Channa marulius*. Shaikh reported *C. Jafrabadensis* [29] in 2017 from *Mastacembellus armatus*

This communication deals with description of new species *C. gangapurensis* collected from fresh water fish, *Mastacembellus armatus* at backwater Jayakwadi project, Tq. Gangapur, Dist. Aurangabad. M. S., India.

II. MATERIALS AND METHOD

Seven worms collected from intestine of *Mastcembellus armatus* (Lecepede, 1800). Alimentary canals of hosts were cut open in petridish with normal saline water, shaken slightly, contents decanted many times and cestodes were stretched in lukewarm water and flattened between cover glass and slides, fixed in 4% formalin for 24 hrs, washed in distilled water. Whole mounts, stained in Harris haematoxyline, dehydrated in ascending alcoholic grades, cleared in xylene and mounted

in D.P.X. Illustrations drawn with help of Camera Lucida and measurements taken in mm. Identification carried out using Systema Helminthum volume II (Yamaguti, 1956).

III RESULTS / DESCRIPTION

Circumoncobothrium gangapurensis n. sp. (Figures A to D)

The worms, medium in length, thin, white with scolex, numerous immature and mature segments. Scolex triangular, 1.220x0.834. Scolex bears two shallow bothria, 1.106 x 0.432. Anterior end of scolex has truncated disc, armed with 42 hooks. Hooks lanceolate, slightly curved, large hooks measure 0.077x0.005, small hooks measure 0.016x0.002. Neck is short, measures 0.189x0.500. Mature segments broader than longer, measure 0.257x1.035. Testes medium to large, oval, in two lateral fields, numbering 165–170 (167), measuring 0.053x0.047. Cirrus pouch is medium, oval, obliquely placed, pre-ovarian, measuring 0.015x0.019. Cirrus thin, slightly curved, measures 0.039x0.015. Ovary bilobed, post-equatorial; unequal oval lobes, with 8-12 short, round, blunt, acini, measures 0.112x0.136. Isthmus, long, wide, measures 0.121x0.019. Vagina thin, medium in length, measures 0.049x0.005. Ootype large, oval, pre-ovarian, measures 0.01x0.015. Vitellaria follicular, follicles in 3-5 rows on each side, medium, round, sub-cortical 0.010x0.015 in diameter. No gravid segments. Uterus in mature segments developing stage, with numerous eggs, measures 0.243x0.199. Eggs oval, operculated, measures 0.029–0.050 x 0.017–0.026. The uterine pore is large, oval, double walled, measures 0.083x0.058.

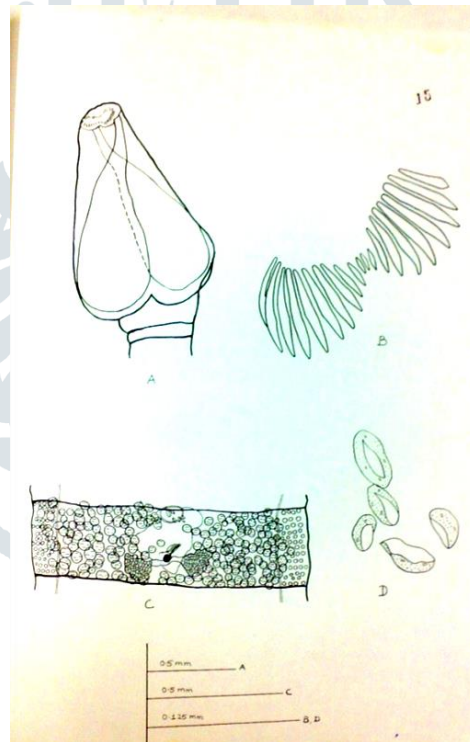


Figure: *Circumoncobothrium gangapurensis* n. sp.

A – Scolex, B- Rostellar Hooks, C- Mature segment, D- Eggs

IV DISCUSSION

Circumoncobothrium genus, erected by Shinde G. B. (1968) as type species *C. ophiocephali* from *Ophiocephalus leucopunctatus*. Later 28 more species have been added. They differ from described cestode in following characters: The present tapeworm differs from *C. ophiocephali* [17] in having distinct scolex; rostellar hooks 80, presence of neck; ovary compact; vitellaria follicular It differs from *C. aurangabadensis* [3] in having scolex broad in middle, narrow at both ends; hooks 42 in numbers; presence of neck; testes 135-145 in number. It's form differs from *C. raoii* [20] in

having scolex broad in middle and narrow at both ends, hooks 46 in numbers, arranged in single circle, neck present, testes 210-215 in numbers. It varies from *C. shindei*, [21] in having scolex narrow anteriorly and broad posteriorly, hooks 49 in numbers, neck present, testes 260-275 in numbers, evenly distributed and ovary dumb-bell shaped. It differs from *C. bagariusi* [2] in having scolex narrow anteriorly and broad posteriorly, hooks 55 in numbers, testes 275-285 in numbers, arranged in two lateral fields, vitellaria follicular. Present parasite differs from *C. khami* [18] in having scolex cylindrical, hooks 48 in numbers, lancet shaped, mature proglottids squarish, testes 190-200 in numbers, evenly distributed, vitellaria follicular. It varies from *C. gachuai* [4] in having scolex pear shaped, hooks 46 in numbers, neck present, mature proglottids squarish, testes 375-400 in numbers, vitellaria follicular, arranged in two rows. It differs from *C. yamaguti* [5] in having scolex distinct, narrow anteriorly and broad posteriorly and testes 130-150 in numbers. It differs from *C. alii*. [22] in having scolex triangular, hooks 34 in numbers, neck present and testes 230-240 in numbers. It differs from *C. vadgaonensis* [13] in having scolex triangular, hooks 56 in numbers, neck present, testes 490-510 in numbers and vitellaria follicular. It differs from *C. baimaii* [26] in having scolex pear shaped, hooks 48 in numbers, neck present, testes 88-100 in numbers, ovary compact and reported from *Mastacembelus armatus* in Chang Mai. It differs from *C. armatusae*, [19] in having scolex triangular; hooks 58 in numbers; neck present; testes 90-100 in numbers; ovary compact; vitellaria follicular, arranged in 3-4 rows on lateral side of segments. It differs from *C. punctatusi* [19] in having scolex rectangular; hooks 40-50 in numbers; neck present, mature proglottids squarish; testes 140-150 ; vitellaria follicular, arranged in 3-6 rows. It differs from *C. mastacembelusae* [23] in having scolex pear shaped, hooks 30, testes 130-140 in numbers, vitellaria follicular, arranged in 2-3 rows. It differs from *C. armatusae (minor)* [14] in having scolex triangular, hooks 58 in numbers, testes 190-200 in numbers and vitellaria follicular. It differs from *C. manjari* [25] in having scolex triangular, hooks 48 in numbers, in single circle, neck present, testes 128-145 in numbers, vitellaria follicular. It differs from *C. vitellariensis* [24] in having scolex large, hook 48 in numbers, testes 250-260 in numbers; vitellaria follicular, arranged in 3-4 rows. It differs from *C. cirrhinae* [9] in having scolex cylindrical, rostellar hooks 56 in number, mature segments slightly longer than broad, testes 300-305 in number, vitellaria granular. It differs from *C. mehdii* [16] scolex large, rostellar hooks 56, mature proglottids medium, testes 284, Vitellaria follicular. It differs from *C. ambajogaiensis* [12] with scolex large, triangular, rostellar hooks 48 number, neck is short, mature segments 2.5 times broader than long, testes (150-160) in number; vitellaria follicular, in two rows. It differs from *C. yogeshwari* [6] scolex triangular; hooks 53 in number, testes 95-98 number, mature segment broader than long. It differs from *C. purnae* [1] in having hooks 52 in number, mature segments squarish and broader than long, testes 230-235 in number, vitellaria follicular in 3-5 rows. The cestode differs from *C. naidui.*, [8] in having cylindrical scolex, hook 40 in number, testes 200 – 210 in number. It varies from *C. paithenensis* [15] in having scolex large; long, rostellar hooks 58 in number, Mature segments are almost two times broader than long, testes 70 - 80 in number, Vitellaria follicular. Described tapeworm differs from *C. thapari* [10] with triangular scolex, rostellar hooks 52; testes are 95 in number, vitellaria follicular, 2-3 rows, It differs from *C. jadhavae* [11], in dome shaped scolex, Hooks 35-45; Mature proglottids broader than long, Testes 95-105 in number. Vitellaria follicular, in two rows. It differs from *C. clariasi* [7] in having mature segments squarish, hooks 48 in number, testis 254 in number; vitellaria follicular. It differs from *C. hemlatae* [27] in having scolex triangular, mature segment 12-13 broader than long, rostellar hooks 54, testes 200-225 in number and vitellaria granular. It differs from *C. nathii* [28] in rostellar hooks (63); testes (70); ovarian lobes (dumbbell shaped with irregular margin); vitellaria follicular in 3-4 rows.

The present species differs from *C. jafrabadensis* in having large, triangular scolex with two bothria; 44 rostellar hooks, 11 in each quadrant; testes 140 – 150 (143) arranged in two lateral fields; vitellaria follicular, subcortical in 2 -4 rows. These characters necessitate erection of new species for these worms and hence name *Circumoncobothrium gangapurensis* n. sp. is proposed after locality .

Type species:-	<i>Circumoncobothrium gangapurensis</i> n. sp.
Host: -	<i>Mastacembellus armatus</i> (Cuv. and val).
Habitat:-	Intestine
Locality: -	At Gangapur, Tq. Gangapur, Dist. Aurangabad, M. S., India.

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