

A new cestode parasite from the genus *Cotugnia* from Ahmednagar district M.S. India.

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Abstract

The genus *Cotugnia* was erected by Diamare (1893) [1] with type species *C. diagonopora*, collected from domestic fowl. Eight specimens of the parasites were collected from the intestine of *Gallus gallus domesticus*. The present cestode have scolex quadrangular, absence of rostellar hooks, testes 63 in number, ovary oval, ootype small, rounded and postovarian. It was compared and differs from various five species and was considered as new species *Cotugnia mohekarii*.

Keywords: *Cotugnia*, *Gallus gallus domesticus*, ootype.

INTRODUCTION

The genus *Cotugnia* was erected by Diamare in 1893 [1], with type species *C. diagonopora* (Pasquale, 1890 [14]) collected from the domestic fowl. In 1909 Fuhrman added *C. Polyacantha*. In 1924 Meggit added *C. cuneata*. *C. joyeuxi* and *C. parva* was added by bare in 1925. *C. fleari* was added by Meggit, 1927. *C. bhali* and *C. intermedia* and *C. noctua* was added by johri 1934. *C. taiwanensis*, added by Yamaguti, 1935 [25]. *C. rimondoi*, by tubangui et Masilungun, 1937 [24]. *C. magna* by Burt, 1940. In 1961 Siddiqui studied the morphology of *Cotugnia digonopora*. *C. columbae* and *C. aurangabadensis* by shinde, 1969 [17]. *C. shrivastavi* by Malviya and dutta, 1970 [9] from the domestic Pigeon. In 1983 malhotra and capoor *C. satpulensis*, in 1985 shinde et al [18] *C. yamagutii*. In 1988 kolluri, R. laxmi and Rao added *C. vishakapatnamensis*. In 1994 Jadhve et al added *C. rajivji*. In 1995 kharade and shinde [6] added *C. kamatiensis*. In 1998 C. wongsawad and jadhav added *C. chengmaii*. In Mahajan (1999) [8] was added *C. mehdi* from *Gallus domesticus* in Aurangabad. In 1999 Shinde G.B [19]. added *C. manishae* from *Columba livia* at Amravati and *C. ganguae* from *Carvus splendens*. In 2002 Shinde et.al [21]. added *C. alii*. In 2003 Jadhav et al. added *C. sillodensis*. In 2004 Pawar et al [16]. added *C. singhi*. In 2004 Jadhav et al [2] added *C. lohanensis*. In 2005 Tat and Jadhav [23] added *C. shankari*. In 2005 Patil et al [15]. added *C. liviae* In 2009 G.P. Jadhav et al. added *C. streptopelia*. Two new species added are *C. hafeezii* and *C. indiana*. In 2011 S. S. Nanware et al [13]. added new species *C. tetragona*. After that no new species are added under this genus. Following description deals with the new species *Cotugnia mohekarii* sp. nov. added under the genus

Cotugnia.

Later on no species is added to this genus. The present communication deals with the new species that is *C. mohekarii* under the same genus. Collected from intestine at Rajapur taluka Sangamner, Dist. A'nagar, M.S. India.

MATERIAL AND METHOD

Eight specimens of the parasites were collected from the intestine of *Gallus domesticus* at Rajapur, taluka Sangamner, Dist. Ahmednagar, M.S. India in the period of July 2007 to June 2009. These cestodes preserved in hot 4% formalin and stained with Harris haematoxylin and Borax carmine, passed through various alcoholic grades, cleared in xylene, mounted in D.P.X. and drawings are made with the aid of camera lucida. All measurements are given in millimeters. The identification is made with the help of Systema Helminthum.

DESCRIPTION

All the cestodes are long consisting scolex is medium in size, quadrangular in shape, distinctly marked off from the strobila measuring 4.101 (3.052-5.150) in length and 4.959 (4.196-5.722) in breadth. The rostellum is small in size, oval in shape measuring 0.476 (0.381-0.572) in length and 0.629 (0.648-0.61) in breadth. The scolex bears four sucker almost rounded in shape, large in size, placed at corner in two pairs, one pair on each side of the rostellum and measures 1.144 (0.763-1.526) in length and 1.239 (0.953-1.526) in breadth. The neck is absent, The mature segments are broader than long with double set of reproductive organs and measures 2.841 (2.479-3.204) in length and 6.047 (5.608-6.487) in breadth. The testes are 63 (60 to 65) in number almost rounded, scattered in the middle of the segment in between to ovaries in single field evenly distributed and measures 0.495 (0.457-0.534) in diameter. The cirrus pouch on each side is long, straight, cylindrical broad in the middle and narrow towards vas deference situated in anterior region of the segment and measures 0.534 (0.533-0.534) in length and 0.514 (0.495-0.534) in breadth. The genital pore is small, oval in shape

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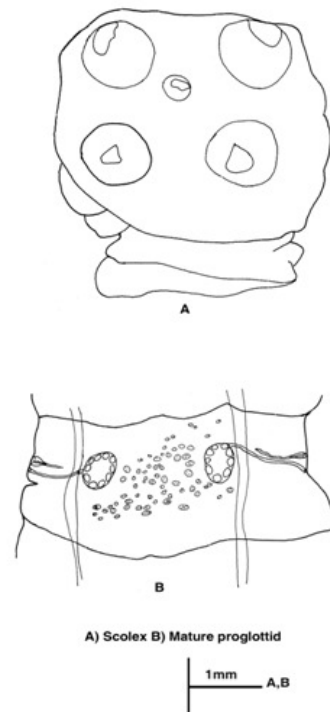
situated at centre and measures 0.038 (0.035-0.041) in length and 0.038(0.034-0.042) in breadth. The vas deference is thin, long, curved, closed to the anterior margin of segment and measures 0.841 (1.45-0.232) in length and 0.023 (0.009-0.014) in breadth.

The ovary is oval in shape, present in each side of the segment, small in size situated middle of the segment, medial to the longitudinal excretory canal and measures 0.686 (0.534-0.839) in length and 0.038(0.035-0.041) in breadth. The vagina is thin tube

posterior to the cirrus pouch, curved, runs horizontally, crosses the excretory canal dorsal to the ovary reaches and opens into the ootype and measures 1.793 (1.794-1.792) in length and 0.038 (0.037-0.039) in breadth. The ootype is small, rounded, postovarian and measures 0.19(0.18-0.20) in diameter. The vitelline gland is medium in size, and measures 0.046 (0.043-0.049) in length and 0.027 (0.024-0.033) in breadth. Gravid proglottids were not available.



Cotugnia mohekarii sp. nov



A) Scolex B) Mature proglottid

DISCUSSION

The genus *Cotugnia* was erected by Diamare in 1893[1], with its type species *C. digonopora* from *Gallus gallus domesticus*. So far no. of species of *Cotugnia* was added to this genus. The present worm comes closer to all the known species of the genus *Cotugnia* Diamare 1893[1], but differs due to some characters from following species.

1. The present cestode, differs from *C digonopora*, Pasqual, 1890, Diamare, 1893[1].in having diameter of Scolex 1.56, diametre of rostellum 0.150, number of hooks very numerous, number of testes 100-150 in number, length of cirrus pouch 0.300 and reported from *Gallus gallus domesticus* in Africa, Burma, India.
2. The present cestode, differs from *C. polyacantha*, Fuhrmann, 1909. in having Scolex 0.450 in diameter, rostellum 0.220 in diameter, number of hooks 420, testes about 100 in numbers length of cirrus pouch 0.180 and reported from Columba turner in Europe, Africa, Egypt.
3. The present cestode, differs from *C. cuneata tenuis*, Meggitt, 1924 [10].in Scolex rounded, number of hooks 400, number of testes 30-50 in number.
4. The present parasite, differs from *C. parva*, Baer, 1925.in having diameter 0.49-0.68×0.69-0.85, diameter of rostellum 0.15,

- number of hooks 378-396, number of testes 32-41 length of cirrus pouch 0.96-0.106 and reported from Columba livia in Burma, India.
5. The present cestode, differ from *C. jyoeuxi*, Baer, 1925.in having diameter of Scolex 0.67, Diamter of rostellum 0.19, number of hooks 250, number of testes 30-50, in number, length of cirrus pouch 0.0075 and reported from Turner Sengalensis, in French, Guinea.
6. The present parasite, differs from *C. fleari*, Meggitt, 1927 [12].in having Scolex diameter 0.45× 0.58, rostellum not mentioned, testes 28-44 in number, length of cirrus pouch 0.29-0.31 and reported in Columba livia, in Egypt, India.
7. The present cestode, differs from *C.bhali*, Johri, 1934. in having diameter of scolex 0.500, diameter of rostellum 0.34 and number of hooks 332,number of testes 69-74, length of cirrus pouch 0.25-0.223.
8. The present cestode, differs from *C.intermedia*, Johri, 1934, in having the diameter of 0.44-0.525, rostellum not mentioned, testes 69 to 74 in number, length of cirrus pouch 0.215-0.223.
9. The present cestode, differs from *C. noctua*, Johri, 1934.in having diameter of Scolex 0.570, diameter of rostellum 0.225, number of testes 170-182, length of cirrus pouch 0.176 to 0.200.

10. The present cestode, differs from *C. taiwanensis*, Yamaguti, 1935 [25]. in presence of diameter of Scolex 0.51 to 0.740, diameter of rostellum 0.440, number of hooks about 200, number of testes 12-13, and reported in Indochina, India.
11. The present parasite, differs from *C. magna*, Burt, 1940, in having diameter of Scolex 0.580-0.620, diameter of rostellum 0.285-0.315, number of hooks 480-500, number of testes 150 and reported from *Columba livia* in Ceylon.
12. The present cestode, differs from *C. columbae*, Shinde, 1969 [17], in presence of diameter of Scolex 0.54-0.74, diameter of rostellum 0.447, number of hooks about 1200, number of testes 12-14, length of cirrus pouch 0.3, ovary bilobed.
13. The present cestode, differs *C. aurangabadensis*, Shinde, 1969[17], in presence of diameter Scolex broad 0.483, diameter of rostellum 0.300 (flat), number of hooks about 500 in two rows, number of testes 80-90, cirrus pouch 1.30×1.040, ovary compact.
14. The present parasite differs *C. shrivastavi*, Malviya and Dutta, 1970 [9], in presence of diameter of Scolex 0.726 diameter of rostellum 0.446, number of testes 80-85.
15. The present cestode, differs *C. magdoubii*, Megzoubi and Kasim, 1980[7], in presence of diameter of Scolex 0.44-0.55, diameter of rostellum 0.25-0.55, number of testes not mentioned, length of cirrus pouch 0.15-0.18.
16. The present species, differs from *C. satpulensis*, Shinde *et al.*1983, in presence of diameter of Scolex 0.535, diameter of rostellum 0.230, number of hooks 337, number of testes 43-52.
17. The present worm., differs from *C. yamaguti*, Shinde *et al.*, 1985 [18], in presence of diameter of Scolex globular, rostellum rounded, number of hooks about 500, number of testes 190-200, ovary bilobed.
18. The present worm, differs from *C. kamatiensis*, Kharade and Shinde [6], 1995, number of hooks 200-210, number of testes 95-105, ovary bilobed.
19. The present parasite, differs from *C. Chiangmai* Wongsawad *et al.*, 1998, in presence of number of hooks numerous, number of testes 30-35, ovary bilobed.
20. The present cestode, differs from *C. manishae*, Shinde *et al.*, 1999 [19], in presence of diameter of Scolex 0.462×0.485, diameter of rostellum 0.223×0.227, number of hooks 110-120, number of testes 85-90 (90).
21. The present cestode, differs *C. ganguae*, Shinde *et al.*1999[20], in presence of number of hooks 275-300, number of testes 155-160, ovary bilobed.
22. The present cestode, differs from *C. mehdii*, Mahajan *et al.*, 1999 [8], in presence of diameter of Scolex 0.985×1.576, diameter of rostellum 0.129×0.182, number of hooks 110, number of testes 140-150.
23. The present cestode, differs from *C. alii*, Shinde *et al.*, 2002 [21], in presence of diameter of Scolex 0.450-0.456×0.636-0.657, number of hooks 100-110, number of testes 80-85.
24. The present cestode, differs *C. sillodensis*, Jadhav *et al.*, 2003 [4] number of hooks 220-250, number of testes 165-175, ovary irregular median.
25. The present cestode, differs from *C. singhi*, Pawar *et al.*, 2004 [16], in presence number of hooks 200-210, number of testes 65-70, ovary is irregular.
26. The present cestode, differs from *C. lohanesis*, Jadhav *et al.*,2004 [2], in presence of shape of Scolex, number of hooks 190 to 210, number of testes 28-30, ovary bilobed.
27. The present cestode, differs from *C. rimondoi*, Tubandui Masilungan *et al.*, 1937, in having number of testes about 100-136 and reported in *Columba livia* in Philippines.
28. The present cestode, differs from *C. rajivji*, Jadhav *et al.* 1994 [3], in presence of diameter of Scolex oval, 0.62-1.004, diameter of rostellum 0.37-0.44, number of hooks 350-400, cirrus pouch 0.280-0.282, ovary bilobed.
29. The present parasite, differs from *C. shankari*, Tat and Jadhav. 2005 [23] in presence of 0.947-1.000×0.955-0.092×0.182-0.213, number of hooks 105-205, number of testes 27-40, length of cirrus pouch 0.098-0.030, ovary bilobed.
30. The present cestode, differs from *C. liviae*, Patil *et al.*,2005 [15] in presence of diameter of Scolex 0.369×0.359-0.437 mm, diameter of rostellum 0.175-0.0189×0.097-0.131, number of hooks 250-270, number of testes 120-125 (123), length of cirrus pouch 0.225×0.068.
31. The present cestode, differs from *C. streptopelia*, G.P. Jadhav, *et al.* 2009 is differs from Diameter of Scolex longer than broad 8.04-5.36×9.82-5.36 quadrangular, diameter of rostellum 2.58-2.14×1.96-1.25, number of hooks numerous, number of testes 27-30 ovary compact, almost bilobed 5.36-4.46×5.54-4.46, vitelline gland post ovarian, oval 1.79-1.43×1.61-1.43.
32. The present cestode, differs from *C. Hafeezii* in diameter of Scolex 1.2245×1.086×0.996-1.176, quadrangular, diameter of rostellum 0.95×0.317, number of hooks 55-60, number of testes 150-160.
33. The present parasite differs, from *C. Indiana* from diameter of Scolex square, number of hooks 110-120 number of testes 115-120.
34. The present cestode, differs from *C. tetragona*, in presence of Scolex tetragonal 0.927(0.688-1.666) x 0.773(0.667-0.879), diameter of rostellum 0.280 (0.212-0.349) x 0.450, number of hooks 120-130, number of testes 60-70, length of cirrus pouch 0.185, ovary bilobed, vitelline gland round.

The above noted characters of these cestode, are valid enough to erect a new species hence the name of the new species is proposed as *Cotugnia mohekarii* sp. Nov. to honour Dr. A. D. Mohekar, research guide, of the author for the inspiration during the completion of this work.

TAXONOMIC SUMMARY

Genus	: <i>Cotugnia</i> Diamare, 1893[1]
Species	: <i>Cotugnia mohekarii</i> . sp.nov.
Type host	: <i>Gallus gallus domesticus</i> (Linnaeus, 1758)
Habitat	: Intestine
Type locality	: Ahmednagar dist. (M.S.) India
Period	: July 2007 to June 2009
Etymology	: As the cestode species reported from Ahmednagar (M.S.) India.

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