

Reporting a new species of the genus *Cotugnia* (Cestoda: Davaineidae) from *Gallus gallus domesticus* at Mehunbare, Tal. Chalisgaon, Dist. Jalgaon (M.S.)

¹Ajit Kalse, ²Avinash Bhangale and ³Jagdish Patil

¹ Professor, ²Associate Professor & ³Assistant Professor

Department of Zoology, Helminth Research Lab., Nanasaheb Y. N. Chavan ASC College,
Chalisgaon, Dist. Jalgaon, (M.S.), India.

ABSTRACT: -

The genus *Cotugnia* was erected by Diamare (1893) with the type of species *C. diagonopora* collected from domestic fowl. Seven specimens of cestode parasites were collected from the intestine of *Gallus gallus domesticus* at Mehunbare, Tal. Chalisgaon, Dist. Jalgaon. The present cestode have Scolex large in size, quadrangular in shape, rostellum is armed with numerous hooks, testes 60-64 (62) in number, round in shape, ovary medium in size with irregular margin, vagina ventral to cirrus pouch, ootype small, round. It was compared and differs from six species and considered as a new species, *Cotugnia mehunbarensis*.

INDEX TERMS: - *Cotugnia*, *Gallus gallus domesticus*, Mehunbare.

INTRODUCTION

The genus *Cotugnia* was erected by Diamare 1893, with the type of species *C. diagonopora* (Pasquale, 1890) collected from the domestic fowl, *Gallus gallus domesticus*. In 1909 Fuhrmann added *C. polycantha*. In 1924 Meggitt added *C. cuneata tenuis*. *C. joyeuxi* and *C. parva* was added by Baer in 1925. *C. fleari* was added by Meggitt, 1927. *C. bahli*, *C. intermedia* and *C. noctua* were added by Johri, 1934. *C. magna* by Burt, 1940. *C. aurangabadensis* and *C. columbae* was added by Shinde, 1969. *C. shrivastavi* by Malviya and Datta, 1970. *C. satpulensis*, Malhotra and Kapoor, 1983. *C. yamaguti*, Shinde, Jadhav and Kadam, 1985. *C. rajivji*, Jadhav, Kadam, Bawane and Nanware, 1994. *C. kamatiensis*, Kharade and Shinde, 1995. *C. chengmaii*, Wongsawod and Jadhav, 1998. *C. manishae*, Shinde and Mahajan, 1999. *C. mehadii*, Mahajan, 1999. *C. ganguae*, Shinde, Kolpuke and Begum, 1999. *C. alii*, Shinde, Pawar and Garad, 2002. *C. singhi*, Pawar, Shinde and Garad, 2004. *C. lohaensis*, Jadhav and Gore, 2004. *C. shillodensis*, Jadhav, Khadap and Thorat, 2004. *C. shankare*, Tat and Jadhav, 2005. *C. liviae*, Patil, Lakhe, Pawar and Shinde, 2005. *C. streptopelii*, Jadhav, Makne, Pawar and Pawar, 2009. *C. indiana*, Kasar, Bhure, Nanware and Sonawane, 2010. *C. hafeezi*, Nanware, Dhondge and Bhure, 2010. *C. tetragona*, Nanware, Dhondge and Bhure, 2011. *C. orientalis*, Nanware, Dhondge and Bhure, 2011. *C. murhari*, Sanap, Patil and Siddiqui, 2011. *C. mohekarii*, Shukla, Bhavare, Borde and Mohekar, 2012. *C. jadhavji*, Shukla and Bhavare, 2012. *C. diamarei*, Nanware and Bhure, 2013. *C. osmanabadensis*, Pathan, Bhure and Mule, 2014. *C. gallusensis*, Patil and Kalse, 2017. *C. shindeae*, Patil et al., 2019. After that no species are added under this genus. Following description deals with the new species *C. mehunbarensis* added under the genus *Cotugnia*, which is collected from the intestine of domestic fowl, *Gallus gallus domesticus* at Mehunbare, Tal. Chalisgaon, Dist. Jalgaon. (M.S.).

MATERIAL AND METHODS

Seven specimens of the cestode parasite were collected from the intestine of *Gallus gallus domesticus* on the 27 May, 2015. All these cestode were collected, flattened, fixed, preserved in 4% formalin and washed with the help of tap water, stained with Harris haematoxyline, dehydrated in various alcoholic grades, cleared in xylol and mounted in DPX. Drawings were made with the help of Camera Lucida and microphotographs were taken by digital camera. All measurements are in millimeters. The identification is made with the help of Systema helminthum. Slides are deposited in the research laboratory.

RESULTS AND DISCUSSION

Description (Based on four specimens: Figs.1A, B, C).

All the cestode were long having the scolex, it is large in size, almost quadrangular in shape and measures 0.317 to 0.339 in length and 0.365 to 0.489 in breadth. The scolex bears an armed rostellum and four suckers. The rostellum is large in size, oval in shape and measures 0.129 to 0.136 in length and 0.083 to 0.097 in breadth. The rostellum is armed with numerous hooks, which are arranged in a single circle and measure 0.59 to 0.81 in length and 0.06 to 0.09 in breadth. The four suckers are medium in size, round in shape, overlapping on each other and measure 0.639 in diameter.

The mature segments have double set of reproductive organs in each segment which is large in size, broader than long, almost five to six times broader than long, with convex lateral margins, narrow anteriorly, broad posteriorly, with projections at the posterior corners of the segments. The segments measure 0.244 to 0.271 in length and 1.234 to 1.335 in breadth. The testes are 60 to 64 (62) in number, smaller in size, round in shape, scattered in mid posterior side of the segment, evenly distributed, bounded laterally by longitudinal excretory canals and measure 0.021 in diameter. The cirrus pouch on each side is medium in size, elongated, slightly obliquely placed, posteriorly directed and situated in the anterior 1/3rd region of the segments, narrow proximally and wide distally and measures 0.079 in length and 0.021 in breadth. The cirrus is thin, straight, contained within the cirrus pouch and measures 0.101 in length and 0.005 in breadth. The vas deferens is thin, long, curved and measures 0.164 in length and 0.006 in breadth.

The ovary on each side is distinctly quadrangular, medium in size, lobes are more or less equal in size and shape with irregular margin, each lobe with 20 to 22 short, blunt round acini. The ovary is placed in the middle of the segment and measures 0.090 to 0.101 in length and 0.047 to 0.053 in breadth. The vagina is a thin tube, ventral to the cirrus pouch, starts from the genital pore, extends transversally, runs obliquely to anterior side, reaches and opens into the ootype and measures 0.303 in length and 0.007 in breadth. The ootype is small in size, round in shape, anterior to the ovary and measures 0.013 to 0.039 in diameter. The genital pores are small in size, oval in shape, bilateral in arrangement, 1/3rd to 1/4th from the anterior margin of the same and measure 0.013 in length and 0.005 in breadth.

The longitudinal excretory canals are narrow and measure 0.005 in width.

The gravid segments are large in size, broader than long, almost three times broader than long, with convex lateral margins and measure 0.17 to 0.21 in length and 0.5 to 0.608 in breadths.

The uterus is saccular, large, occupy middle of the segment and contains numerous eggs. The eggs are large in size, oval in shape and measure 0.021 to 0.039 in length and 0.013 to 0.030 in breadth.

The worm under discussion, in having the number of testes 60 to 64 (62), comes closer to *Cotugnia bahali* Johri, 1934, *Cotugnia intermedia* Johri, 1934, *Cotugnia satpulensis* Malhotra and Kapoor, 1983, *Cotugnia rajivji* Jadhav, Kadam, Bawane & Nanware, 1994, *Cotugnia singhi* Pawar, Shinde and Garud, 2004, *Cotugnia tetragona* Nanware, Dhondge & Bhure, 2011 and *Cotugnia mohekarii* Shukla, Bhavare, Borde & Mohekar, 2012 but differs from them, in many characters which are as follows:

1. The present cestode, differs from *Cotugnia bahali*, Johari 1934; in the length of the scolex (0.317 to 0.339 against 0.50), in the length of rostellum (0.129 to 0.136 against 0.34), in the number of testes (60 to 64 against 69 to 74) and in the length of cirrus sac (0.079 to 0.021 against 0.215 to 0.0223).
2. The present tapeworm, differs from *Cotugnia intermedia* Johri 1934; in the length of scolex (0.317 to 0.339 against 0.440 to 0.525), in the number of testes (60 to 64 against 63 to 74) and in the length of cirrus sac (0.079 to 0.021 against 0.215 to 0.223).
3. The present worm, differs from *Cotugnia satpulensis* Malhotra and Kapoor, 1983; in the length of the scolex (0.317 to 0.339 against 0.535), in the length of rostellum (0.129 to 0.136 against 0.230), in the number of hooks (numerous against 337), in the number of testes (60 to 64 against 43 to 92) and in the length of cirrus sac (0.079 to 0.021 against 0.190 to 0.283).
4. The present tapeworm, differs from *Cotugnia rajivji* Jadhav, Kadam, Bawane & Nanware, 1994; in the length of scolex (0.317 to 0.339 against 0.62 to 1.006) and in the length of cirrus sac (0.079 to 0.021 against 0.280 to 0.282).
5. The present cestode, differs from *Cotugnia singhi* Pawar, Shinde and Garud, 2004; in the length of scolex (0.317 to 0.339 against 0.363), in the length of rostellum (0.129 to 0.136 against 0.154), in the number of hooks

(numerous against 200 to 210), in the number of testes (60 to 64 against 65 to 70) and in the length of cirrus sac (0.079 to 0.021 against 0.159 to 0.229).

6. The present worm, differs from *Cotugnia tetragona* Nanware, Dhondge & Bhure, 2011; in the length of the scolex (0.317 to 0.339 against 0.927 x 0.773), in the length of rostellum (0.129 to 0.136 against 0.280 x 0.450), in the number of hooks (numerous against 120-130), in the number of testes (60 to 64 against 60 to 70) and in the length of cirrus sac (0.079 to 0.021 against 0.185 x 0.09).

7. The present tapeworm, differs from *Cotugniamohekarii* Shukla, Bhavare, Borde & Mohekar, 2012; in the length of scolex (0.317 to 0.339 against 4.101 x 4.959) in the length of rostellum (0.129 to 0.136 against 4.476 x 0.629) and in the length of cirrus sac (0.079 to 0.021 against 0.534 to 0.514)

The above noted characters are enough, to erect a new species, for these worms and hence the name *Cotugnia mehunbarensis* n. sp. is proposed after the locality of the host.

Taxonomic summary

Type species : *Cotugnia mehunbarensis* n. sp.

Host : *Gallus gallus domesticus* (Linnaeus, 1758)

Habitat : Intestine

Locality : Mehunbare, Tq. Chalisgaon, Dist. Jalgaon, M.S., India.

Holotype and paratype : Deposited in the Helminth Research lab.

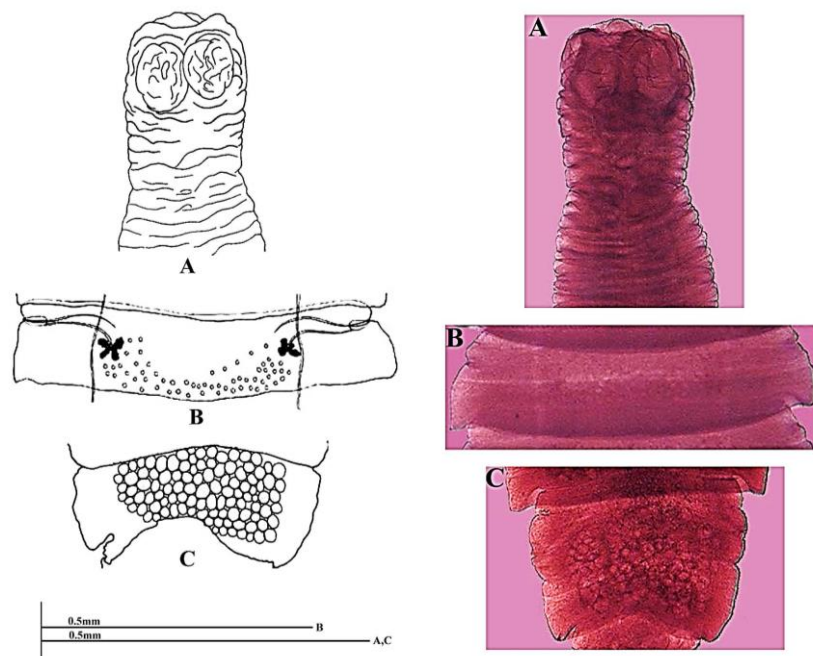
Dept. of Zoology, N. Y. N. Chavan A. S. C.

College, Chalisgaon, Dist. Jalgaon (M.S.)

Date of collection : 27th May 2015

Name proposed after the locality of the host.

Etymology :



Camera Lucida and Microphotographs of

Fig. *Cotugnia mehunbarensis* n. sp.

- A- Scolex
- B- Mature segment
- C- Gravid segment

ACKNOWLEDGMENTS

The authors are thankful to the Principal, Nanasaheb Y. N. Chavan Arts, Science and Commerce College, Chalisgaon, Dist. Jalgaon, for encouragement and laboratory facilities.

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