

# A taxonomic study on new cestode *Cotugnia gallusae* from *Gallus domesticus* at Aurangabad district (M.S.), India

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**Abstract :** This communication deals with a new *Davaineidaen* tapeworm belonging to the genus *Cotugnia* viz, *Cotugnia gallusae* sp. nov. has been described from the intestine of *Gallus domesticus*, at Shahganj, Aurangabad district, (M.S.) India and compared with the existing species. Scolex quadrangular, rostellar hooks single circle, single pronged, 260-280; mature segment quadrangular, craspedote; testes 340-350 (344) in number, ovary horse shoe shaped, longitudinal excretory canals are medium.

**Index Terms :** Tapeworm, *Cotugnia gallusae*, *Gallus domesticus*, Shahganj, Aurangabad.

## I. INTRODUCTION

The genus *Cotugnia* was erected by Diamare[3] with its type species *C. digonopora*[25] collected from the domestic fowl, *Gallus domesticus* from Africa, India, Burma, Indonesia, Phillipines. So far forty species have been reported till date under this genus. *Cotugnia* genus is the sole representative of the family *Davaineidae* from birds. The present study deals with a new species *C. gallusae* from the above said genus, collected from intestine of *Gallus domesticus* at Shahganj in Aurangabad taluka and District Aurangabad, M.S. India.

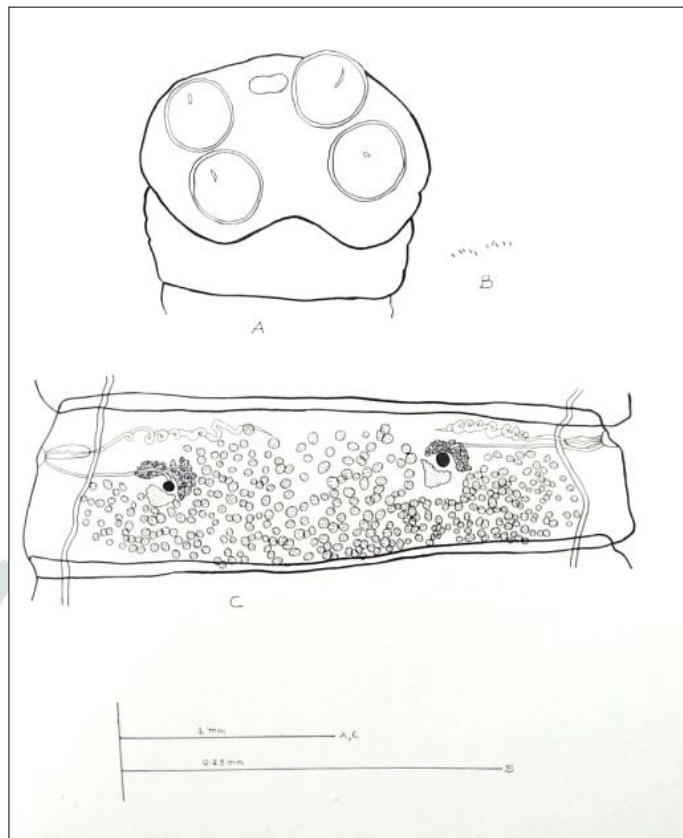
## II. MATERIAL AND METHOD

Six specimens of the cestode parasites were collected from the intestine of *Gallus domesticus* at Shahganj District Aurangabad, M.S. India. The worms were large in size, whitish in colour, with scolex, numerous immature and mature proglottids. They were flattened, preserved in 4% formalin, stained with Harris haematoxyline, passed through the successive alcoholic grades, cleared in xylol, mounted in D.P.X. and whole mount slides were prepared, for further anatomical studies. Drawings made using camera lucida. Measurements are in millimeters. Identifications done using Systema Helminthum.

## III. DESCRIPTION

Scolex large, quadrangular, highly muscular, measures 0.705-0.872×0.887-1.296. Rostellum, small, oval, present between two anterior suckers, measures 0.068-0.083×0.129-0.167. Rostellar hooks large, oval, placed in two pairs, one pair in each half of the scolex, not overlapping, measures 0.318-0.341×0.303-0.348. Neck, short, broader than long, measures 0.220-0.356×1.046-1.190.

The mature segments are large, quadrangular, craspedote, three times broader than long, with convex lateral margins, with short, blunt, conical projections at the posterior corners of the segments and measure 0.545-0.856×2.539-2.812. Testes are 340-350(344) in number, small, oval to round, situated posterior 3/4<sup>th</sup> of the segments, in single field, in the central medulla, bounded laterally by the longitudinal excretory canals and measure 0.023-0.053×0.023-0.045. Cirrus pouch, on each side, is medium, cylindrical, elongated, situated at 1/4<sup>th</sup>, from the anterior margin of the segments, extending upto the longitudinal excretory canals and measures 0.152-0.250×0.015-0.060. Cirrus is thin, stout, slightly curved, long, within the cirrus pouch, measures 0.174-0.258×0.008. The vas deferens is wide, long, highly coiled, runs transversely and anteriorly, crosses the longitudinal excretory canal, reaches upto the ovary and measures



**Figure: A- scolex, B- hooks, C- mature proglottid segment**

1.147-1.516×0.008-0.030. The ovary is medium, indistinctly bilobed, follicular, each lobe with 25-30 short, blunt, oval, acini, almost in the middle of the segments, at one-fourth from the lateral margins and measure 0.265-0.364×0.053-0.205. The vagina tube is of medium width, situated posterior to the cirrus pouch, measures 0.652-0.727×0.015. Ootype is large, oval to round, post-ovarian, present in the concavity of the ovary, measures 0.045-0.068×0.045-0.060 and 0.045 in diameter. Vitelline gland, large, obliquely placed, triangular with irregular margin measures 0.167-0.220×0.00-0.121. Genital pores medium, oval, marginal at 1/4<sup>th</sup> from the anterior margin of the segments, bilateral, measure 0.030-0.045×0.045-0.098.

#### IV. DISCUSSION

*Cotugnia* genus was erected by Diamare in 1893[3], with type species *C. digonopora* from *Gallus gallus domesticus*. So far 40 species of *Cotugnia* have been reported. The present worm comes closer most of the known species of this genus but differs in following characters. The worm described, differs from *C. digonopora*, [3,25] in diameter of Scolex 1.56, diameter of rostellum 0.150, number of hooks very numerous, number of testes 100-150, length of cirrus pouch 0.300. It differs from *C. polyacantha*[5] in having Scolex 0.450 in diameter, rostellum 0.220 in diameter, rostellar hooks 420, testes about 100 in numbers. It varies from *C. cuneata tenuis*[19] in scolex being round, rostellar hooks 400, testes 30-50 in number. The parasite under study, differs from *C. parva*[1] in with diameter 0.49-0.68×0.69-0.85, rostellar diameter 0.15, hooks 378-396, testes 32-41. The described cestode, differs from *C. jyoexi* [1] in having diameter of Scolex 0.67, diameter of rostellum 0.19, number of hooks 250, number of testes 30-50. It differs from *C. fleari*[20] in size of scolex 0.45×0.58, testes 28-44 in number. The present tapeworm differs from *C. bhali* [10] in diameter of scolex 0.5, rostellum 0.34, rostellar hooks 332, testes 69-74 in number.

The present cestode parasite differs from *C. intermedia*[10] in having the diameter of scolex 0.44-0.525, testes 69-74 in number. The tapeworm under discussion differs from *C. noctua*[10] in diameter of Scolex 0.570, rostellar diameter 0.225, number of testes 170-182. The tapeworm under discussion differs from *C. taiwanensis* [39] in size of Scolex 0.51-0.740, diameter of rostellum

0.440, rostellar hooks about 200, testes 12-13. The parasite under discussion, differs from *C.magna*[2] in size of Scolex 0.580-0.620, rostellum 0.285-0.315, hooks 480-500 in number and testes 150 in number. The cestode being studied differs from *C. columbae* [29] in size of Scolex 0.54-0.74, diameter of rostellum 0.447, rostellar hooks about 1200 and testes 12-14 in count. The present cestode parasite differs from *C. aurangabadensis* [29] has broad scolex 0.483, rostellar diameter 0.300, hooks about 500 in two rows and testes 80-90 in number. It differs from *C. shrivastavi*[18] with Scolex size 0.726, rostellar diameter 0.446 and testes 80-85 in number. The present worm varies from *C. magdoubii*[15] in diameter of Scolex 0.44-0.55, rostellar diameter 0.25-0.55. The present species differs from *C. satpulensis*[17] in having Scolex diameter 0.535, diameter of rostellum 0.230, hooks 337 and testes 43-52. The present worm, differs from *C. yamaguti* [30] in having globular Scolex, rostellum rounded, hooks about 500 and testes 190-200 in number. The present worm differs from *C. kamatiensis*[13] in size of rostellum 0.068×0.152, number of hooks 200-210 and number of testes 95-105. The present worm differs from *C. Chiangmai*[38] in having quadrangular scolex, spinose rostellum with numerous hooks, testes 30-35 in number.

The present parasite differs from *C. manishae*[32] in size of Scolex 0.462×0.485, diameter of rostellum 0.223×0.227, rostellar hooks 110-120 and testes 85-90(90). The new parasite varies from *C. ganguae*[31] in number of hooks 275-300 and testes 155-160 in number. The present parasite differs from *C. mehdii*[16] in size of Scolex 0.985×1.576, diameter of rostellum 0.129×0.182, number of hooks 110 and number of testes 140-150. The present parasite varies from *C. alii*[33] in size of Scolex 0.450-0.456×0.636-0.657, rostellar hooks 100-110, testes number 80-85. The present cestode differs from *C. sillodensis*[8] scolex quadrangular, rostellar hooks 220-250, number of testes 165-175. The present worm differs from *C. singhi*[28] in size of scolex 0.363×0.436, rostellar hooks 200-210, number of testes 65-70. The present worm varies from *C. lohaensis*[6] in having oval Scolex, hooks 190-210, number of testes 28-30. The present parasite differs from *C. rimondoi*[37] in having about 100- 136 testes. The present cestode, differs from *C. rajivji*[7] in having Scolex oval, 0.62-1.004, diameter of rostellum 0.37-0.44, number of hooks 350-400. The cestode under discussion differs from *C. shankari*[36] in size of scolex 0.947-1.000×0.955-0.992, hooks 105-205 in number, testes 27-40 in number. The new species differs from *C. liviae*[27] in size of Scolex 0.369×0.359-0.437, number of hooks 120-130 and number of testes 120-125(123). It differs from *C. streptopelia*[9] in having quadrangular Scolex 8.04-5.36×9.82-5.36, hooks numerous, number of testes 27-30. The present worm differs from *C. hafeezii*[21] in size of Scolex 1.2245-1.086×0.996-1.176, hooks 55-60, number of testes 150-160.

The present parasite varies, from *C. indiana*[12] in having Scolex square, hooks 110-120 and testes 115-120 in number. The present cestode, differs from *C. tetragona*[23] in having Scolex tetragonal 0.927(0.688-1.666) x 0.773(0.667-0.879), hooks 120-130 and testes 60-70 in number. The present cestode differs from *C. tuljapurensis*[11] in having scolex squarish, rostellar hook 260-270 in number and testis 255-265(260) in number. The cestode under discussion differs from *Cotugnia mohekarii*[35] in having scolex quadrangular, oval rostellum, hooks absent, number of testes 63(60-65). Present parasite differs from *C. jadhavii*[34] in size of scolex 0.144 (0.763-1.526) x 1.485 (1.444-1.526); rostellum large unarmed; testes 90-100 in number. Present parasite differs from *C. diamare*[24] in having scolex quadrangular in shape; rostellum with 53-55 'V' like spines forming the rostellar ring; testes 62 in number. The present worm differs from *C. asiysis*[2] in having cup-shaped scolex measuring 0.492-0.500x0.678 suckers with tiny spines measuring 232-250X230-232. Rostellum oval, lined with numerous hooks; a couple of multilobed flower shaped ovaries at the middle of segments; Testes round, 15-20 in number.

As the new tapeworm differs with other previous reported species compared above, it justifies its recognition as a new species and hence the name *Cotugnia gallusae* is proposed after the name of the host

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