

# Morphological Analysis on Cestode Parasite from Large Grey Babbler in Bidar District, Karnataka, India

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**Abstract:** The present communication deals with a new species of the genus *Mogheia bidarensis*, Sp. Nov. from *Turdoides malcolmi* at Bidar Karnataka state, India. The worm comes closer to all the known species of the genus *Mogheia* in general topography of organs but differs due to scolex is quite large, quadrangular in shape. The suckers are large, almost oval in shape. Mature segments ten times broader than long, testes follicular, 23-25 in numbers, cirrus pouch large, cylindrical in shape, cirrus coiled, thin tube, Vas deferens thin, curved tube, extends beyond the middle of the segment, vagina is thin tube, posterior to cirrus pouch, genital pores small, oval in shape. Ovary small, compact, elongated, oval in shape, Ootype small, round in shape, Vitelline gland small, oval.

**Keywords:** Bidar, *Mogheia bidarensis*, *Turdoides malcolmi*.

## I. INTRODUCTION

The genus *Mogheia* was erected by Lopez-Neyra in 1944. Moghe, 1933 synonymised it as *Baeria* from the intestine and gizzard of *Turdoides somervillei* in India. The following species are added to the genus:

*M. orbiuterina*, Moghe, 1933.

*M. megaparuterina*, Capoor and Shrivastava, 1966.

*M. bayamegaparuterina*, Capoor, 1967.

*M. asturi*, Gaikwad and Shinde, 1981.

*M. copsychi*, Gupta and Sinha, 1984.

*M. oriole*, Gupta and Sinha, 1984.

*M. govindi*, Shinde et.al., 1986.

*M. parbhaniensis*, Shinde et.al., 1986.

*M. guptai*, Gupta and Parmar, 1988.

*M. caudatusae*, Sonune, et.al., 1990.

*M. turdoides*, Sonune, et.al., 1990.

*M. domesticus*, Jadhav et.al., 1990.

*M. hydrabadensis*, Jadhav et.al., 1994.

*M. passerii*, Kadam, et.al., 1999.

*M. turdoidesi*, Shinde et.al., 2000.

*M. laturensis*, Pawar and Shinde, 2002.

*M. passeriae*, V.B. Garad and Sanjay S. Nanware, 2006

*M. ausae*, Gore et.al., 2008.

*M. yasini*, Shah Shabbir Ahmed Yasin, 2010.

*M. shahadensis*, Shah Shabbir Ahmed Yasin, 2010.

*M. pycnonotusae*, M.N. Kolpuke et al., 2012.

*M. domestica*, R. M. Dhondge et al., 2012.

The genus *Mogheia* is the sole representative of the family Thysanosomidae from birds. Later on no species is added to this genus. The present communication deals with new species *Mogheia bidarensis*, Sp. Nov. collected from *Turdoides malcolmi* at Bidar, Karnataka, India.

## II. MATERIALS AND METHODS

Five cestode parasites were collected from the large grey babbler, at Bidar, Karnataka, India in the month of April, 1987. The cestodes were fixed in 4% formalin. Few of these were stained with Harris Haematoxylin and prepared whole mount slides in

D.P.X. Drawings are made with camera lucida. All the measurements are in mm. The parasites were identified according to keys of Yamaguti.

### III. DESCRIPTION

Eight cestode parasites were collected from the intestine of a large grey babbler, at Bidar, Karnataka, India, in the month of April, 1987. The worms are medium in size, with large scolex, numerous immature, mature and gravid segments. Segments are narrower than the scolex.

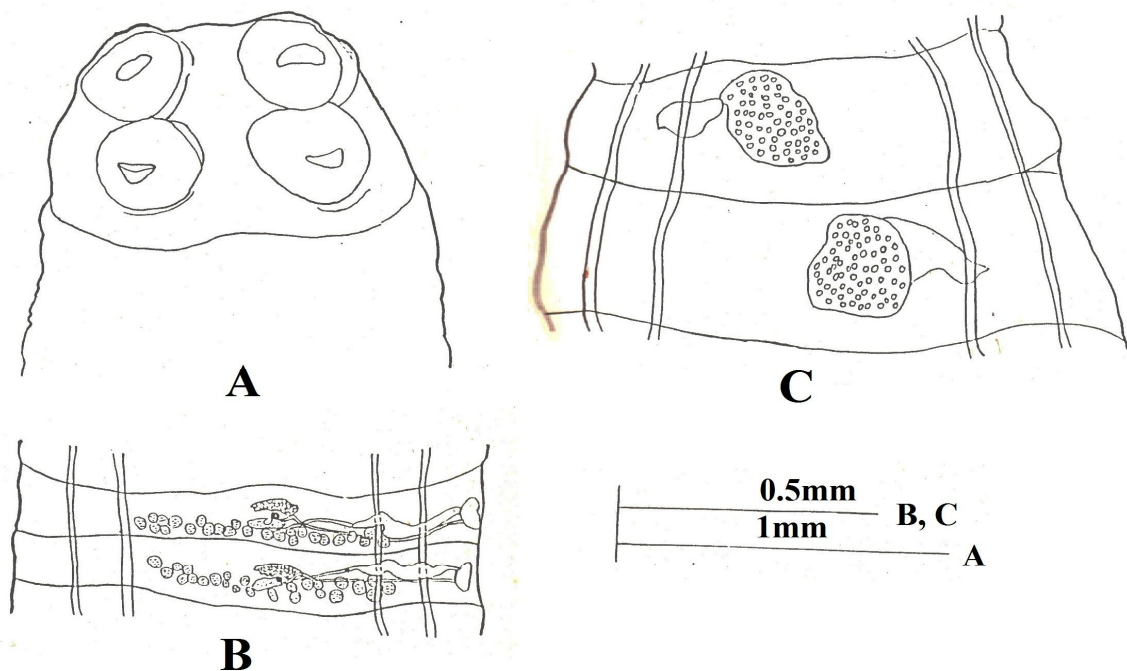
The scolex is quite large in size, quadrangular in shape, with four muscular suckers and measures 0.681 to 0.757 in length and 0.643 to 1.135 in width. The suckers are large in size, almost oval in shape and measure 0.241 in length and 0.097 to 0.169 in width. The mature segments are broader than long, almost six times broader than long, posterior segments are narrower than the anterior segments. Each segment has a single set of genitalia and measures 0.097 to 0.147 in length and 0.873 to 0.897 in width. The testes are follicular, 23-25 in number, almost round in shape, smaller in size, postovarian in position, placed transverse line in between two excretory canals, in the posterior half of the segments and measure 0.014 to 0.029 in diameter. The cirrus pouch is large in size, cylindrical in shape, transversely placed, in the middle of the segment, curved or slightly coiled and measures 0.241 in length and 0.009 to 0.048 in width. The cirrus is a coiled, thin tube, contained within the cirrus pouch and measures 0.388 in length and 0.004 in width. The vas-deferens is a thin, curved tube, extends upto the middle of the segments, runs obliquely and measures 0.145 in length and 0.004 in width.

The ovary is a single mass, compact, small in size, elongated, oval in shape, situated on poral side, in anterior half of the segment and measures 0.088 to 0.097 in length and 0.009 to 0.024 in width. The vagina is a thin tube, posterior to cirrus pouch, runs transversely towards the middle of the segment, takes a turn upwards, reaches and opens into the ootype and measures 0.388 in length and 0.004 in width. The receptaculum seminis is absent. The ootype is small in size, round in shape, postero-ventral to the ovary and measures 0.009 in diameter.

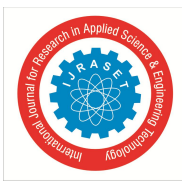
The vitelline gland is small in size, a single compact mass, irregular oval in shape, situated posterior to the ovary and measures 0.072 in length and 0.004 to 0.024 in width.

The genital pore are small in size, oval in shape, submarginal, open into genital atrium, irregularly alternate and measure 0.004 in diameter.. The genital atrium is oval in shape, larger in size, muscular, submarginal and measures 0.057 in length and 0.014 to 0.033 in width.

The gravid segments are broader than long, almost four times broader than long, with a single par-uterine organ in each segment, with uterine cap, irregularly oval in shape, small in size, with numerous eggs, occupy the anterior 3/4<sup>th</sup> region of the segment and measure 0.215 in length and 0.048 to 0.215 in width.



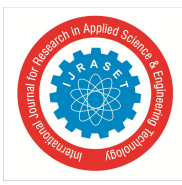
**Fig. *Mogheia bidarensis*, Sp. Nov.**



#### IV. DISCUSSION

The genus *Mogheia* was erected by Lopez-Neyra in 1944, as type species *Mogheia orbiuterina* (Moghe, 1933) from *Turdoides somervillei*, India. Later on the following species are added to the genus:

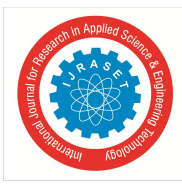
- A. It differs from *M. orbiuterina*, Moghe, 1933 which is having large, roughly square scolex; testes 9, rounded, situated beyond the ovary, on the poral half of the segments; cirrus pouch small, hardly reaching upto longitudinal excretory canals; receptaculum seminis small; paruterine organ small, almost circular, with large uterus, eggs 3 to 4 in number and found in *Turdoides somervillei*.
- B. The present cestode differs from *M. megaparuterina*, Capoor and Shrivastava, 1966 which is having large, globular scolex; testes 17 to 28, follicular, oblong, encircling the ovary; cirrus pouch short, elliptical, reaching upto the longitudinal excretory canals; receptaculum seminis present postero lateral to ovary; paruterine organ round, sac like, at poral side of uterus, anterior to uterus and projects upto the middle of succeeding segments, eggs numerous, rounded and filling the uterus.
- C. The present tapeworm differs from *M. beyamegaparuterina*, Capoor, 1967 which is having small, almost quadrangular scolex; testes 4, situated laterally and aporal to ovary, in the central medulla; ovary roughly oval and found in *Ploceus philippines*.
- D. The present parasites differ from *M. asturi*, Gaikwad and Shinde, 1981 which is having large, almost rounded scolex; 16 – 18 testes, situated lateral and anterior to ovary in the central medulla; ovary small, oval, in posterior half of the segment; cirrus pouch small, saccular, extends slightly beyond the longitudinal excretory canals; paruterine organ very big, oval, transversely situated, containing numerous eggs and found in *Astur badin*.
- E. The present form differs from *M. copsychi*, Gupta and Sinha, 1984 by having 10 -13 testes, situated on aporal side of the ovary and found in *Copsychus saularis*.
- F. The present form differs from *M. oriole*, Gupta and Sinha, 1984 in having the scolex squarish, testes 5-7 numbers situated on poral and aporal side of the ovary and vagina in between excretory canals.
- G. The present parasite differs from *M. govindi*, Shinde et.al., 1986 in which the scolex small quadrangular, testes 4 in numbers, aporal, situated in line; cirrus pouch small, at the middle of the segments and ovary compact oval, in poral half of the segment
- H. The worm under discussion, differs from *M. parbhaniensis*, Shinde et.al., 1986 by having 5 testes, round, on poral side of the ovary; ovary compact, round, with a cap of uterus; cirrus pouch small, elongated, at 1/3 from anterior margin of the segments and found in *Passer domesticus*.
- I. The present cestode differs from *M. guptai*, Gupta and Parmar, 1988 which is having receptaculum seminis large; paruterine organ small, uterus attached to the posterior end of the paruterine organ and found in *Argya caudatus*.
- J. The present parasite differs from *M. caudatusae*, Sonune, et.al., 1990, in having scolex globular, testes thirty one, ovary compact, cirrus pouch small, oval and obliquely placed.
- K. The present cestode differs from *M. turdoides*, Sonune, et.al., 1990, in having scolex quadrangular, testes ten in number. Ovary is a single mass, cirrus pouch elongated. Gravid segment eight times broader than long, paruterine organ large, oval and contained eggs.
- L. The present form differs from *M. domesticus*, Jadhav et.al., 1990 which is having testes 22, ovary medium and triangular; vagina anterior to cirrus pouch and found in *Passer domesticus*.
- M. The present form differs from *M. hyderabadensis*, Jadhav et.al., 1994, in having scolex small, cylindrical, not distinctly marked off from neck, suckers small, rounded to oval, four in number, equidistantly placed, neck short, mature segments 4-5 times broader than long, with convex lateral borders, testes five in numbers, small, rounded, three on poral and two on aporal side, cirrus pouch oval, sub-quarticular, obliquely placed, in anterior ¼ of the segment, cirrus coiled, unarmed, vas deferens long, slightly curved, ovary crescent shaped, vagina starts from genital atrium, placed obliquely, ootype small, rounded, placed near posterolateral margin of ovary, genital pores medium, oval, marginally placed and uterus large, oval, modified as an uterine cap, highly muscular.
- N. The present parasite differs from *M. passerii*, Kadam, et.al., 1999, in having scolex large, massive, quadrangular, testes seven in numbers, ovary situated in the poral half near posterior margin of the segment, cirrus pouch cylindrical, elongated, marginal. Receptaculum seminis absent, paruterine organ large, sac like proximally and narrow distinctly.
- O. The present worm differs from *M. turdoidesi*, Shinde et.al., 2000 in having scolex small, roughly squarish in shape, testes 20-24 in numbers, small, runs into lateral groups, cirrus pouch medium, oval. Ovary medium, oval to rounded, in single mass, situated in the centre, vagina medium, anterior to cirrus pouch, paruterine organ in each segment, large, oval, with numerous eggs.



- P. The present cestode differs from *M. latuensis*, Pawar and Shinde, 2002 in having scolex small, squarish; testes 12-15; ovary triangular; cirrus pouch oval and spindle shaped; vagina medium; genital pore regularly alternate and found in *Passer domesticus*.
- Q. The present specimen differs from *M. passeriae*, V.B. Garad and Sanjay S. Nanware, 2006 due to quadrangular scolex, indistinctly marked off from strobilla, suckers four in numbers, rounded in shape. Neck is long. Mature segments seven times broader than long with convex lateral margin. Testes 14 in numbers, oval, situated in two lateral fields, seven aporal and seven in poral region. Cirrus pouch elongated, cirrus thin, curved, vas deferens short and coiled. Ovary compact, oval, ootype postero-ventral to ovary.
- R. The present tapeworm differs from *M. ausae*, Gore et al., 2008 in having scolex somewhat rectangular, muscular, suckers four, broad, oval, arranged in two pairs, short and wide neck, mature proglottids four times broader than long, testes 14-16 in numbers, rounded in shape, cirrus pouch oval, above centre of segment, transversely placed, cirrus small, straight within the cirrus pouch, ovary medium, bilobed, genital pores small, rounded, regularly alternate.
- S. The present cestodes differs from *M. yasini*, Shah Shabbir Ahmed Yasin, 2010 in having Scolex is fairly large, Roughly quadrangular, with rostellum and rostellar hooks, sucker four in number, large, oval in shape, neck absent, mature segment highly muscular crowded together, broader than long, almost six time broader then long, testes ten in number, round in shape, present antiporal side, the cirrus pouch is cylindrical at  $\frac{1}{2}$  from anterior margin of the same, cirrus thin, straight or slightly curved, vas-deference is very thin, runs in zigzag, curves, ovary medium size, poral half of segment, bean shaped, vagina thin, receptaculum seminis elongated, ootype small, oval, genital atrium medium, genital pore small, oval, vitelline gland medium, oval in shape and found in *Turdoides malcomi*.
- T. The present cestodes differs from *M. shahadensis*, Shah Shabbir Ahmed Yasin, 2010 is having Scolex fairly large, oval, blunt anteriorly, without rostellar hooks, sucker four in number, large, prominent, oval, arranged two pairs, neck absent, mature segments almost three and half times broader than long, testes five in number, small and large, oval in shape, preovarian, arranged two lines, in central medulla, poral side two in number and antiporal side three in number, cirrus pouch big, oval, cirrus is wide, slightly coiled, vas-deference thin, ovary indistinctly bilobed, large, near the posterior margin of segment, ovarian lobes are almost cylindrical, vagina short distance from genital pore, receptaculum seminis obliquely placed, curved, ootype small, round, anterior to the isthmus, genital atrium medium, oval, genital pore medium, oval, vitelline gland medium, almost oval, postovarian and found in *Turdoides malcomi*.
- U. The present cestodes differs from *M. pycnonotusae*, M.N. Kolpuke et al., 2012 is having Scolex medium, roughly quadrangular, without rostellum and rostellar hooks; four medium oval suckers. Testes 7-9, small, rounded, situated in antiporal side; cirrus pouch medium, cylindrical and elongated, oval; cirrus very thin, slightly coiled; ovary small, oval, compact single mass; vagina thin tube, long, posterior to cirrus pouch; receptaculum seminis small, spindle shaped; ootype small and round; uterus small, oval, highly muscular with fibrous cap; vitelline gland small and oval; genital pores medium, oval, marginal, irregularly alternate and found in *Pycnonotus cafe*.
- V. The present cestodes differs from *M. domestica*, R. M. Dhondge et al., 2012 is having suckers are large, four in numbers, rounded to oval. Scolex is followed by long neck, followed by indistinct segmentation. Mature segments broader than long, testes 08 in numbers, cirrus pouch small, elongated, marginally placed cirrus straight protrusible and forms vas deferens reaches up to the middle of the segment. Vagina, thin tube, runs transversely, posterior to cirrus pouch, genital pores small, oval in shape. Seminal receptacle is thin tube, open into ootype, ovary medium, bean or fan shaped, situated towards middle of the segment in the poral half, ootype small, compact, oval in shape and found in *Passer domesticus*. The above noted characters are valid enough, to accommodate these worms into a new species and hence the name *Mogheia bidarensis*, Sp. Nov. is proposed after locality.

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