

# A report of new mammalian tapeworm *Moniezia osmanabadensis* from *Capra hircus* at Osmanabad district (M.S.) India

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## Abstract

The present communication deals with the occurrence of a new mammalian tapeworm *Moniezia* (*B*) *osmanabadensis* n.sp. from *Capra hircus* (L) in Osmanabad district (M.S.) India. It comes closer to all the known species of the genus *Moniezia* but differs from all the known species of the genus in having the scolex globular, elongated, mature proglottids Craspedote, testes medium in size, rounded scattered posterior to segment, 170-200 in numbers, cirrus pouch oval, ovary compact, bean shaped, vitelline gland post ovarian.

**Keywords:** Mammalian tapeworm / *Moniezia* (*B*) *osmanabadensis* n.sp. *Capra hircus*, Osmanabad.

## INTRODUCTION

The genus *Moniezia* was established by Blanchard [2]. Skrjabin and Schulz [15] divided this genus in to three subgenera as follows:

1. Inter proglottid glands grouped in rosettes- ----- *Moniezia*.
2. Inter proglottid glands arranged linearly- ----- *Blanchariezia*.  
(Some times absent)
3. Inter proglottid glands absent- ----- *Baeriezia*.

The present worm agrees in all characters with subgenus *Blanchariezia*. Skrjabin and Schulz [16] having two species as *M. (B.) benedeni* [16] and *M. (B.) pallid* [9]. Later on two more species were added by Shinde [15] from the host *Ovis bharal* as *M. (B.) aurangabadensis* and *M.(B.) bharalae* at Aurangabad, M.S. India. Later on Patil [12] added *M. (B.) warananagarensis* from *Capra hircus* L. In [10] Nanware erected *M. (B.) kalawati* from *Capra hircus* L. Kalse added [7] *M. (B.) murhari* from the same host, Pokale, [14] added *M. (B.) caprai* from *Capra hircus* (L.). Pawar [13] added *M (B) shindei* from *Capra hircus*. Lastly *M. (B) hircusae* is added by Tat [17]. Later on species is added to this genus. Borde [4] added *Moniezia (B) rajalaensis* from *Capra hircus* (L.) and Padwal [11] added one new species *Moniezia (B) govindae* in 2011, Humbe Atul [1]. added two new species *M. (B) babai* from *Capra hircus* (L.) and *Moniezia (B) Ovisae* from *Ovis bharal* (L.) Later on no species is added to this genus. The present communication, deals with the description of a new species, *Moniezia (B) Osmanabadensis* Sp.Nov. Collected from the *Capra hircus* (L.) at Osmanabad district (M.S.) India.

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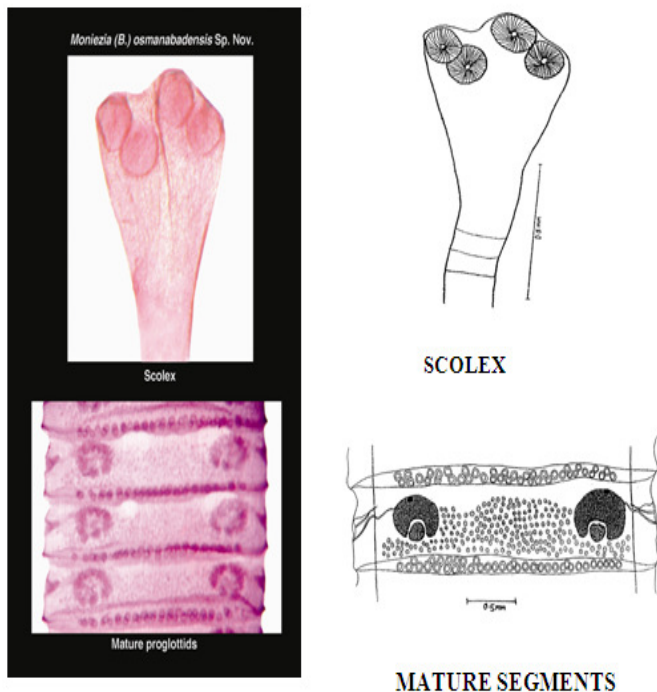
## MATERIAL AND METHODS

Cestode parasites were collected from the intestine of *Capra hircus* (L.) at Osmanabad district (M.S.) India, during the period of June, 2008 to May, 2010. 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 [19].

## DESCRIPTION

Fifty two cestode parasites were collected from the intestine of *Capra hircus* (L.) at Osmanabad District (M.S.) India during the period of June, 2008 to May, 2010. All the cestodes are long consisting scolex, neck, immature, mature and gravid proglottids. The scolex is large in size, globular in shape and measures 1.10 (1.02-1.19) in length and 0.84 (0.68-1.01) in width. Suckers are large, rounded, four in numbers, arranged in two pairs and measures 0.94 (0.84-1.04) in diameter. The neck is long and measures 1.46 (1.43-1.50) in length and 0.40 (0.36-0.45) in width. The mature proglottids are broader than long, nearly five times broader than long, craspedote, each segment with a double set of reproductive organs and measures 1.42 (1.35-1.49) in length and 6.41 (6.36 - 6.47) in width. The testes are small in size and rounded in shape, 170 to 200 in numbers scattered all over the proglottids in between the two excretory canal and measures 0.24 (0.21 - 0.28) in diameter. The cirrus pouch is large in size, oval in shape, situated in the middle margin of the proglottids and measures 0.42 (0.34-0.50) in length and 0.21 (0.17-0.25) in width. The cirrus is thick, large, inside the cirrus pouch and measures 0.36 (0.36-0.36) in length and 0.16 (0.11-0.22) in width. The vas deferens is small and thin, extending up to the longitudinal excretory canals and measure 0.21 (0.21-0.21) in length and 0.14 (0.11-0.17) in width. From the ootype, ovarian follicles with big acini, on both the side forming bean shaped ovary, measures 0.84(0.73-0.96) in length and 0.50 (0.45-0.56) in width. Vagina posterior to cirrus pouch and forms receptaculum seminis, long tube reaches to the ootype which is rounded. Vagina measures,

0.96 (0.96-0.96) in length and 0.02 (0.02-0.02) in width. Receptaculum seminis is thin tube, open into ootype and measures 0.34 (0.34-0.34) in length and 0.01 (0.01-0.01) in width. Ootype is oval to rounded, and measures 0.1 (0.09-0.11) in length and 0.096 (0.09-0.10) in width, Vagina and cirrus pouch open through a pore, genital pore, marginal, elongated, measures 0.28 (0.28-0.28) in length and 0.04 (0.03-0.05) in width. The vitelline gland oval, post ovarian, measures 0.31 (0.28-0.34) in length and 0.22 (0.19-0.26) in width. In between the two proglottids there are some oval to rounded glands known as inter-proglottidal glands, arranged in double line, in between the excretory canal, 38-40 in each proglottids, measures 0.46 (0.46-0.46) in length and 0.32 (0.32-0.32) in width. Pair of excretory canal is present on both the sides.



## DISCUSSION

The genus *Moniezia* was erected by Blanchard in 1891. The worm under discussion is having the scolex globular, elongated, mature proglottids Craspedote, testes medium in size, rounded scattered posterior to segment, 170-200 in numbers, cirrus pouch oval, ovary compact, bean shaped, vitelline gland post ovarian. The present worm differs from *Moniezia (B.) benedeni* [16], which is having numerous proglottids broader than long, posterior proglottids fleshy, testes 500 in numbers, arranged in two groups, cirrus pouch short and wide, vas deferens with 2-3 coils, ovary compact, in the centre of the segments, eggs well developed, inter proglottidal glands liner and close to the posterior margin of the segments, arranged transversely and reported from the Calves and Lambs. The present cestode differs from *Moniezia (B.) pallida* [9], which is having the uterus external, dorsal and ventrally over excretory canals, the inter proglottidal glands varying in size and reported from the host horse in South Africa. The present parasite differs from *Moniezia (B.) aurangabadensis* [15] which is having the scolex quadrangular, testes small, 1100-1200 in numbers, vas deferens coiled, cirrus pouch cylindrical, oval with some rounded acini, gravid proglottids broader than long, uterus reticulate, inter proglottidal glands 12-15 in

numbers and reported from *Ovis bharal* (L.). The present tapeworm differs from *Moniezia (B.) bharalae* [15] which is having testes rounded, 190-200 in numbers, vas deferens short, elongated, fusiform, genital pores bilateral, sub marginal, ovary compact, inter proglottidal glands arranged in two rows, small in size, 38-44 in number and reported from *Ovis bharal* (L.). The present form differs from *Moniezia (B.) warnanagarensis*, [12], which is having scolex large, testes 300-320 in number, distributed throughout the proglottids, in single field, ovary indistinctly lobed with 13-15 short, blunt acini, transversely elongated, inter proglottidal glands, 56 in numbers, oval, medium in size, cirrus pouch medium, oval, transversely elongated, slightly obliquely placed and extend beyond longitudinal excretory canal. The present cestode differs from *Moniezia (B.) kalawati* [10] which is having squarish scolex, oval shaped cirrus pouch, testes small, oval distributed throughout the segment, 172 in number, ovary medium, short, blunt acini, and 54 inter proglottidal glands in the inter segmental region, medium, oval either single or paired, irregularly arranged in the central width of the segments and leaving space on each lateral side. The present tapeworm differs from *Moniezia (B.) murhari* [8] in having the scolex squarish, testes 405-415 in number, cirrus pouch elongated in the anterior region of the segments, ovary inverted horse shoe shaped, indistinctly bilobed each with numerous short, blunt, round, acini and inter proglottidal glands 63 in numbers. The present parasites differs from *Moniezia (B.) caprai* [14] which is having the scolex is medium, squarish, with large four suckers, without rostellum, testes oval in shape, 255-260 in numbers, cirrus pouch is medium in size and ovary medium in size, kidney shaped. The present worm differs from *Moniezia (B.) shindei* [13] in having scolex large, mature segments craspedote, testes 190-200 (195) in number, scattered all over segment and ovary a single mass, large, oval, cirrus pouch oval, elongated, in centre of the segment and vitelline gland large, oval, internal to ovary. The present cestode differs from *Moniezia (B.) hircusae* [17] which is having scolex large, mature segments big, craspedote, testes 168 in number, medium, small, scattered in a single field, ovary large, oval, a single mass, in anterior half of the segment, inter proglottidal glands 14-15 in number, large, oval and cirrus pouch in anterior 1/3rd region of the segment. The present cestode differs from earlier described *Moniezia (B.) rajalaensis* [4] in having scolex large, globular, mature proglottids Squarish, Broader than long, testes 250-260 in numbers, medium, scattered throughout proglottids, ovary large, horse shoe shaped, inter proglottidal glands 31-32 in number, large, oval and cirrus pouch oval. The present cestode differs from earlier described *Moniezia (B.) govindae* [11] in having scolex large, globular, mature proglottids big, craspedote, testes 100-140 in numbers, medium, scattered throughout proglottids, ovary large, compact, nut shaped, inter proglottidal glands 40-42 in number, large, oval and cirrus pouch elongated. The present cestode differs from earlier described two new species *Moniezia (B.) babai* [1] in having scolex globular, elongated, mature proglottids four times broader than long, testes small in size, rounded scattered posterior to segment, 190-220 in numbers, cirrus pouch oval, ovary compact, rounded, vitelline gland post ovarian and *Moniezia (B.) ovisae* in having scolex broad anteriorly and narrow towards neck, mature proglottids two times broader than long, testes medium in size, rounded scattered posterior to segment, 155-165 in numbers, cirrus pouch oval, Ovary is compact, bilobed, vitelline gland post ovarian.

The above differentiating characters are valid enough to erect a new species for these cestodes and hence the name *Moniezia (B.) osmanabadensis* Sp. Nov. is proposed after the locality of the host.

### Taxonomic Summary

Genus: -*Moniezia* Blanchard, 1891  
 Species: -*Moniezia (B) osmanabadensis* Sp.Nov.  
 Type host: -*Capra hircus* (L.)  
 Habitat (Site): -Intestine  
 Type locality: -India, Maharashtra Osmanabad.  
 Holotype and: -Deposited in the Helminthology Research  
 Paratype: Lab., Department of Zoology,  
 Dr. B.A.M. University, Aurangabad, (M.S.)  
 India.  
 Date of collection: -June, 2008-May, 2010.  
 Etymology: -Named after the locality.

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### REFERENCES

- [1] Atul Humbe, Jadhav S. D. and Borde S. N. 2011. On a new species of *Moniezia babai* Blanchard, 1891 (Cestoda: Anoplocephalidae) from *Capra hircus* (L.) from Buldhana district (M.S.) India. *International Multidisciplinary Research Journal* 2011, 1(8):01-03
- [2] Bator, T. G. 1971. *Moniezia skrijabini* n.sp. from Sheep and goats in Mongolian people's republic parasite, 5(1):73-76.
- [3] Blanchard, R. 1891. Sur les helminthes des primates antropoides. *Mem. Soc. Zool. France*, 4: 420-489.
- [4] Borde, S.N Patil, P.S and Naphade, S.T. 2007. A new tape worm from the host *Capra hircus* at Rajala (M.S). *Nat.J. Sci.*, 4 (3) (126-128).
- [5] Deshmukh, S. B. and Shinde L. V. 2001. *Moniezia (B.)shindei* n.sp. from *Ovis bharal* (Sheep) at Beed (Maharashtra) India. *Uttar Pradesh J. Zool.* 21(1): 85-88.
- [6] Dhar, S. and L. Dhar 1990. On a new species of cestode (Anoplocephalidae) *Moniezia* (M.) fotedari n.sp from Sheep in Kashmir, India. *Ind. J. Hel.* 41: 102 – 107.
- [7] Hiware, C. J. 1999. New tapeworm from the host, *Capra hircus*, Dr. Babasaheb Ambedkar Marathwada University. *Journal of Science*, XX IX pp. 137-141.
- [8] Kalse, A. T. and G. B. Shinde. 1999. On *Moniezia (Blanchariezia) murhari* n.sp. (Cestoda; Anoplocephalidae Fuhrmann, 1907) from *Capra hircus* in M. S. India. *Rivista Di parasite* Vol. XVI (LX) N.1 PP.35-38
- [9] Monning, H. O. 1926. Three new helminths Trans. *Ray. Soc. South. Africa.* 13: 291- 298.
- [10] Nanaware, S. S. 1999. A new record of *Moniezia (Blanchariezia) kalavati* n sp. from *Capra hircus* L. 13th *Nat. Cong. Parasitol. Eb.* 24-26. 1999. *Sou. Abstract* no.164, pp. 118.
- [11] Nitin Padwal and M. N. Kadam. 2011. Report of a new mammalian tapeworm *Moniezia govindae*. *Rec Res Sci Tech 3 (2011)* 30-33.
- [12] Patil, S. R. and Shinde G. B. 1997. A new species of the cestode *Moniezia. (B) warananagarensis* n.sp from Sheep. *Riv. Di.Parasit. XIV (LVIII) N-2A:* 905-997.
- [13] Pawar, S. B. 2004. A new cestode *Moniezia (Blanchariezia) shindei* n.sp. from *Capra hircus* M.S. India. *Rivista Di Parasit. XII (LXV) – N 2 :* 87 – 90.
- [14] Pokale, S. N. 2004. On a new species of *Moniezia caprai* Blanchard, 1891 (Cestoda : Anoplocephalidae) from *Capra hircus*. *Utter Pradesh J. Zool.* 24 (3): 285-288.
- [15] Shinde, G. B. 1985. Two new species of the cestode *Moniezia* Blanchard, (1891). *Riv. Parasit. VIII (XLVI) AP.*, 33-37.
- [16] Skrijabin, K. J. and R. I. Schulz 1937. *Helminthology Miskow*, 2<sup>nd</sup> Ed. PP. 418
- [17] Tat, M. B. and B. V. Jadhav. 2004. A new tapeworm from the host, *Capra hircus* at Beed (Maharashtra) India. *Nat. J. Life. Sci.* PP. 255-258.
- [18] Wardle, R. A. 1974. Advances in the Zoology of tapeworms, 1950-1970, Univ. of Minnesota Press Minneapolis, 1-274.
- [19] Yamaguti, S. 1959. *Systema Helminthum*, Vol. II, The Cestodes of vertebrates, Interscience Pub. INC, New York London, 1-860