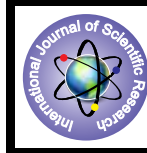


# On A New Species of *Moniezia* (Blanchard, 1891) (Cestoda: Anaplocephalidae) in *Capra Hircus* (L.) from Latur Dist. (M.S.) India



## Zoology

**KEYWORDS :** *Capra hircus* (L.), Cestoda, Latur, *Moniezia*, Maharashtra state.

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## ABSTRACT

*The present communication deals with new species of Moniezia (Blanchard, 1891) from intestine of Capra hircus (L.) at Latur dist. (M.S.). The description of new species Moniezia sureshi Sp. Nov. is having scolex almost quadrangular, mature proglottids four to five times broader than long, testes small in size, rounded, in a single field, 180-185 in numbers, cirrus pouch oval, ovary horse-shoe shaped, vitelline gland post ovarian.*

## INTRODUCTION

The present cestode differs from *Moniezia* (B) *benedeni*, *Moniezia* (B) *pallida*, *Moniezia* (B) *aurangabadensis*, *Moniezia* (B) *bharalae*, *Moniezia* (B) *warnanagarensis*, *Moniezia* (B) *kalawati*, *Moniezia* (B) *murhari*, *Moniezia* (B) *caprai*, *Moniezia* (B) *shindei*, *Moniezia* (B) *hircusae*, *Moniezia* (B) *rajalaensis*, *Moniezia* (B) *govindae*, *Moniezia* (B) *caprae*, *Moniezia* (B) *ovisaesp.* Nov., *Moniezia* (B) *osmanabadensis* sp. Nov., described *Moniezia* (B) *devraoi* sp. Nov. and *Moniezia* (B) *babai* sp. Nov. in shape of scolex, number and shape of testes, shape of cirrus pouch, shape of ovary, mature segment, position of vitelline gland.

The present communication, deals with the description of a new species, *Moniezia* (B) *sureshi* Sp. Nov. Collected from the *Capra hircus* from AUSA District Latur (M.S.) India.

## MATERIAL AND METHODS

Cestode parasites were collected from the intestine of *Capra hircus* at AUSA District Latur (M.S.) India. These cestodes preserved in hot 4% formalin and stained with Harris haematoxylin, 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

Seven specimens of the Cestode parasites were collected from the intestine of domestic goat, *Capra hircus* at AUSA, Tq- AUSA Dist- Latur, M.S., India in the month of month December 2012.

All the cestodes are long consisting scolex, neck, immature, mature and gravid proglottids. The scolex is large in size, wider than long, almost quadrangular in shape, broad anteriorly, narrow posteriorly and measures 0.397 to 0.454 in length and 0.806 to 0.943 in breadth. Suckers are medium in size, oval in shape, four in numbers, arranged in two pairs, one pair in each half of the scolex, not overlapping on each other and measures 0.236 to 0.315 in length and 0.225 to 0.281 in breadth. The neck is short, slightly broader than, long broader anteriorly, narrow posteriorly and measures 0.613 to 0.681 in length and 0.397 to 0.703 in width. The mature proglottids are almost four to five times broader than long, with short, blunt projections at the anterior or at the posterior corners of the proglottids, with convex or concave, irregular lateral margins, uneven in length, craspedote, each segments with double set of reproductive organs and measures 10.124 to 1.178 in length and 4.140 to 4.337 in breadth. The testes are small in size, oval in shape, 180 to 185 in numbers, in single field, in the central medulla, unevenly distributed, presents anterolateral to ovary, bounded laterally by the longitudinal excretory canals and measures 0.017 to 0.035 in length and 0.017 to 0.035 in width. The cirrus pouch is medium in size, oval in shape, slightly elongated, situated in the irregular obliquely placed margin of the proglottids and measures 0.071 to 0.125 in length and 0.035 to 0.053 in width. The cirrus is thin, straight, slightly curved, inside the cirrus pouch and measures 0.071 in length and 0.017 in width. The vas deferens on each side, thin

tube, elongated, extends beyond longitudinal excretory canal and measure 0.695 to 0.874 in length and 0.017 to 0.35 in width. The ovary is medium in size, horse-shoe shaped in appearance, a single mass, with irregular margin, having numerous short, blunt, round acini, situated in the centre of the segments, on each side, or 1/5<sup>th</sup> from the lateral margin of the segments, uneven in size and shape, the distal ends of the ovary directed posteriorly, laterally, medially and measures 0.142 to 0.320 in length and 0.071 to 0.089 in width. Vagina posterior to cirrus pouch, thin tube, curved proximally, runs obliquely crosses the longitudinal excretory canal, turn posteriorly reaches and open into ootype. Vagina measures 0.731 to 0.749 in length and 0.017 in width. Ootype is large in size, rounded in shape, situated ventral to the ovary and measures 0.071 to 0.089 in length and 0.053 to 0.071 in width. Vagina and cirrus pouch open through a pore, genital pore are medium in size, oval in shape placed at 1/4<sup>th</sup> to 1/5<sup>th</sup> from the anterior margin of the segments, marginal, bilateral and measures 0.071 in length and 0.035 to 0.053 in width. The vitelline gland medium in size, oval in shape, post ovarian, measures 0.053 to 0.071 in length and 0.053 to 0.053 in width. In between the two proglottids there are some oval to rounded glands known as inter-proglottidal glands, arranged in 1-2 row, in between the excretory canal, 18-19 in each proglottids, measures 0.017 to 0.035 in length and 0.053 to 0.142 in breadth. Pair of excretory canal is present on both the sides.

## RESULTS AND DISCUSSION

The genus *Moniezia* was erected by Blanchard in 1891. The worm under discussion is having the scolex almost quadrangular, mature proglottids four to five times broader than long, testes small in size, rounded, 180-185 in numbers, cirrus pouch oval, ovary horse-shoe shaped, vitelline gland post ovarian. The present worm differs from *Moniezia* (B) *benedeni*, Moniez, 1879, Skrjabin and Schulz, 1937, 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 center of the segments, eggs well developed, inter proglottidal glands linear 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) *pallid* Monnig, 1926, 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*. Jadhav B. V. *et al.* 1985, 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* Jadhav B.V. *et al.*, 1985 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) *war-*

*nanagarensis*, Patilet.*et.al.* 1997, 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* Nanware*et.al.* 1999. 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* Kalseet.*al.* 1999, 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* Pokale, *et al.* 2004, 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* Pawaret. *al.*, 2004 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* Tat and Jadhav B. V., 2004 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 1/3<sup>rd</sup> region of the segment. The present cestode differs from earlier described *Moniezia* (*B*) *rajalaensis* Borde *et.al.* 2007 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* Padwalet. *al.*, 2008 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 *Moniezia* (*B*) *caprae* Nanware S.S., 2010 in having scolex large, mature segment big, almost three and a half times border than long, testes 170 in numbers, medium in size, oval in shape, ovary large, bilobed, inter proglottidal glands 40 in number, oval, rounded and cirrus pouch on each side. The present cestode differs from earlier described *Moniezia* (*B*) *babai* Humbe *et al.*, 2011 in having scolex globular, mature segment four times border than long, testes 190-220 in numbers, small in size, rounded in shape, ovary large, rounded, inter proglottidal glands 18-20 in number, oval, rounded and cirrus pouch on each side. The present cestode differs from earlier described *Moniezia* (*B*) *ovisae*, Humbe *et al.*, 2011 in having scolex broad anteriorly and narrow towards neck, mature segment two times border than long, testes 155-165 in numbers, small in size, rounded in shape, ovary large, bilobed, inter proglottidal glands 32-35 in number, oval, rounded and cirrus pouch on each side. The present cestode differs from earlier described *Moniezia* (*B*) *osmanabadensis*, Humbe *et al.*, 2012 in having scolex globular, mature segment five times broader than long, craspedote, testes 170-200 in numbers, small in size, rounded in shape, ovary large, bilobed, inter proglottidal glands 38-40 in number, oval, rounded and cirrus pouch on each side. The present cestode differs from earlier described *Moniezia* (*B*) *devraoi*, Humbe *et al.*, 2013 in having scolex quadrangular, mature segment four times broader than long, testes

160-180 in numbers, small in size, rounded in shape, ovary large, bilobed, inter proglottidal glands 40-45 in number, oval, rounded and cirrus pouch on each side. The present cestode differs from earlier described *Moniezia* (*B*) *shegaonesis*, Barote *et al.*, 2013 in having scolex globular, mature segment four to five times border than long, testes 190-220 in numbers, small in size, rounded in shape, ovary compact, inter proglottidal glands 20-25 in number, oval, rounded and cirrus pouch on each side. The present cestode differs from earlier described *Moniezia* (*B*) *shivajiraovae*, Barote *et al.*, 2014 in having scolex squarish, large in size, mature segment six to eight times broader than long, testes 84-95 in numbers, small in size, rounded in shape, ovary horse-shoe shaped, inter proglottidal glands 40-42 in number, oval, rounded and cirrus pouch on each side.

The above differentiating characters are valid enough to erect a new species for these cestodes and hence the name *Moniezia* (*B*) *sureshi* Sp. Nov. is proposed, in honor of after Dr. Kunwar Suresh Singh, renowned scientist in cestodes and Ex-head, IVRI, Izatnagar (U.P.).

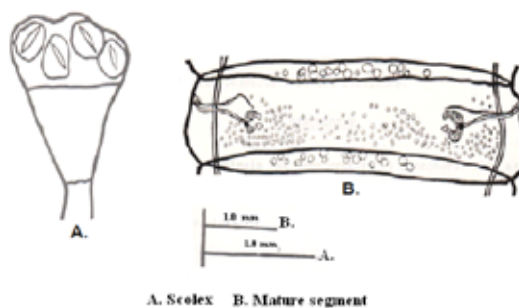


Fig. *Moniezia sureshi* sp. nov.

#### Key to the Species of the genus *Moniezia* Blanchard, 1891.

- Mature segments broader than long - 1
- Mature segments Squarish - *M. (B.) pallid*, Moning, 1926
- Mature segments Craspedote - 2

Testes below 100 in numbers-*M. (B.) Caparae*, Nanware*et.al.*, 2010

Testes in between 100-150 in number- *M. (B.) govindae*, Padwalet. *al.* 2007

Testes in between 150-200 in numbers- 3

Testes in between 200-300 in numbers- 4

Testes in between 300-400 in numbers- *M. (B.) warnanagarenensis*, Patilet. *al.* , 1997

Testes in between 400-450 in numbers- *M. (B.) murhari* Kalseet. *al.* 1999

Testes in between 450 -500 in numbers- *M. (B.) benedeni*, Moneiz, 1879, Skrjabin *et. al.* Schulz, 1937

Testes in between 1100-1200 in numbers- *M. (B.) aurangabadensis*, Shinde*et.al.*, 1985

Inter proglottidal glands between 10-15 in number- *M. (B.) hircusae*, Tat and Jadhav, 2004

Inter proglottidal glands between 16-20 in number- *M. (B.) babai*, humbe *et al.*, 2011

Inter proglottidal glands between 20-25 in number- *M. (B.) shegaonesis*, Barote *et al.*, 2013

Inter proglottidal glands between 30-35 in number- 5

Inter proglottidal glands between 36-40 in number- *M. (B.) osmanabadensis* humbe *et al.*, 2012

Inter proglottidal glands above 50 in number- *M. (B.) shindei* Pawaret. *al.* 2004

Scolex globular - M. (B.) *bharalae*, Shinde<sup>et.al.</sup>, 1985  
 Scolex squarish - M. (B.) *kalawati* Nanware<sup>et.al.</sup>, 1999  
 Scolex quadrangular - 6

Scolex squarish- M. (B.) *caprai*, Pokale <sup>et al.</sup>, 2004  
 Scolex globular - M. (B.) *rajalaensis*, Borde <sup>et.al.</sup>, 2007

Testes in between 50-100 in numbers - M. *shivajiraovae*, Barote <sup>et al.</sup>, 2014

Testes in between 150- 200 in numbers- M. (B.) *ovisae*, *humbe et al.*, 2011

Ovary oval in shape - M. (B.) *devraoi*, *humbe et al.*, 2013

Ovary horse- shoe shape- M. (B.) *sureshi Sp. nov.*

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