

ORIGINAL RESEARCH ARTICLE

**Taxonomic Observation of a New Species of the Genus *Moniezia* Blanchard, 1891 from *Capra hircus* Linnaeus, 1758**

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**ABSTRACT**

A new species of the genus *Moniezia* Blanchard, 1891 i.e. *Moniezia* (B) *mansurae* Sp.Nov were collected from *Capra hircus* Linnaeus, 1758 from different sites of Aurangabad district (MS) INDIA. The present parasite form of worm is differs from all known species of the genus *Moniezia* Blanchard, 1891 in having length of worm, number and shape of testes, shape of cirrus pouch, shape of ovary, position of vagina and number of Interproglottidal glands.

**Key words-** *Capra hircus*, *Moniezia*, Taxonomic Observation, Aurangabad district

**INTRODUCTION**

The genus *Moniezia* was established by Blanchard in 1891 as type species *Moniezia expansa* from *Ovis aries*. Skrjabin Schulz (1937) divided this genus into three subgenera as follows:

- i) *Moniezia*- Interproglottidal glands grouped in rosettes
- ii) *Blanchariezia*- Interproglottidal glands arranged linearly (Sometimes absent)
- iii) *Baeriezia*- Interproglottidal glands absent.

Later on in the genus *Moniezia*, the Moneiz and skrjabin et. al 1879 and

1937 respectively added *Moniezia* (B) *benedeni* from horse at south Africa, Monning 1926 added *Moniezia* (B) *palida* from Horse from south Africa and in India *Moniezia* (B) *Aurangabadensis* was described by Shinde et. al. in 1985 from *Ovis bharal* later on in India Shinde et. al. in 1985 added *Moniezia* (B) *bharalae* from *Ovis bharal*, then Patil et. al. in 1997 described *Moniezia* (B) *waranagarensis* from *capra hircus* later on Nanware et. al. in 1999 added *Moniezia* (B) *Kalawati* from *capra hircus*. Kalse et. al. in 1999 described *Moniezia* (B) *Murhari* from *capra hircus*, *Moniezia* (B) *caprai* was added by Pokale et. al. in 2004 from *capra hircus* and *Moniezia* (B) *Shindei* added by Pawar et. al. in 2004 from *Ovis bharal*. Later on *Moniezia* (B) *hircusae* added by Tat et. al. in 2004 from *capra*

*hircus* and Shelke et. al. in 2004 added *Moniezia* (B) *aishvaryee* from *Ovis aries*. Later on Nanware, 2010 added two new species in this genus i.e. *M. caprae* and *M. maharashtrae* from *Capra hircus*. Recently Kasar et.al., 2010 added *M. madhukarae* from *Capra hircus*.

**MATERIALS AND METHODS**

The Thirty-five cestode parasites were collected from the intestine of *capra hircus* at Gangapur Dist. Aurangabad (M. S.), India during the period of June-2005 to May, 2007. These Cestodes are preserved in 4 % formalin and ten specimens are stained with Harris haematoxylin and Borax carmine passed through various alcoholic grades. Cleared in xylene and mounted in D. P. X. and drawing are made with the aid of camera lucida. All measurements are given in millimeters.

**DISCRIPTION**

All the cestodes are long consisting scolex, immature, mature and gravid proglottids. The scolex is small, globular with musculature, well marked off from strobila and measure is 0.6016 (0.523-0.679) in length and 0.777 (0.714-0.8391) in width. Suckers are large, oval to rounded slightly overlapping to each other and musculature and measures 0.228 (0.199-0.257) in length and 0.253(0.222-0.284)in width. The neck is long and measures 0.501 (0.483-0.519) in length and 0.5372 (0.461-0.612) in width.

The mature proglottids are four times broader than long, with double set of reproductive organs and measures 1.517 (1.339-1.696) in length and 7.008 (6.928-7.089) in width. The testes are small and oval to rounded 160-170 in numbers and measures 0.0714 (0.053-0.089) in diameter. The cirrus pouch is large. Elongated belly shaped and broader at opening and measures 0.187 (0.107-0.267) in length and 0.482 (0.446-0.517) in width. The cirrus is thin, straight tube protrusible and slightly curved posteriorly at out of genital pore, present within the cirrus pouch and measures 0.642 (0.607-0.678) in length and 0.044 (0.035-0.053) in width. The vas deferens is thin straight tube and measures 0.285 (0.267-0.303) in width, vagina and cirrus pouch opens into a common pore known as genital pore, which is large in size, elongated collar like and belly shaped marginal and measures 0.25 (0.232-0.267) in length and 0.107 (0.089-0.125) in width vagina is thin, somewhat curved tube and arise from posterior to cirrus pouch. Forms receptaculum seminis and measures 0.571 (0.535-0.607) in length and 0.044 (0.035-0.053) in width. Receptaculum seminis is slightly curved tube, open into ootype and measures 0.142 (0.125-0.160) in length and 0.044 (0.035-0.053) in width. Ootype is small and circular and measures 0.053 (0.107-0.125) in diameter. From the ootype ovarian lobes are started, ovary is compact, somewhat oval and measures 0.616 (0.517-0.714) in length and 0.366 (0.285-0.446) in width. The vitelline gland is oval. Compact and measures 0.125 in diameter. The interproglottid glands are oval to rounded arranged linearly, 18 in number and measures 0.080 (0.071-0.089) in length and 0.062 (0.035-0.053) in width. A single longitudinal excretory canal present at each side of segment and measures 1.357 (1.339-1.375) in length and 0.053 (0.035-0.071) in width.

#### DISCUSSION

The genus *Moniezia* was erected by Blanchard in (1891). the worm under discussion is having the scolex is small, globular with musculature, suckers are slightly overlapping to each other, mature proglottids are broader than long, testes small, rounded and 160-170 in numbers. The cirrus pouch is large elongated and broader at opening ovary compact somewhat oval, vitelline gland is oval, compact and genital pore large in size, elongated coarse like and belly shaped and marginal. The vas deferens is thin straight tube.

i) The present form of worm differs from *Moniezia* (B) *benedeni* Moniez (1879)

Skrjabin et. al Schulz (1937) which is having numerous proglottids and broader than long. Posterior proglottids fleshy, testes are 500 in numbers arranged in two groups, cirrus pouch short and wide, vas deferens with 2-3 coils, ovary with acini, in the center of the segments. Egg well developed interproglottidal glands linear and close to the posterior margin of the segments, arranged transversely and reported from the horse in Africa.

- ii) The present cestode differs from *Moniezia* (B) *pallida* Monning, (1926) which is having the uterus internal mature segment squarish, testes 100-200 in numbers. Interproglottidal glands varies in size, cirrus pouch cylindrical, vagina anterior to cirrus pouch, and reported from horse in south Africa.
- iii) The present tapeworm showing differences from *Moniezia* (B) *aurangabadensis* Shinde et. al. (1985) which is having the scolex quadrangular. Testes 1100-1200 in numbers vas deferens coiled, cirrus pouch cylindrical, and small, ovary bilobed each lobe with acini, interproglottidal glands 12-15 in numbers and reported from *ovis bharal* in India.
- iv) The present cestode parasite differs from *Moniezia* (B) *bharalae* Shinde et. al. (1985) which is having testes rounded. 190-200 in numbers. Vas deferens short, fusiform genital pores bilateral, sub marginal, ovary bilobed interproglottidal glands arranged in two rows. Small in size 38-44 in numbers cirrus pouch small, oval obliquely placed, vitelline gland absent, vagina anterior to cirrus pouch and reported from *Ovis bharal* in India.
- v) The present cestode differs from *Moniezia* (B) *waranagarensis* Patil et. al (1997) which is having scolex large, testes 300-320 in number distributed throughout the proglottids in single field ovary bilobed with 13-15 short blunt acini, interproglottid glands medium in size and 56 in numbers, cirrus pouch small, oval, vitelline gland elongated obliquely placed.
- vi) The present worm showing differences from *Moniezia* (B) *Kalawati* Nanware et. al (1999) which is having squarish scolex oval shaped cirrus pouch, testes small distributed throughout the segment, 172 in number ovary single mass with irregular margin, and 54 interproglottidal glands in the inter segmental

region, either single or paired, irregularly arranged in the central width of the segment and leaving space on each lateral side.

- vii) The present tapeworm differs from *Moniezia* (B) *murhari* kalse et. al. (1999). Which is having the scolex is squarish, testes 405-415 in numbers, cirrus pouch elongated in the anterior region of the segments, ovary inverted, horse shoe shaped with short blunt acini. Interproglottid glands are rounded and 63 in numbers.
- viii) The present cestode parasite differs from *Moniezia* (B) *caprai* Pokale et. al. (2004), which is having scolex medium and squarish in shape, testes follicular, 255-260 in numbers, ovary horse shoe shaped. Interproglottid glands 15 to 17 pairs in numbers, cirrus pouch flask shaped.
- ix) The present tapeworm showing differences from *Moniezia* (B) *Shindei* Pawar et. al. 2004. which is having large scolex, mature segment craspedote, testes are 190-200 in numbers, scattered all over, interproglottid glands 76 in numbers and medium in size, vitelline gland large, vagina small in size, reported from *Ovis bharal* in India.
- x) The present cestode differs from *Moniezia* (B) *hircusae* Tat et. al. 2004, which is having scolex large, immature segment big, craspedote. Testes 188 in numbers. Scattered in a single field, ovary large, a single mass. In anterior half of the segment, cirrus pouch short, interproglottid glands 14-15 in number, vitelline gland rounded.
- xi) The present tapeworm differs from *Moniezia* (B) *aishvaryae* Shelke et. al. (2004) which is having testes small and 255-265 in number, ovary large mass, cirrus pouch spindle shaped. Vitelline glands quadrangular in shape, interproglottid gland are 42-44 in numbers, and reported from *Ovis aries* in India.

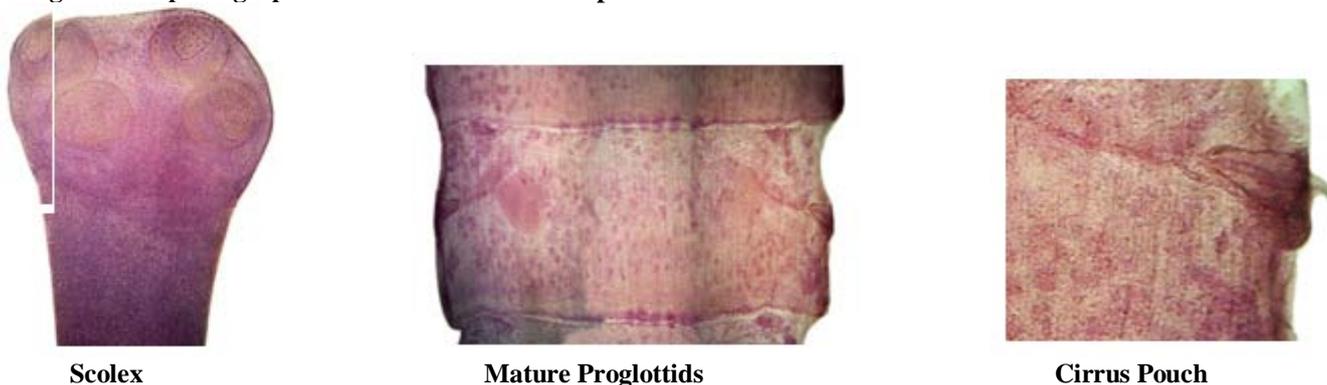
- xii) The present species differs from *M. caprae* Nanware (2010) in having scolex large, broad anteriorly and narrow posteriorly, neck short, mature proglottids three and half times broader than long, testes 170 in numbers and inter-proglottid glands 40 in numbers.
- xiii) It differs from *M. maharashtrae* Nanware, (2010) due to scolex oval, neck broader than long, mature proglottids four and half times broader than long, testes 116 in numbers and inter-proglottid glands 38 in numbers.
- xiv) The present cestode differs from *Moniezia* (B) *madhukarae* Kasar et.al., (2010) in having the scolex simple, elongated, long neck, mature segments five to six times broader than long, testes medium in size, oval scattered posterior to segment, 210-240 in numbers, cirrus pouch oval, vagina posterior to cirrus pouch, ovary butterfly shaped, vitelline gland post ovarian.

The above differentiating characters are valid enough to erect a new species for these cestode and hence the name *Moniezia* (B) *mansurae* Sp.Nov. named in honor of authors father who has encouraged and inspired me through my life for the purpose of education.

**Taxonomic summery.**

- Genus** : *Moniezia* (B) Blanchard, 1891
- Species** : *Moniezia* (B) *mansurae* sp.nov
- Type host** : *Capra hircus*
- Habitat** : Intestine
- Type locality** : Gangapur, A,bad (M.S) India
- Accession No.:** HRL /2005-07/1a /1-10.
- Holotype and:** Deposited in Helminthology Research Lab.
- Paratype** : Dept. of Zoology, Dr. B. A. M. University, Aurangabad.
- Date of collection** : June 2008 to May 2010
- Etymology** : Named in honour of authors father.

**Fig 1: Microphotograph of *Moniezia mansurae* n.sp.**

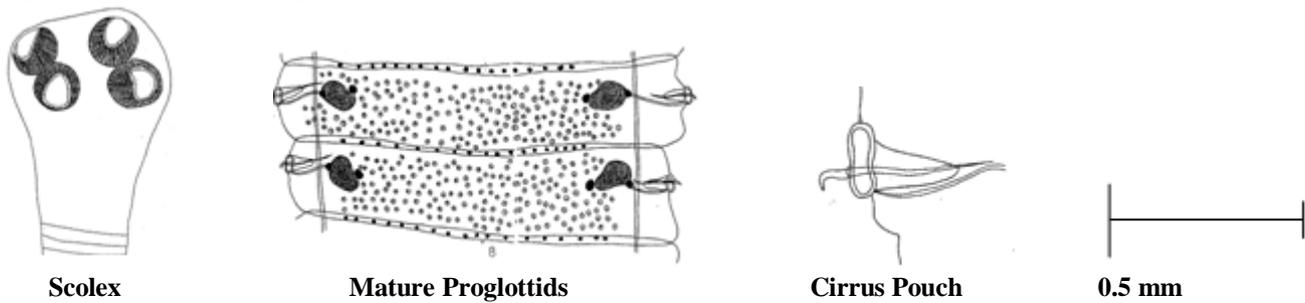


**Scolex**

**Mature Proglottids**

**Cirrus Pouch**

Fig 2: Camera Lucida diagram of *Moniezia mansurae* n.sp.



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