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**BIOSYSTEMIC STUDIES ON MONIEZIA (B.) SUBHAPRADHAE N. SP. PARASITIC IN CAPRA HIRCUS L. FROM PARBHANI DISTRICT JINTUR (M.S.) INDIA.**

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**ABSTRACT :**

*Moniezia (B.) subhapradhae n.sp.* is described morphologically, taxonomically and anatomically from the intestine of *Capra hircus L.* It differs from all known species of the genus in shape and size of scolex, shape of mature segments, in number, position and shape of testes, shape, size and position of ovary in shape and size, number, position of interproglottid glands in shape, size position of vitelline gland, in shape, size position of cirrus pouch and reported from the host.

**KEYWORDS :** *Moniezia (B.) subhapradhae n.sp.*, *Capra hircus*, Intestine, Jintur.

**INTRODUCTION**

The genus *Moniezia* is erected by Blanchard (1891), as a type species *Moniezia expansa* from *Ovisaries*. Skrjabin and Schulz (1937) divided this genus into three sub-genera:

1. Interproglottid glands grouped in rosette- *Moniezia*
- II. Interproglottid glands arranged lineally-*Blanchariezia*
- III. Interproglottid glands absent- *Baeriezia*

The present tapeworm, is similar in all characters, with sub genus *Blanchariezia* (Skrjabin and Schulz, 1937) having two species as *Moniezia*(*Blanchariezia*) *benedeni* (Moniez 1979 and Skrjabin and Schulz, 1937) and *Moniezia*(*Blanchariezia*) *pallida*(Monning, 1926).

Later on twenty six Species are added to this genus. The present communication, deals with description of new species *Moniezia(B.)subhapradhae n.sp.*

**MATERIAL AND METHOD:**

Fourteen cestodes were collected from the intestine of goat, *Capra hircus*. All were flattened fixed, preserved in 4% formaline, washed well with tap water, stained in Harri'shaematoxyline, dehydrated through various alcoholic grades and mounted in D.P.X., whole mount slides were prepared for further anatomical studies. Sketches were drawn with the help of camera lucida. All measurements are given in millimeters.

**Descriptions:**

All the cestodes were long, with thick musculature, scolex dome shaped, measures 1.70 - 0.72 mm in length and 0.136 - 0.049 mm in breadth; suckers 4, oval, muscular, in two pairs, overlapping to each to other, 0.053 - 0.029 in length and 0.048 in breadth; neck thick, Longer than breadth, musculature, 0.087 -

0.096 in length and 0.063 - 0.038 in breadth; mature segment broader than long, squares in shape with double set of reproductive organs, 0.215 to 0.159 in length and 0.613 to 0.590 in breadth; testes 180 - 185 in number, oval in shape, medium to small in size, scattered antero-posteriorly, distributed 2/3<sup>rd</sup> region of segments, situated in between longitudinal excretory canals, 0.102 in length, 0.045 in breadth; Cirrus pouch medium, elongated marginal, situated anteriorly from the middle of segment, reaches up to longitudinal excretory canal, 0.071 to 0.125 in length and 0.045 in breadth, cirrus thin, coiled tube, enclosed in cirrus pouch, 0.034 in length, 0.022 to 0.090 in breadth; vas deferens thin, coiled, interiorly directed, 0.022 in length, 0.034 in breadth; ovary bilobed, flower shape, with irregular margin, obliquely placed, lateral side & mid region of the segment, 0.068 length, 0.213 breadth; vagina thick tube, coiled, situated posterior to cirrus pouch, opens into ootype, 0.124 - 0.122 length, 0.034 - 0.022 breadth, Ootype oval, 0.102 - 0.0795 in length, 0.079 breadth; genital pore small, oval, situated 2/3<sup>rd</sup> anterior region of the segment; 0.079 - 0.056 length, 0.034 - 0.035 breadth; Vitelline gland oval, post-ovarian, 0.068 - 0.045 in length & 0.02 - 0.03 in breadth; interproglottid glands 15-17 number, posterior, anterior margin of the segment, situated in each segment, lateral to excretory canal & 0.102 in length, 0.045 breadth.

## RESULT AND DISCUSSION

The genus *Moniezia* was erected by Blanchard 1891. The worm under discussion is having the scolex large, globular, mature segment broader, stout with blunt projection, testes medium, 180 - 185 in number, scattered anterior-posterior to segment, cirrus pouch medium, oval, interproglottid glands, 15 - 17 in number, situated in central region, Vitelline gland medium, oval, with irregular margin. The present worm differs from *Moniezia benedeni*, which is having the mature segments broader than long, posterior segment fleshy, testes 500 in number, arranged in the form of triangles, ovary compact with acini, interproglottid glands varying, narrow, short, in transverse row, cirrus pouch wide, short, oval, & reported from the host, *Equus caballus*. The present cestode differs from *Moniezia (B) pallida*, which is having the mature segment squares, uterus external, dorsal, ventrally over excretory canal, interproglottid glands varying in size and reported from the host, *Equus caballus*. The tapeworm under discussion, differs from *Moniezia (B) aurangabadensis* which is having the scolex broader, testes, 1100 - 1200 in number, ovary bilobed, with acini, interproglottid glands 12 - 15 in numbers, seminal vesicle oval and large, cirrus pouch small, cylindrical, Vitelline gland small, round, vagina posterior to cirrus pouch, reported from the host, *Ovis bharal*. The present worm differs from *Moniezia (B) bharalae*, which is having mature segment broader than long, testes, 190 - 220 in number, ovary compact, bilobed, interproglottid glands in two rows, 38 - 44 in number, seminal vesicle elongated, fusiform, cirrus pouch small, oval, & reported from host *Ovis bharal*. The present cestode differs from *Moniezia (B) waranangarensis* which is having scolex large, globular, mature segments broader; testes 300-320 in number, distributed throughout the segment, in single field; ovary indistinctly bilobed, 13-15, with blunt acini, transversely elongated; cirrus pouch medium, oval, transversely elongated, slightly obliquely placed, extend beyond longitudinal excretory canal; interproglottid glands 56 in number, medium, oval, & reported from the host, *capra hircus*. The present cestode differs from *Moniezia (B) kalawati* which is having squares scolex, mature proglottids broader, medium; testes 172 in number small, oval, distributed throughout the segment; ovary medium, oval, short, irregularly arranged in the central width of segments and leaving space on each lateral side, & reported from the host, *Capra hircus*. The present worm differs from *Moniezia (B) murhari* which is having scolex squares, mature segment broader; testes 405-415 in number; cirrus pouch elongated anteriorly, ovary inverted, horse shoe shaped, indistinctly bilobed, each with numerous short, blunt, round acini; and 63 interproglottid glands, reported from the host, *Capra hircus*. The present worm differs from *Moniezia (B.) caprai* which is having the scolex is medium squarish with large 4 suckers, without rostellum; testes 255-260 in number, oval, cirrus pouch is medium in size; ovary medium in size & kidney shaped. The present worm differs from *Moniezia (B) shindei* which is having scolex large, mature segment 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, and internal to ovary.

The present cestode differs from *Moniezia (B.) hircusae*, which is having scolex large, mature segment 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; and cirrus pouch in anterior 1/3<sup>rd</sup> region of the segment, interproglottidal glands 14-15 in number, large & oval. The present worm differs from earlier described *Moniezia (B.) rajalaensis*, in having scolex large, globular; mature proglottids, squarish, broader than long; testes 250-260 in number, medium scattered throughout proglottid cirrus pouch oval; ovary large, horse shoe shaped interproglottidal glands 31-32 in number, large & oval. The present worm differs from *Moniezia (B.) aishvaryae* which is having testes small and 255-265 in number; ovary large mass cirrus pouch spindle shaped vitelline glands quadrangular in shape interproglottidal gland 42-44 in numbers, and reported from the host ovaries. The present worm differs from *Moniezia (B.) maharashtrae* which is having scolex oval, neck broader than long; mature proglottid four and half times broader than long; testes 116 in numbers and interproglottidal glands 38 in numbers. The present worm differs from *Moniezia (B.) madhukarae* in having the scolex simple, elongated, neck long, 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; and vitelline gland post ovarian. The present worm differs from *Moniezia (B.) mansureae* in having the scolex is small, globular with musculature, suckers 4 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 oval, compact, and genital pore large in size, elongated coarse like and belly shaped and marginal; vas deferens is thin & straight tube. The present cestode differs from earlier described *Moniezia (B.) govindae* in having scolex large, globular; mature proglottids big, craspedote; testes 100-140 in numbers, medium scattered throughout proglottids; ovary large compact shaped, cirrus pouch elongated interproglottidal glands 40-42 in number, large & oval.

The present cestode differs from *Moniezia (B.) babai* in having scolex globular, elongated; testes 190-220 in numbers; cirrus pouch oval, ovary compact & rounded. The present tapeworm differs from *Moniezia (B.) jovisae* in having testes 155-165 in numbers; cirrus pouch and ovary compact. The present worm differs from *Moniezia (B.) interproglottina* in having the scolex rectangular, suckers are oval to rounded, arranged in two groups; mature proglottids square, testes small, rounded and 40-45 in numbers; cirrus pouch is cylindrical as difference is thin coiled tube; ovary bilobed, inverted 'U' shaped; vitelline gland is oval, compact genital pore marginal; and the interproglottidal glands are arranged in two rows & 25 in each row. The present worm differs from *Moniezia (B.) orientalis* in having scolex simple, oval, muscular, suckers 4, oval to rounded, arranged in two groups; mature proglottids 4-5 times broader than long; testes small, rounded and 35-40 in numbers; cirrus pouch cylindrical; ovary bean shaped, vitelline gland is oval, compact and genital pore marginal; vas deferens is thin straight tube; the interproglottidal glands are arranged in two rows, 16-18 in numbers (8-9 in each row).

The present worm differs from *Moniezia (B.) marathwadensi*, in having scolex simple, almost quadrangular, with rounded suckers, neck long, slightly narrower than scolex; mature proglottid broader than long; testes small, oval, 125-130 in numbers; cirrus pouch large, elongated, thin tube, straight; vas deferens slightly curved, thin; ovary compact, with numerous blunt acini; vagina thin tube, posterior to cirrus pouch, receptacle seminal broad, opens in ootype rounded, medium; vitelline gland post ovarian, medium, rounded; excretory canal paired, interproglottidal glands 50-52 in numbers & situated in double rows.

The present worm differs from *Moniezia (B.) punensi*, in the number of testes 110-120; and in the number of interproglottidal gland 18-22.

The present worm differs from *Moniezia (B.) warudensis* in the number of testes 241-256; in the shape of ovary compact; and in the number of interproglottidal gland 30-35.

The present worm differs from *Moniezia (B.) parbhaniensis* which is having scolex squares; in the number of testes 240-246; ovary bilobed interproglottidal gland 27-30.

The present worm differs from *Moniezia (B.) nagaonensis*, testes 185, ovary horse shoe, and in the number of interproglottidal gland 33-37.

The present worm differs from *Moniezia (B.) bhalchandrai n. sp.* Which is having scolex medium, quadrangular, broad anteriorly & narrow posteriorly, sucker 4, without rostellum, neck medium; mature segment broader than long, with double set of reproductive organs; testes 196-200 in number; ovary medium, inverted cup shaped; vagina thin tube, posterior to the cirrus pouch, receptacular seminal large, spindle shaped, ootype small, rounded, genital pore bilateral, medium, oval, longitudinal excretory canal wide; vitelline gland large, oval & gravid proglottid large, rectangular with numerous round eggs & interproglottidal glands 13-14 in number.

From the above discussion it is clear that, the species under discussion is new to science and differ from the known valid species of the genus *Moniezia* in respect to taxonomic characters. Hence the species is named as *Moniezia (B.) subhapradhae n. sp.* is proposed in honour of Dr. Subhapradhae C.K. Who is Eminent Helminthologist?

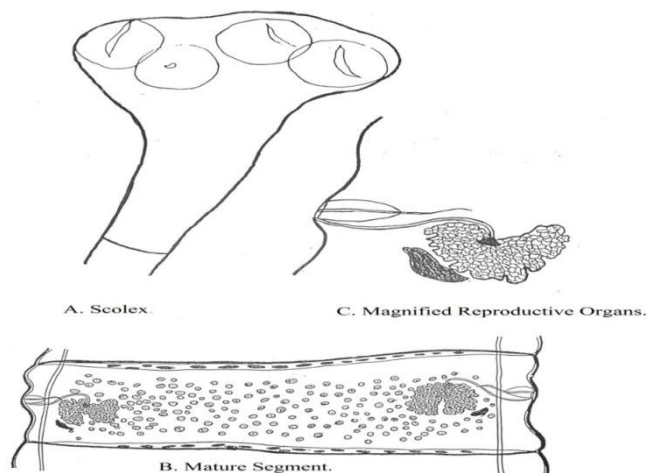


Fig 1: A. Scolax, B. Mature Segment, C. Magnified reproductive organs

### Taxonomic summary

**Genus:** *Moniezia (B.) subhapradhae n. sp.*

**Host:** *Capra hircus*.

**Habitat:** small intestine. (Goat)

**Locality:** Jintur Dist. Parbhani, M. S. India.

**Type of specimen:** Holotype, Paratypes are Deposited in Helminthology Laboratory Department of Zoology. S. M. D. M. College, Kallam, Dist. Osmanabad, M.S. India.

### ACKNOWLEDGEMENT

Authors are thankful to Principal, SMDM College, Kallam Dist. Osmanabad M.S. India. Authors are also thankful to Principal, DSM College, Parbhani encouragement and providing laboratory facilities.

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