



Taxonomic Study of The Genus *STILESIA* Railliet, 1893 from *Ovis Bharal* with Description of A New Species

KEYWORDS

Ovis bharal, *Stilesia*, Taxonomic observation

SHAIKH KALIM

DEPARTMENT OF ZOOLOGY, POONA COLLEGE OF ARTS, SCIENCE AND COMMERCE, CAMP, PUNE- 411001

ABSTRACT *The present communication deals with new species of the genus Stilesia Railliet in 1893 i.e. Stilesia kalamae Sp. Nov. collected from Ovis bharal at Sillod Dist. Aurangabad (M. S.) India. The present form comes closer to all the known valid species of this genus in general topography of organs but differs due to some characters i.e. Scolex globular, suckers four, large, muscular, arranged at four corners, mature proglottids 7-8 times broader than long, testes small, arranged in two fields, 7-8 in each field, genital pore marginal, regularly alternate, vagina posterior to cirrus pouch, ovary compact and par uterine organ large, centrally placed.*

INTRODUCTION

The genus *Stilesia* was erected by Railliet in 1893 from *Ovis aries* in Europe, Asia and Africa as *Stilesia globipunctata*, later on in 1896 Railliet described *Stilesia vittata* from *Camelus bacterium's* from East Africa later on Wolffhugel in 1903 added *Stilesia hepatica* from sheep and goat from East Africa. In India *Stilesia okapi* was described by Leiper in 1936 from Okapi in Africa, is regarded by Baer, 1950 as a variety of *Stilesia globipunctata*. Kadam et. al, 1980 added *Stilesia leiperi* from *Ovis bharal* later on *Stilesia caballeri* was erected by Kalyankar et. al. 1981 from *Capra hircus*. Shinde, 1982 described *Stilesia southwelli*, Later on Jadhav et. al. 1982 described *Stilesia aurangabadensis* from *Ovis bharal*. Malhotra and Capoor, 1983 added two new species i. e. *Stilesia gharwalensis* and *Stilesia Kothwarensis* from *Capra hircus*, *Ovis bharal* respectively. In 1985 Shinde et. al added *Stilesia marathwadensis* from *Capra hircus* later on Jadhav, 1999 described *Stilesia jadhavae* from *Ovis bharal*, *Stilesia yawalensis*, was added by kalse et. al. 1999 from *Capra hircus*. Deshmukh et. al 2001 added *Stilesia dhondage* from *Capra hircus* Patil et. al. 2002 added *Stilesia capari* from *Capra hircus*, later on Pawar et. al. 2004 added *Stilesia ambajogaensis* from *Bos indicus*. Later on *Stilesia pandeyi* was described by Nanware and Jadhav, 2004 from *Capra hircus*. Khadap et. al. 2004 reported *Stilesia indapurensis* from *Capra hircus*, in 2004 Shelke and Shinde (2004) described *Stilesia daulatabadensis* from *Capra hircus* later on Nanware and Jadhav, 2005 described *Stilesia Jadhavae* from *Capra hircus* and Nitin padwal and B. V. Jadhav in 2006 added *Stilesia govindae* from *Ovis bharal*.

MATERIALS AND METHODS

Thirty five tapeworm were collected from intestine of *Ovis bharal* at Sillod Dist. Aurangabad (M. S.) India during the period of June, 2005 to May 2007 these cestodes are preserved in 4% formalin and seven specimens are 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.

DESCRIPTION

All the cestodes are long consisting Scolex. Immature, Mature and Gravid proglottids. The scolex is medium in size, globular well marked off from strobila and measures 1.5 (1.277-1.722) in length and 2.0166 (1.722-2.311) in width. Suckers are large, oval to rounded, muscular lies at four corners and measures 0.666 (0.522-0.811) in length and 0.661 (0.544-0.777) in width. The neck is long measures 3.677 (3.577-3.777) in length and 1.5 (1.355-1.644) in width.

The mature proglottids are 7-8 times broader than long and measures 0.133 (0.111-0.155) in length and 1.3875 (1.376-1.398) in width. The testes are small, oval to rounded in shape, in two lateral fields 7-8 in each group (three are at cirrus pouch region and four are at its opposite side) and measures 0.044 (0.026-0.062) in length and 0.044 (0.035-0.053) in width. The cirrus pouch is medium oval to elongated, marginal and measures 0.144 (0.133-0.155) in length and 0.0310 (0.0177-0.044) in width. Cirrus is thin straight tube runs within the cirrus pouch and measures 0.157 (0.150-0.164) in length and 0.006 (0.004-0.008) in width the vas deferens short thin tube and measures 0.053 (0.044-0.062) in length and 0.005 (0.004-0.006) in width.

Vagina and cirrus pouch open into a common pore known as genital pore, which is small in size, oval to rounded, marginally regularly alternate and measures 0.017 (0.013-0.022) in length and 0.015 (0.008-0.013) in width. The vagina is thin, arised from posterior to cirrus pouch, forms receptaculum seminis and measures 0.122 (0.111-0.133) in length and 0.006 (0.004-0.008) in width. Receptaculum seminis is straight tube, open into ootype and measures 0.013 (0.008-0.017) in length and 0.005 (0.004-0.006) in width. Ootype is rounded small in size and measures 0.020 in diameter.

From ootype, ovarian lobes are started, ovary is compact, oval in shape and measures 0.039 (0.035-0.044) in length and 0.044 (0.035-0.053) in width. The excretory canals are in two pairs in both the sides and measures 0.128 (0.1243-0.133) in length and 0.033 (0.026-0.039) in width. The paruterine organs are large, oval centrally placed, two in each segment containing small, rounded eggs and measures 0.1665 (0.133-0.177) in length and 0.077 (0.066-0.088) in width, gravid proglottids were not found.

DISCUSSION

The genus *Stilesia* was erected by Railliet, 1893 for *Stilesia globipunctata* Rivolta, 1874 the present worm comes closer to all known species of the Genus *Stilesia* Railliet, 1893 in general topography of organs. but differs due to some characters from following species:

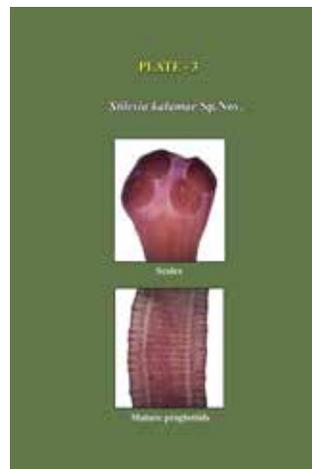
- i) The present tapeworm differs from *S. globipunctata* (Rivolta, 1874) Railliet, 1893 in having scolex small in size rounded testes 4-7, cirrus pouch small, pyriform ventral to vagina, ovary spherical, vagina dorsal to cirrus pouch and reported from *Ovis aries* in Europe.
- ii) The worm under discussion differs from *Stilesia vittata* Railliet (1896) in having testes 5-9 each in two lateral groups. Vas deferens closely coiled. Cirrus pouch cylindrical, ovary rounded, genital pore n anterior half of the

- segment and reported from *Camelus dromedarius* in Africa.
- iii) The present worm differs from *Stilesia hepatica* Wolfhugel (1903) in having testes pre ovarian, vas deferens not closely coiled but extending up to excretory canal, cirrus pouch almost oval, vagina anterior to cirrus pouch, Genital pores in the middle of the segment and reported from the liver of *Ovis aries*
- iv) The tapeworm under discussion differs from *Stilesia okapi* Leiper (1936) in having testes 2-3 in each lateral field, vas deferens coiled, ovary spherical and reported from Okapi in Africa.
- v) The present parasite differs from *Stilesia leiperi* Kadam et. al. (1980) which is having testes 5-6 on each side. Cirrus pouch cylindrical. Vas deferens not closely coiled but extend beyond long excretory canals. ovary circular, genital pore anterior half of the segment and reported from *ovis bharal*.
- vi) The present cestode parasite differ from *Stilesia cabaleroi* Kalyanar et.al (1981) in having the scolex very small, testes 1 to 11 in numbers on each side, deposited in 2 to 3 rows, mature segment longer than broad and reported from *Capra hircus*.
- vii) The present worm differs from *Stilesia southwelli* Shinde et. al (1982) which is having quadrangular scolex, mature proglottids 5 times broader than long testes 4 in each two lateral groups, vas deferens very much coiled and reaching up to ovary, ovary small, genital pore at 1/3rd from anterior margin of the proglottids and reported from *Capra hircus* .
- viii) The present tapeworm differs from *Stilesia aurangabadensis* Jadhav et. al. (1982) in having the scolex spherical , testes are 5 on each lateral side of the proglottids and lateral to ovary, vas deferens reaches up to longitudinal excretory canal, cirrus pouch cylindrical, ovary medium in size
- ix) The present cestode worm differs from *Stilesia garhwensis* Malhotra and Capoor (1983) in having the size of scolex 0.510-0.840 in diameter. Testes 0-9 in number. Size of cirrus pouch 0.011-0.101 in diameter, size of ovary 0.009-0.097 in diameter and genital pore situated at anterior 1/3rd level of lateral margin of proglottids and reported from *Capra hircus*
- x) The present tapeworm differs from *Stilesia kotwarensis* Malhotra and Capoor (1983) in having testes 1 to 12 in number ovary small, vas deferens coiled, genital pore at anterior 1/3rd level of lateral margin of proglottid, paruterine organs are small and reported from *Ovis bharal* in India.
- xi) The present worm differ from *Stilesia marathwadensis* Shinde et. al (1985) is having circular scolex, testes 5-7 in number rounded in two groups and cirrus pouch cylindrical and reported from *Capra hircus*
- xii) The present worm differs from *Stilesia jadhavae* Jadhav, (1999) in having the proglottids 8 times broader than long testes 5-7 in numbers. Ootype 0.045 in diameter ovary 0.197 in diameter, vagina anterior to cirrus pouch and reported from *Ovis bharal* in India
- xiii) The present cestode differs form *Stilesia yawalensis* Kalse et. al (1999) in having quadrangular scolex. testes rounded in 2 groups (5-6) in number, vas deferens thin, curved, cirrus pouch oval, ovary medium, globular, a single mass, vagina thin and genital pore marginal, paruterine organ simple and reported from *Capra hircus* in India.
- xiv) The present tapeworm differ from *Stilesia dhondgae* Deshmukh .et.al (2001) in having scolex quadrangular ,broad anteriorly ,testes 8-10 in numbers arranged in two rows ,cirrus pouch small , ovary bilobed and paruterine organ simple and reported from *Capra hircus* in India.
- xv) The present cestode parasite differ from *Stilesia capari* Patil et. al (2002) in having vas deferens medium, cirrus pouch small, ovary sac like, single mass like ,vagina anterior to cirrus pouch. Paruterine organ are simple and reported from *Capra hircus* in India.
- xvi) The present tapeworm showing differences from *Stilesia ambajogaensis* Pawar et. al (2004) in having small, quadrangular scolex, testes 25-30 in numbers, cirrus pouch cylindrical vagina anterior to cirrus pouch, paruterine organ is simple and reported from *Bos indicus*.
- xvii) The present cestode differs from *Stilesia pandeyi* Nanware and Jadhav (2004) in having scolex large, neck short and wide almost four times broader than long, mature proglottids almost 17 times broader than long with convex lateral margin and slight projections at posterior corners of proglottids, testes are on two lateral field 20 in numbers, cirrus pouch is small elongated at one third of anterior margins of proglottid obliquely placed, cirrus thin slightly curved, vas deferens short ,ovary small with 3-4 short blunt acini, ootype small, genital pores medium and oval and reported from *Capra hircus* in India.
- xviii) The present worm differs from *Stilesia indapurensis* khadap et. al (2004) in having quadrangular broad anteriorly mature proglottid squarish, testes 8-9 in number ,vas deferens curved, cirrus pouch obliquely placed, genital pores oval situated at posterior 1/2nd of the segment.
- xix) The present cestode differs from *Stilesia daulatabadensis* Shalke et. al (2004) in having mature segment squarish , testes are small to medium, 11 in number 7 on poral and 4 on aporal side, vas deferens slightly curved, ovary single mass, vagina thin long anterior to cirrus pouch slightly curved.
- xx) The present cestode parasite showing differences from *Stilesia Jadhavi* Nanware et. al (2005) in having testes 14 in number, ovary lobulated and vagina anterior to cirrus pouch ,genital pores single 1/3rd posterior part of segment and reported from *Capra hirus* in India.
- xxi) The present cestode differs from *Stilesia govindae* Padwal and Jadhav (2006) in having scolex medium with large suckers and slightly overlapping to each other, mature proglottids 15 times broader than long, testes 12-14 in number, cirrus pouch cylindrical ,sac like, vagina poster-oventral to cirrus pouch.

The above noted characters are valid enough to erect a new species *Stilesia kalamae* Sp.Nov in honour of well known scientist and former president of India A.P.J.Kalam.

Taxonomic summary

Genus	: <i>Stilesia</i> Ralliet, 1893
Species	: <i>Stilesia kalamae</i> Sp Nov
Type host	: <i>Ovis bharal</i>
Habitat	: Intestine
Type locality	: Sillod,A,bad (M.S) India
Accession number:	HRL /2005-07/2a /1-7
Holotype	: Deposited in Helminthology research Lab.
Paratype	: Dept. of Zoology, Dr. B. A. M. U. A. bad.
Date of Collection:	June 2005-May-2007.
Etymology	: In honour of former president of India A.P.J.Kalam.



A) Scolex B) Mature Proglottids

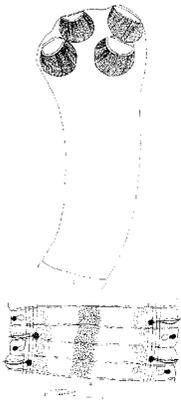


Figure1- Microphotoplate of *Stilesia kalamae* Sp. Nov.

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