



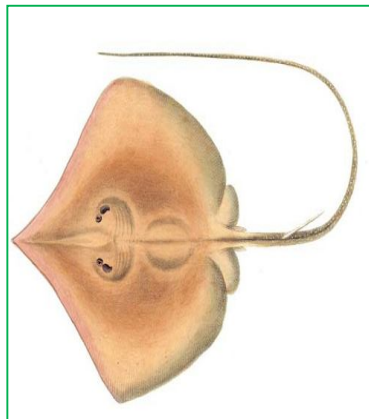
HEXACANALIS SHISODAE NEW SPECIES OF THE CESTODE PARASITES FROM MARINE WATER FISH TRYGON ZUGEI (Muller and Henle, 1941)

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ABSTRACT:

The present communication deals with the new species of cestode parasites *Hexacanalisis shisodae* from marine water fish *Trygon zugei*. The detail description of genus *Hexacanalisis shisodae* n.sp. and after going through the literature comes closer to *H. zugei*, *H. yamagutti* & *H. trygoni* but it differs from them in many characters as in position of suckers, size, position and number of testes, shape of ovary, position



of vagina, position of genital pores and in shape and position of vitellaria.

KEYWORDS: Cestoda, *Trygon zugei*, *Hexacanalisis*, new species etc.

INTRODUCTION:

The genus *Hexacanalisis* (Perrenoud, 1931) was introduced by Southwell (1911) as *Cephalobothrium* with its type species *C. abruptum* from

Pteroplatea micrura and *Dasyatis khuli* at Ceylon (Trivandrum Coast) and he also reported another species *C. variabilis* from *Pristis cuspidatus* and *Dasybatus khuli* at Ceylon. Perrenoud, 1931 amalgamated these species and created a new genus *Hexacanalisis* with its type species *H. abruptus* and the name *H. variabilis* was proposed for *C. variabilis*. He recorded the genus from the same locality (Ceylon). Shinde and Deshmukh, 1979 described two new species *H. zugei* and *H. yamaguti* from *Trygon zugei* and *Dicerobatis regodoo* from Ratnagiri and Veraval (West Coast of India) respectively. Murlidhar 1986 reported one new species *H. indiraji* from *Trygon sephen* at Kakinada (A.P.) East Coast of India. Shinde et.al. 1991 described *H. thapari* from *Trygon zugei* at Ratnagiri and one new species added by Hemlata Wankhede in 2003 i.e. *H. govindi* from *Dicerobatis regodoo* at India.

The present communication deals with the description of a new species *Hexacanalisis shisodae* n.sp. from marine water fish *Trygon zugei*.

MATERIAL AND METHODS:

One hundred and ninety five specimens of cestode were collected from the spiral valve of *Trygon sephen* (Cuvier, 1871) at Alibag District (West Coast of Maharashtra, India) in the year June 2009 to May 2011. All were flattened, preserved in 4% formalin, stained with Haematoxyline, were passed through various alcoholic grades, slides were prepared for anatomical studies. Drawings were made with the help of camera lucida. All measurements are in millimeters.

RESULT AND DISCUSSION:

Two hundred eighty five specimens of the genus *Hexacanalís* Perrenoud (1931) were collected from the intestine of *Trygon zugei* (Muller and Henle, 1941) at Rajapuri (M.S.) India, during the Period of June 2009 to May 2011.. The worm measures 33 mm in length and 0.4 in breadth with 35 segments.

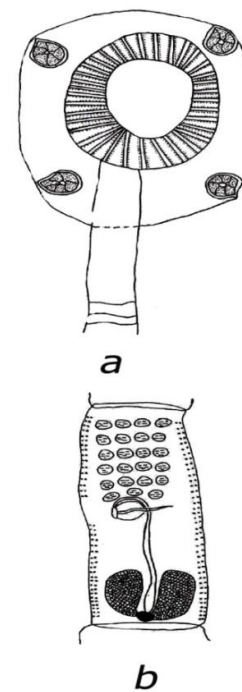
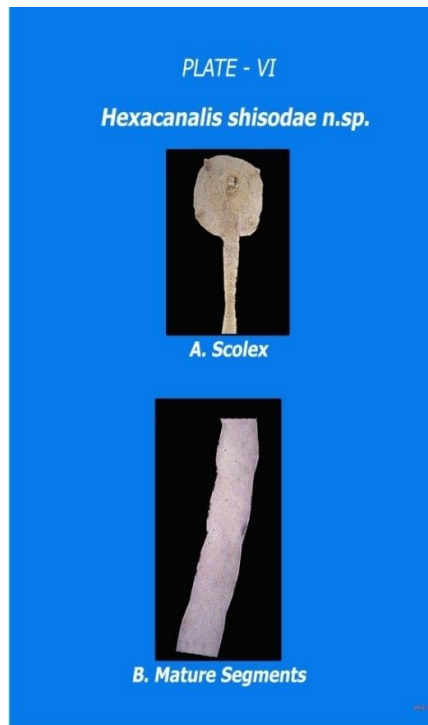


Fig.1. Microphotograph of *Hexacanalís shisodae n.sp.* Fig.2. Camera lucida diagram of of *Hexacanalís shisodae n.sp*

The scolex is medium in size and quadrangular in shape, somewhat broad anteriorly and narrows posteriorly, with concave lateral margins. It measures 0.34 (0.30-0.39) in length and 0.29 (0.27-0.34) in breadth. The scolex is divided into anterior region and posterior region. Anterior region is highly muscular and bears large protrusible sucker, and measures 0.25 (0.21-0.29) in length and 0.21 (0.16-0.28) in breadth. The large protrusible sucker measures 0.11 in diameter. The posterior region is having thin musculature bears four small suckers at four corners and measures 0.29 (0.26-0.33) in length and 0.27 (0.24-0.30) in breadth. Suckers are medium, rounded in shape and measures 0.37 (0.31-0.44) in length and 0.05 (0.042-0.057) in breadth. Neck is absent.

The scolex is followed by segments. The mature segments are longer than broad, measures 1.1 (0.9-1.3) in length and 0.33 (0.28-0.38) in breadth. The testes are medium in size, oval in shape, 24 in number, scattered in all over the proglottids, pre-ovarian, measures 0.018 (0.016-0.021) in length and 0.030 (0.026-0.034) in breadth.

Cirrus pouch is larger in size somewhat oval in shape, transversely placed just posterior of the proglottids, opens marginally and measures 0.12 (0.09-0.15) in length and 0.07 (0.06-0.08) in breadth. The cirrus is slightly curved measures 0.15 (0.12-0.19) in length and 0.01 (0.009-0.011) in breadth. Vas deferens is long coiled tube, anteriorly directed measures 0.36 (0.33-0.39) in length and 0.01 (0.009-0.012) in breadth. The vagina is thin tube, anterior to cirrus pouch, starts from the genital pore, extend transversely and take a turn, runs posteriorly and forms receptaculum seminis and measures 0.36 (0.35-0.37) in length and 0.005 (0.004-0.007) in breadth. Receptaculum seminis is long, reaches up to ootype, measures 0.12 (0.11-0.13) in length and 0.01 (0.009-0.011) in breadth.

The large ootype measures is 0.028 (0.021-0.036) in length and 0.08 (0.07-0.1) in breadth. The ovary is bilobed 'V' shaped, measures 0.72 (0.60-0.84) in length and 0.1(0.08-0.13) in breadth, placed posteriorly with many ovarian follicles.

The vagina and cirrus pouch open into a common genital pore, placed at 1/3rd from the posterior margin of the proglottids, marginal regularly alternate, measures 0.030 (0.024-0.036) in length and 0.01 (0.07-0.013) in breadth.

Uterus is extended up to the anterior part of the proglottids, sac like, measures 1.0 (0.9-1.1) in length and 0.07 (0.03-0.11) in breadth. Vitellaria granular, placed in the cortical region except cirrus pouch region.

DISCUSSION

The tapeworm under discussion having quadrangular scolex, medium in size, presence of a large central sucker and four small suckers, Neck absent, mature proglottids 3 to 4 times longer than broad, testes oval and 24 in number. Somewhat oval cirrus pouch, slightly curved cirrus, vas deferens long coiled, ovary 'V' shaped one lobe is larger than other, vagina thin tube, anterior to cirrus pouch is conical vitellaria are granular, except cirrus pouch region placed cortically, uterus sac like extends anterior side of proglottids.

1) The present tapeworm differs from *H. abruptus* Perrenoud, (1931) in which scolex length 1.3 and breadth 1.2, central sucker with transverse slit like opening, testes 62-73 in number, ovary dumb-bell shaped without acini. Vagina posterior to cirrus pouch, receptaculum seminis is present and genital pore sub-marginal, vitellaria follicular with constant globular acini.

2) The present parasite differs from *H. variabilis* Perrenoud, (1931) with scolex length 0.75 and breadth 1.00 in width, neck present, testes 14-18 in number present in single field. Ovary transversely elongated with 4 to 6 cylindrical lobes in each side, vagina is anterior to cirrus pouch, genital pore sub-marginal, vitellaria follicular with large cylindrical acini.

3) The present form differs from *H. zugei* Shinde and Deshmukh, (1979) is having scolex length 0.95 and breadth 0.96, central sucker highly muscular with transverse slit like opening, neck present testes 42-47 in number, almost in two fields in 3-4 rows, ovary single mass, oval, small and compact vagina posterior to cirrus pouch, receptaculum seminis absent, genital pore at middle of proglottids, submarginal.

4) The present parasite differs from *H. yamaguti* Shinde and Deshmukh, (1979) in which scolex length 1.09 and breadth 1.08, central sucker highly muscular with transverse slite like opening, neck is absent, testes 40-45 in number, ovary transversely elongated, medium size, single mass, compact. Vagina posterior to cirrus pouch, genital pore 1/3rd of anterior margin of the proglottids, receptaculum seminis is present, Sub-marginal genital pore and vitellaria are granular.

5) The present tapeworm differs from *H. indraji* Murlidhar, (1986) with length of scolex 0.19 and breadth 0.16, neck present, central sucker is rounded testes 35-40 in two fields, ovary triangular with acini, receptaculum seminis absent, receptaculum seminis absent, genital pore 1/4th of anterior margin.

6) The present worm differs from *H. thapari* Shinde et.al., (1991) with length of scolex 0.44 and breadth 0.39, Central sucker absent, neck present, testes 60-65 in number, arranged in two lateral fields, ovary is indistinctly bilobed, vagina posterior to cirrus pouch, receptaculum seminis absent, vitellaria are granular.

7) The present parasite differs from *H. govindi* Hemlata Wankhede, (2003) in which scolex length 0.514 and 0.610 in breadth, neck present, testes 20 in number, 'U' shaped ovary vagina posterior to cirrus pouch, vitellaria follicular in single row.

The above differentiating characters are valid enough to erect a new species for these worms and hence the name *Hexacanalishisodae* n. sp. is proposed in the honour of Late Shree. Khanderaoji Patil Shisode, The Founder President of the Institute.

Comparative chart showing an account of old and new species of the genus *Hexacanalís* Perrenoud, 1931.

Species	<i>H. abruptus</i> Perrenoud, 1931	<i>H. variabilis</i> Perrenoud, 1931	<i>H. zugei</i> Shinde and Deshmukh, 1979
Characters			
Locality	Ceylon	Ceylon	India
Host	<i>Pteroplatus micrura</i>	<i>Paritstis caspidantus</i>	<i>Trygon zugei</i>
Scolex (Length and Breadth)	1.3 and 1.2 m.m.	0.75 and 1.00 m.m.	0.95 and 0.96 m.m.
Central sucker	With transverse slit like opening	Without transverse slit like opening	Highly muscular, with transverse slit like opening
Neck	Absent	Present	Present
Testes	62-73	14-18 present in a single field	42-47 almost in two fields in 3-4 rows, small.
Ovary	Dumb-bell shaped without acini	Transversely elongated with 4-6 cylindrical lobes in each side	Single mass, oval, small, and compact
Vagina	Posterior to cirrus pouch	Anterior to cirrus pouch	Posterior to cirrus pouch
Receptaculum Seminis	Present	Present	Absent
Genital pores	Submarginal	Submarginal	At middle of segment, submarginal
Vitellaria	Follicular with constant globular acini	Follicular with large cylindrical acini.	Granular, subcortical, wide.

Species	<i>H. yamaguti</i> Shinde and Deshmukh, 1979	<i>H. indiraji</i> Murlidhar, 1986,	<i>H. thapari</i> Shinde et al, 1991
Characters			
Locality	India	India	India
Host	<i>Dicerobatis eregodoo</i>	<i>Trygon sephen</i>	<i>Trygon zugei</i>
Scolex (Length and Breadth)	1.09mm and 1.08 mm	0.19 mm and 0.16 mm	0.44 mm and 0.39 mm
Central sucker	Highly muscular, with transverse slit like opening	Rounded	Absent
Neck	Absent	Present	Present
Testes	40-45 in a single field	35-40, in two fields	60-65 in two lateral fields
Ovary	Transversely elongated, medium in size, single mass, compact.	Triangular with acini	Indistinctly bilobed.
Vagina	Posterior to cirrus pouch, runs obliquely in subcortical region.	Anterior to cirrus pouch	Thin, posterior to cirrus pouch
Receptaculum Seminis	Present	Absent	Absent
Genital pores	At 1/3 of anterior margin of the segment, submarginal.	At ¼ of anterior margin of the segment, marginal	Medium, oval, marginal.
Vitellaria	Granular, subcortical.	Granular, without strips	Granular, cortical.

Species	<i>H. govindi</i> Hemlata Wankhede, 2003	<i>H. shisodae</i> , n.sp.
Characters		
Locality	India	India
Host	<i>Dicerobatis eregodoo</i>	<i>Trygon zugei</i>
Scolex (Length and Breadth)	0.514 mm and 610 mm	22 mm and 0.35 mm
Central sucker	Present	Highly muscular
Neck	Present	Present
Testes	20	23
Ovary	'U' shaped, compact	Bilobed
Vagina	Posterior to cirrus pouch	Anterior to cirrus pouch
Receptaculum Seminis	Present	Present
Genital pores	Marginal	Sub-marginal placed at middle of segment
Vitellaria	Follicular in single row	Granular.

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