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ORIGINAL RESEARCH ARTICLE

Morphotaxonomic Observations of *Uncibilocularis plagiosumae* Sp. Nov. From a Marine Fish *Chiloscyllium plagiosum* Bennett, 1830 at Ratnagiri District (M.S.) India

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ABSTRACT

A new onchobothridaen tapeworm belonging to the genus *Uncibilocularis* has been described from the intestine of *Chiloscyllium plagiosum* at Ratnagiri District. Due to possession of scale quadrangular, mature segments are broader than long, testes 74 in number, vitellaria granular it has been compared with other existing species also and differences have been noted.

Key word: Tapeworm**,** *Chiloscyllium plagiosum*, Ratnagiri.

INTRODUCTION

The present genus *Uncibilocularis* was established by Southwell in 1925 with its type species *U. trygonis* (Shipley et Hornell 1906), as *prosthecobothrium trygonis* in *Trygon walga* and *Trygon sephen* at Ceylon. So far thirteen species have been have been reported till to date under this genus.

The genus *Uncibilocularis* is the sole representative of the family Onchobothriidae from marine fishes. The present communication deals with the description of a new species under the same genus viz. *Uncibilocularis plagiosumae* Sp. Nov collected from marine fish *Chiloscyllium plagiosum* at Ratnagiri District.

Materials and Methods

For the taxonomical study of tapeworms, the fishes were collected during the period of Oct. 2008 – Sept. 2010 of Ratnagiri district. The hosts are easily identified by Day (1958). The viscera were brought to the laboratory immediately, repeatedly washed in cold saline, cut and observed under binocular microscope. The collected worms were washed in distilled water and fixed in hot 4 % formalin for specific identification. The flattened parasites were washed thoroughly under running tap water and subjected to Haematoxylin stain. All drawings were made with the aid of camera lucida (Weesner, 1965). All measurements are in millimeters, unless otherwise indicated. The identification is made with the help of "Systema Helminthum" by Yamaguti (1959).

Description

Twenty nine specimens of this species were collected from the spiral valve of *Chiloscyllium plagiosum* at Ratnagiri District during the period of Oct. 2008 Sept. 2010.

The scolex almost quadrangular in shape slightly narrow anteriorly and broad posteriorly, it measures 2.101 (2.092 – 2.112) and 2.074 (2.049 – 2.101) in width. It bears four sessile bothridia, ballon shaped it measures 1.704 (1.676 – 1.733) in length and 0.614 (0.5046 – 0.722) in width. Each bothridium is divided into two oval locula of which the anterior locula is larger than the posterior one. The anterior locula measures 0.394(0.349 – 0.428) in length and 0.532 (0.528 – 0.534) in width and posterior one measure 0.252 (0.246 – 0.258) in length and 0.304 (0.298 – 0.310) in width. Accessory suckers are absent. Each bothridium bears a pair of bifurcated hooks, which a rose thorn shaped; it measures 0.377 (0.340 – 0.415) in length and 0.020 (0.010 – 0.030) in width. Each hook is having two prongs. Each pair of prong has a handle. The inner prong of the hook is larger than the outer prong and curved spine like tubercle present on the inner prong. The powerful inner longitudinal muscles bundles are attached to each bothridium become separated from each other posteriorly and disappear completely in mature segments. The scolex is followed by a long neck, longer than

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broad; it measures 0.605 (0.577- 0.633) in length and 0.127 (0.122 – 0.133) in width.

The strobila is divided into many immature, mature and gravid segments. In immature segments there is no trace of any reproductive organs and partly mature segments observe organs.

The mature segments are broader than long, it measures 0.458 (0.385 – 0.531) in length and 0.903 (0.885 – 0.912) in breadth. The testes are oval in shape, pre-ovarian and 74 (72 – 80) in numbers, measures 0.018 (0.016 -0.020) in length and 0.012 (0.011 – 0.013) in width they are scattered throughout the mature segments. The cirrus pouch is large, tubular in shape; it measures 0.144 (0.131 – 0.157) in length and 0.043(0.035 – 0.052) in width and present at the anterior side of the segments. The cirrus is thin, straight measure 0.056(0.052 – 0.061) in length and 0.012 (0.008 - 0.017) in width and forms vas deferens. The vas deferens which is thin, short and slightly curved posteriorly, it measures 0.131(0.096 - 0.166) in length and 0.0008 in width. The cirrus and vagina opens common pore known as genital pore which is small, marginal, and irregularly alternate, it measures 0.017 in diameter.

The ovary is bilobed, elongated; it measures 0.188 (0.184 – 0.192) in length and 0.074 (0.070 – 0.078) in width. The isthmus is connecting the two ovarian lobes, very short, transversely placed; it measures 0.017 in length and 0.008 in width. Vagina starts from the common genital pores vagina is a long narrow tube, anterior to the cirrus pouch, takes a curve and forms receptaculum seminis, it measures 0.683 (0.675 – 0.692) in length and 0.012 (0.008 – 0.017) in width. Receptaculum seminis is short tube measures 0.029 (0.027 – 0.032)in length and 0.014 (0.012 – 0.015) in width, which reaches to the ootype which is rounded lies in between two lobes of the ovary and measures 0.017 in diameter. The vitellaria are granular placed at the both lateral sides of the mature segments except cirrus pouch.

Gravid segment were not observed.

DISCUSSION

The genus *Uncibilocularis* was established by Southwell in 1925 with the type species *Uncibilocularis trygonis* from *Trygon sephen*. The present worm comes closer to all the known species of the genus *Uncibilocularis* (Southwell, 1925) in general topography of organs. But differs due to some characters from following species.

The present worm differs from *U. trygonis* (Southwell, 1925) having scolex (quadrangular Vs square), testes (74 Vs 30-40) in number and vesicle (present Vs absent). The present worm differs from *U. indica* (Subhapradha, 1955) scolex (quadrangular Vs narrow anteriorly and broad posteriorly), accessory suckers (absent Vs present), neck (present Vs absent) and vesicle (present Vs absent). The present worm differs from *U. aurangabadensis*, (Deshmukh *et al.*, 1975) having accessory suckers (absent Vs present), tubercle (on inner prong Vs on outer prong of hooks) and neck (present Vs absent). The present worm differs from *U. ratnagiriensis*, (Shinde *et al.*, 1975) having testes (74 Vs 114) in number and vesicle (present Vs absent). The present worm differs from *U. southwelli* (Shinde *et al.*, 1976) in having tubercle present (on inner prong Vs on outer prong of hooks), testes (74 Vs 220-230) in numbers, vesicle (present Vs absent).

The present worm differs from *U. thapari* (Deshmukh *et al.*, 1979) having tubercle present (on inner prong Vs on both prong of hooks) and testes (74 Vs 25-28) in numbers. The present worm differs from *U. shindei* (Deshmukh *et al.*, 1979) in having scolex (quadrangular Vs rounded), testes (74 Vs 40 - 45) in number. The present worm differs from *U. somnathii* (Deshmukh *et al.*, 1979) having accessory suckers (absent Vs present), testes (74 Vs 90-95) and vesicle (present Vs absent). The present worm differs from *U. veravalensis* (Jadhav *et al.*, 1981) in having scolex (quadrangular Vs round to oval), genital pore (marginal Vs ¼ th from anterior margin of the segments). The present worm differs from *U. bombayensis*, (Jadhav *et al.*, 1984) is having scolex (quadrangular Vs circular) testes (74 Vs 45 - 50) arranged in two fields of the segments. The present worm differs from *U. indiana* (Jadhav *et al.*, 1989) which is having scolex (quadrangular Vs oval), testes (74 Vs 40-45) in number and vesicle (present Vs absent). The present worm differs from *U. shashtri* (Jadhav *et al.*, 1989) having scolex (quadrangular Vs narrow anteriorly and broad posteriorly in shape), accessory suckers (absent Vs present), tubercle is present (on inner prong Vs on outer prong of hooks), testes (74 Vs 55-60) in numbers and vesicle (present Vs absent). The present worm differs from *U. ranuae* (Pawar *et al.*, 2005) having scolex (quadrangular Vs triangular tapering at both the ends), tubercle (on innr prong Vs absent on prongs), testes (74 Vs 47-50) in numbers and genital pores are (marginal Vs sub-marginal).

Some additional and differentiating characters are given in the comparative chart at the end. These

distinct characters are more than enough to erect a new species from this genus and named *Uncibilocularis plagiosumae* Sp. Nov. is proposed after the species name of the host *Chiloscyllium plagiosum.*

Taxonomic summary

Genus: *Uncibilocularis* Southwell, (1925)

Type Species: *Uncibilocularis plagiosumae* Sp. Nov.

Host :*Chiloscyllium plagiosum* (Anonymous,1830)

Habitat: Intestine

Locality: Ratnagiri

Accession Number: HRL/2008-10/1-5

Holotype and Deposited in the Helminthology Research Lab.,

Paratype: Dept. of Zoology, Dr. B.A.M.U. Aurangabad

Date of collection: Oct. 2008 - Sept. 2010.

Etymology: Named after the host species.

Diagnostic key to the species of the genus *Uncibilocularis* Southwell, 1925

Neck absent 1

Neck present 2

1)Scolex quadrangular: *U. aurangabadensis* Deshmukh *et al.*, 1975

Scolex narrow anteriorly and broad posteriorly: *U. indica* Subhpradha,1955

2) Accessory sucker absent: 3

Accessory Sucker presents :4

3)Scolex squarish: 5

Scolex rounded: 6

Scolex round to oval: 7

Scolex triangular: *U. ranuae* Pawar *et al.*, 2005

Scolex oval: *U. indiana* Jadhav *et al.*, 1989

Scolex circular : *U. bombayensis* Jadhav *et al.*, 1984

Scolex quadrangular : *U. thapari* Deshmukh *et al., 1979*

4) Testes below 60: *U. shashtri*, Jadhav *et al.*, 1989

Testes above 60: *U. somnathi* Deshmukh *et al.*, 1979

5) Testes below 50: *U. trygonis*, Southwell, 1925

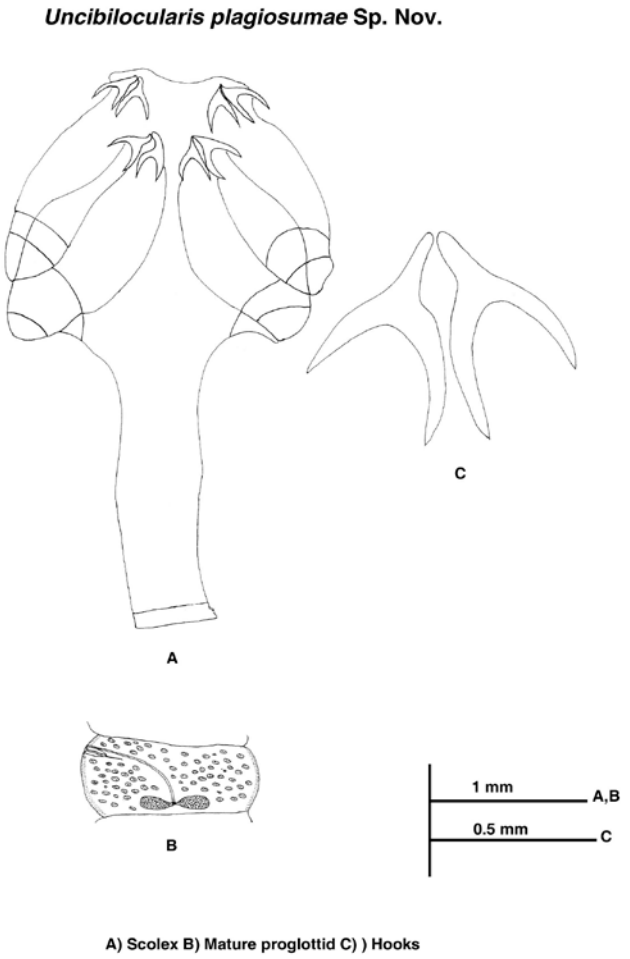
Testes above 50: *U. ratnagiriensis* Shinde *et al.*, 1975

6) Tubercle on inner prong: *U. shindei*, Deshmukh *et al.*, 1979

Tubercle on outer prong: *U. southwell* Shinde *et al.*, 1976

7) Testes below 70: *U. plagiosumae* Sp. Nov.

Testes above 70: *U. veravalensis* Jadhav *et al.*, 1981



A) Scolex B) Mature proglottid C)) Hooks

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