

Reporting a New Species of Cestode, *Uncibilocularis Dasyatisii* Sp. Nov. From Marine Water Fish *Dasyatis Walga* in Ratnagiri District (M.S.) India

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ABSTRACT

Fish is economically beneficial to human population and fish has good market value and is consumed by many people. Fishes are largely infected by Cestodes (Tapeworms), which causes commercial losses in both aquaculture, fishery industries and may have human health, as well as socio-economic implication both in developing and developed countries. The present paper deals with the systematic study of a Cestode parasite, a new species *Uncibilocularis dasyatisii* from the intestine of *Dasyatis walga*. *Uncibilocularis dasyatisii* differs from all known species of the genus in having scolex almost square in shape with tubercle on inner prong of hooks, presence of neck, mature segment broader than long, testes 165-170 in number, cirrus pouch is in the middle of the segment, ovary bilobed marginal in position, dumb-bell shaped and vitellaria follicular.

Keywords: Cestode, *Dasyatisii walga*, Marine water, *Uncibilocularis dasyatisii*.

INTRODUCTION

The genus *Uncibilocularis* was established by Southwell (1925) with its type species *U. trygonis* (Shiple et Hornell 1906), as *prosthecobothriumtrygonis* in *Trygonwalga* and *Trygonsephen* at Ceylon. Southwell (1927) reported *U. mandley* from *Hemigaleusbalfouri* at Ceylon but Baer and Euzet (1962) have made this species as new genus *Magalanochos* with *M. mandleyi* as its type species. Subhadrappa (1955) reported *U. indica* *Chiloscylliumgriseum* in India. Deshmukh and Shinde (1975) reported *U. aurangabadensis* from *stomateus* sp. In. India. Shinde and Chincholikar (1975) described *U. ratnagiriensis* and *U. southwelli* from *Trygon* sp. in India. Later on Deshmukh (1979) reported. Three new species of this genus are *U. thaparifrom Trygonsephen*, *U. shindei* from *Trygonzuegi* and *U. somnathii* from pteroplatamicrura at veraval (West Coast of India). Later on in 1981 Jadhav and Shinde reported *U. veravalensis* from a marine fish, *Trygonzuegi* at veraval. In 1984 Jadhav, et.al. Added *U. bombayensis*, from *Trygonsephen* at Bombay. Jadhav et al in 1989 described two new species of the same genus *U. indiana* from *Trygonzuegi* at Ratnagiri and *U. shashtri* from *Chiloscylliumgriseum* at Ratnagiri (M.S.) in India. Later on Pawar et.al., (2005) reported *U. ranuae* from *Trygonzuegi* (Muller and Henle, 1841) at Bhagwati, Ratnagiri (west Coast of India). Pathan et.al., 2007 made a review of the genus *Uncibilocularis*. Later on four new species are added in 2008: *U. loreni*, *U. okei*, *U. squireorum*, & *U. sidocymba*. In 2011 Pathan et.al. Described *U. osmanabadensis*.

The present communication deals with *Uncibilocularis dasyatisii* Sp. Nov. from the spiral valve of *Dasyatis Walga* (Muller and Henle, 1841) from West Coast of Maharashtra, India in the period of June. 2009 to May. 2011.

MATERIAL AND METHODS

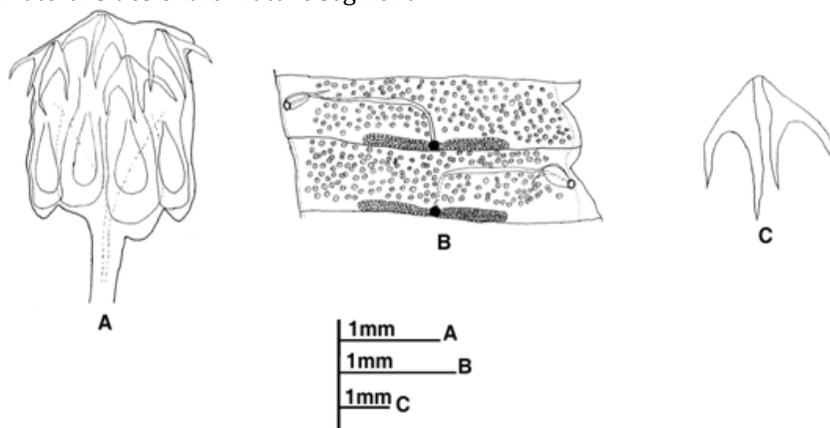
Cestode parasites were collected from the intestine of *Dasyatis walga* at Burundi Ratnagiri district (M.S.) India during the period of June. 2009 to May. 2011. These cestodes preserved in hot 4% formalin and stained with Harris haematoxylin, passed through various alcoholic grades, cleared in xylene, mounted in D.P.X. and drawings are made with the aid of camera lucida. All measurements are given in millimeters. The identification is made with the help of Systema Helminthum.

DESCRIPTION

Fifteen specimens of the cestode parasites were collected from the intestine of *Dasyatis walga* (Muller and Henle, 1841) at Burundi Ratnagiri district (West coast of Maharashtra state India) in the period of June. 2009 to May. 2011.

These cestodes were flattened preserved in 4% formalin, stained with Harris haematoxylin passed through the various alcoholic grades, cleared in xylene, mounted in DPX and whole mount slides were prepared for further anatomical studies. Sketches are drawn with the help of Camera Lucida and all

measurements are in millimeters. The worms are long, with scolex and mature segment scolex is squarish in shape with bothridia which bears, bifurcated, marginal hooks and scolex measures 4.74 (4.53-4.95) in length and 3.71 (3.62-3.81) in width the bothria measures 2.78 (2.74-2.82) in length and 0.99 (0.95-1.03) in width. Each bothridia is divided into two oval lobular measures 0.271 (0.218-0.32) in length and 0.27 (0.24-0.31) in width. Accessory suckers are absent. Each *bothridium* bears a pair of bifurcate hook and measures 3.124 (3.359-2.890) in length and 1.83 (2.18-1.48) in width. The inner prong of the hook is larger than the outer prongs the powerful inner longitudinal muscles bundles are attached to each bothridium becomes separated from each other posteriorly and disappear completely in mature segment. The scolex is squarish, followed by a long neck, scolex measure 1.964 (1.907-2.022) in length and 0.6667 (0.572-0.763) in width. The mature segment are broader than long and measures 1.399 (1.38-1.419) in length and 10.5 (10.4-10.6) in width. The testes are oval in shape, pre-ovarian and 165-170 in numbers and measures 0.049 (0.033-0.066) in length and 0.033 (0.033-0.033) in width. The cirrus pouch is large, oval in shape measures 0.808 (0.792-0.825) in length and 0.379 (0.330-4.29) in width. The cirrus is thin, straight measure 0.808 (0.792-0.825) in length and 0.0495 (0.033-0.066) in width. The cirrus and vagina opens through a common pore which is known as genital pore. The genital pores are small, oval marginal irregularly and measures 0.181 (0.165-0.198) in length and 0.099 (0.066-0.132) in width. Vagina starts from the common genital pores. Vagina is a long narrow tube, posterior to the cirrus pouch. The ovary is bilobed, elongated dumb-bell shaped measures 0.313 (0.297-0.330) in length and 1.501 (1.485-1.158) in width. The vitellaria are granular placed at the both lateral sides of the mature segment.



A) Scolex B) Mature Proglottid C) Hook

Fig. *Uncibilocularis dasyatisii* Sp. Nov.

DISCUSSION

1. The worm under discussion is having scolex almost square in shape with tubercle on inner prong of hooks, presence of neck, mature segment broader than long, testes 165-170 in number, cirrus pouch is in the middle of the segment, ovary bilobed marginal in position, dumb-bell shaped and vitellaria follicular. The present worm differ *U. trygonis* Southwell 1925, which is having scolex square, testes 30-40 in number and vesicle absent.
2. The present cestode differs from *U. indica* Subhadrachar, 1955 in the shape of scolex narrow anteriorly and broad posteriorly, accessory suckers present, absence of neck, testes 56-60 in numbers and genital pores middle of the segments.
3. The present parasite differs from *U. aurangabadensis*, Deshmukh and Shinde, 1975, with the scolex quadrangular in shape accessory suckers are present, tubercle on outer prong of hooks absence of neck and testes 75 in numbers.
4. The present worm resembles *U. ratnagiriensis*, Shinde and Chincholikar, 1975 in the scolex is square and testes 114 in number.
5. The present worm differs from *U. southwelli* Shinde and Chincholikar 1976, in the tubercle present on outer prong of hooks, testes 220-230 in numbers and cirrus pouch placed at the middle of the segments

6. The present worm differs from *U. thapari* Deshmukh and Shinde, 1979 having shape of scolex quadrangular tubercle present on both the prongs of the hooks, testes 25-28 in numbers and cirrus pouch placed towards the middle of the segments.
7. The present cestode differs from *U. shindei* Deshmukh and Shinde, 1979 in the cirrus pouch placed towards the middle of the segments.
8. The present form differs from *U. somnathii* Deshmukh and Shinde, 1979 with the shape of scolex quadrangular, accessory suckers are present, vesicle is absent testes 90-95 in numbers and genital pores are sub-marginal.
9. The present form differs from *U. veravalensis* Jadhav and Shinde, 1981 in having segments square in shape and ovary elongated in shape than broad, testes arranged in two fields arranged in two lines in the segments, cirrus, vesicle is absent and uterus tubular in shape opens from ootype runs anteriorly almost up to the anterior end of the segments.
10. The present cestode differs from *U. bombayensis*, Jadhav et al., 1984 is having scolex circular in shape and ovary elongated in shape than broad, testes arranged into fields arranged in two lines in the segments, cirrus pouch placed below the middle of the segments, opens from ootype runs anteriorly almost up to the anterior end of the segments.
11. The present worm differs from *U. Indiana* Jadhav et al., 1989 which is having shape of scolex oval, mature segments are longer than broad, testes arranged in two fields arranged in two lines in the segments, vesicle is absent and uterus tubular in shape opens from ootype runs anteriorly almost up to the anterior end of the segments.
12. The present cestode differs from *U. shashtri* Jadhav et al., 1989 with the scolex is narrow anteriorly and broad posteriorly in shape, accessory suckers are present tubercle is present on outer prong of hooks, mature segments longer than broad in shape, testes 55-60 in numbers, vagina posterior to cirrus pouch, uterus coiled tube and vitellaria are follicular in shape.
13. The present parasite differs from *U. ranuae*, Pawar et al., 2005 having shape of scolex triangular tapering at both the ends, bothridia are not divided by loculi, tubercle is absent on prongs mature segments longer than broad in shape, testes 47-50 in numbers and genital pores are sub-marginal.
14. The present worm differs from *U. sidocymba*, Jensen & Caira, 2008 which is having scolex long, testes 26-29 (26) in number and vesicle absent.
15. The present worm differs from *U. loreni*, Jensen & Caira, 2008 in specialized anterior region in form of muscular pad bearing apical sucker, absence of neck, testes 9-13 in numbers.
16. The present worm differs from *U. okei*, Jensen & Caira, 2008 which is having two loculi, testes oval in shape, testes 9-13 in number.
17. The present worm differs from *U. squireorum*, Jensen & Caira, 2008, scolex long wide, absence of accessory suckers, testes 15-22 (18) in number, bifurcated hooks.
18. The present worm differs from *U. osmanabadensis*, D. M. Pathan, et al. 2011 scolex rounded to oval, accessory suckers absent, hooks pronged, long neck, testes oval 40-45 in number, genital pore marginal irregularly alternate.

The distinct characters as noted above, justify the recognition of the worm, as a new species and hence the name *Uncibilocularisdasyatisii*. Sp. Nov. is proposed, after the name of host.

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

- | | |
|------------------------------|--|
| Neck absent | 1 |
| Neck present | 2 |
| 1) Testes in between 1 to 20 | 3 |
| Testes in between 20 to 40 | <i>U. sidocymbayensen</i> & Caira, 2008 |
| Testes in between 40 to 60 | <i>U. indica</i> Subhadrappa, 1955 |
| Testes in between 60 to 80 | <i>U. aurangabadensis</i> Deshmukh et al. 1975 |
| 2) Accessory sucker absent | 4 |
| Accessory sucker present | 5 |
| 3) Muscular pad present | 6 |
| Muscular pad absent | <i>U. squireorum</i> Jensen & Caira, 2008 |
| 4) Scolex squarish | 7 |

Scolex rounded	8
Scolex rounded to oval	9
Scolex triangular	<i>U. ranuae</i> Pawar&Jadhav, 2005
Scolex oval	<i>U. Indiana</i> Jadhav et al., 1989
Scolex circular	<i>U. bambayensis</i> Jadhav et al., 1984
Scolex quadrangular	<i>U. thapari</i> Deshmukh&Shinde, 1979
5) Testes above 60	<i>U. somnathi</i> Deshmukh&Shinde, 1979
Testes below 60	<i>U. shashtri</i> Jadhav et al., 1989
6) Hooks long	<i>U. lorenii</i> Jensen &Caira, 2008
Hooks short	<i>U. okei</i> Jensen &Caira, 2008
7) Testes below 50	<i>U. trygonis</i> Southwell, 1925
Testes in between 100 to 150	<i>U. ratnagiriensis</i> Shinde&Chincholikar, 1975
Testes in between 150 to 200	<i>U. dasyatisii</i> sp. nov
8) Tubercle on outer prong	<i>U. southwelli</i> Shinde&Chincholikar, 1976
Tubercle on inner prong	<i>U. shindei</i> Deshmukh&Shinde, 1979
9) Testes below 50	<i>U. osmanabadensis</i> Pathanet, al., 2011
Testes above 50	<i>U. veravalensis</i> Jadhav&Shinde, 1981

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