

**Report of epibiont *Thecacineta oregonensis* (Ciliophora: Suctorea) on *Desmodora* sp. (Nematoda) at 990 m depth from seamount flank of the Andaman Sea, Indian Ocean**

**Tapas Chatterjee<sup>1\*</sup>, Sabyasachi Sautya<sup>2</sup>, Igor Dovgal<sup>3</sup> And Gourav Mishra<sup>2</sup>**

<sup>(1)</sup>Near HariMandir Road, Hirapur, Dhanbad 826004, Jharkhand, India

<sup>(2)</sup>Laboratory for Benthic Ecological Trait Analysis (L-BETA), Biological Oceanography Division, CSIR-National Institute of Oceanography, Regional Centre, Mumbai - 400053, India

<sup>(3)</sup>A.O. Kovalevsky Institute of Biology of the Southern Seas of Russian Academy of Sciences, 2, Nakhimove ave., Sevastopol, 299011, Russia

\*Corresponding author: drchatterjee@yahoo.co.in

**Abstract:**

Suctorian epibionts *Thecacineta oregonensis* (Murphy, 1965) attached on the cuticle of nematode *Desmodora* sp. is reported here from the seamount area of the Andaman Sea at 990 m depth. The *T. oregonensis* is reported here for the first time from the Andaman Sea and also from the seamount flank.

**Keywords:** Epibiosis, *Thecacineta oregonensis*, Nematodes, Seamount flank, Andaman Sea

## Introduction

Epibiont ciliates were reported on meiofauna from fresh, brackish and marine (intertidal to deep-sea) waters. Reports about ciliate epibionts on meiofauna from the higher depth of the Indian Ocean were found in studies by Ingole et al. (2010), Baldrighi et al. (2020), Chatterjee et al. (2022a, b, c),

Epibiont ciliates were also reported from the hydrothermal vent and seamount areas. Suctorian *Corynophrya abyssalis* Bartsch & Dovgal, 2010 was reported as epibiont on *Copidognathus nautilei* Bartsch, 1997, from a hydrothermal vent field of the Mid-Atlantic Ridge at about 4090 m depth (Bartsch & Dovgal 2010). Ingole *et al.* (2010) reported *Thecacineteta calix* as epibiont on nematodes *Croconema sphaerica* (Kreis, 1928) (cited as *Desmodora sphaerica*) and *Desmodora pontica* (Filipjev, 1922) (invalid species), isolated from the deep-sea sponge *Pheronema* sp. taken from the upper slope of the northern seamount located off Nicobar Island (Andaman & Nicobar Islands), Andaman Sea, Indian Ocean at 1301 m water depth.

Benthic ciliates were reported in the sediments of a seamount and adjacent abyssal plains from the tropical Western Pacific Ocean (Zhao et al., 2017).

Epibiont *Thecacineteta oregonensis* (Murphy, 1965) is reported here for the first time from the hydrothermal vent seamount of the Andaman Sea.

## Materials and methods

The Andaman Sea represents the volcanic-arc trench system which shows the extreme boundary of the Indian plate. Several geophysical features such as seamounts, arc volcanoes, deep valleys, and back arc basins exist in these plate margins, thus making varieties of ecological setups in the deep sea. Seamount is one of the prominent features here and few biological studies have been conducted along the seamounts in the Andaman Sea. A crater seamount (CSM) located near the center of the Nicobar Swarm is considered dormant at present (Kamesh Raju et al., 2012), and has shown potential for biological diversity (Sautya et al. 2011). The present sample collection site was located in the flank region of the CSM (Fig. 1).

This study was conducted as part of the biological sampling; the sediment samples were collected by using the spade box core (dimension L×W×H: 50×50×60 cm) during the multidisciplinary cruise R/V Sindhu Sadhna (SSD085) conducted in October – November 2021 (NIO-CSIR). The sediment was mainly composed of loose rocks (smaller in size) mixed with foraminifers and glass sponge spicules. Sediment was washed through 25 µm sieves with keeping 300 µm sieve on top. Infested nematode mounted on a 50% glycerine slide and sealed with DPX. Photomicrographs were obtained by the program Nikon Eclipse Ei with attached Digital sight 1000 camera, mounted on a

stereo Nikon SMZ1270 Measurements of ciliates were made using the software NIS Elements and Top View 3.7 for processing digital images. The terminology and systematic position of suctorian ciliates follow Dovgal (2002 & 2013) and Jankowski (2007). Specimens are kept in the collection of the second author (Sabyasachi Sautya), in the museum of the National Institute of Oceanography Regional Centre, Mumbai.

Flank II: CSM Seamount, Andaman Sea, Indian Ocean, latitude 7° 56' 33.2232" N, longitude 94° 3' 38.3796" E (Fig. 1); water depth 990 m; water temperature 6.95°C; salinity 35.07 ‰; dissolved oxygen 1.08 ml/L; turbidity 0.86 NTU; sediment with small rocky fractions of silty texture.

## Results and Discussion

Class SUCTOREA Claparède & Lachmann, 1859

Subclass Exogenia Collin, 1912

Order Vermigemmida Jankowski, 1973

Family Thecacinetidae Matthes, 1956

Genus *Thecacineta* Collin, 1909

***Thecacineta oregonensis* (Murphy, 1965)**

(Fig. 2A, B)

= *Praethecacineta oregonensis* Murphy, 1965

= *Lissacineta oregonensis* (Murphy, 1965)

### *Material examined*

One individual found on nematode *Desmodera* sp. from CSM Seamount, Andaman Sea, Indian Ocean, (7° 56' 33.2232" N, 94° 3' 38.3796" E) at water depth 990 m.

### *Description*

Marine loricate suctorian. Lorica cup-shaped, smooth. Maximal width of lorica

equal or wider than width of lorica aperture. The edge of aperture characteristically thickened. Cell body slightly contractile, positioned along longitudinal lorica axis, not filled up entirely, except its lower third, which clamped to the lorica bottom. Macronucleus ovoid, large, positioned at the bottom of cell body. Stalk short, some wrinkling, physon absent. There are 8 (12-14 after Murphy, 1965; 8-10 after George & Siddiqui, 2020) contractile tentacles at the apical body surface.

### *Measurements (in $\mu\text{m}$ )*

Lorica length 88 (41.6-45.4 after Murphy, 1965; 45-60 after George & Siddiqui 2020), lorica width 56 (22.7-24.6 after Murphy, 1965; 32-50 after George & Siddiqui 2020), lorica aperture diameter 46. Lorica length to width ratio 1.6:1. Body length 82, body width in central part 28, length of body upper part 30, width 34. Macronucleus length 26, width 15, stalk length 17 (18.6-25.0 after Murphy, 1965; 27-40 after George & Siddiqui, 2020), diameter 4 (3.0-4.0 after Murphy, 1965), length of contracted tentacles 8-17.

### *Remarks*

Murphy (1965) indicated that *T. oregonensis* is closely related to *T. cothurnioides* (Collin, 1909) but differs from the latter by shorter stalk, more developed attaching disc, some greater number of tentacles (12-14 in *T. oregonensis* versus 6 in *T. cothurnioides*) and by the lorica length to width ratios (1.6:1 in *T. oregonensis* and 2.8:1 in *T. cothurnioides*). In addition, we can note the presence of the edge of lorica aperture thickening and absence of apical stalk widening (physon) in *T. oregonensis*.

The species is also similar to *T. urceolata* Liao & Dovgal, 2015 but differs from the latter by the absence of the characteristic of *T. urceolata* structure of lorica aperture, which has shaped like the neck of the jar (Liao & Dovgal, 2015).

*Thecacineteta oregonensis* was first described (Murphy, 1965) as representative of the genus *Praethecacineteta* Matthes, 1956 but the latter was transferred (Dovgal, 1996) into the order Metacinetida Jankowski, 1978 on the basis of the mode of budding (with forming of ciliary protomit) with the rank of a family Praethecacinetidae Dovgal, 1996. Dovgal's (1996) opinion is that genus *Praethecacineteta* is monotypic, including only the type species *Praethecacineteta halacari* (Schultz, 1933). Hence, other species of the genus (including *T. oregonensis*) were listed in the genus *Thecacineteta* (Dovgal, 2002).

Jankowski (1981) proposed the genus *Lissacineteta* Jankowski, 1981 for representatives of *Thecacineteta* that have the lorica without folds and placed *Praethecacineteta oregonensis* in this genus as *L. oregonensis*. However, in Dovgal (2002) the generic name *Lissacineteta* was synonymized with *Thecacineteta*.

*Thecacineteta oregonensis* was first described as epibiont on nematode *Desmodora* sp. associated with holdfast of brown alga *Egregia menziesii* (Turner) Aresch., 1876 from Yaquina Head, Oregon, west coast of USA (Murphy 1965). The next time the species was reported from intertidal rocks of Sandspit Karachi coast, Pakistan in the northern Arabian sea (George & Siddiqui 2020) as epibiont on Pycnogonids (sea spider) *Ammothella appendiculata* isolated from the colonies of

*Zoanthus sansibaricus* Carlgren, 1900 (Cnidaria: Zoantharia). In the present communication this is reported for the first time from the Andaman Sea and from the seamount flank (at 990 m depth).

### Acknowledgments

The first author (Tapas Chatterjee) thanks Dr. Nikolaos V. Schizas, University of Puerto Rico, USA for linguistic help. The second (Sabyasachi Sautya), fourth (Gourav Mishra) authors are thankful to authorities of CSIR-NIO, India for ship time (cruise SSD068) under the project ..... The third author's (Igor Dovgal) work was done within the framework of research issue of A.O. Kovalevsky Institute of Biology of the Southern Seas № 121040500247-0. The fourth author (Gourav Mishra) acknowledge CSIR-UGC for fellowship support. This is CSIR-NIO contribution No.....

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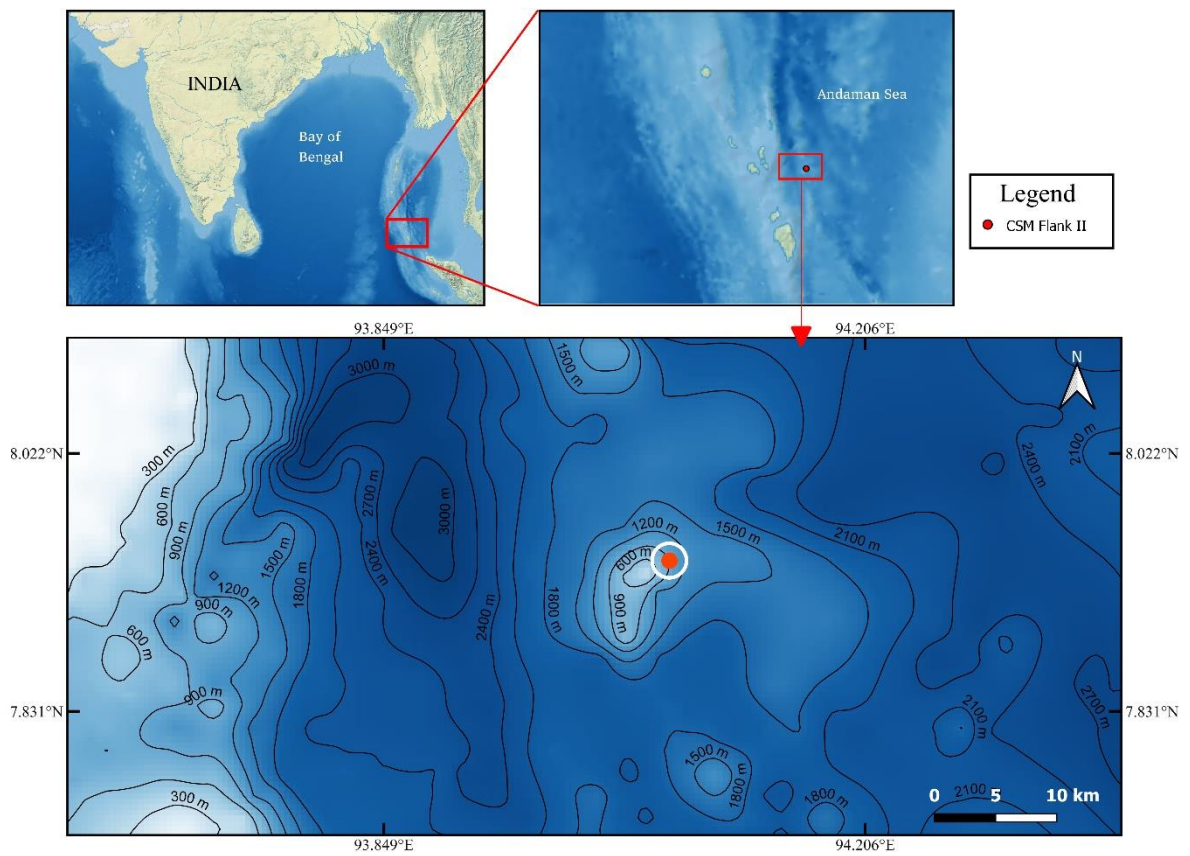


Fig. 1. Map of the collection site.

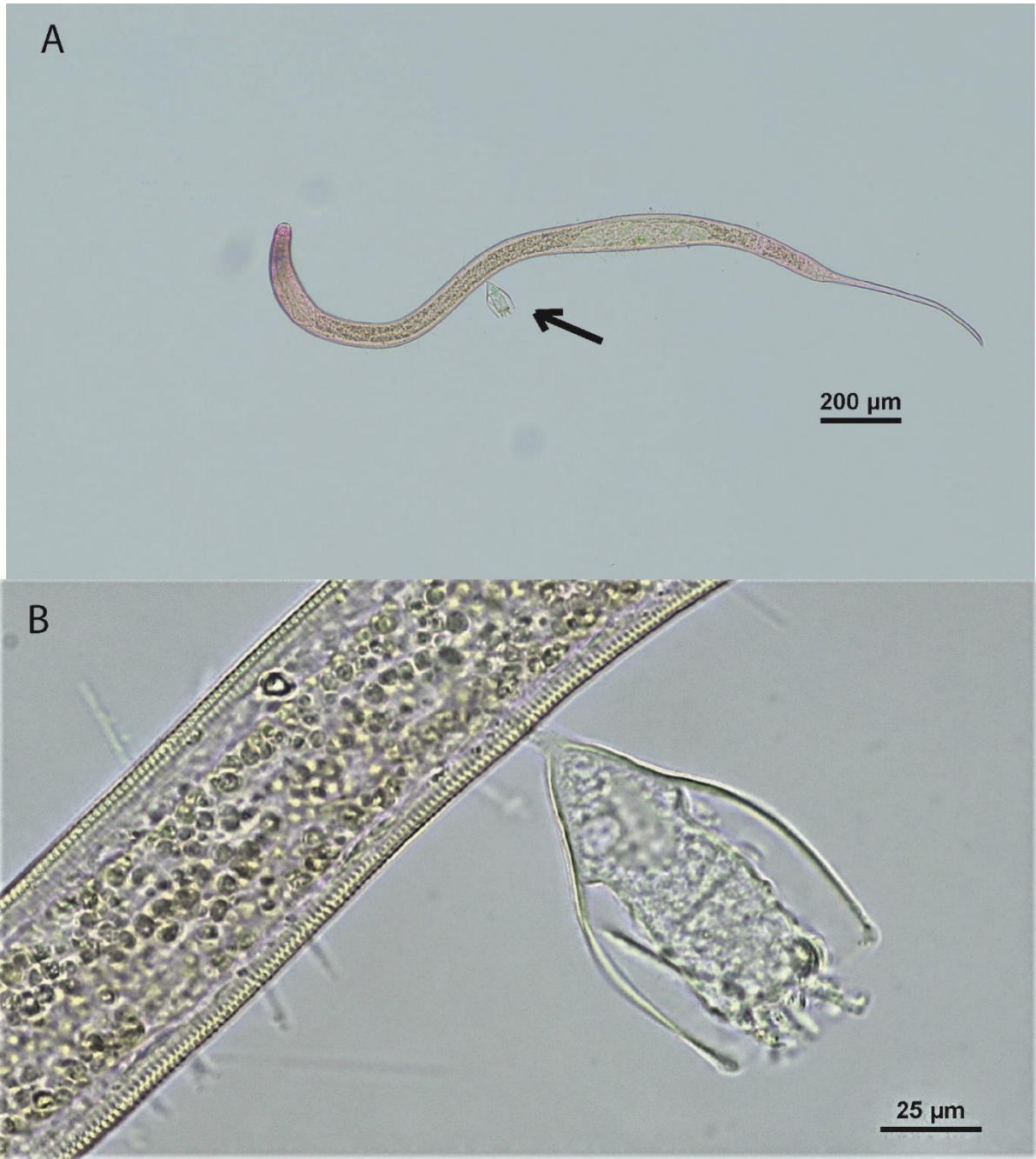


Fig. 2. A. *Thecacineta oregonensis* (Murphy, 1965) attached on nematode host. B. Magnified view of *Thecacineta oregonensis*.