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Report of *Lecanophryella indica* (Ciliophora, Suctorea) as epibiont on harpacticoid copepod from Mumbai coast of India (Arabian Sea)

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Keywords epibiosis, suctorian ciliate, *Lecanophryella indica*, harpacticoid host, Mumbai

Abstract The article deals with the report of suctorian ciliate *Lecanophryella indica* from new locality (Mumbai, west coast of India, Arabian Sea) and new host – harpacticoid copepod. The redescription of the species is presented. The possible prevalence of *L. indica* to localization on host cephalothorax is also discussed.

Doniesienie o *Lecanophryella indica* (Ciliophora, Suctorea) jako epibioncie na widłonogu rzędu Harpacticoidae z wybrzeża Bombaju w Indiach (Morze Arabskie)

Słowa kluczowe epibioza, orzęski, *Lecanophryella indica*, żywiciel z rzędu Harpacticoidae, Bombaj

Streszczenie Artykuł dotyczy doniesienia o występowaniu orzęska *Lecanophryella indica* z nowego stanowiska (Bombaj, zachodnie wybrzeże Indii, Morze Arabskie) i jego nowego gospodarza – widłonoga z rzędu Harpacticoidae. Przedstawiono opis gatunku i omówiono możliwe występowanie L. indica w nietypowej lokalizacji na głowotułowiu gospodarza.

Introduction

Epibiont ciliates from the west coast of India were studied by many authors (e.g., Santhakumari, 1985, 1986; Chatterjee, 1996; Dovgal, Chatterjee, Ingole, 2008, 2009; Chatterjee,

Fernandez-Leborans, Ramteke, Ingole, 2013; Chatterjee, Nanajkar, Dovgal, 2019a; Chatterjee, Dovgal, Nanajkar, Bogati, 2019b; Chatterjee, Dovgal, Nanajkar, 2020a, b, c; Chatterjee, Dovgal, Vieira, Dutta, Nanajkar, 2020d). Two representatives of genus *Lecanophryella* Dovgal, 1985 were registered near Indian coast. *Lecanophryella satyanandani* (Santhakumari, 1986) were reported as epibiont on ostracod *Cypridina dentata* (Müller, 1906) from Southwest coast of India (Santhakumari, 1986); North Eastern Arabian Sea,13°20′35″ N 73°44′45″ E (Padmakumar, 2015) and central west coast of India, Arabian Sea 13°20′35″ N 73°44′45″ E (Chatterjee et al., 2019b). Chatterjee et al. (2019b) reported a new species *L. indica* as epibiont on planktonic cyclopoid copepods from surface waters of Zuari estuarine mouth, West coast of India, Arabian Sea.

We report here *L. indica* from new locality – Mumbai, west coast of India, Arabian Sea (Figure 1) and new host – harpacticoid copepod.

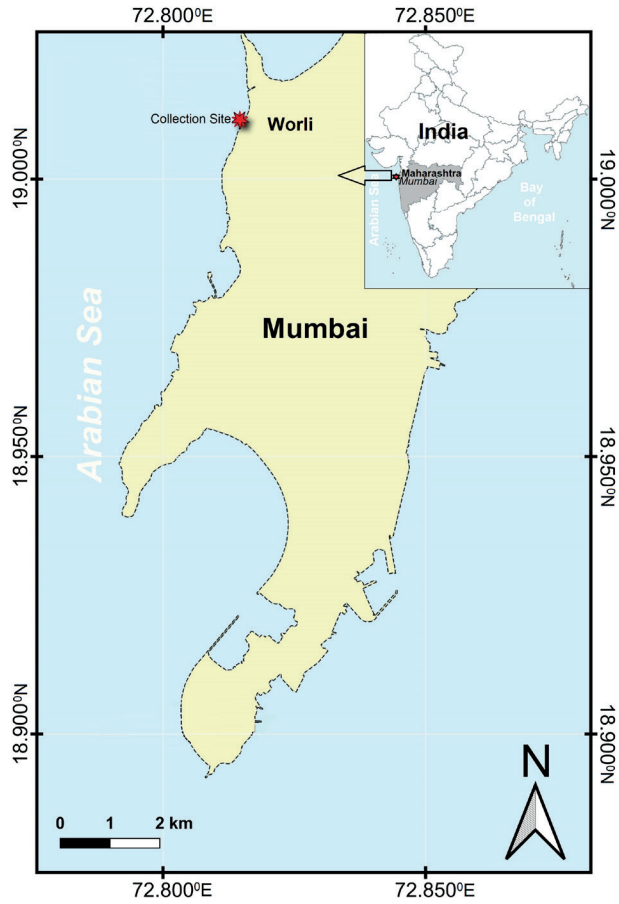

Figure 1. Map of the collection site

Material and methods

Infested harpacticoid copepod was collected from Worli – Arabian Sea, Mumbai coast, Latitude 19°0′41.44″N, Longitude 72°48′54.01″E (Figure 1); date of the collection – 11.01.2021, Collector: Sabyasachi Sautya and Sunil Kumar Padhi. Infested harpacticoid copepod was mounted on a 50% glycerine slide and sealed with DPX. Further microscopic analysis was carried out using Nikon SMZ18 and Nikon Eclipse Ei compound microscope. Photomicrographs were obtained by using a Nikon Digital sight 1,000 digital camera. Measurements of ciliates were made using the software NIS Elements and TopView 3.7 for processing of digital images. The systematic position of suctorian ciliates follows Dovgal (2002, 2013). Specimens are kept in the collection of the second author (SS) in CSIR – National Institute of Oceanography, Mumbai.

Result and discussion

Class Suctorea Claparède & Lachmann, 1859
Subclass Exogenia Collin, 1912
Order Vermigemmida Jankowski, 1973
Family Lecanophryidae Jankowski, 1973
Genus *Lecanophryella* Dovgal, 1985
***Lecanophryella indica* Chatterjee, Dovgal, Nanajkar & Bogati, 2019** (Figures 2, 3)

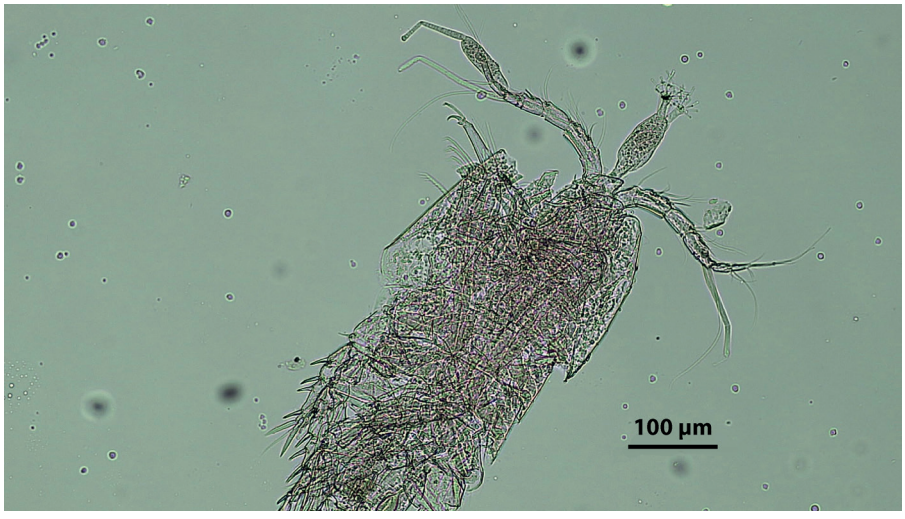

Figure 2. *Lecanophryella indica* on harpacticoid host body from Mumbai

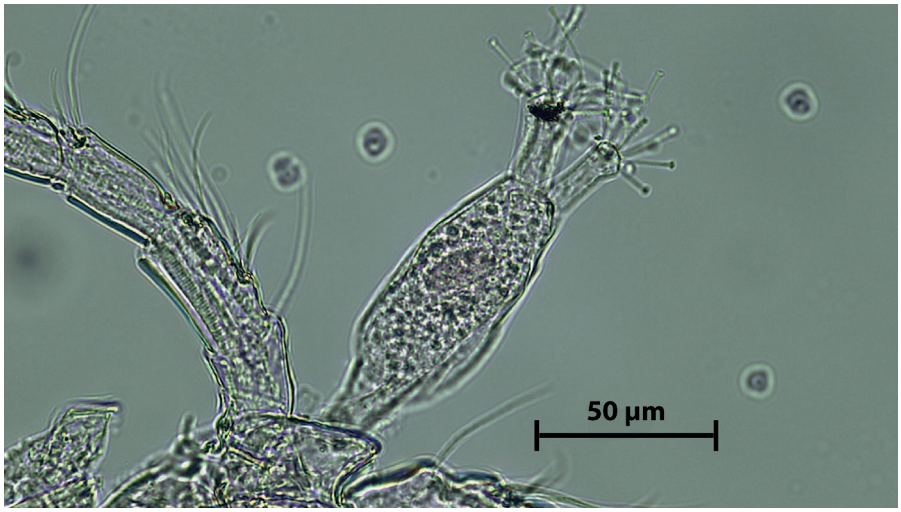

Figure 3. Magnified view of *Lecanophryella indica* from Mumbai

Material examined. Two individuals were found inhabiting antero on the cephalothorax of two harpacticoid copepods, collected from Worli intertidal rocky coast, Mumbai, West coast of India.

Description based on present specimen (Figures 2, 3)**.** Suctorian ciliate with elongated, slightly laterally flattened body, which narrowed at the bottom, with a short, straight stalk. There are two trapezoidal actinophores, bearing with from 9 to 12 contractile clavate tentacles. Macronucleus elongated, medial, slightly inclined with respect to the longitudinal axis of the body.

Measurements, in µm, taken from one individual (and inside parentheses measurements are given by Chatterjee et al., 2019b for comparison)**:** Total length of body 97 (191–251 by Chatterjee et al., 2019b); length of the extended (upper) body part 75 (128–159); width of the extended body part 34 (22–45); length of the constricted (lower) part of the body 24 (63–92); width of the constricted body part 14 (34–86); actinophore length 24 (47–54); actinophore width 7 (8–36); stalk length 14 (18–22); stalk diameter 4; tentacle length 12–32 (9–62). Size of macronucleus 10 × 21 (41–79 × 16–23).

Localization. Cephalothorax of harpacticoid host.

Host and distribution. This species was earlier reported from Surface waters of Zuari estuarine mouth, 15°24′09″N 73°48′34″E West coast of India, Arabian Sea on planktonic pelagic cyclopoid copepods (Chatterjee et al., 2019b). In present paper this species is reported here as epibiont on harpacticoid copepods from Mumbai coast, West coast of India, Arabian Sea.

Remarks. Present report is first record of this species from Mumbai coast. It is also first report of this species found as epibiont on harpacticoid copepods. Earlier report was as epibiont on planktonic cyclopoid copepod (Chatterjee et al., 2019b). The similar localization of *L. indica* on the bodies of both host species (on cephalothorax) perhaps indicative of certain prevalence of the species in localization of the host body.

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References

Chatterjee, T. (1996). Ciliate infestation on the phytal Halacaridae (Acari) from the Kovalam beach, Kerala. *Journal of the Bombay Natural History Society*, *93*, 107–108.

Chatterjee, T., Fernandez-Leborans, G., Ramteke, D., Ingole, B. (2013). New records of epibiont ciliates (Ciliophora) from Indian coast with descriptions of six new species. *Cahiers de Biologie Marine*, *54*, 143–159.

Chatterjee, T., Nanajkar, M., Dovgal, I. (2019a). New record of *Loricophrya stresemanni* (Ciliophora, Suctorea) as epibiont on nematodes from the Indian Ocean and notes on the genus *Loricophrya*. *Cahiers de Biologie Marine*, *60*, 283–288. DOI: 10.11646/zootaxa.4612.4.2.

Chatterjee, T., Dovgal, I., Nanajkar, M., Bogati, K. (2019b). Note on the genus *Lecanophryella* (Ciliophora: Suctorea) with description of a new species from west coast of India. *Zootaxa*, *4612* (4), 494–500.

Chatterjee, T., Dovgal, I., Nanajkar, M. (2020a). Report of ciliate epibionts (Ciliophora, Suctorea) on meiobenthic invertebrates from the Indian coast near Karwar, Karnataka. *Protistology*, *14* (2), 84–88.

Chatterjee, T., Dovgal, I., Nanajkar, M. (2020b). New records of epibiont ciliates *Thecacineta urceolata* and *Acinetides gruberi* (Ciliophora: Suctorea) from the Indian coast**.** *Cahiers De Biologie Marine*, *61* (3), 355–360. DOI: 10.21411/CBM.A.B713B863.

Chatterjee, T., Dovgal, I., Nanajkar, M. (2020c). A new species of the genus *Corynophrya* (Ciliophora: Suctorea) from the west coast of India, Arabian Sea. *Cahiers De Biologie Marine*, *61* (4), 423–428. DOI: 10.21411/CBM.A.BE53B2AD.

Chatterjee, T., Dovgal, I., Vieira, L.M., Dutta, A., Nanajkar, M. (2020d). Report of ciliate-bryozoan-crustacean hyperepibiosis on crab (Decapoda: Brachyura) from west coast of India, Arabian Sea. *Zootaxa*, *4890* (3), 347–360. DOI: 10.11646/zootaxa.4890.3.3.

Dovgal, I.V. (2002). Evolution, phylogeny and classification of Suctorea (Ciliophora). *Protistology*, *2*, 194–270.

Dovgal, I.V. (2013). Ciliates – Ciliophora. Issue 1: Class Suctorea. In: *Fauna of Ukraine vol. 36.* Naukova dumka: Kiev, 267 pp. [In Russian with English summary].

Dovgal, I., Chatterjee ,T., Ingole, B. (2008). An overview of suctorian ciliates (Ciliophora, Suctorea) as epibionts of halacarid mites (Acari: Halacaridae). *Zootaxa*, *1810*, 60–68.

Dovgal, I., Chatterjee, T., Ingole, B. (2009). New records of *Thecacineta cothurnoides* and *Trematosoma rotunda* (Ciliophora, Suctorea) as epibionts on nematodes from Indian Ocean. *Protistology*, *6*, 9–23.

Padmakumar, K.B., Lathika, C.T., Anilkumar, V., Sanjeevan, V.N. (2015). Occurrence of Epibiontic suctorian protozoans on marine ostracod *Cypridina dentata* (Müller, 1906) in the North Eastern Arabian Sea. *Indian Journal of Geo-Marine Sciences*, *44* (6), 874–878.

Santhakumari, V. (1985). Epizoic and ectoparasitic protozoans from planktonic copepods of the south west and south east coasts of India with the description of a new species. *Journal of the Marine Biological Association of India*, *27*, 29–38.

Santhakumari, V. (1986). Two new species of the suctorians, *Acineta satyanandani* sp. nov. and *Paracineta karunakarani* sp. nov. epizoic on ostracodes. *Indian Journal of Fisheries*, *33*, 471–475.

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