

Report of *Trematosoma rotunda* (Ciliophora, Suctorea) as epibiont on harpacticoid copepod from western Indian coast

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Abstract Suctorian ciliate *Trematosoma rotunda* (Allgén, 1952) is reported here for the first time as epibiont on a harpacticoid copepod collected from Mandovi river estuarine mouth, Goa, west coast of India, Arabian Sea. The description of the species, synonymy, data on species distribution and host taxa are also presented in this study.

Notatka o *Trematosoma rotunda* (Ciliophora, Suctorea) jako epibioncie występującym na Harpacticoida z zachodniego wybrzeża Indii

Słowa kluczowe epibiontyczne orzęski, oczliki, Indie, Morze Arabskie

Streszczenie Po raz pierwszy odnotowano gatunek orzęska *Trematosoma rotunda* (Allgén, 1952) jako epibionta na Harpacticoida zebranych z ujścia rzeki Mandovi, Goa, zachodnie wybrzeże Indii, Morze Arabskie. W pracy przedstawiono opis gatunku, synonimizację oraz dane dotyczące rozmieszczenia gatunków i taksonów żywicieli.

Introduction

Suctorian ciliates are common epibionts of marine meiobenthic invertebrates such as nematodes, halacarid mites, harpacticoid copepods, kinorhynchs, ostracods, bryozoans etc. (eg., Precht, 1935; Jankowski, 1981; 2007; Dovgal, 2002; 2013; Dovgal et al., 2008; 2009; Fernandez-Leborans, Tato-Porto, 2000a, b; Ingole et al., 2010; Fernandez-Leborans et al., 2012; Chatterjee et al., 1996; 2012; 2013a, b, c; 2014a, b; 2018; 2019a, b, c; 2020a, b, c, d, e, f; Durucan, 2019).

Trematosoma rotunda (Allgén, 1952) a marine loricate suctorian ciliate described by Allgén (1952) as epibiont on marine nematodes *Desmodorella tenuispiculum* (Allgén, 1928) and

Croconema stateni Allgén, 1928 collected in the Antarctic (Graham Land) and the Falkland Islands, was named as *Acineta rotunda*. In the same paper another suctorian species (*Acineta ovoidea*) inhabiting on nematodes was described. However, Curds (1985) synonymized *A. ovoidea* with *A. rotunda* showing that *A. ovoidea* was nothing but lateral view of *A. rotunda*. Dovgal (2002) transferred *A. rotunda* into genus *Trematosoma* Batisse, 1972 based on arrangement of its tentacles in two rows.

Dovgal et al. (2009) reported this species on the nematode *Pseudochromadora* sp. collected near Ratnagiri, Maharashtra State, central west coast of India (Arabian Sea), and provide detailed remarks on the systematics and nomenclature of this species.

Fisher (2003) found epibiont ciliate on nematode *Pseudochromadora cazca* Gerlach, 1956, from the intertidal zone of North-Eastern Queensland, Australia; Dovgal et al. (2009a) identified this species based on Fisher's photo 'probably as *Trematosoma rotunda* (Allgén, 1952)'.

Bhattacharjee (2014), Ansari and Bhaduri (2016), Ghosh and Mandal (2019) reported the same species on the nematode host from Bay of Bengal, Indian Ocean. Baldrighi et al. (2020) found this species on nematode from NW Madagascar margin-deep sea pockmark and Gulf of Naples-shallow vent area.

We report here *T. rotunda* from Goa, west coast of India, Arabian Sea as an epibiont on harpacticoid copepod.

Material and Methods

Samples were collected from Mandovi river estuarine mouth (15°28'43.68"N and Long 73°41'41.28"E), Goa, west coast of India, Arabian Sea (Figure 1) at 20m depth. Samples were sieved in the laboratory using 45 µm mesh size sieve. Infested meiofauna were sorted, mounted on a 50% glycerine slide and sealed with DPX. The systematic position of suctorian ciliates follows Dovgal (2002; 2013). Measurements were carried out on four specimens using the program Toup View 3.7 for digital camera. Specimens are kept in the collection of the fourth author (MN) in CSIR—National Institute of Oceanography, Dona Paula, Goa.

Result and Discussion

Class Suctorea Claparède and Lachmann, 1859
 Subclass Endogenia Collin, 1012
 Order Acinetida Raabe, 1964
 Family Acinetidae Ehrenberg, 1834
 Genus *Trematosoma* Batisse, 1972

***Trematosoma rotunda* (Allgén, 1952)** (Figure 2A–C)

=*Acineta rotunda* Allgén, 1952
 =*Nematacineta rotunda* (Allgén, 1952)
 =*Conchacineta rotunda* (Allgén, 1952)
 =*Acineta ovoidea* Allgén, 1952

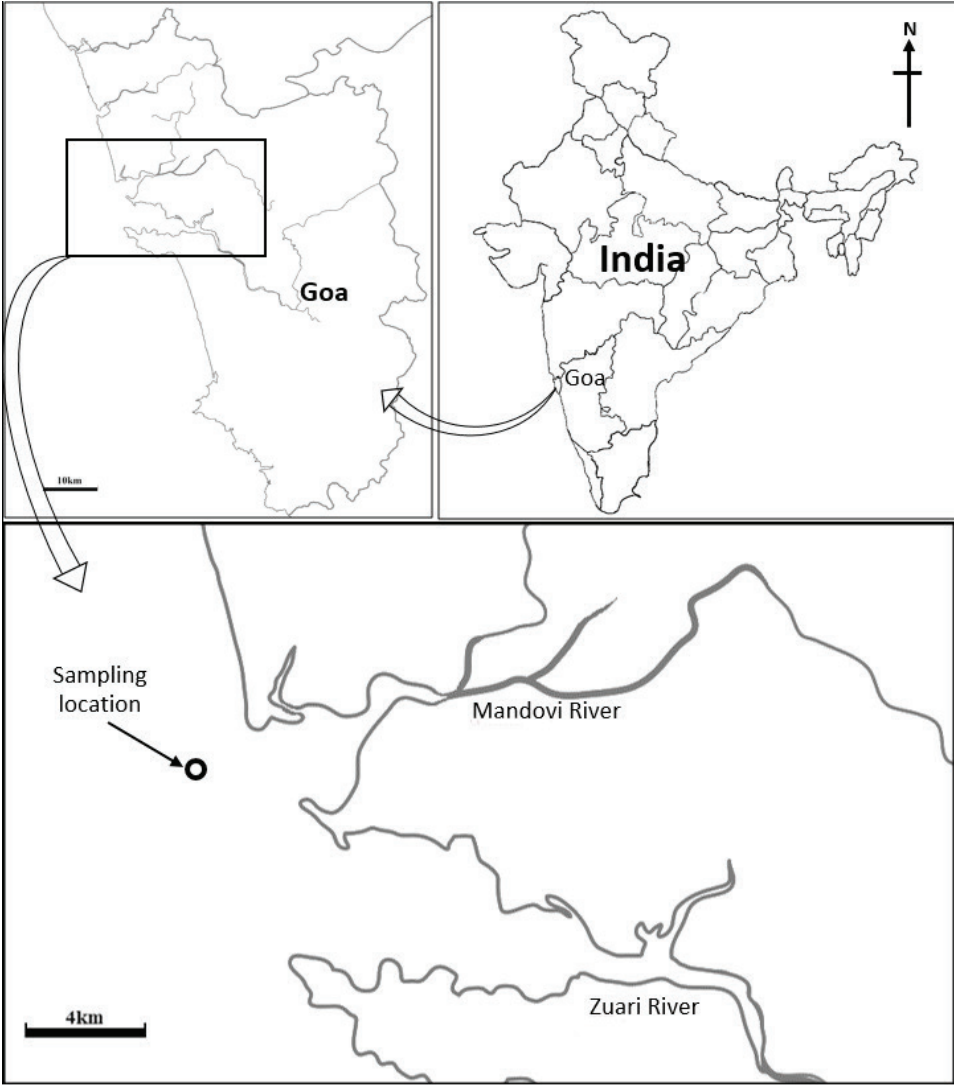


Figure 1. Map of collection site

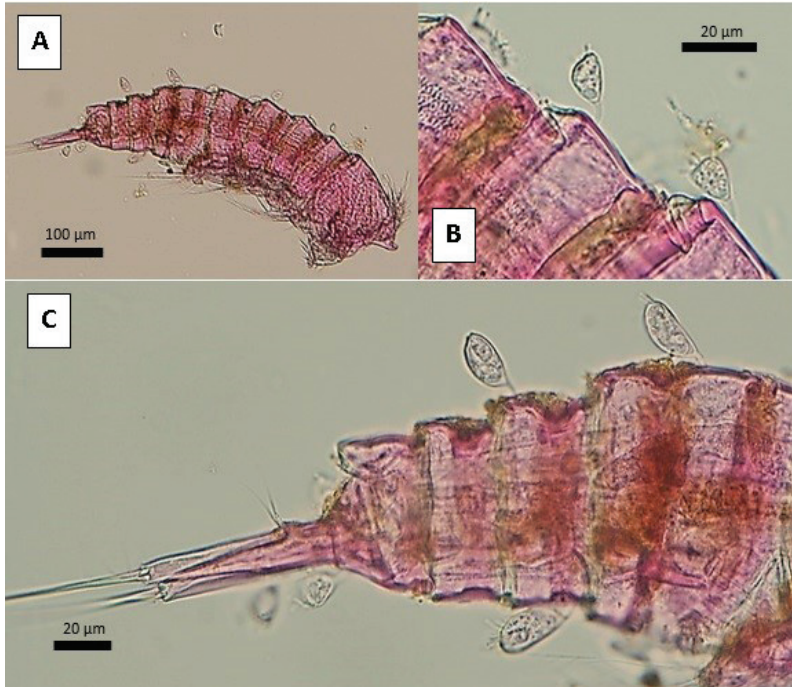


Figure 2. *Trematosoma rotunda* on harpacticoid host body

Material examined: Several individuals distributed throughout the harpacticoid copepod body.

Diagnosis

Marine loricate suctorian. Cell body short, rounded, laterally flattened, entirely fills up the lorica and clamped to their aperture border. Lorica delicate gently striated. Tentacles clavate, short, arranged in two groups of rows at the upper body surface. Macronucleus spherical or oval, centrally or slightly posteriorly located. Stalk short, thin, slightly ribbed.

Measurements

Morphometric measurements of specimens of *Trematosoma rotunda* observed in the present study (based on 4 individuals, in µm): Lorica length 12–27, lorica width 8–9, body length 11–17, body thickness 8, macronucleus diameter 3–6, stalk length 3–8, stalk diameter 1–3, length of tentacles 2–5; protomite length 7, width 3.

Distribution and host specificity

Table 1 shows both the basibiont species and known localities of *T. rotunda*, while Figure 3 illustrated the map of the species distribution.

Table 1. *Trematosoma rotunda* (Allgén, 1952) localities and basibiont species

Basibiont (Host)	Locality	Reference	Remarks
Nematode – <i>Desmodora tenuispiculum</i> Allgén, 1928	Falkland Islands, near the southern tip of Argentina (Fig. 2, location 1)	Allgén (1952)	Epibiont reported as <i>Acineta rotunda</i> and <i>A. ovoidea</i> . Curds (1985) synonymized <i>A. ovoidea</i> with <i>A. rotunda</i> showing that <i>A. ovoidea</i> was nothing but lateral view of <i>A. otunda</i>
Nematode – <i>Desmodora stateni</i> Allgén, 1928	Graham Land, Antarctica (Fig. 2, location 2)	Allgén (1952)	
Nematode - <i>Pseudochromadora</i> sp.	Ratnagiri, Maharashtra, India, Arabian Sea (Fig. 2, location 3)	Dovgal et al. (2009)	
–	North-Eastern Queensland, Australia (Fig. 2, location 4)	Dovgal et al. (2009)	Dovgal et al. (2009) identified ciliates based on Figure 1 of Fisher (2003)
Nematode – <i>Chromaspirina</i> sp.	Rushikulya, Odisha India, Bay of Bengal (Fig. 2, location 5)	Bhattacharjee (2014)	
Nematode – <i>Dorylaimopsis punctata</i>	Sagar Island, Sundarbans, Bay of Bengal – mangrove ecosystem (Fig. 2, location 6)	Ansari and Bhadury (2016)	
Nematode – <i>Desmodora scaldensis</i> de Man 1889	Matla estuary, Sundarbans, Bay of Bengal – subtidal (Fig. 2, location 7)	Ghosh and Mandal (2019)	
Nematode - <i>Tricomina</i> sp.	Karwar, Karnataka, India, Arabian Sea (Fig. 2, location 8)	Chatterjee et al. (2020d)	
Nematode – <i>Desmodora</i> sp.	NW Madagascar margin-deep sea pockmark (Fig. 2, location 9)	Baldrighi et al. (2020)	
Nematode – <i>Desmodora</i> sp.	Gulf of Naples-shallow vent area (Fig. 2, location 10)	Baldrighi et al. (2020)	
Harpacticoid copepod	Mandovi river estuarine mouth, Goa, India, Arabian Sea (Fig. 2, location 11)	Present Report	

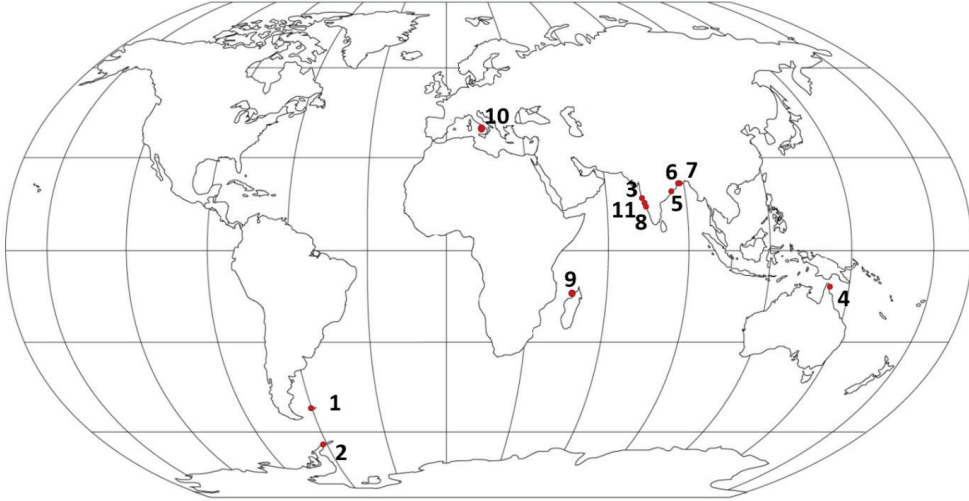


Figure 3. The map of world distribution of *Trematosoma rotunda* (the numbers of localities correspond to Table 1)

It should be presumed that the species is widely distributed, whose spread may be limited possibly by salinity. The relatively small number of finds of the species is apparently associated with a lack of research interest to ciliate epibiosis. This species was predominantly found on nematodes. Chatterjee et al. (2019b) have previously mentioned about *T. rotunda*, which most likely epibiont on nematodes only. However, our new finding is not only the first report of this species from Goa, but the first its registration on representative of new host taxon – Harpacticoida Sars, 1903. The last finding permits to conclude that *T. rotunda* may inhabit on a wide range of meiobenthic marine invertebrates.

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