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RESEARCH ARTICLE

DESCRIPTION OF FREE LIVING MARINE CILIATE *HEMIGASTROSTYLA ENIGMATICA* FROM VELAS BEACH, RATNAGIRI (M.S.)

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ABSTRACT

The biodiversity of protozoa changes from place to place and time to time because of environmental make up. These protists are extremely numerous in oceans and play an important role in maintaining the plant oxygen level, storing carbon and they are bioindicators of pollution. A study had been undertaken on the marine protozoa *Hemigastrostyla* of coastal areas of Ratnagiri district. Samples were collected from Velas beach, Ratnagiri district.

INTRODUCTION

Free living ciliates are usually abundant in various eutrophic marine biotopes playing significant roles in marine ecosystems. Compared with those inhabiting freshwater or soil biotopes, relatively fewer studies have been conducted on the marine forms in recent decades. Marine ciliate *H.enigmatica* (Dragesco & Dragesco Kerenis, 1986), was collected from the Velas beach, Ratnagiri. They were identified based on live observation and taxonomical characters of *H.enigmatica*. The objective of this study to observe the taxonomical character of *H.enigmatica*. From Velas Beach, Ratnagiri (M.S.)

Samples were collected from velas beach Ratnagiri (M.S).*Hemigastrostyla enigmatica* was found in sample collected on September 2014 from velas beach Ratnagiri when the water temperature was 27°c and the salinity 33%. Ciliate were isolated and cultures were established at room temperature in beaker containing filtered sea water with squeezed rice grain to enrich the bacterial food (Song *et al.* 2011)

MATERIALS AND METHODS

The water sample was collected from various sites of Velas beach (17.9585° 'N, 73.0498° E) of Ratnagiri district. These samples were collected with some sand and brought to laboratory and examined under the microscope for the further study and observation .Water temperature was about 27°C and salinity 33 %.Water samples were observed directly by taking a water drop on slide with coverslip and observed under the microscope for further study.

Culture method

When protozoa are less abundant in water samples their population can be increased by culturing in Rice infusion.

Description of Genus

Hemigastrostyla Song and Wilbert, 1997 is a small genus unifying saltwater hypotrichs with transverse cirri. It is characterized by extra cirri that is two cirri close to theend of the right marginal row. *Hemigastrostyla* was established with two species which were originally assigned to *Oxytricha* Bory de Saint-Vincent in Lamouroux *et al.*, 1824, namely *O.stenocephala* Borror, 1963 (type) and *O. enigmatica* Dragesco and Dragesco-Kernéis, 1986. The original classification was mainly due to the cirri pattern which is very similar (*O. stenocephala*) or almost equivalent to that of the well-known *Oxytricha* species with their 18 frontal-ventral transverse cirri "sporadically" distributed over the ventral side (Berger 1999).

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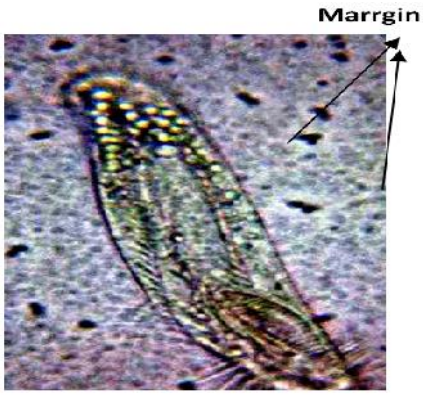
Description of Species

Cell shape elongate with both ends widely rounded, frontal portion more or less head-like; left margin only slightly convex while portion posterior to distal end of adoral zone of membranelles on right evidently convex. When viewed ventrally, one inconspicuous indentation (marginal groove) formed by right marginal row at about anterior 2/5 of cell length. Dorsal side uneven, with central part thicker than posterior and anterior ends, right and left often forming a projection-like border. Pellicle, cortical granules very fine (< 1 um), generally grouped rosettes-like and close to cilia. Food vacuoles rarely to recognize. Contain mostly flagellates and diatoms. Contractile vacuole not observed. Constant two large macronuclear nodules ellipsoid, located in about mid-body and left to cell margin, containing many spherical nucleoli. Characteristically 2-3 (usually 2) right marginal cirri arising from border and slowly waving up and down, while all other ciliary organelles stationary. Oral area narrow,adoral zone of membranelles (AZM) always less than half of body length.



Ventral view of *Hemigastrostyla enigmaticaSide view of Hemigastrostyla enigmatica*

After the comparison of the species with other species of this genus, it is concluded that the present species is *H.enigmatica*, and redescribed here.

Table no 1 Comparison of the present species with the species of genus Hemigastrostyla.

Particulars	***Heterotachysoma multinucleatum***	***H.elongata***	***H.enigmatica***	***Present species***
Body dimensions	72_{um} by 32_{um}	160_{um} by 102_{um}	141_{um} by 62_{um}	141_{um} by 62_{um}
Length of AZM	32_{um}	43_{um}	56_{um}	54_{um}
No. of membranes in AZM	27	33	49	43
No. of frontoventral cirri	4	3	4	4
No.of transverse cirri	5	5	5	5
No.of caudal cirri	Absent	3	6	6
Macronucleus	Two ellipsoid nucleus	Two macro nuclear nodules.	Constant two large macronucleus nodules ellipsoid located in about mid body and left to cell margin.	Macronucleus ellipsoid, located in about mid-body.
Habitat	Marine water	Marine water	Marine water	Marine water

Classification-Cilliates

Domain **:** Eukaryota
Kigdom **:** Protozoa goldfuss, 1818, Rown, 1858
Subkingdom **:** Biciliata
Infrakingdom **:** Alveolata Cavalier & Smith, 1991
Phylum **:** Ciliophora Doflein, 1901, Copeland, 1956
Subphylum **:** Intramacronucleata Lynn, 1996
Class **:** Spirotrichea Butschi, 1889
Subclass **:** Hypotrichia Stein, 1859
Order **:** Oxytrichida
Family **:** Oxytrichidae
Genus **:** *Hemigastrostyla*
Species **:** H.*enigmatica*

Present species is compared with,*Heterotachysoma multinucleatum* and *H.elongata* Present species are near about the spp. *H.enigmatica* As shown in table no 1

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