

ON THE OCCURRENCE OF A LARVACEAN TUNICATE (UROCHORDATA) IN THE MANGROVE WATERS OF HOOGHLY ESTUARY, INDIA

ABSTRACT

A larvacean tunicate is recorded for the first time from the mangrove waters of Sundarbans. Salient diagnostic features of the tunicate are illustrated and hydrological parameters of the habitat are elucidated.

ON 27TH NOVEMBER 1986, 200 specimens of larvacean tunicate were collected during the plankton sampling in the Saptamukhi River (21°43'N to 21°46'N and 88°18'E to 88°19'E) on board *R.V. Sagarputra* of Calcutta University. It was for the first time that a larvacean tunicate was recorded and recognised in the Hooghly Estuary, the western part of the

The conical net of bolting silk (0.5 m diameter) of 0.0695 mm aperture was used for plankton collection. The tunicates were sorted out under a binocular, fixed in 4% buffered formaldehyde and some of them after proper dehydration, stained with eosin and mounted with D.P.X. for permanent slides. Drawings were made with the help of a camera lucida.

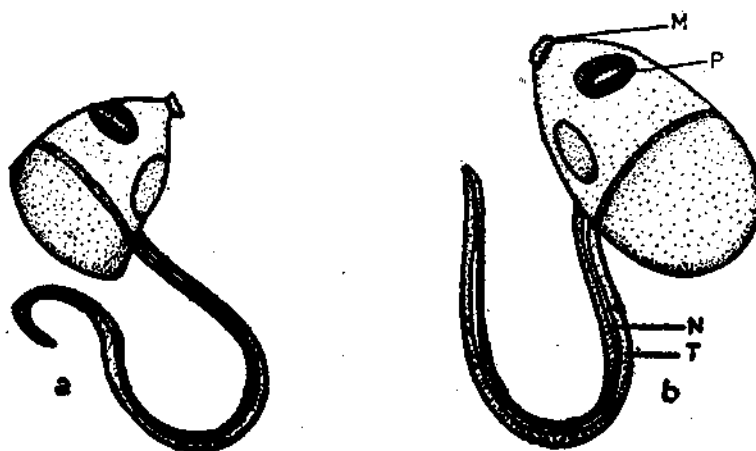


FIG. 1. A tunicate larvacean from Hooghly Estuary (X 40). (M = Mouth, N = Notochord, P = Pharyngeal opening and T = Tail).

Sundarbans. Later on these planktonic tunicates were obtained frequently throughout the year, but few in number. Saptamukhi River is one of the seven tributaries of the River Ganges. It experiences tidal influx twice daily with a maximum highest high tide of 5 metres. The southern mouth of the river faces the Bay of Bengal.

Hydrological parameters (Salinity, D.O., pH) of the habitat water were analysed by the method of Strickland and Parson (1969).

The authors are indebted to S. D. Marine Biological Research Institute, Sagar Island and Department of Marine Science, Calcutta University for laboratory and infrastructural

facilities. Financial support from D.S.T. and DOE, New Delhi is thankfully acknowledged.

Description and discussion

The Hoogly Estuary experiences three pronounced seasons throughout the year. The premonsoon (March to June) is the dry season with occasionally high temperature. The monsoon season (July to October) receives heavy rainfall and the postmonsoon (November to February) comprises partly of the winter season with comparatively lower temperature and lesser precipitation. It has been found

thelium, but most of the fixed materials are devoid of covering; a long tail centrally supported by notochord originates from the ventral part of the body; papillated mouth mid is located at the anterior end; the intestine opens directly to the outside ventrally; the anterior end of the body is narrower than the posterior (Fig. 1 a, b). There are only two pharyngeal clefts one on each dorsolateral side of the anterior end and each opens directly to the exterior.

The appendicularians are the most specialised of all tunicates, belonging to the class

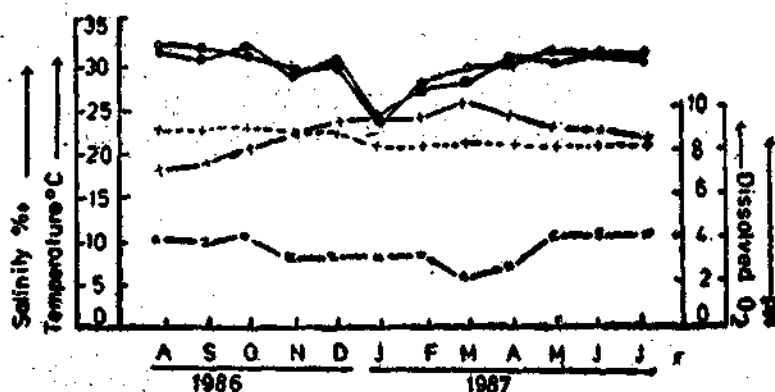


Fig. 2. Hydrology of the habitat water (○ ——— ○) Water temperature, + ——— + salinity, + — — — + pH, ● ——— ● Air temperature and = ——— = dissolved oxygen).

that the number of larvae found in Saptamukhi River increases during the postmonsoon period when the salinity of the surrounding water mass becomes more than 20‰.

Members of appendicularia found in Hoogly-Matla estuarine complex possess the following salient features :

These are transparent free swimming planktonic tunicates measuring 0.5 mm to 0.8 mm long (except the tail); the body is enclosed in a transparent oval house secreted by the epi-

larvacea of the Subphylum Urochordata and phylum chordata. The class larvacea contains 70 species grouped in 13 genera and 3 families. These are found in the surface marine plankton throughout the world. These are adult and neotenic forms retaining most of the larval tunicate characters. Members of the appendicularia found in the Hoogly-Matla estuarine complex are very close to the members of the family Oikopleuridae. Further work to determine their generic and specific status are in progress.

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DISTRIBUTION OF CHAETOGNATHA OFF QUEEN MAUD LAND, ANTARCTICA

ABSTRACT

Chaetognaths from the zooplankton samples collected during the third Indian Scientific Expedition to Antarctica (1983-84) between the latitude 67°30'S and 68°30'S and longitudes 14°00'E and 20°00'E off Queen Maud Land, outside the pack ice were studied. This investigation revealed the occurrence of *Eukrohnia fowleri*, *E. hamata*, *Sagitta gazellae* and *S. tasmanica*. Among these four species, *E. hamata* formed 93% of the total chaetognaths. The numerical abundance of chaetognaths from the stations located in the southern, middle and northern latitudinal grids was studied and the spatial distribution of the species was reported.

THE DISTRIBUTION of chaetognaths of the Southern Ocean was extensively studied by David (1955, 1958, 1965). Further, the chaetognaths from the Antarctic Ocean were reported earlier by Ritter-Zahony (1911), Burfield (1930) and recently by Alvarino *et al.* (1983 a, b), Hagen (1985), Kapp and Hagen (1985), Hagen and Kapp (1986) and Srinivasan and Mathew (1988). Altogether 14 species of the genera *Eukrohnia* (*E. bathyantartica* David 1958, *E. bathypelagica* Alvarino 1962, *E. fowleri* Ritter-Zahony 1909, *E. hamata* (Moebius 1875) *Heterokrohnia* (*H. fragilis* Kapp and Hagen 1985, *H. longicaudata* Hagen and Kapp 1986, *H. longidentata* Kapp and Hagen 1985, *H. mirabilis* Ritter-Zahony 1911) and *Sagitta* (*S. gazellae* Ritter-Zahony 1909, *S. macrocephala* Fowler 1905, *S. marri* David 1956, *S. maxima* (Conant 1896), *S. planctonis*, Steinhilber 1896, *S. tasmanica* Thomson 1947) are so far known from the Antarctic waters.

The aim of this study is to examine the chaetognaths off Queen Maud Land and study the spatial distribution of the species involved based on the samples collected from 21 stations.

Material and methods

The material for this study was collected by the second author during the Third Indian Scientific Expedition to Antarctica, from 21 stations located between 67°30'S and 68°30'S and 14°00'E and 20°00'E off Queen Maud Land, Antarctica. The zooplankton samples were collected as open oblique hauls from 100 m to surface with a 60 cm mouth diameter Bongo net having a mesh size of 0.4 mm. A TSK flow meter was attached to the net for estimating the quantity of water filtered. The samples were preserved in 4% neutralised formaldehyde. The volume of the zooplankton was determined by displacement method as followed by Mathew (1986). The chaeto-