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## Records of freshwater Bryozoa in Mula Dam of Ahmednagar District, Maharashtra, India.

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### Abstract

The Bryozoa are also known as polyzoa, ectoprocta or commonly as moss animals. Bryozoans are important in water quality monitoring and palaeolimnological research and for controlling their growth as fowlers. Present paper reports for the first time the occurrence of two bryozoan species namely. *Asajirella gelatinosa* and *Lophopodella carteri* in Mula dam, Ahmednagar. The species were identified by Scanning Electron Microscope (SEM) images of Statoblasts (encapsulated bud produced asexually by bryozoans) and colony morphology. Study on diversity of fresh water bryozoans may help to understand its role in food chain of freshwater ecosystem.

**Keywords:** *Asajirella gelatinosa*, Freshwater Bryozoa, *Lophopodella carteri*, Mula dam, SEM.

### 1. Introduction

Freshwater bryozoans are aquatic invertebrate animals <sup>[1]</sup>, they are filter feeders and draw tiny food particle towards the mouth by means of ciliated tentacles. Although bryozoans are widely distributed in epibenthic and littoral communities little is known about their zoogeographical status. Moreover, at the species level freshwater bryozoan are quite difficult to identify because of their high morphological variability. Unlike many aquatic invertebrates the bryozoans offer few reliable features by which species may be distinguished. The key to bryozoan survival lies in their production of remarkable seed like statoblasts. The morphological features of statoblasts are the most important diagnostic character for their species identification. Statoblasts are sclerotized, dormant structure produced asexually by all phylactolaemata species. They can survive freezing, desiccation and other environmental stresses <sup>[2]</sup> as a result of which they help in sustaining species. Structure of statoblast using scanning electron microscopy (SEM) can provide useful data for species identification <sup>[3]</sup>. In India <sup>[4]</sup> and <sup>[1]</sup>, studied freshwater bryozoans but still more studies are must to understand the real picture of the diversity and distribution of these animals. There are few studies on the freshwater bryozoans of Maharashtra state. <sup>[4]</sup>, reported the occurrence of bryozoa species *Asajirella gelatinosa* (Phylactolaemata: Pactinatellidae) in Igatpuri Lake. <sup>[5]</sup> reported *Asajirella gelatinosa* from University Lake, Pune and <sup>[6]</sup>, found *Plumetella casmiana* (Phylactolaemata: Plumetellidae) and *Hislopiia lacustris* (Gymnolaemata: Hislopiidae) from the Ghanewadi water reservoir of Jalna district <sup>[7]</sup>, also reported *Hislopiia lacustris* in Kagzipura Lake of Aurangabad district. <sup>[8]</sup>, reported the occurrence of *Asajirella gelatinosa* from the Pashan Lake, Pune. The present study reports for the first time two species of bryozoan in Mula dam of Ahmednagar district. Understanding of diversity and ecology of bryozoans, is essential for their effective use as indicators in bioassay studies, water quality monitoring, palaeolimnological research, for controlling their fouling growth and to identify their changes in community composition over time.

### 2. Materials and Methods

Mula dam is located in Ahmednagar district between 19.32 93065°N, 74.5295548°E (Fig. 1). Bryozoa samples were collected in the form of a colony and statoblasts from planktonic sample as suggested by <sup>[9]</sup> for the period of one year (October 2012 to September 2013). The samples for statoblast were collected using plankton nets made up of bolten silk No- 25 (40 µm). Sampling was done at two sites of the dam. Samples containing statoblasts were stored in polythene bags, brought to the laboratory and observed under dissecting microscope. Photographs of statoblasts were taken by using microscope USB camera (Pro-microscan 7020). A few statoblasts were stored in water for latter germination whereas remaining were

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preserved in 70% alcohol. These preserved statoblasts were eventually dried and examined with a scanning electron microscope (SEM). For identification keys and description given by [10, 1, 11, 12] were used. The SEM images were sent to Prof. Timothy Wood (U.S.A.) and Dr. Beth Okamura and identification of species were confirmed.



**Fig 1:** Showing satellite image of Mula dam (19.32 93065°N, 74.5295548°E) (Source- Google earth)

### 3. Results and Discussion

Two bryozoan species *Asajirella gelatinosa* and *Lophopodella carteri* were identified from the Mula reservoir (fig 1A).

#### Species – (I) *Asajirella gelatinosa* (Oka, 1891)

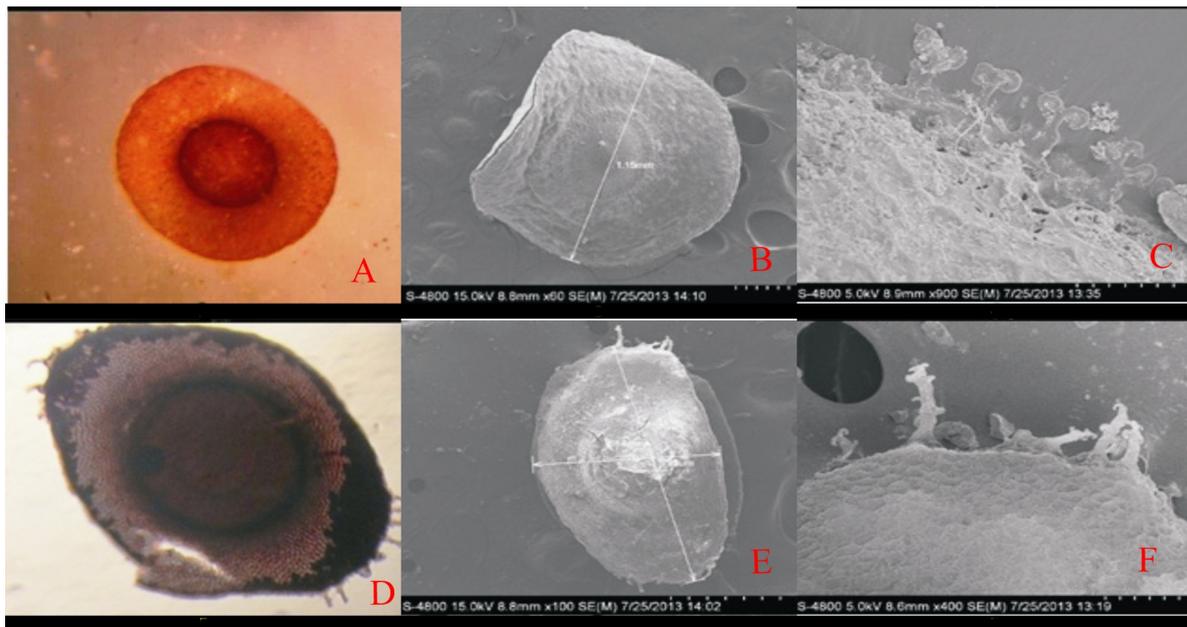
##### Characters

Statoblasts of *Asajirella gelatinosa* were the largest one among the known freshwater bryozoan. Measuring about 1.15 mm in diameter. The statoblasts was roughly circular the annulus is relatively wide and along its periphery a continuous row of tiny hooks are observed. The colony was globular, soft, gelatinous, growing up to 2 cm in diameter. Most of the colonies were transparent, colorless, jelly like material, composed largely of water.

#### Species – (II) *Lophopodella Carteri* (Carter, 1859)

##### Characters

Statoblasts of *Lophopodella carteri* were broadly oval and flattened at each end. It possesses a graduated series of barbed hooked spines on both extremities which is broadly rounded. The long spines being in the middle and the shortest at the ends of the series. This feature is distinct for the genus *Lophopodella* (Hyatt - 1866). Length of statoblast measures about 793  $\mu\text{m}$  long and 514  $\mu\text{m}$  wide. The colony was gelatinous, firm more than 1 cm in diameter. It had soft and transparent colony wall.



**Fig: 2(A)** Statoblast of *Asajirella gelatinosa*. **2(B)** SEM image-Statoblast of *Asajirella gelatinosa* with dimensions (mag-8.8 mm X 60). **2(C)** Statoblast of *Asajirella gelatinosa* showing tiny hooks at the periphery (mag-8.9 mm X 900). **2(D)** Statoblast of *Lophopodella carteri*. **2(E)** SEM image-Statoblast of *Lophopodella carteri* with dimensions (mag-8.8 mm X 100). **2(F)** Statoblast of *Lophopodella carteri* showing barbed/hooked spines (mag-8.6 mm X 400).

*Asajirella gelatinosa* was first described from Japan by Oka (1891). Histological aspects of *Asajirella gelatinosa* were studied by Mukai and Oda (1980), and its genetic features were reported by Backus and Mukai (1987). In Asia this species has been reported from India, Burma, Indonesia, Korea and Japan. It has also been found in Central America near the Panama Canal, from where it was probably introduced from Asia. *Lophopodella carteri* is believed to be an Asian species but it has spread throughout North America and to some parts of England and continental Europe [11]. *Lophopodella* is

probably the easiest freshwater bryozoan to maintain in the laboratory. To date, this species is prevalent in almost all zoogeographical regions, except for the neotropical and Antarctic regions and the Pacific Islands [13]. Freshwater bryozoans share a similar niche with freshwater sponges and their ecologies show many parallels [14]. Taxonomic features of *Asajirella gelatinosa* and *Lophopodella carteri* are in line with the description of these species given by [14]. Knowledge of freshwater bryozoan diversity is far too limited, more intensive and continued surveillance of freshwater reservoirs are needed

to document other bryozoan species. This is the first report of the bryozoa form Ahmednagar district of Maharashtra state.

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