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Bacillariophycean Algal Memembers at Mehekari Water Reservoir

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Abstract

Bacillariophyceae algae which are commonly known as diatoms are a common and significant category of algae in aquatic environments. The silicified walls of diatoms set them apart from nearly all other algal groupings. They are always present in any body of water, whether it be freshwater, marine, contaminated, or even just regular drinking water and moist soil. These organisms are typical in contaminated waters. They are thought to be markers of contamination (Mahajan, 2012). The glass-like cell wall is divided into two overlapping sections called the hypovalve and the epivalve, and is made up of pectic compounds that are typically impregnated with silica. Mined diatomaceous earth is utilized in many industrial applications, such as filters, and accumulates in certain geologic formations (Rai, 2006).

Mehekari Lake is constructed on the Seena River in Ashti tehsil of Beed district of Maharashtra. The study was carried out to explore the presence of algal diversity of the water reservoir. Earlier the author has reported the presence of chlorophyceae and cyanophyceae from the water reservoir. During the present investigation nine species belongs to eight genera were noted from the water reservoir.

Keywords: Algae, *bacillariophyceae*, *cyclotella*, mehekari

Introduction

The algal members of class Bacillariophyceae are also known as diatoms, which are a type of photosynthetic microalgae that belong to the Bacillariophyta. These are unicellular organisms and can be found in various aquatic environments such as oceans, lakes, and rivers. Diatoms are unique in their cell structure, which is encased in a silica-based cell wall. The frustule forms intricate patterns and shapes, making diatoms beautiful and diverse microorganisms. They are studied for their ecological indicators, as their abundance and diversity can provide insights into the health of aquatic ecosystems. These algae play crucial roles in aquatic ecosystems and have significant scientific and practical importance.

Materials and Methods

Random sampling technique has used for the collection of algal samples. Collection has done from November to March month of year 2022. The collected algal samples were preserved in 1 liter capacity bottles with 4% formalin for further taxonomic investigations. The identification of the taxa has carried out by using Sarode and Kamat (1984) ^[12], Sen and Naskar (2003) ^[13], Rath and Adhikari (2005) ^[11], Jadhavar and Papdiwal (2016) ^[8] and Jadhavar (2020) ^[9].

Results and Discussion

1. *Cyclotella Glomerata* Bachman

- Sarode and Kamat, 1984 ^[12], p 21, pl 1, f 10

- Frustules small, in loose chains, valves discoid, rectangular in girdle view; 12.5 μ in diameter, central field smooth with 6-7 small radial striae or dots in a ring, striae 8-10 in 10 μ .

2. *C. Meneghiniana* Kuetz.

- Sarode and Kamat, 1984 ^[12], p 21, pl 1, f 11
- Frustules discoid in valve view, rectangular in girdle view with undulate valves, 15 μ in diameter, margins strong; central field large and finely punctate, striae 8-10 in 10 μ , thick.

3. *Fragillaria Intermedia* Grun.

- Sarode and Kamat, 1984 ^[12], p 27, pl 1, f 21
- Frustules united together to form long bands, linear, rectangular in girdle view; valves 80 μ long, 7.5 μ broad, linear with parallel margins; ends gradually tapering and rounded; axial area narrow, linear; striae 10-12 in 10 μ , coarse and distinct, absent on one side in the middle.

4. *Synedra acus* Kuetz. var. *acula* (Kuetz.) V. H.

- Sarode and Kamat, 1984 ^[12], p 31, pl 2, f 33
- Valves 152 μ long, 5 μ broad, narrow, linear and needle like with slightly capitate ends; pseudoraphe narrow; central area without striae; striae 16-18 in 10 μ , delicate.

5. *Lichmophora Abbreviata* Agardh

- Rath and Adhikari, 2005 ^[11], p 78, pl 12, f 71
- Frustules in girdle view cuneate with strongly rounded angles, lower end attached to mucous stalk; cells forming colonies, septa projecting into the cells, valves oblongate with margins sub parallel towards the apex and narrowed and elongated towards the base, 42.5 μ long and 10 μ broad, pseudoraphe distinct.

6. *Eunotia Major* (W. Smith) Rabh. var. *indica* (Grun.) A. Berg.

- Sarode and Kamat, 1984 ^[12], p 40, pl 3, f 65
- Valves 42.5 μ long, 10 μ broad, sublinear, arcuate, ventral margin slightly concave and dorsal margin convex; ends constricted on dorsal side, obliquely capitate and wedge shaped; polar nodules small; striae 9-10 in 10 μ in the middle and 11-12 in 10 μ at the ends.

7. *Neidium iridis* (Ehr.) Cleve f. *dhulensis* f. Sarode and Kamat

- Sarode and Kamat, 1984 ^[12], p 83, pl 9, f 194
- Valves 40 μ long, 10 μ broad, linear elliptical to linear lanceolate with almost parallel margins and broadly rounded, somewhat wedge-shaped ends; raphe thin and straight with central pores bent in opposite directions and terminal fissures bifurcated; striae 28-30 in 10 μ , finely punctate, radial, crossed by a marginal furrow.

8. *Pinnularia dolosa* Gandhi

- Sarode and Kamat, 1984 ^[12], p 141, pl 16, f 367
- Valves 85 μ long, 15 μ broad, linear, tumid in middle with slightly swollen broadly rounded ends; raphe formed in the hyaline zone, central pores closely set and unilaterally bent, terminal fissures curved; axial area wide, with fine irregularly disposed punctae; central area slightly unilaterally dilated; striae 9-11 in 10 μ , thick slightly radial in the middle and convergent at the ends.

9. *Amphora costata* W. Smith

- Sarode and Kamat, 1984 ^[12], p 160, pl 19, f 431
- Frustules linear elliptical in girdle view; valves 25 μ long 5 μ broad, strongly arcuate on the dorsal margin and slightly concave more or less straight on the ventral margin; ends strongly constricted, capitate; raphe thin, more or less straight, slightly directed to the ventral side towards the ends; striae about 15 in 10 μ , coarsely punctate.

Conclusion

Present work gives the systematic account and species diversity of bacillariophycean algal members at Mehekari Water Reservoir. Nine species of diatoms belonging to the family Stephanodiscaceae, *Fragilariaceae*, *Lichmophoraceae*, *Eunotiaceae*, *Neidiaceae*, *Pinnulariaceae* and *Catenulaceae* from the reservoir is concluded here. All the species were reported for first time from the area under investigation.

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