

## Additions to Algal Flora of Mehekari Lake in Beed District of Maharashtra

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### ABSTRACT

*The present study deals with the additions of algal diversity from Mehekari Lake (Ashti) in the Beed District of Maharashtra. The collection of algal samples was done at monthly intervals from December 2014 to December 2015. Sixteen species of class Chlorophyceae and family Chlorococcaceae, Hydrodictyaceae, Oocystaceae, Selenastraceae, Coelastraceae, Zygnemataceae, and Desmidiaceae belonging to genera Chlorococcum, Sorastrum, Pediastrum, Dactylococcus, Ankistrodesmus, Coelastrum, Zygnema, Debarya Spirogyra, Closterium, Micrasterias and Euastrum were recorded from the study area. A report of present study is given in this paper.*

**Key words:** Additions, Algal Flora, Mehekari, Chlorophyceae.

### INTRODUCTION

Algae are widely present in freshwater environments, such as lakes and rivers, where they are typically present as micro-organisms. The Chlorophyta form a large and morphologically diverse clade of marine, freshwater and terrestrial green algae<sup>1</sup>. Algae play a vital role in all aquatic ecosystems. Algae form the food and energy base for all organisms living in lakes, ponds, and streams. The algal thallus ranges from unicellular mucilaginous colonies to multicellular compact forms which show considerable diversity in form and adaptation to their distinctive environment<sup>2</sup>. Indian records on freshwater algal diversity are more than one and half of a century old. Then several works were carried out to explore the flora of different water bodies across India<sup>3</sup>. Mehekari Lake is built up on Seena River in Ashti tehsil of Beed district of Maharashtra. The study on algal flora of lake was carried out to explore the algal diversity of the water reservoir. Earlier the author reported the diversity of the Zygnemataceae from the water reservoir<sup>4</sup>. Present communication deals with the additions to the algal flora of Mehekari Lake. The algal species observed during the present study are reported here under.

### MATERIALS AND METHODS

The studies on algal flora from different locations of Mehekari Lake (Ashti) in Beed District of Maharashtra were undertaken. Random sampling technique has been used for collection of algal samples. The samples of algae were collected at monthly intervals during December 2014 to December 2015. The Samples were collected in collections bottles and preserved in 4% formalin for further taxonomic investigations.

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Temporary Mounts of algal specimen were prepared with suitable stains and observed under compound microscope. Identifications were made by relevant monographs and available literature<sup>5,6,7,8,9,10</sup>.

## RESULT AND DISCUSSION

During present investigation 12 genera and 16 species of Chlorophyceae were observed which are described as under.

### 1) *Chlorococcum humicola* (Nageli) Rabenhorst

Philipose, 1967, p 73, f 3

Cells spherical, solitary or a number of cells crowded together to form a stratum. Chloroplast a hollow sphere with a lateral notch and single pyrenoid. Cells 15  $\mu$  in diameter.

Coll.No.and Date: ML-60 (08/12/14); ML-75 (17/03/15)

### 2) *Sorastrum americanum* (Bohlin) Schmidle var. *undulatum* G.M.Smith

Prescott, 1951, p 228, pl 50, f 10

Cells with outer free walls emarginated and furnished at each of 4 angles with a long stout, outwardly directed spine; cells narrowed towards base and attached to centre of the colony. Cells 15  $\mu$  in diameter, 12.5  $\mu$  long, and spines 10  $\mu$  long.

Coll.No.and Date: ML-95 (09/04/15); ML-71 (22/03/15)

### 3) *Pediastrum ovatum* (Ehr.) A.Braun

Philipose, 1967, p 115, f 37

Colonies usually 16 celled, with the cells arranged in a ring round a central space or with one or more interior cells and number of marginal cells, perforate or almost imperforate, perforation being small. Cell wall smooth or ornamented. Colony 95  $\mu$ , cells 10  $\mu$  broad, 22.5  $\mu$  long.

Coll.No.and Date: ML-105 (08/06/15); ML-98 (22/06/15)

### 4) *Dactylococcus infusionum* Naegeli var. *fasciculatus* G.M.Smith

Philipose, 1967, p 211, f 119 (d)

Cells curved or sigmoid, twisted around one another and united in colonies of 50-200 cells with the median portion of the cells in contact and the apices free. Cells 5  $\mu$  broad, 55  $\mu$  long.

Coll.No.and Date: ML-112 (09/07/15); ML-118 (22/07/15)

### 5) *Ankistrodesmus falcatus* (Corda) Ralfs

Philipose, 1967, p 211, f 121(e)

Cells acicular to narrowly fusiform with the ends tapering to acute apices, usually in fasciculate bundles. Chloroplast single, parietal and usually without pyrenoids, cells 5  $\mu$  broad, 42.5  $\mu$  long.

Coll.No.and Date: ML-125 (07/08/15); ML-128 (07/08/15)

### 6) *A. falcatus* (Corda) Ralfs. var. *radiatus* (Chodat) Lemmermann

Philipose, 1967, p 213, f 121 (d)

Colonies free floating, not enclosed in mucilaginous sheath, colony of 8 cells. Cells in radiating bundles, acicular to narrowly fusiform straight or curved with gradually tapering ends, 2.5  $\mu$  broad and 70  $\mu$  long.

Coll.No.and Date: ML-130 (07/08/15); ML-138 (21/08/15)

### 7) *Coelastrum cambricum* Archer var. *intermedium* (Bohlin) G.S.West

Prasad and Misra, 1992, p 30, pl 4, f 5

Colonies spherical, consisting of 32 cells; cells spherical in middle and sub- spherical at periphery with slightly thick, blunt and rounded projections, intercellular spaces more or less triangular; chloroplast parietal with one pyrenoid. . Colony 62.5  $\mu$  in diameter, cells 15  $\mu$ .

Coll.No.and Date: ML-144 (07/09/15); ML-149 (07/09/15)

### 8) *C. microporum* Naegeli

Philipose, 1967, p 228, f 135 (a)

Colonies more or less spherical and of 8-16 cells with small intercellular spaces. Cells soherical to ovoid, enclosed by delicate gelatinous sheaths and interconnected by almost imperceptible gelatinous processes. Cells with sheath 6.25  $\mu$  in diameter. Colonies 35  $\mu$  in diameter.  
Coll.No.and Date: ML-130 (03/03/15); ML-111 (17/12/14)

**9) *Zygnema khannae*** Skuja

Prasad and Misra, 1992, p 76, pl 12, f 9

Vegetative cells 22.5  $\mu$  broad, 65  $\mu$  long; conjugation not seen; reproduction by aplanospores; aplanospores ellipsoid to ovoid; outer spore wall punctate, median spore wall irregular, yellowish brown in colour.

Coll.No.and Date: ML-153 (14/09/15); ML-161 (21/09/15)

**10) *Z. synadelphum*** Skuja

Prescott, 1951, p 326, pl 74, f 1

Vegetative cells 20  $\mu$  in diameter; fertile cells not inflated. Zygosporangia formed in the tube; globose, parallel with the conjugation tube; median layer blue and scrobiculate; 35  $\mu$  in diameter.

Coll.No.and Date: ML-176 (28/09/15); ML-179 (28/09/15)

**11) *Debarya costata*** Randhawa

Randhawa, 1959, p 109, f 5 (a)

Vegetative cells 10  $\mu$  broad and each cell has a single plate shaped chloroplast bearing six pyrenoids. Conjugation scalariform. The conjugation processes are given out in the shape of long cylindrical phallic bodies, which meet and produce long conjugation canals.

Coll.No.and Date: ML-144 (07/09/15); ML-149 (07/09/15)

**12) *Spirogyra parvispora*** Wood

Prasad and Misra, 1992, p 86, pl 14, f 12

Vegetative cells 75  $\mu$ m broad, 200  $\mu$ m long, end wall plane; each cell with 4 chloroplasts making 2 turns; conjugation scalariform by both gametangial cells; fertile cells not swollen; zygosporangia ellipsoid; mesospore smooth, brown.

Coll.No.and Date: ML-95 (09/04/15); ML-138 (21/08/15)

**13) *Closterium acerosum*** (Schrank) Ehr. var. *elongatum* Breb.

Prasad and Misra, 1992, p 98, pl 16, f 20

Cells are much longer, inner margin more or less straight, outer margin moderately curved, cell apices tapering with rounded to subacute ends; cell wall with fine striations; chloroplast ridged, containing pyrenoids in median series. Long cell 750  $\mu$ m, lat. cell 40.5  $\mu$ m, lat. apex 1.5  $\mu$ m.

Coll.No.and Date: ML-125 (07/08/15); ML-149 (07/09/15)

**14) *C. sigmoideum*** Lagerh. et. Nordst.

Prasad and Misra, 1992, p 118, pl 15, f 4

Cells of medium size, about 7 times longer than broad, faintly sigmoid, middle portion more or less straight and gradually attenuated towards moderately recurved and obtusely rounded apices; cell wall smooth; Chloroplast with ridges and 7-8 pyrenoids arranged in somewhat irregular median row. Long. cell 210  $\mu$ m, lat. cell 32.5  $\mu$ m, lat. apex 5  $\mu$ m.

Coll.No.and Date: ML-130 (03/03/15); ML-161 (21/09/15)

**15) *Micrasterias mahabuleshwariensis*** Hobson

Prasad and Misra, 1992, p 142, pl 20, f 7

Cells of medium size, 1-5 times longer than broad, constriction deep, sinus open with acuminate extremity; semicells three lobed, with symmetry in three planes, incision between lobes wide, polar lobe large with subquadrate lower half and dialated upper half producing prominent diverging, denticulate processes and exhibiting a pair of small, accessory asymmetrical denticulate processes in front and back near slightly concave base, margin with small and acute spines, lateral lobes with wide, deep and acute

angled incision, divided into two attenuated and denticulate processes. Long. cell 122.5  $\mu\text{m}$ , lat. cell 90  $\mu\text{m}$ , lat. isthmus 22.5  $\mu\text{m}$ .

Coll.No.and Date: ML-176 (28/09/15); ML-111 (17/12/14)

**16) *Euastrum pseudotuddalense* Messik**

Sahin and Akar, 2007, p 1829, Fig.3.11

Cells are longer than wide, 20  $\mu$  long, 15  $\mu$  wide and isthmus 7.5  $\mu$ . Semicells trapezoid with three lobes. Basal lobe truncated bearing two marginal granules. Apical lobe trapezoid with concave sides. Apical incision obtuse angled with granules on each side. The incision between the basal lobes and apical lobe acute angled. Sinus deep and narrow.

Coll.No.and Date: ML-130 (03/03/15); ML-98 (22/06/15)

### CONCLUSION

Sixteen taxa belonging to 12 genera are being reported for the first time from the Mehekari water reservoir.

### REFERENCES

1. Clerck, O.D., Kenny, A.B. and Frederik, L., Diversity and Evolution of Algae: Primary Endosymbiosis, *Advances in Botanical Research*, 64, pp 55. (2012).
2. Krishnamurthy, V., *Algae of India neighboring Countries I. Chlorophycota-* Oxford and IBH Publishing Co. Pvt. Ltd. (2000).
3. Das, S. K. and Adhikary, S. P. *Freshwater Algae of Eastern India*, Daya Publishing House, New Delhi. (2014).
4. Jadhavar, P.B., Zygnemataceae At Mehekari Lake (Ashti), In Beed District of Maharashtra. *Int J Recent Sci Res.* **7(1)**: pp. 8243-8245. (2016).
5. Prescott, G.W. "*Algae of the Western Great Lakes Area*"Cranbrook Institute of Science, Michigan. (1951).
6. Randhawa, M.S. "*Zygnemaceae*" I.C.A.R., New Delhi. (1959).
7. Philipose, M.T. *Chlorococcales*, Indian Council of Agricultural Research, New Delhi. (1967).
8. Prasad, B.N. and Misra, P.K., "*Fresh water algal flora of Andman and Nicobar Islands*", Vol. II, Bishen Singh Mahendra Pal Singh, Dehra Dun. (1992).
9. Sahin, B. and Akar, B. The desmid flora of some high mountain lakes of the Turkish Eastern Balck Sea region. *Pak. J. Bot.* **39(5)**: 1817-1832 (2007).
10. Jadhavar, P.B. Studies on Plant Diversity of Nathsagar, Ph.D. thesis, Marathwada University, Aurangabad. (2011).