

SOME OF DESMIDIAL ALGAE AT NATHSAGAR WATER BODY, PAITHAN- MAHARASHTRA

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ABSTRACT

In this paper the Desmidial Algae, belonging to Class Chlorophyceae, from Nathsagar water reservoir, Paithan (Maharashtra) have been described. These algae belong to four genera viz., *Micrasterieas*, *Euastrum*, *Cosmarium* and *Staurastrum*. As a part of study of Plant diversity, algal diversity of Nathsagar water body was carried out from March 2011 to January 2013. Algal samples were collected from different sites of water body.

INTRODUCTION

A survey of algal diversity was carried out at different locations of Nathsagar water reservoir, during the years 2011-2013. Amongst algae, Desmids form a characteristic group, which are generally unicellular and are divided into two compartments separated by a narrow bridge or isthmus; which can be recognized by their symmetry. There are also desmids that form long filaments. Desmids are found mostly but not exclusively in fresh water. There, they may live as phytoplankton, on the bottom as benthic dwellers, or on the submerged portions of plants. They may also be found in saline waters, or in snow or ice. Desmids show a wide variety of body shapes and many species are ornamented with all kinds of knobs and spines. There are circular, rotund, elongated, star-shaped and even moon-shaped species. Desmids are excellent indicators of water quality (Peter and Koos, 2007). The desmids of different fresh water bodies of India have been investigated by several researchers (Prasad and Misra, 1992, Sen and Naskar, 2003; Rath and Adhikari, 2005). As a part of investigation of plant diversity at Nathsagar, the present study on desmids was carried out. The desmids observed during the present investigation are described in this paper.

MATERIALS AND METHODS

Study area

On river Godavari, an earthen dam "Jayakwadi Project" is constructed near town Paithan, which about 50 Kms away from Aurangabad. The water body is named as Nathsagar. The length of the dam is 10,280 M and towards borders, the

water level is shallow and in this region aquatic flora and fauna is observed. Among the aquatic flora, different types of algae, Pteridophytes and angiosperms are reported. (Jadhavar and Papdiwal 2011 a, b; 2012). Thousands of birds; including herbivorous, carnivorous, omnivorous birds, visit this water body every year during winter. Considering this fact, the State Government has declared the water reservoir as Jayakwadi Bird Sanctuary.

Algal samples were collected manually from 7 locations of the water body, viz. Esarwadi, Kaygaon, Lamgaon, North Colony, Ramdoh, Sonewadi and Toka; in the morning. Random sampling technique has been used for collection of algal samples. Collected samples were brought to the laboratory and preserved in 4% formalin for further study. Identification was done by using Prasad and Misra (1992), Rai and Misra (2008) and other relevant literature.

RESULTS AND DISCUSSION

The present paper reports 12 species of Desmidial algae belonging to, 04 genera of Chlorophyceae, which were observed during this investigation. They are described here under.

Micrasterias pinnatifida (Kuetz.) Ralfs (Pl.1 F.1)

Prasad and Misra, 1992, p143, Pl 20, f. 4

Cells small, slightly broader than long, deeply constricted, sinus linear but slightly open outwards; semicells 3 lobed, interlobular incision deep and broadly rounded, lateral lobes horizontal, semi-fusiform with minutely bifid, apices exhibiting acuminate ends, polar lobe with basal portion sub-rectangular and apical portion with extremities like lateral lobes but relatively shorter in length; cell minutely punctuate. Long cell

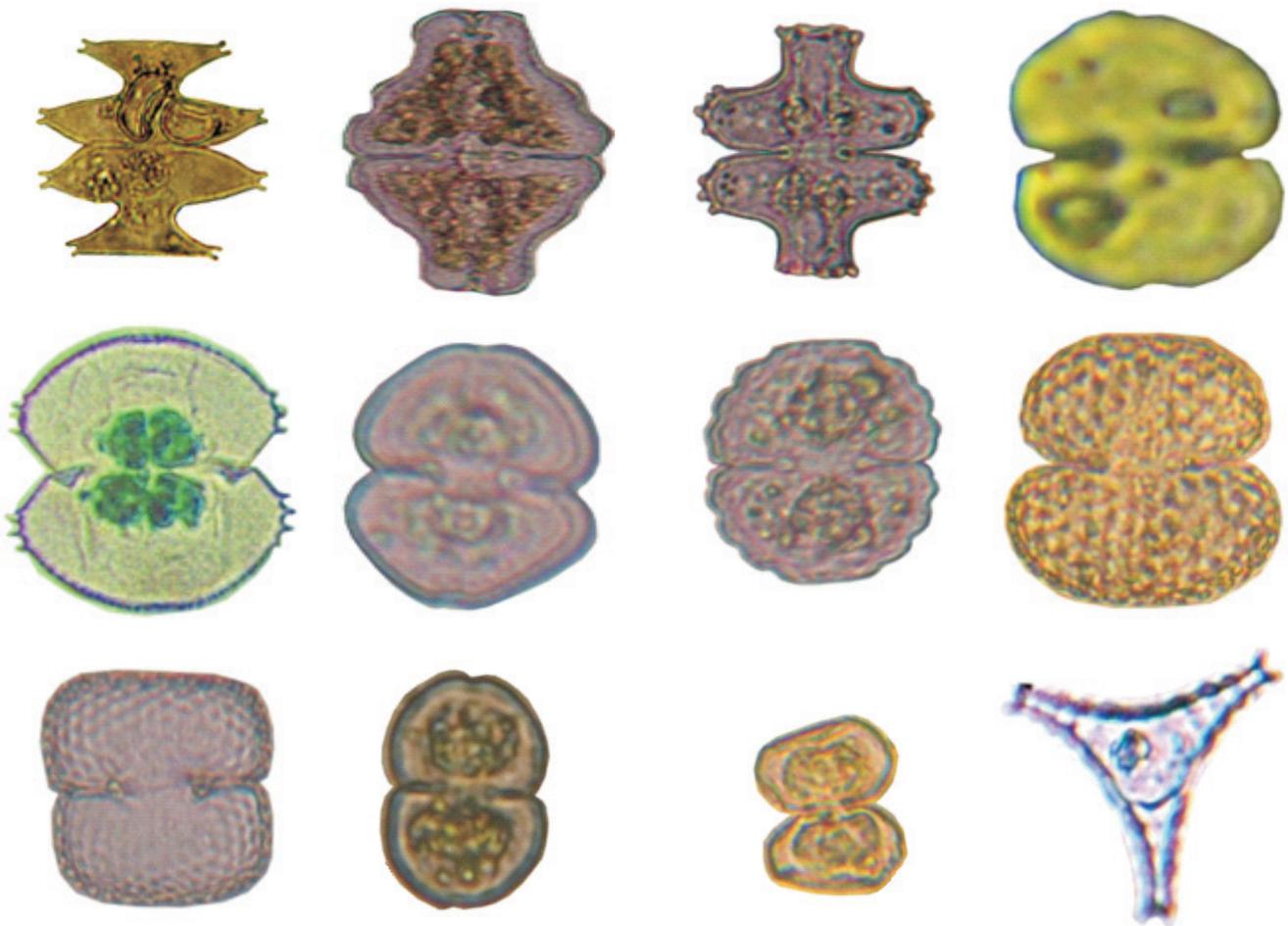


Figure 1) *Micrasterias pinnatifida* 2) *Euastrum ansatum* var. *pyxidatum* 3) *E. platycerum* 4) *Cosmarium angulosum* var. *concinnum* 5) *C. auriculatum* 6) *C. granatum* 7) *C. impressulum* var. *crenulatum* 8) *C. margaritatum* 9) *C. pseudobroomei* 10) *C. pseudogranatum* var. *rotundatum* 11) *C. regnellii* 12) *Staurastrum gracile*

45 μm , lat. cell 55 μm , lat. isthmus 12.5 μm .

Locality: - North Colony, **Coll. No. and Date-** N-52 (20-3-2011)

Euastrum ansatum Ralfs var. ***pyxidatum*** Delp. (Pl.1 F.2)

Prasad and Misra, 1992, p134, Pl 19, f.1

Cells small, twice as long as broad, deeply constricted, sinus narrowly linear, semicells with large undulations above the basal angles; cell wall with punctuations arranged in distinct vertical series, apices sub-quadrangle with rounded angles. Long. Cell 70 μm , Lat. cell 37.5 μm , lat. isthmus 7.5 μm

Locality:-Sonewadi, **Coll. No. and Date-S-28** (13-3-2011)

E. platycerum Reinsch (Pl.1 F.3)

Rai and Misra, 2008, p50, pl. 2, f.7

Cells 42 μm long , 37.5 μm broad, deeply constricted, sinus narrow, slightly dilated and widely open out; isthmus 10 μm wide; semicells three lobed; polar lobes truncate without median constriction , broadly rounded angles with two small marginal spines; lateral lobes broadly rounded with marginal spines; semi cells with a rounded central protuberance, just above the isthmus.

Locality :-North Colony, **Coll. No. and Date-N-17** (13-3-2011)

Cosmarium angulosum Breb. var. ***concinnum*** (Rab.) W. et G.S. West (Pl.1 F.4)

Prasad and Misra, 1992, p152, pl 21 ,f.8

Cell very small, a little longer than broad, deeply constricted, sinus narrow and linear; semicells hexagonal with sharp angles and parallel sides, apex narrow and slightly retuse; cell wall smooth. Long cell 12.5 μm , lat. cell 10 μm , lat. isthmus 2.5 μm

Locality: - Sonewadi, **Coll. No. and Date-S-25** (13-3-2011)

C. auriculatum Reinsch. (Pl.1 F.5)

Prasad and Misra, 1992, p153, pl 22, f.14

Cells small, constriction not deep , sinus open outwards with rounded apex ; semicells sub-elliptical, sides 5, undulating with sharp and pointed ridges , apex narrow and straight ; cell wall with punctuations arranged in transverse series . Long cell 45 μm lat. cell 47.5 μm , lat. isthmus 22.5 μm

Locality: - Ramdoh, **Coll. No. and Date-R-154** (24-4-2011)

C. granatum Breb. (Pl.1 F.6)

Prasad and Misra, 1992, p160, pl 21, f.20

Cells small, slightly longer than broad, sub-rhomboid to elliptic, deeply constricted, sinus linear with a dilated extremity;

semicells truncate, pyramidate, basal angles rounded, apical angles obtuse, sides, straight or slightly convex, apex narrowly truncate with faintly retuse margin, cell wall thick and distinctly punctate; chloroplast axile with one pyrenoid. Long cell 55 μm , lat. cell 32.5, isthmus 10 μm .

Locality:-Lamgaon, **Coll. No. and Date-** L-104 (3-4-2011)

C. impressulum Elfv var. **crenulatum** (Naeg.) Krieger et Gerloff (Pl.1 F.7)

Prasad and Misra, 1992, p162, pl 21, f.6

Cells very small, slightly longer than broad, deeply constricted, sinus narrowly linear; semicells vertically sub quadrate with triundulate margin, undulations sub acute, apex narrow and retuse with rounded angles; cell wall smooth; top view broadly elliptic; chloroplast parietal with one pyrenoid in each semicell. Long. cell 30 μm , lat. cell 25 μm , lat. isthmus 5 μm .

Locality:-Sonewadi, **Coll. No. and Date-** S-25- (13-06-2011)

C. margaritatum (Lund.) Roy et. Biss. (Pl.1 F.8)

Prasad and Misra, 1992, p165, pl 23, f.3

Cells rather larger, longer than broad, deeply constricted; semicells sub rectangular, apex and sides slightly convex, basal and apical angles broadly rounded, cell wall uniformly granulate and with punctae between them; chloroplast axile with two pyrenoids in each semicell. Long cell 65 μm , lat. cell 52.5 μm , lat. isthmus 17.5 μm .

Locality:-Esarwadi, **Coll. No. and Date-** E 3 (13-3-2011)

C. pseudobroomei Wolle (Pl.1 F.9)

Prasad and Misra, 1992, p173, pl 23, f.11

Cells small, as long as broad very deeply constricted, sinus narrowly linear with dilated extremity; semi-cell oblong-rectangular with rounded angles and slightly convex sides and apex; cell wall with small and solid granules arranged in somewhat curved horizontal series; chloroplast axile with two pyrenoids in each semicell. Long cell 40 μm , lat. cell 37.5 μm , lat. isthmus 10 μm .

Locality:- North colony, **Coll. No. and Date-** N-56 (20-3-2011)

C. pseudogranatum Nordst var. **rotundatum** (krieg.) Messik. (Pl.1 F.10)

Prasad and Misra, 1992, p175, pl 21, f.22

Cells small; semicells broadly truncate exhibiting rather, prominently convex sides and truncate rounded apex; cell wall minutely punctate. Long cell 22.5 μm , lat cell 17.5 μm , lat. isthmus 5 μm .

Locality:-Kaygaon, **Coll. No. and Date-** K-32 (13-3-2012)

C. regnellii Wille (Pl.1 F.11)

Prasad and Misra, 1992, p180, pl 21, f.25

Cells very small, a little longer than broad, deeply constricted, sinus narrow with slightly dilated extremity; semicells sub-hexagonal, basal angles more or less sub-rectangular, sides parallel, upper broad and oblique, apex truncate and straight; cell wall smooth; each semicell with an axile chloroplast and one pyrenoid. Long cell 12.5 μm , lat. Cell 12 μm , lat. isthmus 2.5 μm .

Locality:-Toka, **Coll. No. and Date-** T-127 (24-4-2011)

Staurastrum gracile Ralfs forma Iyengar et. Vimala Bai (Pl.1 F.12)

Prasad and Misra, 1992, p 197, pl 25, f. 14, 18

Cells small, about 2.7 times longer than broad with slight constricted in the form of an acute notch; semicell slightly broadening towards the faintly convex apex, upper angles produced into more or less horizontally disposed long processes tipped with 3 minute spines and showing many concentric series of denticulations; top view triangular; chloroplast axile with one pyrenoid in each semicell. Long cell 17.5 μm ; lat. cell 12.5 μm , isthmus 5 μm .

Locality: - Toka, **Coll. No. and Date-** T-163 (24-1-2012)

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