

## Some Fresh Water Algae of Eastern Uttar Pradesh, India

P.K. Misra, A.K. Srivastava, J. Prakash<sup>1</sup>, D.K. Asthana<sup>1</sup> and S.K. Rai<sup>2</sup>

<sup>1</sup>Department of Botany, Lucknow University, Lucknow-226007, U.P., India

<sup>1</sup>Department of Botany, D.A.V. College, Kanpur, U.P., India

<sup>2</sup>Department of Botany, P.G. Campus, Tribhuvan University, Biratnagar, Nepal  
Email: shivara2003@yahoo.com

### Abstract

Present communication deals morpho-taxonomic description of 11 fresh water algae belonging to class Chlorophyceae and Bacillariophyceae. Chlorophycean genera are *Pediastrum* Meyen (1 sp), *Cladophora* (2 spp), *Staurostrum* (3 spp), *Onychonema* (2 spp) and *Desmidiium* (1 sp) while Bacillariophycean genera are *Navicula* (1 sp) and *Rhopalodia* (1 sp).

**Key words:** Bacillariophyceae, Chlorophyceae, Eastern Uttar Pradesh, Fresh water algae

### Introduction

In the present communication 11 fresh water algal species of Talkunda pond have been morpho-taxonomically described. Talkunda pond is situated in Siddartha Nagar district of eastern Uttar Pradesh, India. District Siddartha Nagar is surrounded by Nepal (north), Maharaj ganj (east), Basti/Sant Kabir Nagar (south) and Balrampur (west). Earlier, Misra *et al.* (2002, 2002a-c, 2003, 2004, 2005) have reported a large number of algae from this region of Uttar Pradesh.

### Materials and Methods

Algal samples were collected with the help of Planktonic mesh net in one liter polythene bottles and preserved in 4% formalin. Chlorophycean algae were stained with iodine and mounted in glycerine. Bacillariophycean taxa were studied after clearing the frustule by concentrated sulphuric acid and potassium dichromate method of Patrick and Reimer (1966). Detailed studies were made under Nikon Labophot microscope E-II with camera attachment.

### Morpho-Taxonomic Description

Class: Chlorophyceae

Order: Chlorococcales

Family: Hydrodictyaceae

Genus: *Pediastrum* Meyen 1829

#### 1. *Pediastrum duplex* Meyen (Fig. 3)

Philipose, M.T. 1967, P. 121, Fig. 43b

Colonies 160 µm in diameter with 16-64 cells; cell 18 µm in diameter with small lens shaped perforations between cells, inner cells quadrate to angular, inner side of marginal cell concave, outside produced in to short truncate process.

Order: Cladophorales

Family: Cladophoraceae

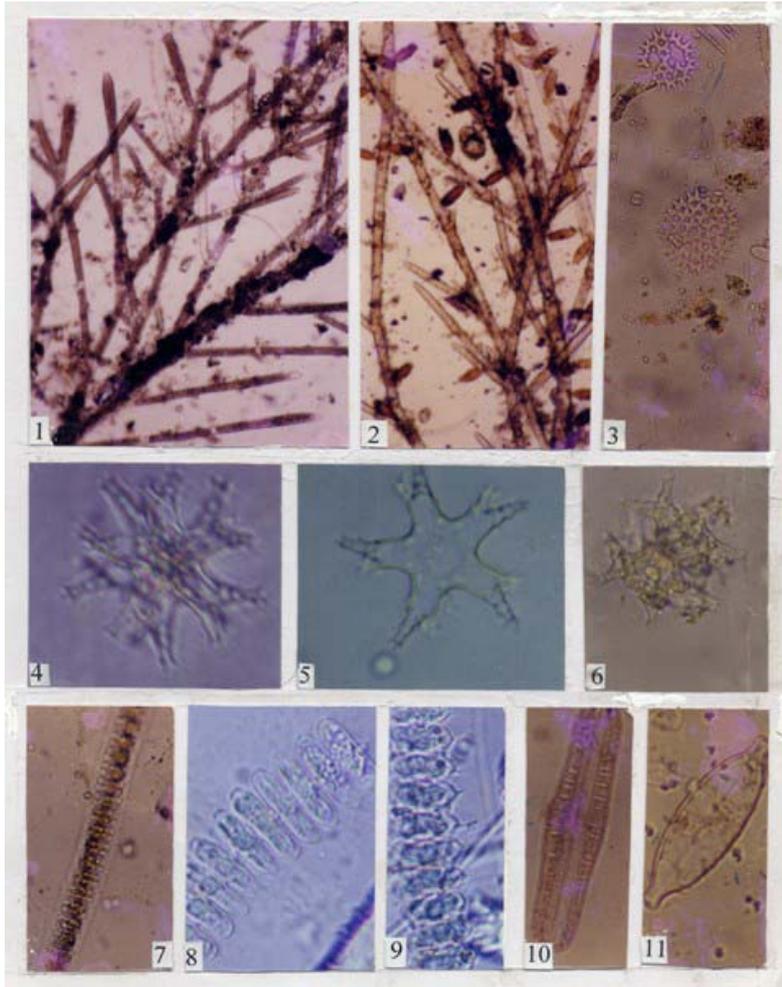
Genus: *Cladophora* Kuetzing 1843

#### 2. *Cladophora glomerata* (L) Kuetz. var. *glomerata* Den Hoek (Fig. 2)

Prasad, B.N. and P.K. Misra 1992, P. 53-54, Pl. 7, Figs. 1-2

Fronds attached; branches of main axis organized in acropetal fashion; cells of main branch 210-215 µm long, 36-38 µm broad;

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- cells of branchlet 145  $\mu\text{m}$  long, 30  $\mu\text{m}$  broad. reniform, lateral apex acute with spine.
3. *Cladophora oligoclona* Kuetz. (Fig. 1)  
 Prescott, G.W. 1951, P. 139, Pl. 21, Figs. 6-8  
 Attached on snail shell as epizoic; thallus branched; cells of main axis 235-240  $\mu\text{m}$  long, 36-38  $\mu\text{m}$  broad, cylindrical; cells of branchlet 156  $\mu\text{m}$  long, 31-34  $\mu\text{m}$  broad.
- Order: Zygnemales  
 Family: Desmidiaceae  
 Genus: *Staurastrum* Meyen 1829
4. *Staurastrum leave* Ralfs (Fig. 4)  
 Flint, E.A. and D.B. Williamson 1999, P. 548, Fig. 4d  
 Cells slightly longer than broad; cells 27.5  $\mu\text{m}$  long, 25.4  $\mu\text{m}$  broad (with process); isthmus 7.3  $\mu\text{m}$
5. *Staurastrum sexangulare* Lund. var. *productum* Nordst. (Fig. 5)  
 Flint, E.A. and D.B. Williamson 1999, P. 550, Fig. 4h  
 Cells longer than broad with radiate process, median constriction deep in top view; cells 31.4  $\mu\text{m}$  long, 30  $\mu\text{m}$  broad (with process); isthmus 12  $\mu\text{m}$ .
6. *Staurastrum* sp. (Fig. 6)  
 Cells 30-32  $\mu\text{m}$  long, 34.5  $\mu\text{m}$  broad (with process); isthmus 9.3  $\mu\text{m}$
- Genus: *Onychonema* Wallich 1860
7. *Onychonema leave* Nordst. var. *latum* West et West (Fig. 9)  
 Scott, A.M. and G.W. Prescott 1961, P. 121, Pl. 60, Fig. 13  
 Cells wider than long, compressed, deeply constricted, united into filament without a gelatinous sheath; cells 16  $\mu\text{m}$  long, 28  $\mu\text{m}$  broad; semicells broadly elliptical or sub-
8. *Onychonema* sp. (Fig. 8)  
 Cells wider than long, compressed, deeply constricted, united into filament; cells 60  $\mu\text{m}$  long, 80  $\mu\text{m}$  broad; semicells elliptic or tubular, lateral apex broad and rounded without spine.
- Genus: *Desmidium* Aragdh 1824
9. *Desmidium* sp. (Fig. 7)  
 Cells united to form straight filament, gelatinous sheath present, median constriction reduced to a faint undulation, cell outline rectangular; cells 18-19  $\mu\text{m}$  long, 25-26  $\mu\text{m}$  broad.  
 Remark: The present specimen is morphologically similar with *D. swartzii* (Ag.) Ag. ex Ralfs, but due to the presence of distinct filamentous sheath, this taxa is openly described.
- Class: Bacillariophyceae  
 Order: Bacillariales  
 Family: Naviculaceae  
 Genus: *Navicula* (Bory 1822) Cleve 1894
10. *Navicula cuspidate* Kuetz. var. *ambigua* (Ehr.) Cl. (Fig. 11)  
 Prasad, B.N. and M.N. Srivastava 1992, P. 207-208, Pl. 28, Fig. 3  
 8  $\mu\text{m}$  long, 75  $\mu\text{m}$  long, 22  $\mu\text{m}$  broad, broadly lanceolate with narrowly constricted much produced flatly rostrate capitate ends; striae 16 in 10  $\mu\text{m}$ , fine.
- Family: Epithemiaceae  
 Genus: *Rhopalodia* Mueller 1895
11. *Rhopalodia gibba* (Kuetz.) Muell. (Fig. 10)  
 Tiffany, L.H. and M.E. Britton 1995, P. 282,



**Figures:** 1. *Cladophora oligoclona* Kuetz. (×50) 2. *Cladophora glomerata* (L) Kuetz. var. *glomerata* Den Hoek (×50) 3. *Pediastrum duplex* Meyen (200) 4. *Staurastrum leave* Ralfs (200) 5. *Staurastrum sexangulare* Lund. var. *productum* Nordst. (200) 6. *Staurastrum* sp. (×50) 7. *Desmidium* sp. (200) 8. *Onychonema* sp. (250) 9. *Onychonema leave* Nordst. var. *latum* West et West (250) 10. *Rhopalodia gibba* (Kuetz.) Muell. (200) 11. *Navicula cuspidate* Kuetz. var. *ambigua* (Ehr.) Cl. (200)

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Pl. 75, Fig. 884

Cells in girdle view broadly linear, 60  $\mu$ m long, 28  $\mu$ m broad, elliptic clavate, medianly inflated with broadly rounded poles; costae 6 in 10  $\mu$ m.

### Results and Discussion

A total number of 11 fresh water algal taxa including 7 genera, 8 species and 4 varieties belonging to families Hydrodictyaceae, Cladophoraceae, Desmidiaceae of Class Chlorophyceae and families Naviculaceae and Epithemiaceae of class Bacillariophyceae have for the first time morpho-taxonomically described from the area. Three specimens are described under open nomenclature system as specific characters do not resemble with the known species of the genus. They were actually rare in collection. Specific names are designated after culturing the specimen.

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