

# Fresh water planktonic algae from Balrampur and Faizabad districts of Uttar Pradesh, India

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## ABSTRACT

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Eight algal species, collected from lentic water bodies of Balrampur and Faizabad districts of Uttar Pradesh, are described. These species belong to *Eudorina* Ehrenberg, *Pandorina* Bory, *Gloeocystis* Naeg., *Oocystis* Naegli in A. Braun, *Botryococcus* Kuetz., *Hydrodictyon* Roth, *Sphaerocystis* Chodat and *Coelastrum* Naeg. (each genus with single species). These genera belong to orders Volvocales and Chlorococcales of class Chlorophyceae.

**Key-words:** Fresh water algae, Chlorophyceae, Balrampur, Faizabad, Uttar Pradesh, India.

## INTRODUCTION

Contribution in diversity status of Indian fresh water algae has been made by Sen and Gupta (1988), Tewari et al. (1999) Kant and Vohra (1999), Misra et al. (2001, 2002, 2003, 2004, 2005), Singh and Srivastava (2002), Prakash et al. (2005) and Srivastava and Misra (2007).

Balrampur and Faizabad districts have a large number of aquatic habitats which harbour rich algal assemblages. Misra et al. (2005) described some filamentous green algae from Balrampur District. Diatoms and some filamentous algae, occurring in tributaries of Rapti and Saryu rivers of Balrampur and Faizabad districts, were reported by Srivastava (2009, 2010). In the present communication, eight algal species belonging to Volvocales and Chlorococcales of class Chlorophyceae, collected from these two districts, have been described.

## MATERIAL AND METHOD

Random sampling method was applied for collection of algal samples from the tributaries of Rapti and Saryu rivers by means of planktonic net. Certain

forms were collected by squeezing the aquatic angiosperms and squeezed material was stored in plastic tube. The samples were preserved in 4% formalin. Study was made by staining the material by iodine and mounting in glycerin. Microphotographs have been taken by Nikon Labphoto II microscope.

## DESCRIPTION

### *Pandorina cylindricum* Iyenger

Figure 5

**Description:** Colonies cylindrical with rounded end, 38-41  $\mu\text{m}$  in diameter 48-49  $\mu\text{m}$  long, 16 celled arranged in 4 alternating tiers of 4 cells each, cells pyramidal with broad side directed outwards. Cells compactly arranged, 11-13  $\mu\text{m}$  long, and 8-15  $\mu\text{m}$  in diameter. Chloroplast cup shaped.

**Locality, collection no. and date:** Matora (Rapti River); BLP 65; 30.06.2008.

### *Eudorina elegans* Ehrenberg

Figure 1

**Description:** Colonies spherical, consisting of 32 cells, evenly disposed or in transverse series, near the



periphery of hyaline gelatinous envelope cells spherical, each cell with one chloroplast containing one pyrenoid, cell diameter 16-19  $\mu\text{m}$ , diameter of colony 200  $\mu\text{m}$ .

**Locality, collection no. and date:** Ayodhya; FZB; 09.07.2008.

***Gloeocystis vesiculosa* Naegeli**

Figure 7

**Description:** Cells spherical, arranged in large amorphous moss, enclosed by copious lamellate mucilage, 3-5 cell in each colony. Cells 50  $\mu\text{m}$  in diameter. Colonies 110  $\mu\text{m}$  in diameter.

**Locality, collection no. and date:** Ayodhya; FZB; 09.07.2008.

***Sphaerocystis schroeteri* Chodat**

Figure 6

**Description:** Colonies spherical, with group of 4-8-16 cells, arranged towards periphery of hyaline homogenous, gelatinous envelope, cells spherical with a parital chloroplast, pyrenoid indistinct, cell diameter 15-16  $\mu\text{m}$ . Colony diameter 160-170  $\mu\text{m}$ .

**Locality, collection no. and date:** Ayodhya; FZB; 09.07.2008.

***Hydrodictyon reticulatum* (Linnaeus) Lagerheim**

Figure 2

**Description:** Colonies reticulate, meshes pentagonal or hexagonal, cells elongated cylindrical, cells 15-16  $\mu\text{m}$  in diameter.

**Locality, collection no. and date:** Ayodhya; FZB; 09.07.2008.

***Botryococcus braunii* Kuetzing**

Figure 8

**Description:** Colonies free floating and of irregular shape, without a conspicuous gelatinous envelope but completely enclosed by a tough hyaline or dark membrane producing irregular wrinkles, folds or spines.

Colonies often united in compound net like aggregates by means of long delicate mucilage projection from the colonial envelope, cells ovoid to ellipsoid and arranged radially at the periphery of colonies. The individual cells being invested by an inner layer of fatty substance and on other layer of pectin. Chromatophore yellowish-green to grass green, single parietal cells 7  $\mu\text{m}$  broad, 9  $\mu\text{m}$  long, colonies with diameter of 60  $\mu\text{m}$

**Locality, collection no. and date:** Ayodhya; FZB; 09.07.2008.

***Oocystis gigas* Arech**

Figure 4

**Description:** Colonies with 4 cells, envelope more or less rounded, cells broadly ellipsoid with the end broadly rounded and not thickened, chloroplast parietal, discoid. Cells, 48-60  $\mu\text{m}$  broad, 85-110  $\mu\text{m}$  long.

**Locality, collection no. and date:** Matera (Rapti River); BLP 65; 30.06.2008.

***Coelastrum microporum* Naegeli**

Figure 3

**Description:** Colonies more or less spherical and of 8-16-64 cells with small inter-cellular space. Cells spherical to ovoid, enclosed by delicate gelatinous sheath and inter-connected by almost imperceptible gelatinous process. Cells with sheath, 46  $\mu\text{m}$  in diameter, colonies 150  $\mu\text{m}$  in diameter.

**Locality, collection no. and date:** Matera (Rapti River); BLP 65; 30.06.2008.

**DISCUSSION**

The systematic position of *Sphaerocystis schroedri* Chodat and *Gloeocystis vesiculosa* Naegeli is after Fritsch (1935), Prasad and Misra (1992) and Srivastava (2003), as they are placed in order Volvocales - Tetrasporineae - Palmellaceae. Genus *Botryococcus* Kuetzing is placed under order

**Plate 1**

1. *Eudorina elegans* Ehr., x900. 2. *Hydrodictyon reticulatum* (Linn.) Langerheim, x100. 3. *Coelastrum microporum* Naeg., x200. 4. *Oocystis gigas* Arech., x150. 5. *Pandorina cylindricum* Iyenger, x200. 6. *Sphaerocystis schroeteri* Chodat x200. 7. *Gloeocystis vesiculosa* Naeg. x200. 8. *Botryococcus braunii* Kuetz. x100.



FRESH WATER PLANKTONIC ALGAE FROM BALRAMPUR AND FAIZABAD DISTRICTS

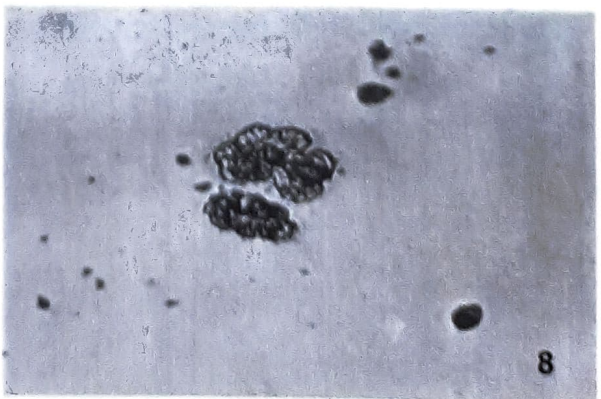
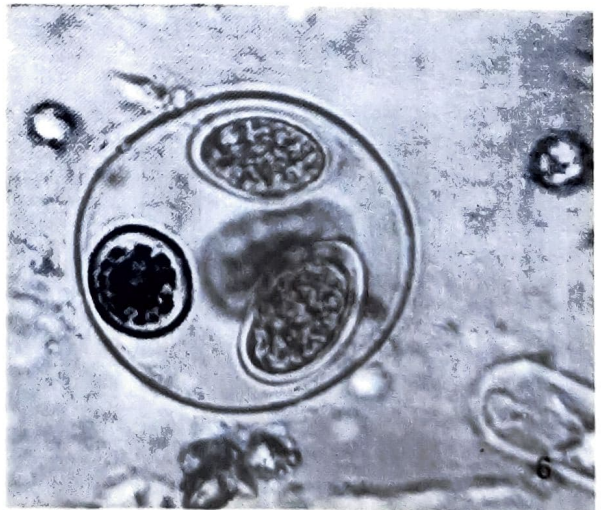
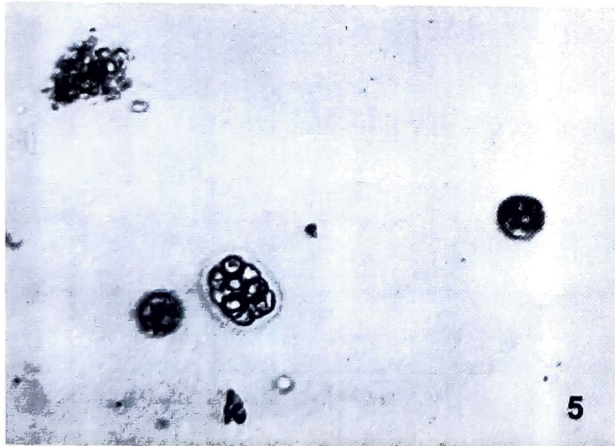
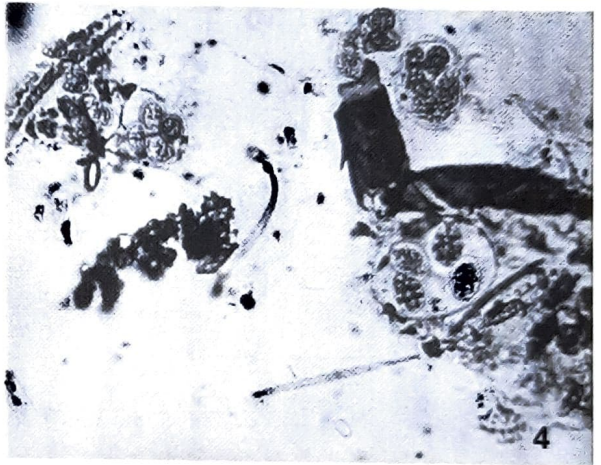
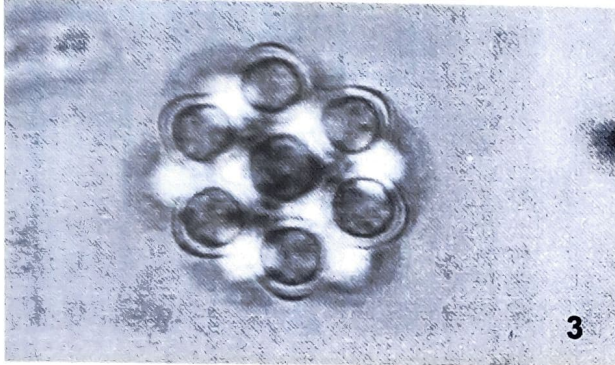
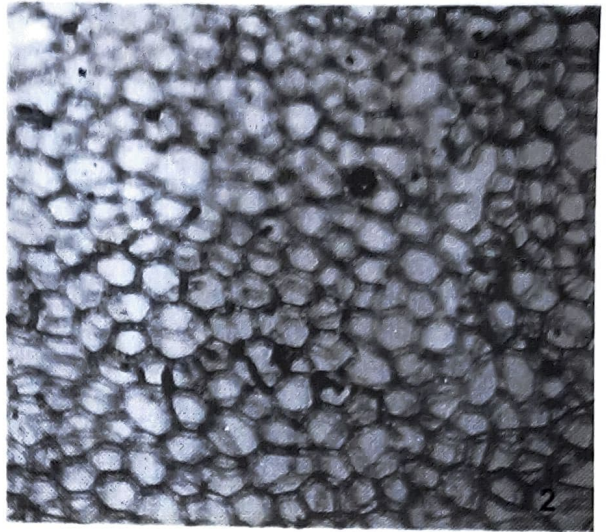
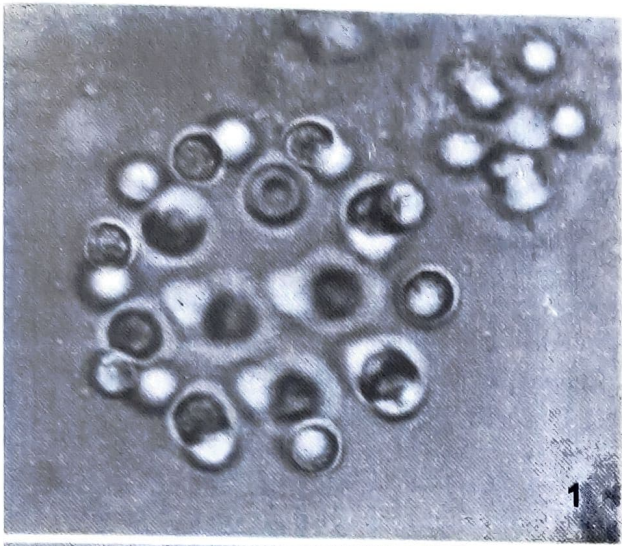


Plate 1



Chlorococcales of class Chlorophyceae after Prescott (1951) Philipose (1967) and Prasad and Misra (1992). The genera occurring in Balrampur District are *Coelastrum* Reinsch, *Oocystis* Naegli in A. Braun, *Pandorina* Bory whereas *Botryococcus* Kuetzing, *Hydrodictyon* Roth, *Sphaerocystis* Chodat *Eudorina* Ehrenberg and *Gloeocystis* Naegeli show rich growth in Faizabad District.

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