

## ON SOME DESMIDS FROM PADDY FIELDS OF BAREILLY DISTRICT, UTTAR PRADESH, INDIA

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The present communication deals with the taxonomic enumeration of twenty three taxa of Desmidiaceae collected from different paddy fields situated in and around Bareilly district. All these taxa are being recorded for the first time from paddy fields of this region.

**Keywords :** Desmids; Taxonomy; Paddy fields; Habitat.

### Introduction

Our knowledge concerning the occurrence and distribution of Desmidiaceae in India is inadequate. Turner (1982), Bharati and Pai (1972), Agarkar and Agarkar (1977), Prasad and Mehrotra (1977), Pandey and Pandey (1983), Prasad and Misra (1985), Pandey and Iqbal (1987), Chaturvedi *et al.* (1987), Pandey *et al.* (1988), studied the desmids flora from different parts of the country. During the course of study on algal flora of paddy fields of this region, a number of taxa of desmids collected and presented in the present communication. Twenty three taxa are being described taxonomically. The numbers in brackets indicate the number of taxa belonging to each genus

*Cosmarium* (13); *Closterium* (5); *Euastrum* (2); *Staurastrum* (2); *Pleurotaenium* (1). Systematic accounts given by West and West (1908); Scott and Prescott (1961); Croasdale (1962, 1965); Hinode (1964) and Nurul and Islam (1970) were consulted for identification of the taxa.

District Bareilly is located in upper Gangetic plains and on its North-West Kumaon hills are situated. It is 79.5°E longitude and 28.5°N latitude at 172.21 m above mean sea level. The district Bareilly lies in North-West of Uttar Pradesh, bordering the tarai region of Himalayas. The authors collected thirty three taxa were made from nine different paddy fields of Bareilly district such

as Richha is situated just 40 kms North to the district head quarter Bareilly, Shergarh 23 kms to North, Nawabganj 40 kms to North-East, Saithal about 26 kms to North, Meer-ganj about 30 kms to West, Bisalpur 38 kms to East-North and Faridpur about 20 kms to East.

### Materials and Methods

From each of the localities collections were made from June to Octo-

ber in the years 1985 and 1986. The algae growing in nature were collected in polythene specimen bottles and preserved in 4% formalin. The plants were studied and sketched both from fresh as well as preserved materials. The type specimens have been deposited at Algal Collections, Mitra Phycology Laboratory, Post-graduate Department of Botany, Bareilly College, Bareilly with Accession Numbers LH 1-17.

### Systematic Enumeration and Description

*Cosmarium bioculatum* Breb. var. *depressum* Schaarsch f. *minor* Schmidle (Figure-7).

Croasdale, 1965, p. 316, pl. 3, fig. 1.

Long cell 11-14  $\mu\text{m}$ ; lat. cell 9.7  $\mu\text{m}$ ; lat. isthmus 5-6  $\mu\text{m}$ .

Habitat : Paddy field, Nawabganj (IH-3).

*C. botrytis* Menegh. var. *gemmi-ferum* (Breb.) Nordst (Figure 23).

Croasdale, 1965, p. 316, pl. 6, fig. 1.

Long cell 73-76  $\mu\text{m}$ ; lat. cell 58-60  $\mu\text{m}$ ; lat. isthmus 16-18  $\mu\text{m}$ .

Habitat : Paddy fields, Shergarh (IH-7).

*C. cyclicum* Lund. (Figure-16).

Prasad and Mehrotra, 1977, p. 346, pl. 1, fig. 20.

Long cell 41-42  $\mu\text{m}$ ; lat. cell 41-43  $\mu\text{m}$ ; isthmus 15-16.5  $\mu\text{m}$ .

Habitat : Paddy fields, Nawabganj (IH-3).

### Figs. 1-27.

Fig. 1 *Cosmarium pseudonitidulum* Nordst var. *validum* West et West; Fig. 2 *C. galeritum* Nordst; Fig. 3 *Euastrum denticulatum* (Kirch.) Gay var. *rectangulare* West et West; Fig. 4 *E. sublobatum* Breb. var. *incrassatum* Scott et Prescott; Fig. 5 *Cosmarium repondnm* Nordst; Figs. 6 & 15 *C. humile* (Gay) Nordst var. *substriatum* (Nordst) Schmidle; Fig. 7 *C. bioculatum* Breb. var. *depressum* Schaarsch f. *minor* Schmidle; Fig. 8 *C. norimbergense* Reinsch f. *depressum* West et West; Fig. 9 *Closterium venus* Kuetz. var. *appollonionis* Croasdale; Fig. 10 *Cl. ralfsii* Breb. var. *gracilius* (Mask.) Krieger; Figs. 11 & 12 *Cl. kuetzingii* Breb. var.

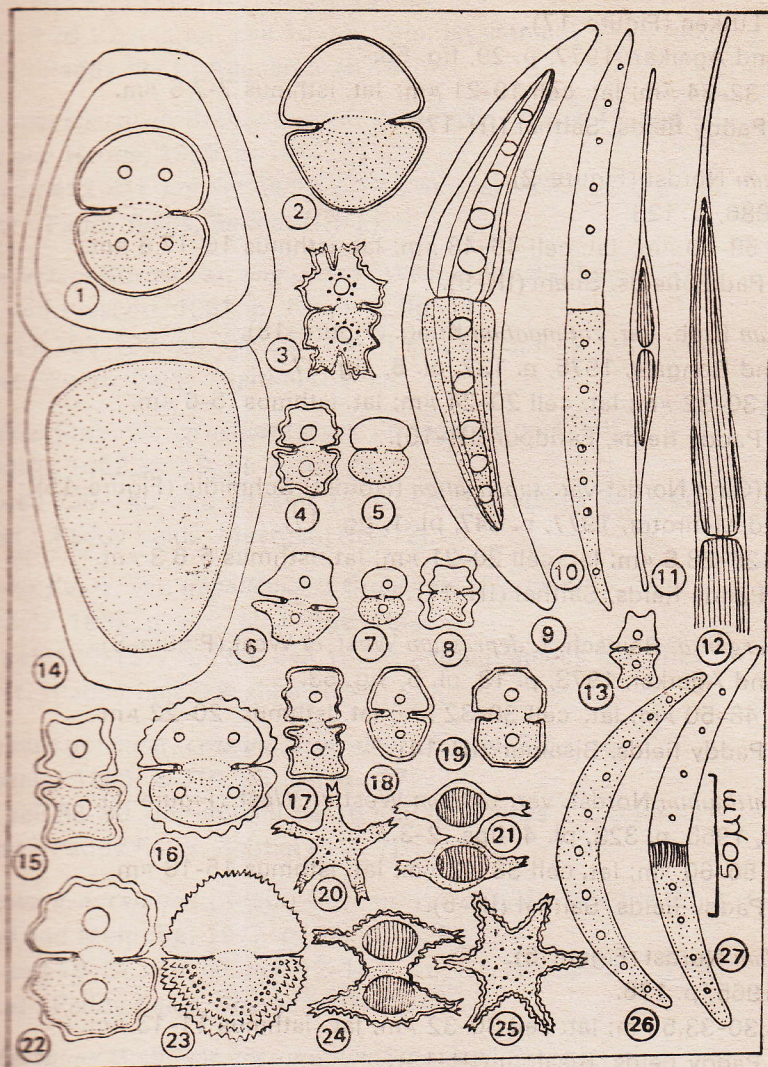


Fig. 1 *Cosmarium* sp.; Fig. 2 *Cosmarium* sp.; Fig. 3 *Cosmarium* sp.; Fig. 4 *Cosmarium* sp.; Fig. 5 *Cosmarium* sp.; Fig. 6 *Cosmarium* sp.; Fig. 7 *Cosmarium* sp.; Fig. 8 *Cosmarium* sp.; Fig. 9 *Cosmarium* sp.; Fig. 10 *Cosmarium* sp.; Fig. 11 *Cosmarium* sp.; Fig. 12 *Cosmarium* sp.; Fig. 13 *Cosmarium tatricum* f. *minor* Messik; Fig. 14 *Pleurotaenium ovatum* Nordst var. *incrimus* Moebius; Fig. 15 *Cosmarium* sp.; Fig. 16 *Cosmarium cyclicum* Lund; Fig. 17 *C. difficile* Lutkem; Fig. 18 *C. granatum* Breb. var. *rotundatum* Krieger; Fig. 19 *C. sexangulare* Lund; Figs. 20 & 21 *Staurastrum hexacerum* (Ehr) Wittr. f. *pentagona* Krieger; Fig. 22 *Cosmarium sexnotatum* Guetw; Fig. 23 *C. botrytis* Menegh. var. *gemmaferum* (Breb.) Nordst; Figs. 24 & 25 *Staurastrum pinnatum* var. *subpinnatum* f. *robustum*; Fig. 26 *Closterium venus* Kuetz. var. *crassum* Crossdale; Fig. 27 *Cl. porrectum* Nordst. var. *angustatum* West et West.

*C. difficle* Lutken (Figure-17).

Agarkar and Agarkar, 1977, p. 29, fig. 50.

Long cell 32-34  $\mu\text{m}$ ; lat. cell 19-21  $\mu\text{m}$ ; lat. isthmus 7-7.5  $\mu\text{m}$ .

Habitat : Paddy fields, Saithal (IH-17)

*C. galeritum* Nordst (Figure-2),

Hegde, 1986, p. 123.

Long cell 58-60  $\mu\text{m}$ ; lat. cell 46-48  $\mu\text{m}$ ; lat. isthmus 16-17.6  $\mu\text{m}$ .

Habitat : Paddy fields, Shahi (IH-9).

*C. granatum* Breb. var. *rotundatum* Krieg. (Figure-18).

Bharati and Bongale, 1975, p. 137, pl. 5, fig. 37.

Long cell 30-32  $\mu\text{m}$ ; lat. cell 20-24  $\mu\text{m}$ ; lat. isthmus 5-6  $\mu\text{m}$ .

Habitat : Paddy fields, Faridpur (IH-15).

*C. humile* (Gay) Nordst var. *substriatum* (Nordst) Schmidle (Figure-15).

Prasad and Mehrotra, 1977, p. 347, pl. 1, fig. 17.

Long cell 26-28.5  $\mu\text{m}$ ; lat. cell 20-21  $\mu\text{m}$ ; lat. isthmus 5-6.3  $\mu\text{m}$ .

Habitat : Paddy fields, Saithal (IH-17).

*C. norimbergensa* Reinsch. f. *depressum* West et West (Figure-8).

Agarkar and Agarkar, 1973, p. 13, pl. 5, fig. 53.

Long cell 48-50  $\mu\text{m}$ ; lat. cell 30-32  $\mu\text{m}$ ; lat. isthmus 20-22  $\mu\text{m}$ .

Habitat : Paddy fields, Bisalpur (IH-14).

*C. pseudonttidulum* Nordst. var. *validum* West et West (Figure-1).

Croasdale, 1965, p. 323, pl. 4, figs. 2-3.

Long cell 56-60  $\mu\text{m}$ ; lat. cell 38-42  $\mu\text{m}$ ; lat. isthmus 15-18  $\mu\text{m}$ .

Habitat : Paddy fields, Saithal (IH-5).

*C. rependum* Nordst (Figure-5).

Bharati, 1965, p. 176.

Long cell 30-33.5  $\mu\text{m}$ ; lat. cell 30-32  $\mu\text{m}$ ; lat. isthmus 11-13  $\mu\text{m}$ .

Habitat : Paddy fields, Bisalpur (IH-13).

*C. sexangular* Lund (Figure-19).

Scott and Prescott, 1961, p. 69, pl. 32, fig. 10.

Long cell 20-22  $\mu\text{m}$ ; lat. cell 15-16  $\mu\text{m}$ ; lat. isthmus 4-5.5  $\mu\text{m}$ .

Habitat : Paddy fields, Meerganj (IH-11).

*C. sexnotatum* Gutw. (Figure-22).

Prasad and Misra, 1985, p. 344, pl. 1, fig. 8.

Long cell 50-52  $\mu\text{m}$ ; lat. cell 45-57  $\mu\text{m}$ ; lat. isthmus 7-9  $\mu\text{m}$ .

Habitat : Paddy fields, Richha (IH-6).

*C. tatricum* f. *minor* Messik (Figure-13).

Agarkar and Agarkar, 1977, p. 31, fig. 16.

Long cell 20-22  $\mu\text{m}$ ; lat. cell 10-13.2  $\mu\text{m}$ ; lat. isthmus 5-5.3  $\mu\text{m}$ .

Habitat : Paddy fields, Atamanda (IH-4).

*Closterium kuetzingii* Breb. var. *vittatum* Nordst (Figure 11 and 12).

Isaacs and Hegde, 1986, p. 104.

Long cell 412-415  $\mu\text{m}$ ; lat. cell 12-13.6  $\mu\text{m}$ ; lat. apices 2-2.6  $\mu\text{m}$ .

Habitat : Paddy fields, Saithal (IH-2).

*Cl. porrectum* Nordst var. *angustatum* West et West (Figure-27).

Scott and Prescott, 1961, p. 13, pl. 2, fig. 14.

Long cell 100-102  $\mu\text{m}$ ; lat. cell 12-13  $\mu\text{m}$ ; lat. apices 4-4.3  $\mu\text{m}$ .

Habitat : Paddy fields, Saithal (IH-1).

*Cl. ralfsii* Breb. var. *gracilius* (Mask.) Krieger (Figure-10).

Croasdale, 1962, p. 19, pl. 2, fig. 24.

Long cell 230-240  $\mu\text{m}$ ; lat. cell 15-17  $\mu\text{m}$ ; lat. apices 3-4.3  $\mu\text{m}$ .

Habitat : Paddy fields, Meerganj (IH-12).

*Cl. venus* Kuetz. var. *appollonionis* Croasdale (Figure-9).

Croasdale, 1965, p. 310, pl. 1, figs. 18-20.

Long cell 100-107  $\mu\text{m}$ ; lat. cell 15-18  $\mu\text{m}$ ; lat. apices 2-4  $\mu\text{m}$ .

Habitat : Paddy fields, Richha (IH-6).

*Cl. venus* Kuetz. var. *crassum* Croasdale (Figure-26).

Croasdale, 1965, p. 310, pl. 1, Fig. 17.

Long cell 88-90  $\mu\text{m}$ ; lat. cell 14-16  $\mu\text{m}$ ; lat. apices 2-2.8  $\mu\text{m}$ .

Habitat : Paddy fields, Saithal (IH-17).

*Euastrum denticulatum* (Kirch.) Gay var. *rectangulare* West et West (Figure-3).

Prasad and Mehrotra, 1977, p. 53, pl. 3, Fig. 74.

Long cell 19-21  $\mu\text{m}$ ; lat. cell 12-14.2  $\mu\text{m}$ ; lat. isthmus 3.6-5  $\mu\text{m}$ .

Habitat : Paddy fields, Shergarh (IH-8).

*E. sublobatum* Breb. var. *incroasatum* Scott and Prescott (Figure-4).

Bharati and Bongale, 1975, p. 137, pl. 5, fig. 38.

Long cell 18-21  $\mu\text{m}$ ; lat. cell 12-14.6  $\mu\text{m}$ ; lat. isthmus 4-6  $\mu\text{m}$ .

Habitat : Paddy fields, Shahi (IH-10).

*Staurastrum hexacerum* (Ehr.) Witter. f. *pentagona* Krieg. (Figures-20 and 21).

Suxena and Venkateswarlu, 1966, p. 53, pl. 5, figs. 44a,b.

Long cell 24-26  $\mu\text{m}$ ; lat. cell 26-29  $\mu\text{m}$ ; lat. isthmus 4-5  $\mu\text{m}$ .

Habitat : Paddy fields, Atamanda (IH-4).

*St. pinnatum* var. *subpinnatum* f. *robustum* Krieg. (Figures 24 and 25).  
Agarkar *et al.*, 1979, p. 221, pl. 2, fig. 28.  
Long cell 35–37  $\mu\text{m}$ ; lat. cell 48–51  $\mu\text{m}$ ; lat. isthmus 11–12.6  $\mu\text{m}$ .  
Habitat : Paddy fields, Faridpur (IH-15).

*Pleurotaenium ovatum* Nordst var. *incrmius* Moebius (Figure-14).  
Bharati and Pai, 1972, p. 29, pl. 2, fig. 12.  
Long cell 210–219  $\mu\text{m}$ ; lat. cell 80–86  $\mu\text{m}$ ; lat. isthmus 4–4.8  $\mu\text{m}$ .  
Habitat : Paddy fields, Bisalpur (IH-13).

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