

Desmids from Banda District, Uttar Pradesh, India

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ABSTRACT

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The present paper incorporates morphotaxonomic enumeration of 30 taxa of desmids collected from Banda District, Bundelkhand Division, Uttar Pradesh during 2010-11. Notes on desmid forms showing slight variations in morphological attributes have also been given. All these taxa are being recorded for the first time from this part of state.

Key-words: Fresh water algae, desmids, planktonic algae, taxonomy, Banda District, Uttar Pradesh, India

INTRODUCTION

Desmids constitute an important group of fresh water algae, still our knowledge regarding their occurrence and distribution in India is inadequate. Iyengar and Vimala Bai (1941), Suxena and Venkateswarlu (1968a, b), Suxena et al. (1973), Agarkar and Agarkar (1973, 1977), Bharati and Bongale (1975), Prasad and Mehrotra (1977a, b), Agarkar et al. (1979), Patel and Kumar (1979), Pandey and Pandey (1983), Prasad and Misra (1984, 1985), Pandey and Habib (1987), Pandey et al. (1988), Habib and Pandey (1990), Habib (1994) and Habib and Chaturvedi (1995) studied desmid flora from different parts of India. The present report enumerates 30 taxa of desmids collected from different localities in Banda District of Bundelkhand Division, Uttar Pradesh.

MATERIAL AND METHOD

Collections were made from several localities in Banda District of Bundelkhand division, Uttar Pradesh during 2010-11 (Text-figure 1). The algae, growing in nature, were collected in bottles and preserved in 4% formalin for morpho-taxonomical study. Identifications of different desmids are mostly based on monographs

or standard floristic accounts by West and West (1904-1912), West et al. (1923), Tiffany and Britton (1952), Croasdale (1956, 1965), Scott and Prescott (1961), Croasdale and Gronblad (1964), Scott et al. (1965), Croasdale and Scott (1976). The numbers in brackets at the end of description of each desmid indicate the code number of the algal specimen.

SYSTEMATIC DESCRIPTION

Family: Desmidiaceae

Genus: *Closterium* Nitzsch 1817

Closterium acerosum (Schrank) Ehr.

Patel & Kumar 1979: 112, pl. 1 fig. 1.

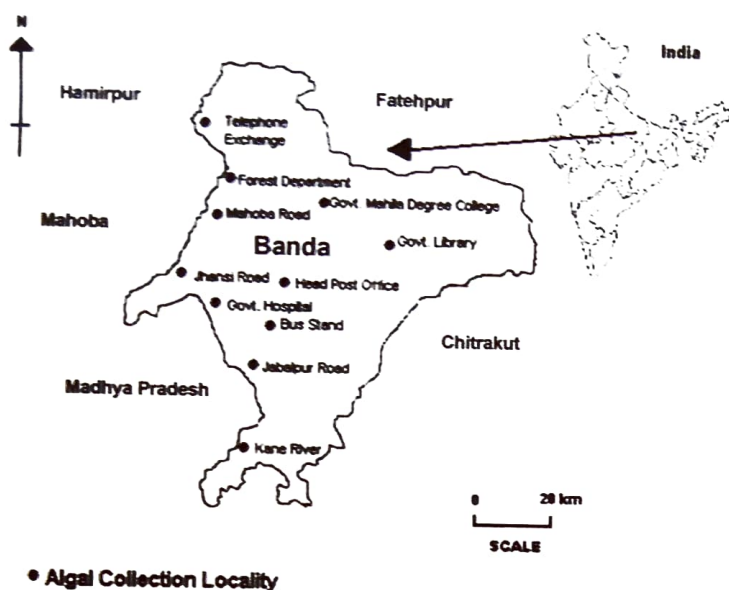
Description: Cells 50-60 µm broad, 580-600 µm long, apices 4-6 µm broad.

Habitat: Planktonic in road-side ditches, Government Mahila Degree College, Banda, October 2010 (BD-21). This is longer desmid than the type.

Closterium diana Ehr.

West & West 1904: 130, pl. 15, figs. 1-6.

Description: Cells 30-40 µm broad, 390-400 µm long.



Text-figure 1. Map of Banda District, Uttar Pradesh, showing localities from where algal specimens were collected.

Habitat: Planktonic in a small pond near Government Mahila Degree College, Banda, July 2010 (BD-43). This is smaller desmid than the type.

***Closterium gracile* Breb.**

Scott & Prescott 1961, pl. 2, fig. 16.

Description: Cells 4-7 μm broad, 115-130 μm long, apices 2-4 μm wide.

Habitat: Planktonic in a small pond near Mahoba Road, August 2010 (BD-49). The present desmid agrees well with type in all essential characters but for having slightly larger cells.

***Closterium lineatum* Ehr.**

Croasdale & Gronblad 1964: 157.

Description: Cells 30-45 μm broad, 450-550 μm long, apices 4-7 μm wide.

Habitat: Planktonic in a small pond near Jhansi Road, September 2010 (BD-59). The present desmid agrees well with the type in all essential characters but for having slightly broader cells.

***Closterium lunula* (Mull.) Nitzsch. var. *massartii* (Wildem.) Krieger**

Scott & Prescott 1961: 12, pl. 1, fig. 29.

Description: Cells 80-90 μm broad, 650-680 μm long, apices 10-12 μm wide.

Habitat: Planktonic in a small pond, near Railway Junction, August 2010 (BD-53). This is a shorter desmid than the type.

***Closterium parvulum* Naeg. var. *cornutum* (Pluyf.) Krieger**

Scott & Prescott 1961: 13, pl. 2, fig. 9.

Description: Cells 20-30 μm broad, 120-125 μm long, apices 4-6 μm wide.

Habitat: Planktonic in road-side ditches near Jabalpur Road, September 2010 (BD-45). The present desmid is narrower than the type specimen.

***Closterium rectimarginatum* Scott & Prescott**

Scott & Prescott 1961, pl. 14, figs. 25-28.

Description: Cells 20-25 μm broad, 180-200 μm long, apices 3-4 μm wide.

Habitat: Planktonic in a small pond near Railway Junction, October 2010 (BD-90). The shape and structure of chloroplasts tally with the type but for slightly larger dimension.

***Closterium turgidum* Ehr.**

Patel & Kumar 1979: 119, pl. 2, fig. 8.

Description: Cells 45-50 μm broad, 780-800 μm long, apices 7-9 μm wide.

Habitat: Planktonic in a small pond near Mahoba Road, April 2010 (BD-102). The present desmid resembles the type but for slightly broader isthmus than that recorded by Patel & Kumar (1979).

***Closterium venus* Kuetz.**

Scott & Prescott 1961: 14, pl. 1, fig. 15.

Description: Cells 8-10 μm broad, 50-80 μm long, apices 2-3 μm wide.

Habitat: Planktonic in road-side ditches near Jhansi Road, February 2010 (BD-29). The present desmid agrees well in all essential characters with the type but for having slightly larger cells.

Genus: *Pleurotaenium* Naegel 1849

***Pleurotaenium ehrenbergii* (Breb.) De Bary var. *undulatum* Schaarschm.**

Suxena et al. 1973: 323, figs. 25-26.

Description: Cells 20-22.5 μm broad, 225-230 μm long, apices 12-14 μm wide.

Habitat: Planktonic in a small pond near Jabalpur Road, December 2010 (BD-101). The present desmid resembles the type but for slightly broader isthmus.

Genus: *Euastrum* Ehrenberg 1832

Euastrum evolutum Nordst. var. *glaziovii* (Boerg.) West & West.

Prasad & Mehrotra 1977a: 344, fig. 4.

Description: Cells 25-28.5 μm broad, 40-44.8 μm long, isthmus 5-6 μm wide.

Habitat: Planktonic in a small pond near Mahoba Road, April 2010 (BD-44). The present desmid resembles the type but for its smaller size.

Genus: *Cosmarium* Corda 1834

Cosmarium bioculatum Breb.

Suxena & Venkateswarlu 1968a: 33, figs. 25a, b.

Description: Cells 16-18 μm broad, 14-16 μm long, isthmus 4-5 μm wide.

Habitat: Planktonic in road-side pools, Forest officer Residence, July 2010 (BD-19). This is a shorter desmid than the type specimen.

Cosmarium botrytis Menegh. var. *gemmiform* (Breb.) Nordst.

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

Description: Cells 55-60 μm broad, 70-75 μm long, isthmus 15-18 μm wide.

Habitat: Planktonic in road-side ditches near Mahoba Road, August 2010 (BD-80). The present desmid is narrower than the type specimen.

Cosmarium conspersum Ralfs var. *scottii* Croasdale & Scott

Croasdale & Scott 1976: 531, pl. 9, fig. 11.

Description: Cells 50-55 μm broad, 60-65 μm long, isthmus 20-22 μm wide.

Habitat: Planktonic in shallow waters on the bank of Kane River, June 2011, (BD-71). The present desmid resembles the one described by Croasdale & Scott (op. cit.) from N. Australia.

Cosmarium difficile Lutkem

Agarkar & Agarkar 1977: 29, fig. 50.

Description: Cells 18-20 μm broad, 30-32 μm long, isthmus 5-8 μm wide.

Habitat: Planktonic in a small pond near Jhansi Road, July 2010, (BD-37). The present desmid is slightly broader than the type specimen.

Cosmarium globosum Bulnh. var. *wollei* West & West

Scott & Prescott 1961: 59, pl. 26, figs. 10-11

Description: Cells 25-28 μm broad, 30-33.5 μm long.

Habitat: Planktonic in a small pond near Head Post office, September 2010 (BD-100). The present desmid resembles the type in all respects.

Cosmarium granatum Breb. var. *ocellatum* West & West

Prasad & Mehrotra 1977b: 57, pl. 1, fig. 24.

Description: Cells 25-28 μm broad, 40-43.8 μm long, isthmus 7-8 μm wide.

Habitat: Planktonic in road-side ditches, near Jhansi Road, June 2010 (BD-94). The present desmid agrees well with the type in all essential characters but for slightly broader cells.

Cosmarium impressulum Elfv.

Prasad & Mehrotra 1977b: 58, pl. 2, fig. 61.

Description: Cells 15-20 μm broad, 20-22 μm long, isthmus 4-5.6 μm wide.

Habitat: Planktonic in a puddle, near Bus stand, June 2011 (BD-98). The present desmid differs from the type species in having longer dimension.

Cosmarium lundellii Delp. var. *corruptum* (Turn.) West & West

Scott & Prescott 1961: 61, pl. 5, fig. 9.

Description: Cells 40-45 μm broad, 50-55 μm long, isthmus 10-13.5 μm wide.

Habitat: Planktonic in a small pond near Mahoba Road, July 2010 (BD-106). The present desmid resembles the one described by Scott and Prescott (op. cit.) from Sumatra, Indonesia.

Cosmarium phaseolus Breb. var. *elevatum* Nordst.

Agarkar & Agarkar 1973: 13, pl. 6, fig. 66.

Description: Cells 20-30 μm broad, 22-25 μm long, isthmus 3-5 μm wide.

Habitat: Planktonic in a puddle near Government Library, July 2010 (BD-7). The present desmid agrees well with the type in all essential characters but for slightly broader cells.

***Cosmarium platydesmium* (Nordst.) Nordst. & Schmidle**

Gronblad & Croasdale 1971: 16, pl. 6, fig. 79.

Description: Cells 40-45 μm broad, 45-50 μm long, isthmus 20-22 μm wide.

Habitat: Planktonic in a small pond near Mahoba Road, November 2010 (BD-53). The shape and structure of chloroplasts tally well with the normal type but for the slightly larger dimension.

***Cosmarium punctulatum* Breb. var. *seriatum* Krieger**

Gronblad & Croasdale 1971: 17, pl. 7, fig. 97.

Description: Cells 18-20 μm broad, 14-17 μm long, isthmus 5-7 μm wide.

Habitat: Planktonic in a small pond near Government Hospital, October 2010 (BD-41). The present desmid resembles the type in all respects.

***Cosmarium pyramidatum* Breb. var. *transitorium* Heimerl.**

Bharati & Bongale 1975: 137, pl. 5, fig. 39.

Description: Cells 38-42 μm broad, 85-95 μm long, isthmus 10-12 μm wide.

Habitat: Planktonic in a small pond near Telephone Exchange, August 2010 (BD-92). The present desmid resembles the type but for its larger size.

***Cosmarium quinarium* Lund.**

Gronblad & Croasdale 1971: 17, fig. 98.

Description: Cells 23-27 μm broad, 30-35 μm long, isthmus 10-15 μm wide.

Habitat: Planktonic in a small pond, near Mahoba Road, July 2010 (BD-95). The present desmid resembles the type in all respects.

***Cosmarium sexonatum* Gutw.**

Prasad & Misra 1985: 344, pl. 1, fig. 8.

Description: Cells 45-48 μm broad, 50-55 μm long, isthmus 6-8 μm wide.

Habitat: Planktonic in a small pond near Mahoba Road, April 2011 (BD-77). This is slightly smaller than the type species.

***Cosmarium subauriculatum* West & West var. *bogoriense* Bern.**

Gronblad & Croasdale 1971: 17, pl. 5, fig. 57.

Description: Cells 45-55 μm broad, 48-55 μm long, isthmus 28-30 μm wide.

Habitat: Planktonic in a small pond near Mahoba Road, October 2010 (BD-83). The present desmid resembles the type but for the length, i.e. cells are longer than the type.

***Cosmarium trachyplerum* Lund.**

Suxena et al. 1973: 329, figs. 54a-c.

Description: Cells 23-25 μm broad, 30-32 μm long, isthmus 4-6 μm wide.

Habitat: Planktonic in a small pond near Jhansi Road, August 2010 (BD-20). The present desmid is longer than the type species.

Genus: *Arthrodesmus* Ehrenberg 1838

***Arthrodesmus convergens* Ehr.**

Scott & Prescott 1961: 74, pl. 34, figs. 8-10.

Description: Cells 20-25 μm broad, 30-35 μm long, isthmus 5-9 μm wide.

Habitat: Planktonic in a small pond near Jhansi Road, February 2011 (BD-88). The present desmid agrees well in all essential characters with the type but for slightly larger cells.

Genus: *Staurastrum* Meyen 1929

***Staurastrum bineanum* Rabenh.**

Prasad & Mehrotra 1977b: 66, pl. 2, fig. 66.

Description: Cells 40-45 μm broad, 20-25 μm long, isthmus 5-9 μm wide.

Habitat: Planktonic in small pond near Telephone Exchange, September 2010 (BD-24). The present desmid resembles the type but for the slightly broader isthmus.

***Staurastrum sebaldi* Reinsch.**

Prasad & Mehrotra 1977b: 72, pl. 3, fig. 79.

Description: Cells 25-30 μm broad, 20-30 μm long, isthmus 3-5 μm wide.

Habitat : Planktonic in a puddle near Jhansi Road, September 2010 (BD-24). The shape and structure of chloroplasts tally with the type but for slightly larger dimension.

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