

COLEOCHAETE BREB. AND BULBOCHAETE AGARDH FROM NORTH-EASTERN UTTAR PRADESH, INDIA

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ABSTRACT

Present communication deals with morpho-taxonomic descriptions of four taxa that includes two genera and four species of class Chlorophyceae. These species are *Coleochaete scutata* Brebisson, *Coleochaete soluta* (Brebisson) Pringsheim, *Bulbochaete nordstedtii* (Wittrock) Him and *Bulbochaete pseudoaerolata* Bock and Bock. One of the species *B. pseudoaerolata* Bock and Bock is a new record for India.

Key words: Fresh water, Chlorophyceae.

INTRODUCTION

Two genera *Coleochaete* Breb. and *Bulbochaete* Agardh exhibit contrasting features as former one has prostrate system while later has well developed erect system. Genus *Coleochaete* Breb. comprises 15 species. It is found in clear fresh water lakes and ponds and is considered key element in evolution of early plant (Cimino *et al.* 2003). On account of broad band of microtubules in cytoskeleton phragmoplast in cell division and presence of glycolate oxidase, this genus is evolutionary closer to land plants (Liverworts and Pteridophyte) Ven Den Hoek *et al.* 1995)

Morphological feature and distribution of genus *Bulbochaete* Agardh in India is extensively described by Gonzalves and Sonad (1955, 1957),

Conzalvales (1981), Sarma and Mukherjee (1985, 1999), Sarma *et al.* (1988), Sarma and Keseri (1991), Kargupta (1996a,b), Kargupta and Sarma (1996), Mahato and Mahato (1999).

These algal species have been collected from Bahraich and Gonda districts of North-Eastern Uttar Pradesh which comes under the foot hill region of Himalayas. The soil is highly fertile and various large perennial water bodies harboring rich growth of algae are located here (Misra *et al.* 2002a,b; Misra and Srivastava 2003a,b, 2004, 2005 and Srivastava and Misra 2007).

MATERIALS AND METHODS

Random sampling methods have been applied for algal collection. Collections were made with the help of net fitted on extension rod. Collected

materials were preserved in 4% formalin. Algae were stained with iodine and mounted in glycerine, detail study was made under Nikon labophot II microscope E-400 with camera attachment.

RESULTS AND DISCUSSION

Morphotaxonomic Description

Genus - *Coleochaete* Brebisson

Key to species

1. Filament more or less radiate 2
2. Filament not united laterally spermocarp, diameter 85 μm *C. soluta* (2)
2. Filament united laterally spermocarp, diameter 185 μm *C. scutata* (1)

1. *Coleochaete scutata* Brebisson (Figs. 1,4,5)

Prescott, 1951, P. 130, Pl. 18, Fig. 10, Tiffany, L.H. and Britton, M.E. 1952, P. 44, Pl. 10, Fig. 74.

Vegetative cell, 20 μm in diameter, 30 μm long, appearing quadrangular, filament laterally united into a parenchymatous disc and radiating from the center. Spermocarp 185 μm in diameter, 215 μm long.

Localities: Ghinghat Ghat, Radha Kund.

Collection No. and Date: BAH. 95 (14.4.99).

2. *Coleochaete soluta* (Brebisson) Pringsheim (Figs. 2,3)

Prescott, G.W. 1951, P. 130, Pl. 18, Fig. 11, Tiffany, L.H. and Britton, M.E. 1952, P. 44, Pl. 10, Fig. 73, Prasad, B.N. and Misra, P.K. 1992, P. 63, Pl. 10, Fig. 1,3.

Vegetative cell 10 μm in diameter, prostrate not laterally united, cell cylindrical, apical cell with bluntly rounded end some cell with characteristic sheathed setae, each cell with parietal chloroplast (Prasad and Misra 1992). Spermocarp corticated, usually globose, with diameter 85 μm .

Locality: Dhanepur Road Pond (10 km from Gonda Bus Station).

Collection No. and Date: GON. 35 (27.11.99).

Genus: *Bulbochaete* Agardh

Key to species

1. Macrandrous homothallic
..... *B. pseudoaerolata*
1. Nannandrous gynandrosporous
..... *B. nordestedtii*

1. *Bulbochaete nordestedtii* (Wittrock) Hirn (Figs. 8,10) Gonzalvales, E.A. 1981, P. 648, Fig. 10.72

Nannandrous, gynandrosporous, vegetative cell 12 μm in diameter, 30 μm long, oogonia depressed globose or subquadrangular globose, 40 μm in diameter, 38 μm long, potent usually situated below an androsporangium, rarely below a terminal seta. Oospore depressed globose, 35 μm in diameter, 32 μm long. Outer spore wall are finely scrobiculate or nearly smooth, Androsporangia bears Androspores.

Localities: Gilaula canal (Bahraich), Dhanepur road pond (12 km North-East from city Gonda).

Collection No. and Date: BAH. 104 (20.4.99), GON-35 (27.11.99).

2. *Bulbochaete pseudoaerolata* Bock and Bock (Figs. 6,7)

Bock, O. and Bock, W. 1954, P. 317, Pl. 22, Fig. 9, Pl. 24, Fig. 24a and b. Gonzalvales, E.A. 1981, P. 594, Fig. 10.10.

Macrandrous, homothallic, vegetative cell 15-18 μm in diameter, 20 μm long, oogonia ellipsoid, potent 25-28 μm in diameter, 40 μm long, oospore 20 μm in diameter, 30 μm long, spore wall longitudinally costae, margin of costae concave, apices of concavity united by definite pseudocostae so that the furrow between costae have subglobose, more or less pronounced scrobiculation, anthridia not seen.

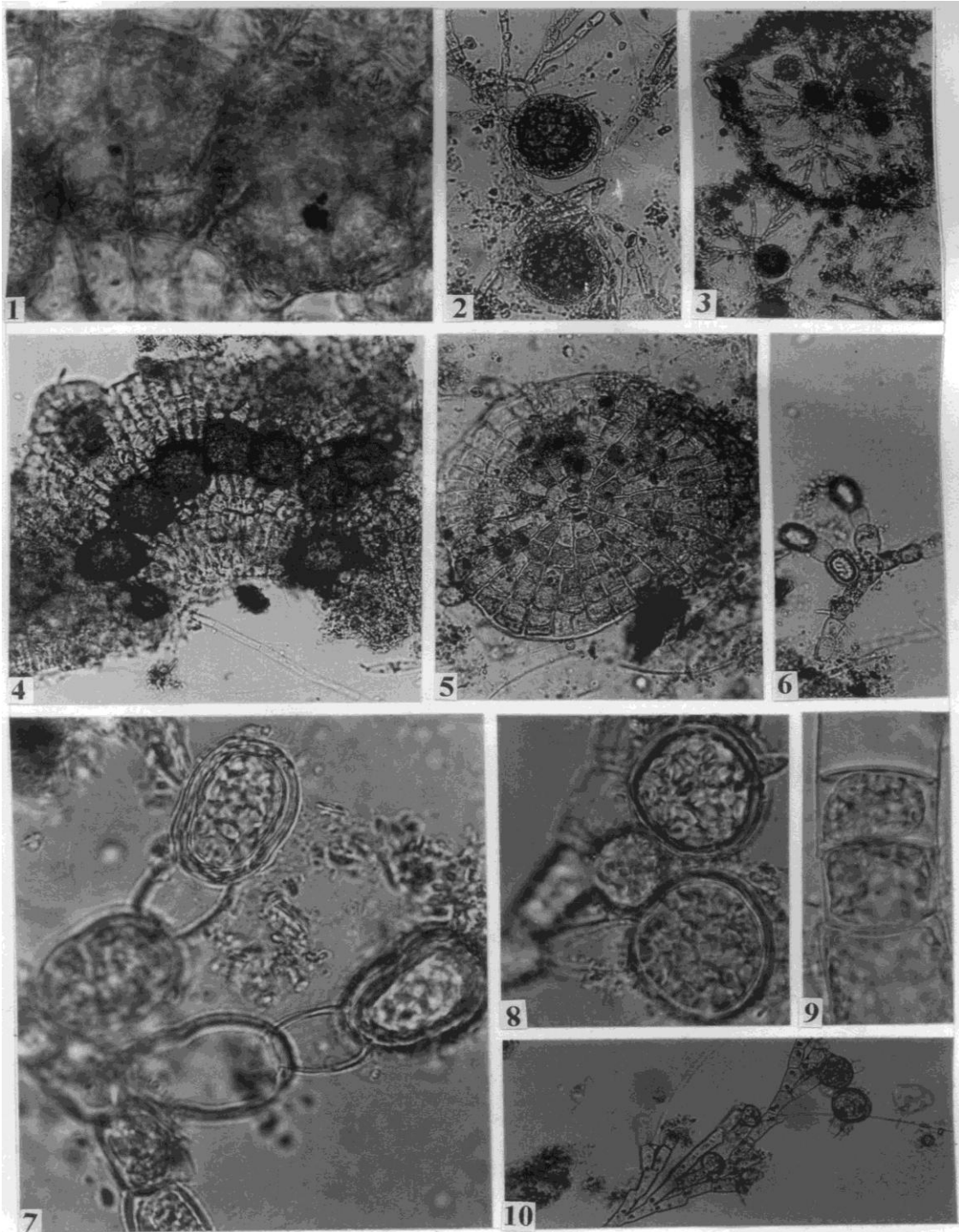


Fig. 1. *Coleochaete scutata* Brebisson x 250, Fig. 2. *C. soluta* (Breb.) Pringhseim x 200, Fig. 3. *C. soluta* (Breb.) Pringhseim x 50, Figs. 4 and 5. *C. scutata* Breb. x 50, Fig. 6. *Bulbochaele pseudoaerolata* Bock and Bock x 250, Figs. 7 and 9. *B. pseudoaerolata* Bock and Bock x 600, Fig. 8. *B. nordestedtii* (Wittrock) Him x 600, Fig. 10. *B. nordestedtii* (Witt.) Him x 200).

Localities: Ghingha Ghat (Bahraich), Gauda Ghat Gonda.

Collection No. and Date: BAH.- 95, (14.4.99), GON. 62 (27.12.99).

Remark: It is being reported from India for first time.

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