



BOTANY

SOME CHAETOPHORALES FROM HARTALA LAKE, MAHARASHTRA

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Abstract

Present communication deals with ten taxa of different genera of Chaetophorales as *Stigeoclonium* Kuetz., *Chaetophora* Schrank, *Aphanochaete* A. Braun, *Protococcus* Agardh, *Chaetopeltis* Berthold, *Coleochaete* Brebisson, and *Chaetosphaeridium* Klebahn. Out of which *Stigeoclonium farcatum* Berth. *S. variable* (Naegeli) Islam, *Chaetophora attenuata* Hazen, *Chaetopeltis orbicularis* Berthold f. *minor* Moebius are for the first time reported from Maharashtra while *Stigeoclonium subsecundum* (Kuetz.) Kuetz. var. *tenue* Nordst. emend. for the first time recorded from India.

Keywords: Chaetophorales, Hartala lake

Introduction

Hartala lake is one of the oldest lake located on a small tributary of river Tapi at latitude 21° 00'20.56" north and longitudes 76° 01'31.31" east. The lake has a capacity of 140 millions of cubic feet water and commands an area of 584 acres. Present investigation includes 10 taxa of Chaetophorales which belongs to 7 genera, 8 species and 1 forma. Out of which *Stigeoclonium farcatum* Berth., *S. variable* (Naegeli) Islam, *Chaetophora attenuata* Hazen, *Chaetopeltis orbicularis* Berthold f. *minor* Moebius are for the first time reported from Maharashtra while *Stigeoclonium subsecundum* (Kuetz.) Kuetz. var. *tenue* Nordst. emend. for the first time recorded from India. Chaetophorales of Maharashtra were known through the work of Kamet (1968, 1974), Kamat and Harankhedkar (1976), Nandan (1993), Pingle (2007), Sanap et al. (2008).

Materials and Methods

The collections were made early in the morning between 7.00 to 10.00 am during 2005- 2007 from Hartala lake (M.S.). All the collected samples were studied fresh as far as possible and later preserved in 4 % formaline for further studies. Camera lucida drawings were made with the help of mirror type of camera lucida. Microphotographs are taken by Nikon digital camera. The identification of taxa is based on the monograph Smith (1950) and relevant research paper publications. The material is deposited in the Department of Botany, Dhanaji Nana Mahavidyalaya, Faizpur, district Jalgaon, (M.S.).

Systematic enumeration

Order- Chaetophorales

Family- Chaetophoraceae

Genus *Stigeoclonium* Kuetz. 1843

***Stigeoclonium farcatum* Berth** (Pl. 2, Figs. 1-4, Pl. 3, Fig. 1) (Sankaran, 2005.)

Plant epiphytic, bright green in colour, young plants having both prostrate and erect systems; prostrate system cushion like; cells barrel shaped, compact, nearly isodiametric forming pseudoparenchymatous base; erect branches arises from every cell of the prostrate system; filaments are unbranched; cells of erect filaments triangular cylindrical or slightly inflated, branch tips blunt or tapering; chloroplast single; cells of prostrate system 5.4-9.2 µm long, 3.1-5.3 µm broad; cells of vertical system 5.4-12.3 µm broad.

(Coll. Nos. 181, 234, 245, 320).

***Stigeoclonium subsecundum* (Kuetz.) Kuetz. var. *tenue* Nordst. emend.** (Pl. 1, Figs. 3, 4)

(Fatima, 1976)

Plant epiphytic, bright green in colour, prostrate system giving rise vertical branches, vertical branches somewhat dichotomously branched, branches ends into longer apical cell, chloroplast of erect cells with 2 rarely 3 pyrenoids, cells 15.4-50 µm long, 3.1-9.4 µm broad. (Coll. No. 288).

***Stigeoclonium variable* (Naegeli) Islam** (Pl. 1, Figs. 5, 6, Pl. 3, Fig. 2) (Sankaran, 2005)

Plants tufted, bright green, small; branching sparse; prostrate system giving rise to vertical branches which are somewhat dichotomous in nature at the basal region; the prostrate system tends to show a pseudoparenchymatous condition; vertical branches short and robust as well as long and slender, branching opposite or whorled, all

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branches taper at the apex; basal system of short isodimetric and nearly spherical cells 4.7-9.4 μm broad; cylindrical cells of vertical filaments 3.1-10.9 μm broad, 2-9 times as long as broad; chloroplast filling the cell. (Coll. No. 227).

Genus *Chaetophora* Schrank, 1789

Chaetophora attenuata Hazen (Pl. 1, Fig. 1, 2) (Gajaria and Patel, 1987)

Plants attached, bright green, forming firm gelatinous globules, 2-10 mm in diameter; erect filaments developing from palmelloid prostrate base with rhizoids; filaments dichotomously branched radiating from a common centre, branches loose, evenly developed from main axis; cells in the main axis 9.4 μm in diameter, 14.1-25.0 μm long; cells in the branches 3.1-7.8 μm in diameter and 6.3-31.3 μm long; apical cell pointed. (Coll. No. 294).

Genus *Aphanochaete* A. Braun, 1851

Aphanochaete polychaete (Hansg.) Fritsch (Pl. 2, Fig. 5) (Fatima, 1973)

Filaments creeping, epiphytic on other plants; cells globose or barrel-shaped, 9.7-12.3 μm in diameter, 7.7-10.8 μm long; setae 1-3, arising from the dorsal wall of each cell, 11.5-58.4 μm long. (Coll. Nos. 122, 181, 217).

Aphanochaete repens A. Braun (Pl. 2, Fig. 6, Pl. 3, Fig. 3) (Patel and Gajaria, 1982) Filaments creeping unbranched, epiphytic on other algae or aquatic plants; cells irregularly inflated or subcylindrical 5.4-8.5 μm broad, 6.2-12.3 μm long, setae long, 3.1 μm broad at the base. (Coll. No. 227).

Family-Protococcaceae

Genus *Protococcus* Agardh, 1824

Protococcus viridis Ag. (Pl. 2, Fig. 10) (Smith, 1950)

Unicellular or in definite clusters; cells globose or angular form mutual compression, 6.2 μm in diameter. (Coll. No. 279).

Order-Tetrasporales

Family-Tetrasporaceae

Genus *Chaetopeltis* Berthold, 1878

Chaetopeltis orbicularis Berthold f. *minor* Moebius (Pl. 2, Fig. 7) (Prescott, 1962)

Epiphytic; thallus descoid, thallus has a thin gelatinous sheath bearing fine delicate mucilaginous bristles on upper surface; the cells are uninucleate, 3.8-26.3 μm in diameter, 3.8-30.0 μm long having a single irregularly thickened parietal laminate chloroplast with a single pyrenoid. (Coll. No. 245).

Family-Coleochaetaceae

Genus *Coleochaete* Brebisson, 1844

Coleochaete irregularis Pringsheim (Pl. 2, Fig. 8, Pl. 3, Fig. 4) (Prescott, 1962)

Thallus of irregularly branched, spreading filaments, tending to show slight lateral coalescence; cells cylindrical, isodiametric or barrel shaped or angular 6.5-17.5 μm broad, 1-2 times as long as broad; oogonia rare terminal, flask shaped, 35.0 μm broad, 37.5 μm long; setae vary few, laterally projecting. (Coll. No. 245).

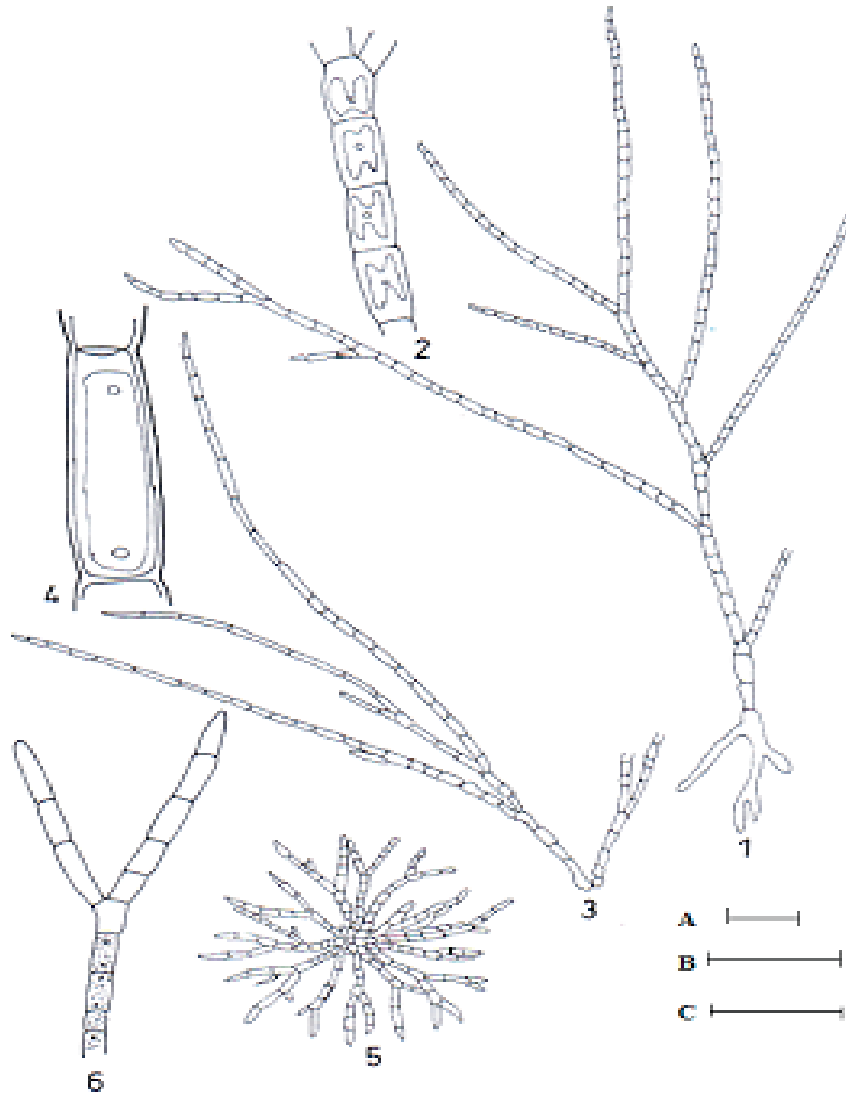
Genus *Chaetosphaeridium* Klebahn, 1892

Chaetosphaeridium globosum (Nordst.) Kleb. (Pl. 2, Fig. 9) (Smith, 1950)

Epiphytic, a cell spherical to ovoid, each cell with single long seta at its distal end, unicellular often grows in dense cluster without gelatinous sheath (envelope) around the cluster; cells 6.5-8.5 μm long, 8.5-10.8 μm broad; the seta has an axial cytoplasmic filament whose basal portion is ensheathed by a gelatinous material, 24.6-61.5 long; the cells are nucleate with lamellate parietal chloroplast with single pyrenoid. (Coll. No. 217).

Plate - 1

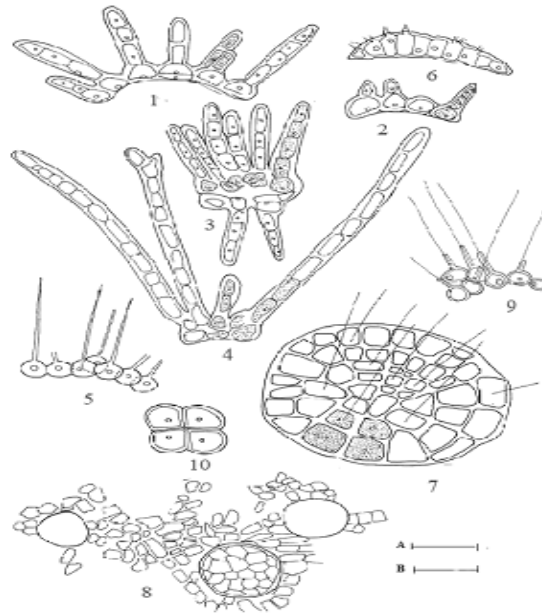
Fig. 1 and 2 *Chaetophora attenuata* Hazen
Fig.3 and 4 *Stigeoclonium subsecundum* (Kuetz.) Kuetz. var. *tenue* Nordst. emend.
Fig.5 and 6 *Stigeoclonium variabile* (Naegeli) Islam



Scale bar A	:	50 μ m
Scale bar B	:	25 μ m
Scale bar C	:	10 μ m
Scale A	:	Fig. 1,3,5
Scale B	:	Fig. 2,6
Scale C	:	Fig. 4

Plate - 2

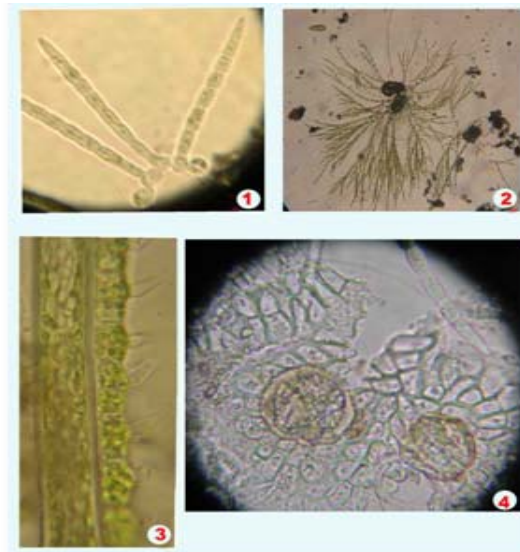
- Fig. 1-4. *Stigeoclonium farctum* Berth.
 Fig.5. *Aphanochaete polychaete* (Hansg.) Fritsch
 Fig.6. *Aphanochaete repens* A.Braun
 Fig.7. *Chaetopeltis orbicularis* Berthold f. *minor* Moebius
 Fig.8. *Coleochaete irregularis* Pringsheim
 Fig.9. *Chaetosphaeridium globosum* (Nordst.) Kleb.
 Fig.10. *Protococcus viridis* Ag.



Scale bar A : 25 μ m
 Scale bar B : 10 μ m
 Scale A : Fig. 1 - 9
 Scale B : Fig. 10

Plate - 3

- Fig.1 *Stigeoclonium farctum* Berth.
 Fig.2 *Stigeoclonium variable* (Naegeli) Islam
 Fig.3 *Aphanochaete repens* A.Braun
 Fig.4 *Coleochaete irregularis* Pringsheim



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