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Studies on taxonomy of some coccoid Cyanophytes from Hartala lake, Maharashtra.

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ABSTRACT

While exploring algal flora of Hartala lake (21^0 00'20.56" north latitude and 76^0 01' 31.31" east longitude), (M.S.). It includes genera *Microcystis* Kuetz., *Chroococcus* Naeg., *Gloeocapsa* Kuetz., *Aphanocapsa* Naeg., *Aphanothece* Naeg. and *Synechocystis* Sauv. In winter and summer season these algae shows luxuriant growth.

Keywords: *taxonomy, Gloeocapsa, Aphanocapsa*, *Aphanothece.*

INTRODUCTION

Hartala lake is oldest lake located on a small tributary of river Tapi at latitude 21^0 00'20.56" north and longitudes 76^0 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 15 taxa of coccoid Cyanophytes which belongs to 13 species 1 form and 1 variety.

MATERIAL METHODS

The collections were made early in the morning between 7.00 to 10.00 am during 2004 to 2006 from Hartala lake (21^0 00'20.56" north latitude and 76^0 01' 31.31" east longitude), (M.S.). All the collected samples were studied fresh as far as possible and later preserved in 4 % formalin for further studies. Camera Lucida drawings were made with the help of mirror type of camera Lucida. The identification of taxa is based on the monograph Desikachary (1959) and relevant research paper publications. The material is deposited in the Department of Botany, Dhanaji Nana Mahavidyalaya, Faizpur, district Jalgaon, (M.S.).

SYSTEMATIC ENEUMERATION
CLASS –MYXOPHYCEAE
Order –Chroococcales
Family – Chroococcaceae
Genus *Microcystis* Kuetz., 1846

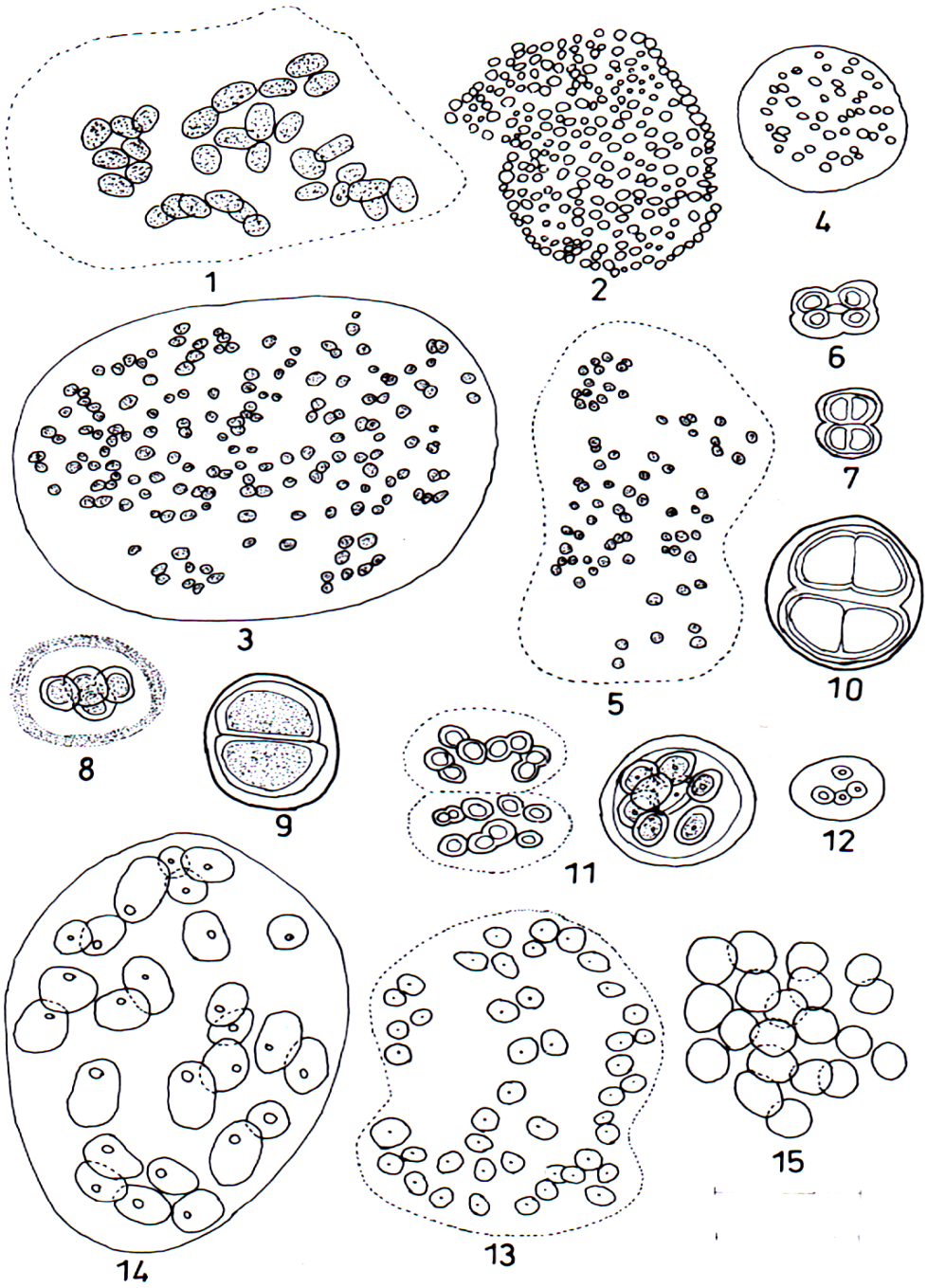

Figure 1: *Microcystis elabens* (Breb.) Kuetz. 2. *Microcystis flos-aquae* (Wittr.) Kirchner 3. *Microcystis lamelliformis* Holsinger 4. *Microcystis pulverea* (Wood) Forti 5. *Microcystis stagnalis* Lemm. 6. *Chroococcus minor* (Kuetz.) Naeg. 7. *Chroococcus minutus* (Kuetz.) Naeg. 8. *Chroococcus montanus* Hansgirg f. *banaresensis* (Rao, C.B.) 9. *Chroococcus tenax* (Kirchn.) Hieron. 10. *Chroococcus turgidus* (Kuetz.) Naeg. 11. *Gloeocapsa punctata* Naeg. 12. *Gloeocapsa stegophila* (Itzigs.) Rabenh. var. *crassa* Rao, C.B. 13. *Aphanocapsa elachista* W. *et* G.S. West 14. *Aphanothece conferta* Richter 15. *Synechocystis aquatilis* Sauv

Scale bar A : 25 µm
Scale bar B : 10 µm
Scale A : Fig. 1,2,3,4,5,6,7,8,9,10,11, 12, 15
Scale B : Fig. 13, 14

***Microcystis elabens* (Breb.) Kuetz. Fig. 1**
T.V. Desikachary, *Cyanophyta*, p.97, Pl. 18, Fig. 12, Pl. 20, Figs. 6,7,1959.
Colony flat and expanding, blue-green, about 50.8µm in diameter; cells oblong, 3.8-5.4µm broad, 7.7 – 8.5µm long, with gas vacuoles. (Coll. No.227).

Microcystis flos-aquae (Wittr.) Kirchner **Fig. 2**
T.V. Desikachary, *Cyanophyta*, p.94, Pl. 17, Fig. 11, Pl. 18, Fig. 11, 1959.
Colonies roughly spherical or subspherical some what elongate, colonical sheath indistinct, colony 38.5 µm in diameter, 52.3 µm long; cells spherical to oblong, 3.1-5.7 µm in diameter, with gas vacuoles. (Coll. Nos.198, 217).

Microcystis lamelliformis Holsinger**Fig. 3**
T.V. Desikachary, *Cyanophyta*, p.91, Pl. 19, Figs. 1,2,1959.
Colony free floating, spherical, lamellate, mucilage envelope thick and wide, colony 56.9 µm in diameter and 73.8 µm long; cells spherical, 2.3 – 3.8 µm in diameter, small and more or less rounded, cells aggregated. (Coll. No.278).

Microcystis pulverea (Wood) Forti**Fig. 4**
T.V. Desikachary, *Cyanophyta*, p.96, 1959.
Colonies rounded to ellipsoidal, often many together, colonial mucilage distinct, colonies 23.8-46.1 µm broad, 26.1-61.5 µm long; cells rounded or spherical, closely arranged, 2.3-3.2 µm in diameter, without gas vacuoles. (Coll. Nos.278, 292).

Microcystis stagnalis Lemm.**Fig. 5**
T.V. Desikachary, *Cyanophyta*, p.95-96, 1959.
Colonies very long, sometimes expanding and clathrate, colonial mucilage indistinct, colonies 26.9-41.5 µm broad, 26.1-74.6 µm long; cells arranged very closely, spherical, 1.5-3.1 µm in diameter, pale blue-green, without vacuole. (Coll. Nos. 220,259,295).
Genus ***Chroococcus*** Naeg., 1849

Chroococcus minor (Kuetz.) Naeg. **Fig. 6**
T.V. Desikachary, *Cyanophyta,,* p.105, Pl. 24, Fig. 1, 1959.
Plant thallus mucilaginous, blue-green; cells spherical, 2.2-3.8 µm in diameter, singly or in pairs or in groups of 4, sheath hyaline, thin. (Coll. Nos. 176,259,295).

Chroococcus minutus (Kuetz.) Naeg. **Fig. 7**
T.V. Desikachary, *Cyanophyta*, pp.103, 105, Pl. 24, Fig. 4, Pl. 26, Figs. 4,15, 1959.
Cells spherical or oblong, in groups of 2-4, blue green, with sheath 6.6-14.5 µm in diameter, without sheath 3.8-8.4 µm in diameter, 4 celled colonies 12.2-22.3 µm long; 8.4-19.2 µm in broad; sheath not lamellated, colourless. (Coll Nos. 176,225,263).

Chroococcus montanus Hansgirg f. ***banaresensis*** Rao, C.B. **Fig. 8**
B.N. Prasad and R.K. Mehrotra, *Geophytology,* **8** (2): 151, 1979; Neelima Mahajan and A. D. Mahajan, *Perspectives in Phycology (Prof. M.O.P. Iyengar centenary celebration volume)*, p. 157, Fig. 1, 1990.
Thallus gelatinous, thick, cells spherical, in groups of 4, 6.9 µm in diameter, slightly elongated colonies, colonies with sheath 16.9 µm long, 16.1 µm in diameter, sheath hyaline. (Coll. No. 265).

Chroococcus tenax (Kirchn.) Hieron. **Fig. 9**
T.V. Desikachary, *Cyanophyta*, p.103, Pl. 26, Figs. 716, 1959.
Cells mostly in groups of 2-4, blue green, without sheath 12.3-16.5 µm in diameter, with sheath 17.6-19.2 µm in diameter, sheath colourless, very thick, distinctly lamellated, 3-4 lamellae. (Coll. Nos.187, 271).

Chroococcus turgidus (Kuetz.) Naeg. **Fig. 10**
T.V. Desikachary, *Cyanophyta*, pp.101-102, Pl. 26, Fig. 6, 1959.
Cells spherical or ellipsoidal, single or in groups of 2-4, blue green, without sheath 8.4-12.3 µm in diameter, with sheath 9.2-13.1 µm in diameter, sheath colourless, distinctly lamellated. (Coll. Nos.231, 288).
Genus ***Gloeocapsa*** Kuetz., 1843

Gloeocapsa punctata Naeg. **Fig. 11**
T.V. Desikachary, *Cyanophyta*, p.115, Pl.23, Fig.2, 1959.
Thallus gelatinous, light blue green, cells spherical or oblong, without sheath 3.2-4.6 µm in diameter, with sheath 3.8-5.4 µm in diameter, sheath hyaline, unlamillated, cells 2-8 in a group, 8 celled colony 24.6-26.6 µm in diameter. (Coll. Nos.177, 239).
In the present taxon the diameter of the cells without sheath is more.

Gloeocapsa stegophila (Itzigs.) Rabenh. var. ***crassa*** Rao, C.B.**Fig. 12**
T.V. Desikachary, *Cyanophyta*, p.119, Pl. 25, Fig. 3, 1959.
Thallus yellowish, cells spherical or subspherical, without sheath 3.8-4.6 µm in diameter, colonies 2-4 celled with sheath 14.6 µm in diameter. (Coll. No. 235).

Genus ***Aphanocapsa*** Naeg., 1849

Aphanocapsa elachista W. *et* G.S. West**Fig. 13**
T.V. Desikachary, *Cyanophyta*, pp.132-133, Pl. 21, Fig. 5, 1959.
Colony small, ellipsoidal, 20.6 µm in diameter, mucilage thin; cells loosly arranged or in pairs, spherical, 1.9-2.5 µm in diameter. (Coll. No. 180).
Genus ***Aphanothece*** Naeg., 1849

Aphanothece conferta Richter**Fig. 14**
T.V.Desikachary, *Cyanophyta*, p.140, 1959.
Thallus gelatinous, dirty green, cells single or in twos, oblong or spherical, 2.2-3.4 µm in diameter, 1 ½ to 2 times as long as broad, pale blue green. (Coll. No. 182).
Genus ***Synechocystis*** Sauv., 1892

Synechocystis aquatilis Sauv**. Fig. 15**
T.V. Desikachary, *Cyanophyta*, p.144, Pl.25, Fig.9, 1959.
Cells spherical, single, in twos or in groups, 2.3-4.7 µm in diameter, pale blue-green. (Coll Nos.182, 297).
In the present material cells are smaller.

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Conflicts of interest: The authors stated that no conflicts of interest.

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