

## FRESH WATER BLUE GREEN ALGAE FROM SATPUDA RANGES IN UTTAR MAHARASHTRA, INDIA

NEELIMA MAHAJAN AND A. D. MAHAJAN

*Department of Botany,  
Science College, Bhusawal-425201, District Jalgaon (M.S.), India.*

### Abstract

During a survey of algal flora of Satpuda ranges in Uttar Maharashtra, a total of 80 algal taxa, including 60 Cyanophyceae, 15 Chlorophyceae and 5 Bacillariophyceae were collected from three different localities viz., Haripura, Pal and Langada Amba. Of the 12 non-heterocystous forms of blue green algae 3 taxa viz., *Phormidium gyralis* Prasad et Mehrotra, *Lyngbya ceylanica* Wille var. *major* Pandey et Mitra and *Lyngbya cryptovaginata* Schkorbatow var. *major* Prasad et al., are being described for the first time from Maharashtra.

### Introduction

A survey of the literature on the Cyanophycean flora of different habitats of Maharashtra reveals that the blue green algae occurring in the fresh water habitat in the Satpuda ranges have remained unexposed. Reports are available on the blue green algae collected from fresh water and hot water springs of Maharashtra (Kamat, 1963; Thomas & Gonzalves, 1965; Barhate & Tarar, 1983, 1985; Mahajan, 1986). The present paper deals with the systematic account of 12 non-heterocystous blue green algae. All the taxa are being reported for the first time from this locality, while 3 taxa *Phormidium gyralis* Prasad et Mehrotra; *Lyngbya ceylanica* Wille var. *major* Pandey et Mitra and *L. Cryptovaginata* var. *major* Prasad et al., are being described for the first time from Maharashtra.

### Materials and Methods

Three localities, Haripura, Pal and Langada Amba in Satpuda ranges were selected for the present study. Haripura is an Adivasi village situated at the base of Satpuda ranges. Pal is a hill station situated in the third row of Satpuda ranges, while Langada Amba is deeply situated in the fifth row of Satpuda ranges. Collections were made during rainy season from each locality during 1984-1985. The plants were studied both fresh as well as preserved material in 4% formalin. Identification was made following the monograph of Desikachary (1959). Recent publications available were also consulted. The number in bracket at the end of description of each taxa indicate the numbers given to the bottles deposited in the Department of Botany, Science College, Bhusawal.

## SYSTEMATIC ACCOUNT

1. *Chroococcus turgidus* (Kuetz.) Naeg. (Fig. 1A).

Cells spherical, single or in groups, often 2-4, without sheath 8-11  $\mu\text{m}$  in diameter; sheath colourless, non-lamellated. Habitat: Free floating, Haripura (Hp. 6).

2. *Gloeocapsa punctata* Naeg. (Fig. 1B).

Thallus mucilaginous, blue green; cells spherical or oblong, without sheath 0.8-2  $\mu\text{m}$  in diameter, with sheath 3.5-6  $\mu\text{m}$  in diameter; sheath thick unlamellated; cells 2-8 in group. Habitat: Floating with other algae, Pal.

3. *Gloeotheca membranacea* (Rabenh.) Born. et Flah. (Fig. 1C).

Plant mass expanded, mucilaginous, yellow green; cells without sheath 4.6-5.5  $\mu\text{m}$  broad, 8-10.5  $\mu\text{m}$  long, with sheath 7-10  $\mu\text{m}$  broad, 11-15  $\mu\text{m}$  long; sheath distinct, colourless. Habitat: Along with *Oscillatoria*, Langada Amba (La. 3).

4. *Aphanocapsa grevillei* (Hass.) Rabenh. (Fig. 1D).

Plant mass mucilaginous; cells spherical, 3.5-5.5  $\mu\text{m}$  in diameter, closely arranged; individual sheath indistinct. Habitat: Planktonic in a lake, Pal. (P1. 3.).

5. *Aphanothece pallida* (Kuetz.) Rabenh. (Fig. 1E).

Thallus slimy, soft, brownish; cells oblong, ellipsoidal or cylindrical, 5-7  $\mu\text{m}$  broad, 7-10.5  $\mu\text{m}$  long; sheath distinct, lamellated, brown. Habitat: Free floating in a ditch, Haripura (HP. 5).

6. *Merismopedia elegans* A. Br. (Fig. 1F).

Colonies small, 16-64 celled; cells spherical or oblong, closely arranged, 5-6.5  $\mu\text{m}$  broad, 6.5-9.5  $\mu\text{m}$  long; bluegreen. Habitat: Planktonic with other algae, Langda Amba (La. 3).

7. *Oscillatoria anne* Van Goor (Fig. 1G).

Trichomes straight, dirty blue-green, 7.5-8.5  $\mu\text{m}$  broad; cells 2-3  $\mu\text{m}$  long, constricted at cross walls; end cell rounded; slightly bent; calyptra absent. Habitat: Attached on submerged leaves, Pal (Pl. 2).

8. *Oscillatoria curviceps* Co Ag. ex Gomont (Fig. 1H).

Thallus light blue green, filaments straight; trichomes straight, non-constricted, slightly attenuated and bent at end 12-16  $\mu\text{m}$  broad; cells shorter, 2.5-4.5  $\mu\text{m}$  long; end cell flattened, rounded, without calyptra. Habitat: Free floating, Longada Amba (La. 4).

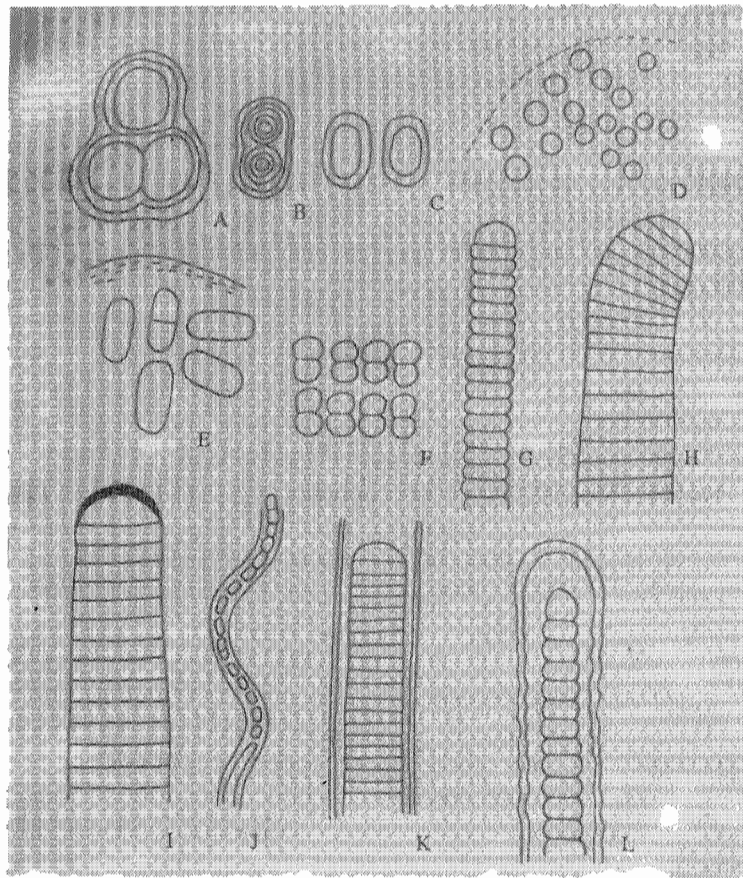


Fig. 1A. *Chroococcus turgidus* (Kuetz.) Naeg. B. *Gloeocapsa punctata* Naeg. C. *Gloeotheca membranacea* (Rabenh.) Born. et Flah. D. *Aphanocapsa grevillei* (Hass.) Rabenh. E. *Aphanothece pallida* (Kuetz.) Rabenh. F. *Merismopedia elegans* A. Br. G. *Oscillatoria anne* van Goor. H. *O. curviceps* C. Ag. ex. Gomont. I. *O. limosa* C. Ag. ex Gomont. J. *Phormidium gyralis* Prasad et Mehrotra. K. *Lyngbya ceylanica* var. *major* Pandey et Mitra. L. *L. cryptovaginata* var. *major* Prasad et al.

Scale bar = 10  $\mu\text{m}$

9. *Oscillatoria limosa* C. Ag. ex Gomont (Fig. 1I).

Thallus dark blue green; trichome straight, blue green non-constricted, 14-18  $\mu\text{m}$  broad; cells 3-6  $\mu\text{m}$  long; cross walls granulated; end cell flattened, rounded with thickened membrane. Habitat: In standing water, Pal. (P1. 4).

10. *Phormidium gyralis* Prasad et Mehrotra (Fig. 1J).

Thallus dull blue green; filaments regularly spirally coiled 2-5.5  $\mu\text{m}$  broad; sheath thin, colourless, trichomes 1.8-2  $\mu\text{m}$  broad, non-constricted at cross walls; cells 1.5-2.5  $\mu\text{m}$  long; end cell rounded, without calyptra. Habitat: Planktonic with other algae, Haripura (HP. 2).

The present taxa may be compared with *Phormidium spiralis* Vasishta (1962) in having spirally coiled trichomes but differs from it in having narrower dimensions of trichomes and filaments and longer cells. It agrees in all respects with *P. gyralis* Prasad et Mehrotra (1977).

11. *Lyngbya ceylanica* Wille var. *major* Pandey et Mitra (Fig. 1K).

Thallus reddish brown; filaments straight, 14-20  $\mu\text{m}$  broad; trichomes 11-14  $\mu\text{m}$  broad, non-constricted at cross walls; cells smaller, rectangular, 1-3  $\mu\text{m}$  long; end cell rounded, without calyptra. Habitat: On moist soil near water fall, Langda Amba (La. 3).

The variety differs from *L. ceylanica* Wille in having larger dimensions of trichomes and filaments and shorter cells. It agrees well with var. *major* described by Pandey et. Mitra (1965).

12. *Lyngbya cryptovaginata* Schkorbatous var. *major* Prasad et al. (Fig. 1L).

Filaments single or in groups, free floating, straight or bent 9-12  $\mu\text{m}$  broad; sheath thin, colourless, distinct; trichomes constricted, 8-11  $\mu\text{m}$  broad, slightly swollen at apex; cells granular, 3.5- 8  $\mu\text{m}$  long; end cell rounded, calyptra absent. Habitat: On moist soil, Langada Amba (La. 3).

The present variety differs from the type in having closed and dilated sheath at the apex with larger dimensions of trichomes and filaments. It resembles in all respects with *L. cryptovaginata* Schkorbatow var. *major* described by Prasad et al. (1978).

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