

Additions to the Algal-flora of Allahabad VII. Chlorophyta, Chlorococcales

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The paper deals with the taxonomic considerations of 30 taxa of order Chlorococcales belonging to 12 genera described for the first time from two localities viz., McPherson and Baghla lakes of Allahabad district of Uttar Pradesh (India). The following genera of the order Chlorococcales were represented (the numbers in parentheses indicate the number of taxa of each genus) *Pediastrum* (3), *Sorastrum* (1), *Tetraedron* (2), *Oocystis* (2), *Nephrocytium* (1), *Botryococcus* (1), *Ankistrodesmus* (1), *Closteriopsis* (1), *Selensastrum* (1), *Crucigenia* (1), *Coelastrum* (1) and *Scenedesmus* (15).

Key Words: Chlorophyta, Chlorococcales, Freshwater, Planktonic, Taxonomy, Lakes

Introduction

Considering the vastness of the country, our knowledge concerning the occurrence and distribution of the order Chlorococcales in India is inadequate. Bruehl and Biswas (1926), Gonzalves and Joshi (1946), Biswas (1949), Mitra (1951), Gupta (1956), Kamat (1962), Bharati (1964), Philipose (1967), Hortobagyi (1969), Patel (1970), Patel and Isabella (1977), Chadha and Pandey (1977, 1978) and Kant and Anand (1978) studied the Chlorococcales from different parts of the country. While surveying the freshwater algae of Allahabad and adjoining areas, the

authors came across thirty taxa of order Chlorococcales

Systematic Enumeration and Description

1. *Pediastrum boryanum* (Turp.) Menegh.
(Philipose 1967, p 118-119, figure 40a.)
Colonies 8-celled, cells 8.2-14.1 μ m in diam.
Habitat: Planktonic with other algae.
McPherson Lake (ML) and Baghla Lake (BL).

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2. *P. tetras* (Ehr.) Ralfs

(Philipose 1967, p 128-129, figure 45a-c)

Colonies 8-celled. 20-30 μm in diam. cells 8-15 μm in diam.

Habitat: Planktonic with other algae. ML and BL.

3. *P. tetras* (Ehr.) Ralfs var. *tetraodon* (Corda) Hansg.

(Philipose 1967, p. 129, figure 45d, e, g)

Colonies 8-celled, cells 8-18 μm in diam.

Habitat: Planktonic with other algae. BL.

4. *Sorastrum spinulosum* Naeg.

(Prescott 1951, p 228, pl. 53, figure 1

Philipose 1967, p 132-133, figure 47)

Colonies 16-32 celled, cells 14-16 μm broad, 6-10 μm long, spines 4-6.5 μm long.

Habitat: Planktonic with other algae. ML and BL.

5. *Tetraedron limneticum* Borge

(Tiffany & Britton 1952, p 119, pl. 34, fig. 347)

(Philipose 1967, p 158, figure 73a-d)

Cells (with processes) 45-65 μm in diam. processes 8-12 μm diameter at the base.

Habitat: Planktonic with other algae. ML and BL.

6. *T. trigonum* (Naeg.) Hansg

(Tiffany & Britton 1952, p 118, pl. 34, figure 340)

(Philipose 1967, p 142, figure 58i)

Cells (without spines) 20-35 μm in diam. and 6-14 μm thick, spine 8-9 μm long.

Habitat: Planktonic with other algae. ML and BL.

7. *Oocystis elliptica* W. West

(Philipose 1967, p. 186, figure 100)

Colonies 8-celled, cells 11-13 μm broad and 20-25 (-30) μm long.

Habitat: Planktonic with other algae. ML and BL.

8. *O. solitaria* Wittr.

(Philipose 1967, p 180, figure 89a-b)

Colonies 4-celled, cells 7-10 μm broad and 20-28 μm long.

Habitat: Planktonic with other algae. ML and BL.

9. *Nephrocystium obesum* West & West

(Prescott 1951, p. 249, pl. 54, figure 20,

Philipose 1967, p. 191, figure 106)

Cells 23-26 μm broad, 25-40 μm long! colonies 46-65 μm broad and 60-80 μm long.

Habitat: Planktonic with other algae. ML and BL.

10. *Botryococcus braunii* Kuetz.

(Philipose 1967, p. 195, figure 108a-b)

Cells 3.5-5.5 μm broad and 6-11 μm long. Single colonies 7.5-8 μm and compound ones up to 15-17 μm in diam.

Habitat: Planktonic and free-floating. BL.

11. *Ankistrodesmus falcatus* (Corda) Ralfs

(Tiffany and Britton 1952, p 114, pl. 31, figure 307, Philipose 1967, p. 211, figure 121a-e)

Cells 1.5-2 μm broad and 30-75 μm long.

Habitat: Planktonic with other algae. ML and BL.

12. *Closteriopsis longissima* (Lemm.)
Lemm. var. *tropica* (West & West)
West & West
(Philipose 1967, p. 216–217, figure 124)
Cells 6–7 μm broad and 225–320 μm long.
Habitat: Planktonic with other algae. BL.
13. *Selenastrum gracile* Reinsch
(Philipose 1967, p. 219, figure 128)
Cells 3–5 μm broad and 13–22 μm long.
Habitat: Planktonic with other algae. ML
and BL.
14. *Coelastrum microporum* Naeg.
(Tiffany and Britton 1952, p. 113
pl. 31, figure 312)
(Philipose 1967, p. 228 figure 135a-b)
Colonies 16-celled, 30–75 μm in diam cells
6–25 μm in diam.
Habitat: Planktonic with other algae. BL.
15. *Crucigenia quadrata* Morren
(Philipose 1967, p. 241, figure 152)
Colonies 4-celled, cells 3–4 μm in diam.
Habitat: Planktonic with other algae. ML
and BL.
16. *Scenedesmus obliquus* (Turp.) Kuetz.
(Tiffany and Britton 1952, p. 123 pl. 35,
figure 369)
(Philipose 1967, p. 248, figure 159)
Colonies 4-celled, cells 5–6.8 μm broad
and 10–18 μm long.
Habitat: Planktonic with other algae. ML
and BL.
17. *S. bijugatus* (Turp.) Kuetz. var.
bicellularis (Chodat) philipose
(Philipose 1967, p. 253, figure 164d,n,o.)
Colonies 4-celled, cells 2.6–5.3 μm broad
and 6–11 μm long.
Habitat: Planktonic with other algae. ML
and BL.
18. *S. bijugatus* (Turp.) Kuetz. var.
graevenitzii (Bernard) Philipose
(Philipose 1967, p. 254, figure 164a-b)
Colonic 8-celled, cells 8–10 μm broad and
24–26 μm long.
Habitat: {Planktonic with other algae. BL.
The present alga differs from the type in
cell-shape and arrangement of cells.
19. *S. prismaticus* Bruehl and Biswas
(Philipose, 1967, p. 259, figure 168a-c)
Colonies 4-celled, cells 2.8–5 μm broad
and 11–13 μm long.
Habitat: Planktonic with other algae. ML
and BL.
20. *S. brasiliensis* Bohlin
(Tiffany and Britton 1952, p. 123,
pl. 35, figure 363; Philipose,
1967, p. 261, figure 170)
Colonies 4-celled, cells 3–5.5 μm broad
and 11.20 μm long.
Habitat : Planktonic with other algae. ML
and BL.
21. *S. armatus* (Chodat) Smith var.
asymmetricus Philipose
(Philipose 1967, p. 265, figure 171i)
Colonies 8-celled, cells 3–4.2 μm broad
and 10–11.6 μm long. Short spines 2–3 μm
long, Long spines 5–5.8 μm long.
Habitat: Planktonic with other algae. ML
and BL.

22. *S. armatus* (Chodat) Smith var. *bicaudatus* (Guglielmetti) Chodat (Philipose 1967, p. 262, figure 171d,f,m,)

Colonies 4-celled, cells 2.5–3.5 μm broad, 8–10 μm long. Long spines 3–5 μm long.

Habitat: Planktonic with other algae. BL.

23. *S. carinatus* (Lemm.) Chodat (Tiffany and Britton 1952, p. 122, plate 35, figure 362)

(Philipose 1967, p. 266, figure 172)

Colonies 8-celled, cells 4–5 μm broad 8–12 μm long, spines of terminal cells 10–14.5 μm long.

Habitat: Planktonic with other algae. BL.

The present form differs from the type in the cell-shape and in the cells being in lateral contact throughout the length not only in the median region.

24. *S. denticulatus* Lagerheim var. *linearis* Hansg.

(Philipose 1967, p. 268, figure 176a-c)

Colonies 4-celled, cells 4 μm broad and 10–12 μm long.

Habitat: Planktonic with other algae. ML and BL.

25. *S. denticulatus* Lagerheim var. *australis* Playfair

(Philipose 1967, p. 271, figure 176 f,h)

Colonies 4-celled, cells 3.7–4.5 μm broad, 9–13.5 μm long, Teeth 1.8 μm long.

Habitat: Planktonic with other algae. BL.

26. *S. longus* Meyen var. *naegelii* (Breb.) Smith

(Philipose 1967, p. 274, figure 180b,c,g,i,)

Colonies 2–4 celled, cells 4.5–7 μm broad and 11.5–15 μm long.

Habitat: Planktonic with other algae. ML and BL.

27. *S. opoliensis* Richter var. *mononensis* Chodat

(Philipose 1967, p. 276, figure 181c-d)

Colonies 4-celled, cells 5–6 μm broad and 13–15 μm long, spines of terminal cells 11–16 μm long.

Habitat: Planktonic with other algae. ML.

28. *S. abundans* (Kirchn.) Chodat var. *brevicauda* Smith

(Philipose 1967, p. 278-279, figure 184e)

Colonies 4-celled, cells 1.5–2.5 μm broad, 4.5–6.5 μm long and spines 3–5 μm long.

Habitat : Planktonic with other algae. ML and BL.

29. *S. quadricauda* (Turp.) Bréb.

(Philipose 1967 p.283–284, figure 187a)

Colonies 4-celled, cells 3–5.5 μm broad and 9–16.5 μm long. Spines 6.5–12 μm long.

Habitat: Planktonic with other algae. ML and BL.

30. *S. quadricauda* (Turp.) Bréb. var. *eualternans* Proschk

(Philipose, 1967, p. 285–286, figure 187c).

Colonies 4-celled, cells 4.5–5 μm broad and 11.5–12 μm long. Spines 7–9 μm long,

Habitat: Planktonic with other algae. ML and BL.

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