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A SYSTEMATIC ACCOUNT OF CHLOROCOCCALES FROM MEERUT (U.P.) INDIA

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ABSTRACT

The present communication deals with morphotaxonomic enumeration of thirty two taxa of Chlorococcalean algae collected from different localities situated in and around Meerut district of Uttar Pradesh state during 2023-2024. All these taxa are being recorded for the first time from this part of state of India.

Key words:, Algae, Chlorophyceae Chlorococcales, Morphotaxonomy.

INTRODUCTION

Considering the vastness of the country, our knowledge concerning the occurrence and distribution of chlorococcales in India is meagre. Philipose (1967); Patel (1970); Pandey and Gangwar (1986); Prasad *et al.* (1986); Jose and Patel (1992); Habib (2010 & 2013); Chaturvedi and Habib (1996) studied the Chlorococcales from different parts of the country. During the course of present study on algal flora of Meerut, a number of taxa of Chlorococcales have been collected and are presented in this communication.

MATERIALS AND METHODS

Algal collections were made during 2023-2024 from freshwater bodies in and around Meerut district of Uttar Pradesh. The algae growing in nature were collected in polythene bottles and preserved in 4% formalin. The algal materials were studied from fresh as well as preserved materials. Identifications are mostly based on monographic or floristic account by Tiffany and Britton (1962); Prescott (1962) and Philipose (1967). The numbers in brackets at the end of description of each taxon indicate the code number of the materials deposited at Department of Botany, Vidhya Parth Degree College, Faridpur, Bareilly0 (U.P.), where the taxa were actually studied

Volume-12, Issue-1 January-February-2025 www.ijesrr.org E-ISSN 2348-6457 P-ISSN 2349-1817

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SYSTEMATIC DESCRIPTIONS OF THE TAXA

Chlorococcum infusinum (Schrank) Meneghini

Philipose, 1967, p. 73, fig. 1.

Cells spherical, solitary or in irregular colonies Chloroplast a hollows spherical with a notch on one side with a single pyrenoid. Diameter of the cells 14-20 μ m.

HABITAT : Planktonic in road side ditches near Telephone Exchange, Shastri Nagar, November 2023 (MRT-74).

Trebouxia humicola (Treboux) West et Fritsch

Philipose, 1967; p. 75, fig. 4.

Cells spherical, cellwall thin, chloroplast completely filling the cell and with wrinkled margin, pyrenoid one, central nucleus one cells $25-30 \mu m$ in diameter.

HABITAT: Planktonic in a small pond near Forest Department, Civil Lines, August 2023 (MRT-87). The present taxon is slightly smaller than the type.

Characium nasutum Rabenhorst

Philipose, 1967, p. 83, fig. 6. Cells 16-18 μm broad and 25-30 μm long **HABITAT**: Planktonic in small pond near Sohrab Gate, July 2023 (MRT-77).

Korshikoviella gracilipes (Lambert) Silva

Philipose, 1967, p. 88, fig. 16. Cells 8-10 μm broad, 20-25 μm long **HABITAT**: Planktonic with other algae near Mandi Samiti ,April 2023 (MRT-16).

Diacanthos belenophorus Korsh

Korshikov, 1951, p. 263, fig. 217. Cells 3-6 µm broad and 28-30 µm long; Spines 3-6 µm long **HABITAT**: Planktonic in a roadside pools, near Avas Vikas Colony, Shastri Nagar, Garh Road, March 2023 (MRT-26).

Schroederia indica Philipose

Philipose 1967, p. 90, figs. 19a-e. Cells 3-6 µm broad and 30-33 µm long; spines 6.5 µm long **HABITAT**: Planktonic in a pond near District Hospital, Ahmad Road Ghanta Ghar, July 2023 (MRT-85). The present taxon is slightly larger than the type.

Volume-12, Issue-1 January-February-2025 www.ijesrr.org

Gloenkinia radiata Chodat

Philipose, 1967, p. 102, fig. 27. Cells spherical, cell membrane covered with numerous long bristle, chloroplast cup-shaped with a single pyrenoid. Cells 12-15 μ m broad. Bristles 20-25 μ m long. **HABITAT**: Planktonic in a small pond near Court Road, Civil Lines, October 2023 (MRT-92).

Pediastrum duplex Meyen

Philipose, 1967, p. 121-122, fig. 43a,b. Cells 12-14 μ m broad, 13-16 μ m long. **HABITAT**: Planktonic in a small pond near GIC, Khoonipul, April 2023 (MRT-96). This is a shorter form than the type.

P. ovatum (Ehr.) A. Braun

Philipose, 1967, p. 115-116, fig. 37. Cells 12-15 µm broad and 15-18 µm long. **HABITAT**: Planktonic in a small pond near Vikas Bhawan, May 2023 (MRT-99). The present taxon is slightly broader from the type.

P. simplex Meyen var. duodenarium (Bailey) Rebenhorst

Philipose, 1967, p. 115, fig. 36 g.

Cells 9-10 µm broad and 20-23 µm long

HABITAT: Planktonic in a small pond near PWD colony, January 2023 (MRT-97). The present taxon agrees well with the type but for the slightly broader cells.

P. tetras (Ehr.) Ralfs

Philipose, 1967, p. 128, fig. 45a-c. Cells 10-12 μ m broad and 15-18 μ m long. **HABITAT**: Planktonic in a small pond near ADM colony, October 2023 (MRT-5). This is a shorter form than the type.

Sorastrum spinulosum Naegeli

Philipose, 1967, p. 132-133, fig. 47. Cells 8-10 μ m in diameter, 20-22 μ m long, spines, 2-4 μ m long. **HABITAT**: Planktonic with other algae near Meerut College, June 2023 (MRT-13). The present taxon agrees well with the type but for the slightly broader cells. Volume-12, Issue-1 January-February-2025 www.ijesrr.org

Hydrodictyon reticulatum (Linn.) Lagerheim

Philipose, 1967, p. 134, fig. 48. aCells 170-180 μm broad and 1-2 μm long; nets up to 20 cm long **HABITAT**: Planktonic in a small pond near Telephone Exchange, Civil Lines, December 2023 (MRT-15).

Tetraedron muticum (A. Braun) Hansgirg

Philipose, 1967, p. 137, fig. 51. Cells 7.5-21.5 µm in diameter HABITAT: Planktonic in a small pond near DM Office Road, Civil Lines, November 2023 (MRT-27).

T. regulare Kuetz Philipose, 1967, p. 145, figs. 60a-d,f. Cells 28-30 μm in diameter. Spines 4-6 μm long HABITAT: Planktonic in a small pond near LIC Office, September 2023 (MRT-37).

T. gracile (Reinsch.) Hansgirg

Philipose, 1967, p. 154, figs. 69a-c. Cells with processes, 30-35 μm in diameter, without processes 15-2 μm in diameter. **HABITAT**: Planktonic in a small pond near, Shastri Nagar November 2023 (MRT-49).

Polydriopsis spinulosa (Schm.) Schmidle

Philipose, 1967, p. 164, fig. 78c.

Cells solitary, tenagenal to cruciate with 5 angles, sides of cells usually concave cells without spines 20-25 μ m in diameter. Spines 20-32 μ m long. Chloroplast parital with a single pyrenoid.

HABITAT: Planktonic in a small pond near, Shastri Nagar, December 2023 (MRT-63).

Oocystis pusila Hansgirg var. minor Skuja

(Philipose, 1967, p. 184, fig. 97.) Cells much larger than in the type, measuring 8-10 μm broad and 15-18 μm long. **HABITAT**: Planktonic in a pond near Forest Department, Civil Lines, September 2023 (MRT-83).

O. gigas Aros Philipose, 1967, p. 183, fig. 94a.

Volume-12, Issue-1 January-February-2025 www.ijesrr.org E-ISSN 2348-6457 P-ISSN 2349-1817

Email- editor@ijesrr.org

Cells 30-35 μ m broad and 40-46 μ m long.

HABITAT: Planktonic in a pond near Vikas Bhawan, Civil Lines, March 2023 (MRT-32). This is a larger form than the type.

Glaucocystis cingulata Bohlin

Philipose, 1967, p. 188, fig. 102a. Cells 15-20 µm broad and 25-45 µm long HABITAT: Planktonic in a small pond near LIC Office, Civil Lines, February 2023 (MRT-72).

Botryococcus protuberana west & west

Philipose, 1967, p. 1197, fig. 109. Cells 8.5-12.5 µm broad and 12.5-18.5µm long, Colonies 48-85µm in diameter. **HABITAT**: Planktonic in a small pond near Forest Department, October 2023 (MRT-100).

Nephrocytium lunatum W. West

Philipose, 1967, p. 189, fig. 103.
Cells 4-6 μm broad and 17-19 μm long.
HABITAT: Planktonic in road-side ditches near Bus Stand, Sohrab Gate, March 2023 (MRT-98). The present alga is slightly broader from the type.

N. agardhianum Naegeli

Philipose, 1967, p. 189, fig. 104. Cells 5-8 µm broad and 26-28 µm long. **HABITAT**: Planktonic in a small pond, near Avas Vikas Colony, Shastri Nagar, December 2023 (MRT-66).

N. obesum West et West

Philipose, 1967, p. 191, fig. 106. Cells 20-27 μm broad and 30-35 μm long. **HABITAT**: Planktonic in a small pond Civil Lines, September 2023 (MRT-17).

Dimorphococcus lunatus A. Braun

Philipose, 1967, p. 205, figs. 115a,b.
Cells 8-12 μm broad and 12-18 μm long.
HABITAT: Planktonic in a small pond near, Ghanta Ghar, December 2023 (MRT-81).

Selenastrum bibraianum Reinsch

Philipose, 1967, p. 219, fig. 127.

Volume-12, Issue-1 January-February-2025 www.ijesrr.org E-ISSN 2348-6457 P-ISSN 2349-1817

Email- editor@ijesrr.org

Cells 5-8 µm broad and 30-32 µm long

Habitat: Planktonic in a small pond near Telephone Exchange, , November 2023 (MRT-100).

Coelastrum microporum Naegeli

Philipose, 1967, p. 228, fig. 135.
Cells 4-6 μm in diameter
HABITAT: Planktonic in a small pond near Meerut College, September 2023 (MRT-53).
The present taxon is slightly broader than the type.

Crucigenia quadrata Morren

Philipose, 1967, p. 241, fig. 152.
Cells 3-5 μm in diameter.
HABITAT: Planktonic in a small pond near, Civil Lines, March 2023 (MRT-98).

Tetrastrum elegans Playf

Patel *et al.*1980, p.85.
Cells 6-8 μm in diameter, Seta 15-18μm long.
HABITAT: Planktonic in a small pond near Meerut College, September 2023 (MRT-53).
The present alga is slightly larger than the type.

Scenedesmus armatus (Chodat) Smith var. *bicaudatus* (Guglielmetti) Chodat Philipose, 1967, p. 262, figs. 171 d,f,m. Cells 2-6 μm broad and 8-10 μm long, spines 5-8 μm long HABITAT: Planktonic in a road side ditches near, Chhota Mawana, December 2023 (MRT-4).

S. dimorphus (Turp.) Kuetz f. tortus smith

Philipose, 1967, p. 219, figs. 160a-c.
7Cells 2-5 μm broad and 25-28 μm long
HABITAT: Planktonic in a road-side ditches near, Sohrab Gate, January 2023 (MRT-69).
The present taxon resembles the type but for smaller size.

S. quadricauda (Turpin) Breb.

Philipose, 1967, p. 251, fig. 160d. Cells 3-5 µm broad and 26-30 µm long. HABITAT: Planktonic in a small pond near Forest Department, Civil Lines, July 2023 (MRT-39).

DISCUSSION

The author surveyed the area around Meerut district in U.P. and during that time the author collected 32 Chlorococcalean taxa belonging to order Chlorococcales. The present paper deals with the Chlorococcalean flora only which were collected in the year 2023-24. In the present study the author found the dimensions and measurement of the taxa slightly larger or in some cases smaller than the typed shown in the standard monographs and other floristic accounts of authors. The author feels it is due to the edaphic condition and conducive environment prevailing there in face the main purpose of the western part of the country and to make an Atlas of it through the publication of several research papers.

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