

Diversity of Ulotrichales from the Satpura Ranges of Nandurbar District, Maharashtra, India

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Received : 08.03.2022; **Revised** : 15.03.2022; **Accepted** : 08.04.2022

ABSTRACT

In the present research work, a total of 12 species belonging to 4 genera of Ulotrichales (Chlorophyceae) were reported from the Satpura ranges of Nandurbar District. The reported genera were : *Ulothrix*, *Uronema*, *Lagerheim* and *Microspora*. The genus *Ulothrix* was found dominant during the study.

Figures : 02

References : 19

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KEY WORDS : Chlorophyceae, Satpura ranges, Ulotrichales.

Introduction

Ulotrichales is one of the order of Chlorophyceae. The members of Ulotrichales are usually unbranched filamentous simple algae mainly found in freshwater but some taxa are found in sub-aerial condition, marine and brackish water. Mostly they are free-floating but few are epiphytic¹⁴. In India, less attention has been paid to the work of Ulotrichales as compared to the other green algae⁹. The work on Ulotrichales in India was known^{3,6,11,13-16,18}.

The present study was carried out from the Satpura ranges of the Nandurbar district. The Satpura is a large belt of mountainous land extending east-west like a wall on the north side of the Tapi River. Satpura Mountain is made by seven major folds about an average height of 600 meters above sea level and slopes steeply down north towards the Narmada River⁷.

Materials and Methods

The collection was done from all possible aquatic habitats of the Satpura ranges of the Nandurbar district. The collected algal samples were preserved in Formalin-Aceto-Alcohol (FAA) Solution and glycerin for further laboratory work⁹. The photomicrographs were taken with the help of a microscope mounted Amscope MU1000 series camera. The identification of algal taxa was done

with the help of standard monographs and research papers.

Result and Discussions

1) *Ulothrix subconstricta* (Fig. 1A).

Filaments free-floating, composed of cells partially inflated at the poles and slightly constricted at cross walls, sometimes covered in a mucilaginous sheath: cells 5 μ m in diameter, 18.5 to 23 μ m long, chloroplast a parietal plate extending to about two-third of the median area of the cell, occasionally with a pyrenoid¹⁴.

Locality -Lakkadkot

In India reported^{5,9}.

2) *Ulothrix variabilis* (Fig. 1B).

Filaments occasionally with a pointed basal cell; cell 6.8 μ m wide, 0.5 to 1.5 times (occasionally up to 2 times) as long as broad, cylindrical, with a thin cell wall; chloroplast normally not filling more than half the circumference of the cell and forming as a plate covering one side of the cell with a small pyrenoid¹⁴.

Locality-Dekati, Dara Dam^{2,19}.

In India reported.

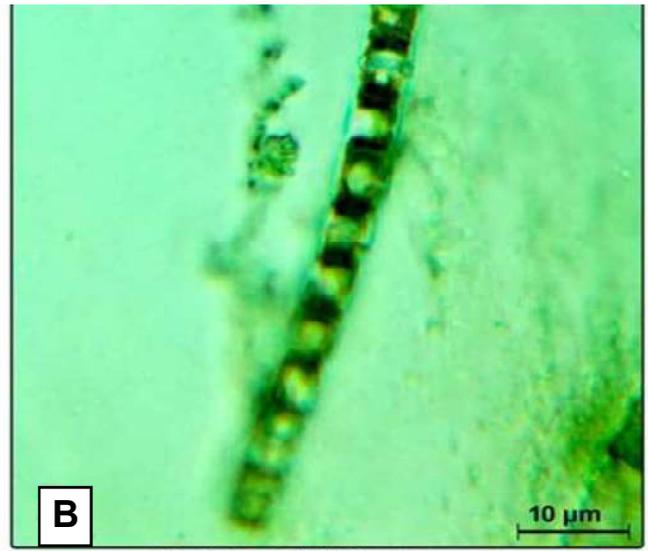
3) *Ulothrix tenerrima* (Fig. 1C).

Cells 5.5 μ m wide; 0.66 to 1.5 times as long as wide;

ACKNOWLEDGEMENTS : The authors are grateful to Prof Dr. V.S. Shrivastava and HOD, Dr. B.B. Mangle, Department of Botany, G.T.P. Nandurbar, for providing all facilities for research. I am also thankful to the UGC, for financial support.



Ulothrix subconstricta



Ulothrix variabilis



Ulothrix tenerrima



Ulothrix aequalis



Ulothrix subtilissima



Uronema africanum

Fig.- 1 (A-F) : Showing various species of Algae

cell wall thin, sometimes mucilaginous; chloroplast under suitable condition girdle shaped, circled more than half the width of the cell, with single pyrenoid, although confined to a side only under unfavorable conditions¹⁴.

Locality -Chapari

In India reported¹⁹.

4) *Ulothrix aequalis* (Fig. 1D)

Cells usually cylindrical, 10 to 12 μm broad and 1 to 2 times as long as broad; cell wall is thickened and sometimes striated; chloroplast is broad, girdle-shaped, covers more than half the cell wall surface, and contains one or more pyrenoids¹⁴.

Locality-Ambrayee

In India reported⁸

5) *Ulothrix subtilissima* (Fig. 1E)

Filaments long and thin, attached or free floating; cells much longer than width, 7.7 μm broad, cells 8.4 to 12 μm long; chloroplast reaching nearly a full length of the cell wall with 1 or 2 pyrenoids¹⁴.

Locality-Mugbari

In India reported^{4,5}.

6) *Uronema africanum* (Fig. 1F)

Filaments ranging from 1 to 30 celled, cylindrical cells 3.75 μm wide and 7.3 to 10 μm long, scarcely constricted at the septum; terminal cell much bent and pointed like a sickle; basal cell elongated but shorter than the intercalary cells, somewhat tapering towards the base, often inflated into an attaching disc; chloroplast with one or two pyrenoids.

Khadkuna dam, Dara Dam

In India reported¹².

7) *Uronema confervicolum* (Fig. 2A)

Filaments several celled, linear or curved up to 1.5 mm long, attached by a disc formed by a basal cell, 16 to 30 μm long and 4 μm wide; cells 5.5 μm broad, terminal cell pointed 20 μm long, cells cylindrical, but somewhat constricted at the septum in older stages; chloroplast extending the total length of the cell, parietal, laminate, partly encircling the protoplast and including 1-3 pyrenoid¹⁴.

Locality -Lakkadkot

In India reported^{4,9}

8) *Uronema elongatum* (Fig. 2B)

Filaments up to 5 mm long; fairly straight; cells cylindrical, excluding apical and basal cells; The apical cell is somewhat swollen and curved, with an acuminate tip; the basal cell is gradually attenuated and attached to the substratum by a small cushion of

colorless mucilage. Cells varying in size from 9.3 μm wide to 31.9 μm long, with the length being 4 to 13 times the width; cell wall firm, very thin; chloroplast small, parietal covering only the median region and extending 0.2 to 0.5 the total length of the cell, with one or two pyrenoids covering 0.5 to 0.66 of the circumstances¹⁴.

Locality-Mundalwad

In India reported^{10,17}

9) *Microspora crassior* (Fig. 2C)

Cells usually cylindrical, slightly constricted at the cross walls, 27 μm wide and 0.5 to 2 times as long as wide; cell wall 2.5 to 3.5 μm thick, with H-shaped pieces clearly evident; and chloroplast reticulate or highly granular, encircling the entire cell wall¹⁴.

Locality -Dara Dam

In India reported^{5,12}

10) *Microspora stagnorum* (Fig. 2D)

Filaments cylindrical, not constricted at cross walls; cells 5.0 μm in width and 10.0 to 13.8 μm long; cell wall thin, the 2 halves normally indistinct, but visible with phase contrast or when processed and stained chloroplast variable even in the same filament, clearly visible with phase contrast or when processed and stained chloroplast variable even in the same filament, often irregularly band-like, more or less closely covering the cell wall or forming a loose network not filling the cell¹⁴.

Locality -Dehli Project

In India reported^{5,12}.

11) *Microspora wittrockii* (Fig. 2E)

Cells cylindrical, without any constriction at the cross walls, 21 μm broad and 48.4 to 58 μm long, cell wall thick, but without membrane structure in vegetative filaments; chloroplast a thin sheet, sometimes perforated or collected towards one end of the cell¹⁴.

Locality- Veli

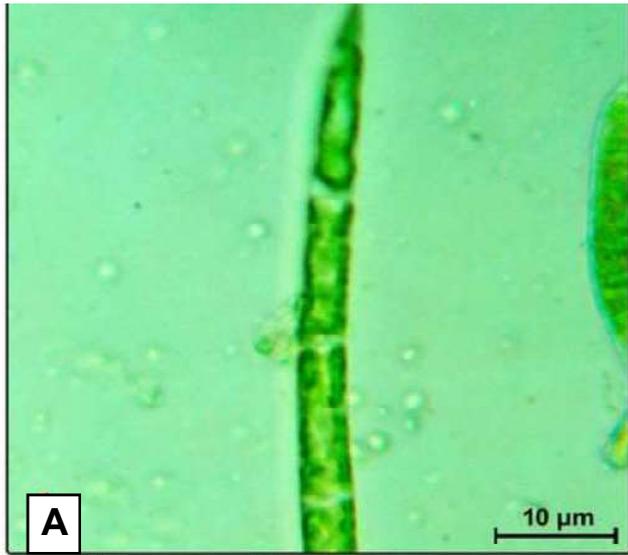
In India reported^{5,19}.

12) *Microspora amoena* (Fig. 2F)

Cells cylindrical, somewhat constricted at the cross wall, 21 μm thick, 48.4 to 58 μm long; cell wall 2.5-3.0-4.5 μm thick, H-pieces clearly evident, sometimes coloured brown by deposit of iron compounds; chloroplast parietal, irregularly thickened, often fully covering the cell wall, with several perforations; The chloroplasts appear broken into solitary plates bound by strands in old cells; the nucleus is 6.5 to 7.5 μm in diameter¹⁴.

Distribution -Narmada River

In India reported^{1,5}.



Uronema confervicolum



Uronema elongatum



Microspora crassior



Microspora stagnorum



Microspora wittrockii



Microspora amoena

Fig. 2 (A-F) : Showing species of *Uronema* & *Microspora*

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