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## RESEARCH ARTICLE

### ADDITIONS OF TETRASPORALES TO MARATHWADA REGION OF MAHARASHTRA

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#### ABSTRACT

A total of 12 taxa under 05 genera of tetrasporales were encountered during an extensive studies on algal taxonomy of Beed district in the Marathwada region of Maharashtra (January 2006-December 2008) The algal samples were collected from various habitats like pools, ponds, puddles, cisterns, talaos, streams, streamlets, dams, rivers, dipping rocks, polluted water passages, nursery ponds and moist soils. The recorded genera were *Sphaerocystis*, *Gloeocystis*, *Tetraspora*, *Schizochlamys* and *Elakatothrix*. Seasonal variation studies reveals that Tetrasporales were found dominant in winter season.

#### INTRODUCTION

India has rich and diversified algal flora. In present century great advances have been made in the investigation of fresh water algae, marine algae, atmospheric micro-algae and soil algae in many parts of the world and particular attention has been paid to their taxonomy, ecology and applied aspects. In Marathwada region of Maharashtra (Kamat 1962, 1963a, 1973; Ashtekar, 1979; Talekar, 2009) very rare attention has been paid towards algal taxonomy, although the climatic conditions of Marathwada region are most suitable to grow algae luxuriantly and in diverse form, therefore to fulfill this lacuna the present investigation was carried out.

#### MATERIALS AND METHODS

The algal samples were collected for the period of three years from January 2006 to December 2008. The algal collections were made regularly from various habitats (above cited) of Beed district. Acid washed collection bottles were used for the collection of algal samples. Field note book was maintained in which the color of the algae, habit, habitat and dates of collection were noted, the pH of the water of the collection spots was recorded by studying at least three samples of water from three different places of the collection spots.

#### Laboratory Work

All collections were preserved in 4% commercial formalin added with 5% glycerine. Generally 5 to 10 random temporary mounts were made from each collection for microscopic

observations. Identification of algal taxa was performed by referring to the standard literature on algae and monographs. The systems of classification followed here is substantially that Prescott (1951), Philipose (1967).

#### RESULTS: TAXONOMIC DESCRIPTION

##### 1. *Sphaerocystis schroeteri* Chodat

Smith 1920, P. 101, Pl. 19, F. 3,4; Prescott 1951, P. 83, Pl. 3, F. 6,7; Tiffany and Britton 1952, P. 21, Pl. 3, F. 26,27; Forest 1954, P. 64, F. 44.

Colony often including both undivided and recently divided cells which form small spherical clusters of 4 cells within the colonial envelope; cells spherical, 7.5-12.5 $\mu$  in diameter; chloroplast cup shaped, covering most of the wall, containing 1 pyrenoid; colonies 70-80 $\mu$  in diameter.

##### 2. *Gloeocystis ampla* (Kuetzing) Lagerheim

Prescott 1951, P. 84, Pl. 3, F. 17; Tiffany and Britton 1952, P. 21, Pl. 3, F. 23.

Cells in a colony of 2-8, ovoid or oblong, enclosed in a copious, unlamellated, gelatinous envelopes; sheaths of each cell or group of cells not confluent but distinct; cells 7.5-10 $\mu$  in diameter, 10-13.2 $\mu$  long.

##### 3. *Gloeocystis gigas* (Kuetzing) Lagerheim. Prescott 1951,

P. 84, Pl. 3, F. 16; Tiffany and Britton 1952, P. 21, Pl. 3, F. 24. Cells solitary or in a colony of 4-8, spherical, enclosed in copious, gelatinous, lamellate envelopes; cells with brownish green contents, 6.5-9 $\mu$  in diameter.

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**4. *Gloeocystis major* Gerneck ex Lemmermann:** Prescott 1951, P. 84, Pl. 52, F. 9,10.

Colonies consisting of 4 cells, ovoid, enclosed by a wide lamellate or unlamellate sheath, in which individuals are surrounded by concentric layers; chloroplast massive, completely covering the wall, with a pyrenoid; cells 12.2-15 $\mu$  in diameter, 18.5-21.5 $\mu$  long.

**5. *Gloeocystis planctonica* (West et West) Lemmermann:** Prescott 1951, P. 85, Pl. 3, F. 10,11; Tiffany and Britton 1952, P. 21, Pl. 3, F. 25.

Cells spherical or ovoid, united in free-floating gelatinous colonies, which are angular or pyramidal; sheaths of each group of cells distinct; cells 4-9 $\mu$  in diameter.

**6. *Gloeocystis vesiculosa* Naegeli:** Prescott 1951, P. 85, Pl. 3, F. 15.

Cells spherical or ovoid, arranged in large amorphous masses, usually attached, enclosed by copious lamellate mucilage; cells 4-6.5 $\mu$  in diameter.

**7. *Tetraspora cylindrica* (Wahl.) C.A. Agardh:** Prescott 1951, P. 88, Pl. 5, F. 1,2; Tiffany and Britton 1952, P. 22, Pl. 4, F. 32; Forest 1954, P. 66, F. 46.

Thallus macroscopic, attached, irregularly lobed cylinder of firm mucilage, narrowed at the point of attachment; cells spherical to nearly spherical, scattered, 6-10.5 $\mu$  in diameter.

**8. *Tetraspora lacustris* Lemmermann:** Prescott 1951, P. 88, Pl. 5, F.11; Smith 1920, P. 102, Pl. 19, F. 5,6.

Thallus microscopic, free floating, spherical or elongate; colony containing relatively few spherical cells; cells arranged in groups of two or four; cells 4-8 $\mu$  in diameter.

**9. *Schizochlamys compacta* Prescott:** Prescott 1951, P. 90, Pl. 4, F. 12-14.

Thallus microscopic, the mucilage firm and homogeneous and bounded by a definite tegument; cells globose, with a conspicuous gelatinous cap like concretion at one side, after division, 1 fragment (rarely 2) of the mother cell wall remains, the mucilage cap persisting on the old wall; daughter cells with apposed caps of mucilage; cells 5.7 $\mu$  in diameter. [The cells are smaller in diameter than those of the type, in type 7.4-11 $\mu$  in diameter]

**10. *Schizochlamys gelatinosa* A. Braun:** Prescott 1951, P. 90, Pl. 4, F. 15.

Thallus microscopic, extensive; mucilage soft and amorphous; cells spherical, 4.8-7 $\mu$  in diameter, dividing by a splitting of the cell wall into 2, rarely 4, portions, these persisting and partially enclosing the daughter cells in pairs or in 4's; chloroplast solitary, parietal.

**11. *Elakatothrix gelatinosa* Wille:** Prescott 1951, P. 93, Pl. 3, F. 13,14.

A colony of 8, fusiform cells with longitudinal axes parallel, arranged end to end in pairs, broad at the adjoined poles, tapering to a blunt point at the opposite pole; cells 3.5-5.2 $\mu$  in

diameter, 15-17 $\mu$  long; 8 celled colony 14.8-16.5 $\mu$  in diameter, upto 70-80 $\mu$  long.

**12. *Elakatothrix viridis* (Snow) Printz:** Prescott 1951, P. 93, Pl. 4, F. 1, 2.

A broadly ellipsoid colony of 4 fusiform cells, arranged in pairs; dividing transversely, but daughter cells with longitudinal axes of oblique angles to one another; cells 4-7 $\mu$  in diameter, 19-21 $\mu$  long.

## DISCUSSION

A total of 12 taxa under 05 genera were recoded as Tetrasporales, among which the species of *Gloeocystis* were found dominantly and followed by *Tetraspora*, *Schizochlamys* and *Elakatothrix*. The results are agreed with Ashtekar 1979, Talekar 2009.

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