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RESEARCH ARTICLE

ZYGNEMATACEAE AT MEHEKARI LAKE (ASHTI), IN BEED DISTRICT OF MAHARASHTRA

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ABSTRACT

The present study deals with the study of diversity of Zygnemataceae family of chlorophyta from Mehekari Lake (Ashti) in the Beed District of Maharashtra. The collection of algal samples was done at monthly intervals from October 2013 to December 2014. Twelve species belonging of genera *Spirogyra, Zygnema* and *Mougeotia* were recorded from the study area. Maximum number of species of *Mougeotia* was observed from the water body. Among Zygnemataceae *Spirogyra* and *Mougeotia* were dominant and represented by 05 and 06 species respectively. *S. condensata* was observed throughout the year and *Zygnema* was observed rarely from the study area.

INTRODUCTION

The plants belonging to this order zygnematales differ from all other green algae in the absence of free swimming flagellated gametes and spores (Transeau 1951). Members of zygnemataceae are filamentous, usually unbranched, and have cylindric cells. The walls of the vegetative cells are unsegmented and without pores. The chromatophores are either axial more or less stellate, ribbonlike or platelike bodies; or are parietal platelike or spirally arranged ribbon like bodies. Conjugation of gametes is by means of a tube between the gametangia, or sometimes by a mere opening between the adherent gametangia. The zygospores are formed either in the tube or within one of the gametangia (Transeau 1951). The species belonging to the Zygnemataceae are probably more numerous, and are more generally distributed over the earth than those of any other family of filamentous green algae. The tangled green masses of algae floating on ponds, ditches, and slow streams anywhere are sure to contain representatives of this group (Transeau 1951).

MATERIALS AND METHODS

The studies on algae from different locations of Mehekari Lake (Ashti) in Beed District of Maharashtra were undertaken. The samples of algae were collected at monthly intervals during October 2013 to December 2014 from the different locations of lake. The Samples were collected in collections bottles and preserved in 4% formalin for further taxonomic investigations. Temporary Mounts of algal specimen were prepared with suitable stains and observed under compound microscope. Identifications were made by relevant monographs and available literature. (Prescott, 1951; Randhawa, 1959; Gontcharov, 2008; Kumar, and Sahu, 2012: John and Francis 2013; Jadhavar and Papdiwal, 2013; Kemprai, 2013)

RESULT AND DISCUSSION

The zygnematacean taxa with wide range of thallus structure were collected belonging to various species. The species collected were: *Spirogyra collinsii* (Lewis), *S. condensata* (Vauch.), *S. daedaleoides* Czurda, *S. grevilleana* (Hass.), *S. majuscule* Kuetzing, *Zygnema micropunctatum* Transeau, *Mougeotia capucina* (Bory), *M. laevis* (Kuetz.), *M. robusta* (DeBary), *M. sphaerocarpa* Wolle, *M. tumidula* Transeau and *M. viridis* (Kuetz.)

Spirogyra collinsii *(Lewis)*

Prescott, 1951, p 312, pl 77, f 4-6

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Filaments is of slender cells, 20µ, in diameter, and about 5 times as long as broad, with plane end walls; chloroplast solitary. Conjugation scalariform and lateral, the tube formation is by the male gametangium only; sporangia inflated slightly on both sides to contain the spore; the male gametangium formed by a partitioning of one end of a vegetative cell.
Coll.No. and Date: ML-10 (08/10/13); ML-40 (17/01/14)

S. condensata *(Vauch.)*

Prescott, 1951, p 312, pl 72, f 5-6

Filaments of rather stout vegetative cells, 50µ, in diameter, with plane end walls; chloroplast solitary, making 2 to 4 turns. Conjugation by tubes from both gametangia; fertile cells cylindric. Zygospores ellipsoid; median spore wall smooth and brown.
Coll.No. and Date: ML-12 (07/11/13); ML-60 (27/03/14)

S. daedaleoides *Czurda*

Prescott, 1951, p 313, pl 72, f 9-11

Filaments of rather stout cylindrical cells, 30 µ in diameter, 90 µ long, with plane end walls; chloroplast solitary, making 3 to 4 turns. Conjugation scalariform by tubes from both gametangia; fertile cells becoming inflated. Zygospores ellipsoid; median spore wall coarsely reticulate and brown.
Coll.No.and Date: ML-80 (08/05/14); ML-48 (05/02/14)

S. grevilleana *(Hass.)*

Prescott, 1951, p 315, pl 74, f 11

Filaments of rather slender cells, 25µ in diameter and up to 10 times the diameter in length, with replicate end walls; chloroplast solitary (rarely 2 in each cell), making 4-5 turns. Conjugation scalariform, the tubes formed from the male gametangium; fertile cells inflated on the conjugation side. Zygospores ovate; median spore wall smooth.
Coll. No. and Date: ML-30 (18/12/13); ML-44 (05/01/14)

S. majuscule Kuetzing

Prescott, 1951, p 317, pl 74, f 10

Filaments of stout cells, 60µ, in diameter, with plane end walls; chloroplasts 7, nearly straight. Conjugation by tubes from both gametangia; fertile cells cylindric (sometimes slightly swollen). Zygospores lenticular or spheroidal, laterally compressed; median spore wall smooth and brown.
Coll.No.and Date: ML-71 (14/04/14); ML-20 (01/11/13)

Zygnema micropunctatum Transeau

Prescott, 1951, p 325, pl 78, f 12

Vegetative cells 14µ, in diameter, 50µ long; fertile cells not inflated. Zygospores formed in the tube; depressed-globose or ovate, compressed at right angles to the conjugation tube; median wall yellow-brown and minutely punctuate.
Coll.No. and Date: ML-89 (22/06/14); ML-38 (12/02/11)

Mougeotia capucina (Bory)

Prescott, 1951, p 300, pl 70, f 5-6

Filaments long and slender, forming purplish, cottony masses; vegetative cells 18µ in diameter, 120µ long; chloroplast narrow axial band with 4 pyrenoids in a single series. Zygospores formed in the tube but extending into and dividing both gametangia; irregularly quadrangular with concave margins, the wall brownish-violet and smooth; with lamellate pectic substances deposited in the angles of the spore.
Coll.No.and Date: ML-66 (20/03/14); ML-88 (22/06/14)

M. laevis *(Kuetz.)*

Prescott, 1951, p 302, pl 70, f 1-2

Vegetative cells elongate, 20µ in diameter, up to 5 times the diameter in length; chloroplast with 4 pyrenoids. Zygospores formed in the conjugation tube, not dividing the gametangia; outer wall smooth, median wall coarsely scrobiculate.
Coll.No. and Date: ML-77 (08/04/14); ML-22 (21/12/13)

M. robusta (DeBary)

Prescott, 1951, p 304, pl 74, f 7

Vegetative cells 25µ in diameter, 120µ long; chloroplast with many irregularly placed pyrenoids. Zygospores formed in the tube, not dividing the gametangia; ovate to subglobose; medianspore wall brown and scrobiculate.
Coll.No. and Date: ML-55 (08/02/14); ML-88 (22/06/14)

M. sphaerocarpa *Wolle*

Prescott, 1951, p 305, pl 74, f 6

Vegetative cells 22 µ in diameter, 80 µ long; chloroplast with 6 pyrenoids. Zygospores formed variably, sometimes dividing one or both gametangia; subglobose to ovate; median spore wall brown and smooth; 40 µ in diameter.
Coll.No.and Date: ML-42 (12/01/14); ML-91 (22/06/14)

M. tumidula Transeau

Prescott, 1951, p 305, pl 74, f 2

Vegetative cells long and cylindric, 8 µ in diameter, up to 80 µ long; chloroplast is a broad plate with 8 pyrenoids in one series. Zygospores formed in the tube, dividing both gametangia; quadrangular; both inner and outer spore walls minutely scrobiculate; 22 µ in diameter, 30 µ long.

Coll.No.and Date: ML-10 (08/10/13); ML-22 (21/12/13)

M. viridis (Kuetz.)

Prescott, 1951, p 306, pl 71, f 8-10

Filaments slender, cells 7.5µ in diameter, 20µ long; chloroplast a broad plate extending the full length of the cell with 5 pyrenoids. Zygospores formed in the tube, dividing both gametangia; the sides concave, corners retuse; median spore wall smooth and colorless.
Coll.No.and Date: ML-89 (22/06/14); ML-38 (12/02/11)

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