



RESEARCH ARTICLE

CHLOROPHYCEAE ALGAE AT TERNA DAM IN OSMANABAD DISTRICT OF MAHARASHTRA

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ABSTRACT

Fifteen species of chlorophyceae were recorded from the Terna Dam in Osmanabad district of Maharashtra. These are viz. *Ankistrodesmus convolutus* Corda var. *minutum* (Naeg.) Rebenhorst, *Ankistrodesmus gracilis* (Reinsch) Korsikov, *Ankistrodesmus tortus* Komarek et Comas, *Cladophora crystallina* (Roth) Kutzing, *Closterium acerosum* (Schr.) Ehr. var. *angolense* West & West, *Closterium acerosum* (Schrank) Ehrenberg var. *elongatum* Brebisson, *Closterium arcuarium* Hughes var. *arcuarium*, *Desmidium baileyi* (RALFS) NORDSTEDT f. *longiprocesum*, *Micrasterias apiculata* (Ehrenb.) Menegh, *Oocystis irregularis* (Petkoff) Printz, *Oocystis nodulosa* West & West, *Pithophora polymorpha* Wtrock, *Rhizoclonium africanum* Kutzing, *Spirogyra acanthophora* (Skuja) Czurda and *Staurastrum arcticon* (Ehrenb.) Lundell var. *glabrum* West et west. These algal species were recorded for the first time from the water reservoir of Terna dam.

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INTRODUCTION

Terna water project is constructed on Terna River in 1970, near the village Ter in Osmanabad district of Maharashtra. It is having large capacity of storage of water and catchment area of the project is large. Sunlight reaches up to the bottom of the dam in most of the area due to the shallow water, and therefore, the biomass productivity of water reservoir is high. The large number of algae and some other aquatic plants are also present in the water body. Therefore, the study of aquatic flora at the Terna water reservoir is essential. Study of the algal flora of water reservoir was undertaken from Oct. 2013 to March 2016. The algal samples were collected from four different localities of the water reservoir. The members of Chlorophycean algae observed during the present investigation are described in this paper.

MATERIALS AND METHODS

Algal samples were collected once in a month from water body. The sample collection was carried out in morning between 7.00 am to 10.00 am. The algal samples were collected in 100 ml plastic bottles and then brought to the laboratory. These samples were preserved in 35 ml capacity plastic bottles in 4% formalin for further studies.

In the laboratory, they were preserved in 1000 ml capacity wide mouth glass bottles. The phytoplanktons were collected by using Plankton net, as per the method adopted by Narkhede (2006). The morphological studies of specimens were done by using Research Microscope and the photographs were taken using digital camera. The algal taxa were described along with their location of occurrence. The identification was done with the help of available literature such as floras, monographs and research articles. [Philipose(1967), Shaji and Patel(1990), Shaji and Patel (1991), Prasad and Misra(1992), Jena and Adhikari (2007), Shukla et al., (2008), Jadhavar and Papdiwal (2011), Das and Adhikari (2012), Das and Keshri (2013), Dhande(2013), Satpati et al., (2013) and Mahadwi and Ali (2014)]

RESULTS AND DISCUSSION

During the present investigation following members of chlorophyceae were observed at the four different localities of Terna water reservoir

Ankistrodesmus convolutus Corda var. *minutum* (Naeg.) Rebenhorst Dhande, 2013, p 137, f 21 Cells solitary, curved or crescent-shaped with bluntly pointed ends; cells 2.5 µm in diameter, 12.5 µm long.

Coll.No.and Date: TS-22 (22/09/13); TS-62 (24/11/13); TS-201 (05/10/14); TS-267 (28/12/14)

Ankistrodesmus gracilis (Reinsch) Korsikov Jena and Adhikari, 2007, p 176, pl 2, f 20 Coenobia 16 celled, cells are markedly arcuate, semicircular to sub-circular, only slightly sigmoid, distance between the cells ends, ends acute, chloroplast without pyrenoid; cells 12.5 µm broad and 50 µm long. Coll.No.and Date: TS-94 (05/01/14); TS-155 (30/03/14); TS-312 (01/03/15)

Ankistrodesmus tortus Komarek et Comas Jena and Adhikari, 2007, p 177, pl 3, f 4 Coenobia 4-celled, cells are elongate, fusiform to cylindrically fusiform, ends pointed, straight to slightly or markedly arcuate and sigmoid, twisted around one another or overlapping, cells 2.5 µm broad and 55 µm long. Coll.No.and Date: TS-127 (16/02/14); TS-189 (21/09/14); TS-222 (09/11/14)

Cladophora crystallina (Roth) Kutzing Satpati et al., 2013, p 35, pl 3, f 11 Thallus yellowish green, soft, branches lateral, dichotomous, further branching unilateral, branches spreading above, cells of main filaments 45 µ in diameter, 3-9 times as long as broad, cells of branches 32.5 µ in diameter and 65 µ long. Coll.No.and Date: TS-339 (29/03/15); TS-359(26/07/15); TS-424 (29/11/15); TS-494 (28/02/16).

Closterium acerosum (Schr.) Ehr. var. *angolense* West & West Shukla et al., 2008, p 2, pl 1, f 13. Cell 365µm long, 40µm broad and apex 5µm. Cells large, 16-17 times longer than broad, lateral, margins parallel abruptly attenuated near rounded apices; chloroplast with 4-5 ridges and 13-15 pyrenoids arranged in a row. Coll.No.and Date: TS-222 (02/11/14); TS-298 (08/02/15); TS-337 (29/03/15); TS-452(27/12/15)

Closterium acerosum (Schrank) Ehrenberg var. *elongatum* Brebisson Shukla et al., 2008, p 2, pl 1, f 11 Cells 8-16 times longer than wide, very slightly curved or almost straight, narrowly fusiform, outer margin slightly convex, inner margin almost straight or slightly convex, gradually tapering to the narrow and often slightly thickened, rounded- truncate apices, cell-wall smooth, colorless, becoming delicately striate and yellowish-brown in color with age, with or without a median girdle; chromatophores ridges; pyrenoids 7-12 in a median series, terminal vacuoles with a number of moving granules. Cell 380 µm long, 40 µm broad and apex 5 µm. Coll.No.and Date: TS-187 (21/09/14); TS-197(28/09/14); TS-305 (15/02/15); TS-389 (11/10/15)

Closterium arcuarium Hughes var. *arcuarium* Das and Keshri, 2013, p 30, pl 1, f a-b Cells elongate, much times longer than broad, moderately curved, ventral mid region evenly inflated; outer margin convex and inner margin slightly convex at the mid region instead being concave; cells gradually attenuated toward the apices; apex broadly rounded; cell wall smooth, colourless. Length: 280 µm, Breadth: 27.5 µm. Coll.No.and Date: TS-114 (26/01/14); TS-177 (07/09/14); TS-290 (25/01/15); TS-373(20/09/15)

Desmidium baileyi (RALFS) NORDSTEDT f. *longiprocessum* SCOTT ET PRESCOTT Shaji and Patel, 1990, p 283, f 9 Cells 18 µ long; and 20 µbroad; rectangular with parallel lateral margins and broad apices with deep and semi-elliptic depression, median constriction reduced into

undulation, united into a straight filament without gelatinous sheath. Coll.No.and Date: TS-32 (06/10/13); TS-138 (02/03/14); TS-248 (07/12/14)

Micrasterias apiculata (Ehrenb.) Menegh Prasad and Misra, 1992, p 141, pl 20, f 8 Cells large, slightly longer than broad, subelliptic in outline, deeply constricted, sinus narrowly linear and slightly open outwards; semicells 5 lobed, polar incisions open and acute angled, lateral incision narrow, polar lobe exerted with sub-parallel margins at the base and diverge outwardly, apical angles deeply emarginated with two diverging spines and two curved spines on each side of concavity, lateral lobes more or less equal in size with two series of rather wide incision, the ultimate lobelets furnished with 2-3 faintly curved spines; cell wall covered with short spines, except above the isthmus. Long cell 200 µm, lat cell 175 µm, lat isthmus 30 µm. Coll.No.and Date: TS-316 (01/03/15); TS-397(25/10/15); TS-421 (22/10/15)

Oocystis irregularis (Petkof) Printz Philipose, 1967, p 184, f 95 Cells irregularly ellipsoid to round and usually crowded towards one side. Cell wall thin and without apical thickenings. Chloroplast single, parietal, covering the cell completely and without a pyrenoid. Cells 17.5 µ broad, 25 µ long. Coll.No.and Date: TS-227 (09/11/14); TS-274 (04/01/15); TS-378 (27/09/15); TS-469(17/01/16)

Oocystis nodulosa West & West Mahadwi and Ali, 2014, p 576, pl 1, f c Ellipsoid to oblong-ellipsoid two celled, within expanded mother cell wall, Apices are rounded bearing a thickening papillate and projects both inward and outward; cell 17.5 µm in diameter and 25 µm long. Coll.No.and Date: TS-55 (10/11/13); TS-74 (08/12/13); TS-102 (12/01/14); TS-124 (09/02/14)

Pithophora polymorpha Wtrock (Pl. 1 Fig.12) Satpati et al., 2013, p 34, pl 4, f 3 Thallus pale green, filamentous, branched, stiff, branches up to second order, primary branches solitary or rarely in opposite pairs, secondary branches solitary, cells are 15 µ broad and 45 µ long, akinetes single, either intercalary or terminal, akinetes in primary branches intercalary, cylindrical, cylindrical akinetes 60 µ long and 40 µ broad, terminal akinetes often subconical with rounded apex, usually shortly acuminate with somewhat rounded apex, terminal akinetes 20 µ broad and 30 µ long. Coll.No.and Date: TS-147 (16/03/14); TS-173 (13/04/14); TS-239 (23/11/14); TS-267(28/12/14)

Rhizoclonium africanum Kutzng Satpati et al., 2013, p 33, pl 1, f 12 Deep green, filaments stiff, entangled, branched, branches held out at right angles with the main axis, cells cylindrical, swollen, 27.5 µ in diameter of almost equal length, cell wall lamellated, rhizoids numerous. Coll.No.and Date: TS-266 (28/12/14); TS-290 (25/01/15); TS-310 (22/02/15)

Spirogyra acanthophora (Skuja) Czurda Das and Adhikari, 2012, p 165, pl 1, f 29 Vegetative cells 350 µmlong and 50 µm broad, chloroplast 3, making 2.5 3 turns in the cell. Coll.No.and Date: TS-333 (22/03/15); TS-372 (20/09/15); TS-394 (18/10/15); TS-410(08/11/15)

Staurastrum arcticon (Ehrenb.) Lundellvar *glabrum* West et west. Shaji and Patel, 1991, p 206, pl 3, f 3 Length of cell, without processes 60 µ, with processes 110 µm, breadth, without processes 48.5µm, with processes 102.5 µm;

isthmus 30 μ . Coll.No.and Date: TS-15 (15/09/13); TS-78 (15/12/13); TS-99 (12/01/14)

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