

Chlorophyceae from Terna Dam in Osmanabad District, Maharashtra, India

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Abstract

Fifteen species of chlorophyceae were recorded from the Terna Dam in Osmanabad district of Maharashtra. These belong to the genera *Ankistrodesmu*, *Cladophora*, *Closterium*, *Desmidium*, *Micrasterias*, *Oocystis*, *Pithophora*, *Rhizoclonium*, *Spirogyra acanthophora* and *Staurastrum*. This study is done for the first time in the water reservoir of Terna dam.

Key words: Algae, Chlorophyceae, Terna Dam

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. So far algal studies in Indian dams were studied by the several workers. The algal flora of Chilika Lake was studied by Rath and Adhikari (2005). Other researchers also studied the various water reservoirs throughout the country. Several researchers have studied the limnology, ecological and floral aspects of fresh water bodies from Maharashtra. Gonzalves and Joshi (1943) studied the algal flora of temporary water pools around Bombay. Pingle (2005) have investigated the diversity of algae at Pashan Lakes of western ghat area of Maharashtra. The study of filamentous algal diversity at Gangapur dam in Nashik district (M.S.) was studied by Thakur and Behare (2008). 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), 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

1) *Ankistrodesmus convolutus* Corda var. *minutum* (Naeg.) Rebenhorst
(Pl. 1 Fig.1)

Dhande, 2013, p 137, f 21

Cells solitary, 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)

Occurrence: Terna Station: 04; Terna Station: 01

2) *Ankistrodesmus gracilis* (Reinsch) Korsikov

(Pl. 1 Fig.2)

Jena and Adhikari, 2007, p 176, pl 2, f 20

Coenobia 16 celled, cells are markedly arcuate, 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)

Occurrence: Terna Station: 01; Terna Station: 02

3) *Ankistrodesmus tortus* Komarek et Comas

(Pl. 1 Fig.3)

Jena and Adhikari, 2007, p 177, pl 3, f 4

Coenobia 4-celled, cells are elongate, 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)

Occurrence: Terna Station: 01; Terna Station: 04; Terna Station: 03

4) *Cladophora crystallina* (Roth) Kutzing

(Pl. 1 Fig.4)

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)

Occurrence: Terna Station: 02; Terna Station: 03

5) *Closterium acerosum* (Schr.) Ehr. var. *angolense* West & West

(Pl. 1 Fig.5)

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

Coll.No.and Date: TS-222 (02/11/14); TS-298 (08/02/15); TS-337 (29/03/15); TS-452(27/12/15)

Occurrence: Terna Station: 01; Terna Station: 02; Terna Station: 03

6) *Closterium acerosum* (Schrank) Ehrenberg var. *elongatum* Brebisson

(Pl. 1 Fig.6)

Shukla et al., 2008, p 2, pl 1, f 11

Cells 8-16 times longer than wide, Cells 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)

Occurrence: Terna Station: 03; Terna Station: 04

7) *Closterium arcuarium* Hughes var. *arcuarium*

(Pl. 1 Fig.7)

Das and Keshri, 2013, p 30, pl 1, f a-b

Cells elongate, 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)

Terna Station: 01

8) *Desmidium baileyi* (RALFS) NORDSTEDT f. *longiprocessum* SCOTT ET PRESCOTT

(Pl. 1 Fig.8)

Shaji and Patel, 1990, p 283, f 9

Cells 18 µ long; and 20 µbroad; rectangular with parallel lateral margins 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)

Occurrence: Terna Station: 02

9) *Micrasterias apiculata* (Ehrenb.) Menegh

(Pl. 1 Fig.9)

Prasad and Misra, 1992, p 141, pl 20, f 8

Cells large, cell wall covered with short spines, except above the isthmus cells 200 µm long, 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)

Occurrence: Terna Station: 01; Terna Station: 02

10) *Oocystis irregularis* (Petkof) Printz

(Pl. 1 Fig.10)

Philipose, 1967, p 184, f 95

Cells irregularly ellipsoid 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)

Occurrence: Terna Station: 02

11) *Oocystis nodulosa* West & West

(Pl. 1 Fig.11)

Mahadwi and Ali, 2014, p 576, pl 1, f c

Cells ellipsoid 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)

Occurrence: Terna Station: 02; Terna Station: 03; Terna Station: 04

12) *Pithophora polymorpha* Wttrock

(Pl. 1 Fig.12)

Satpati et al., 2013, p 34, pl 4, f 3

Thallus pale green branched, primary branches solitary or r 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 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)

Occurrence: Terna Station: 01; Terna Station: 03; Terna Station: 04

13) *Rhizoclonium africanum* Kuetzng

(Pl. 1 Fig.13)

Satpati et al., 2013, p 33, pl 1, f 12

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)

Occurrence: Terna Station: 01

14) *Spirogyra acanthophora* (Skuja) Czurda

(Pl. 1 Fig.14)

Das and Adhikari, 2012, p 165, pl 1, f 29

Vegetative cells 350 µm long 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)

Occurrence: Terna Station: 01; Terna Station: 04

15) *Staurastrum arctiscon* (Ehrenb.) Lundell var *glabrum* West et west.

(Pl. 1 Fig.15)

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)

Occurrence: Terna Station: 03; Terna Station: 02; Terna Station: 03

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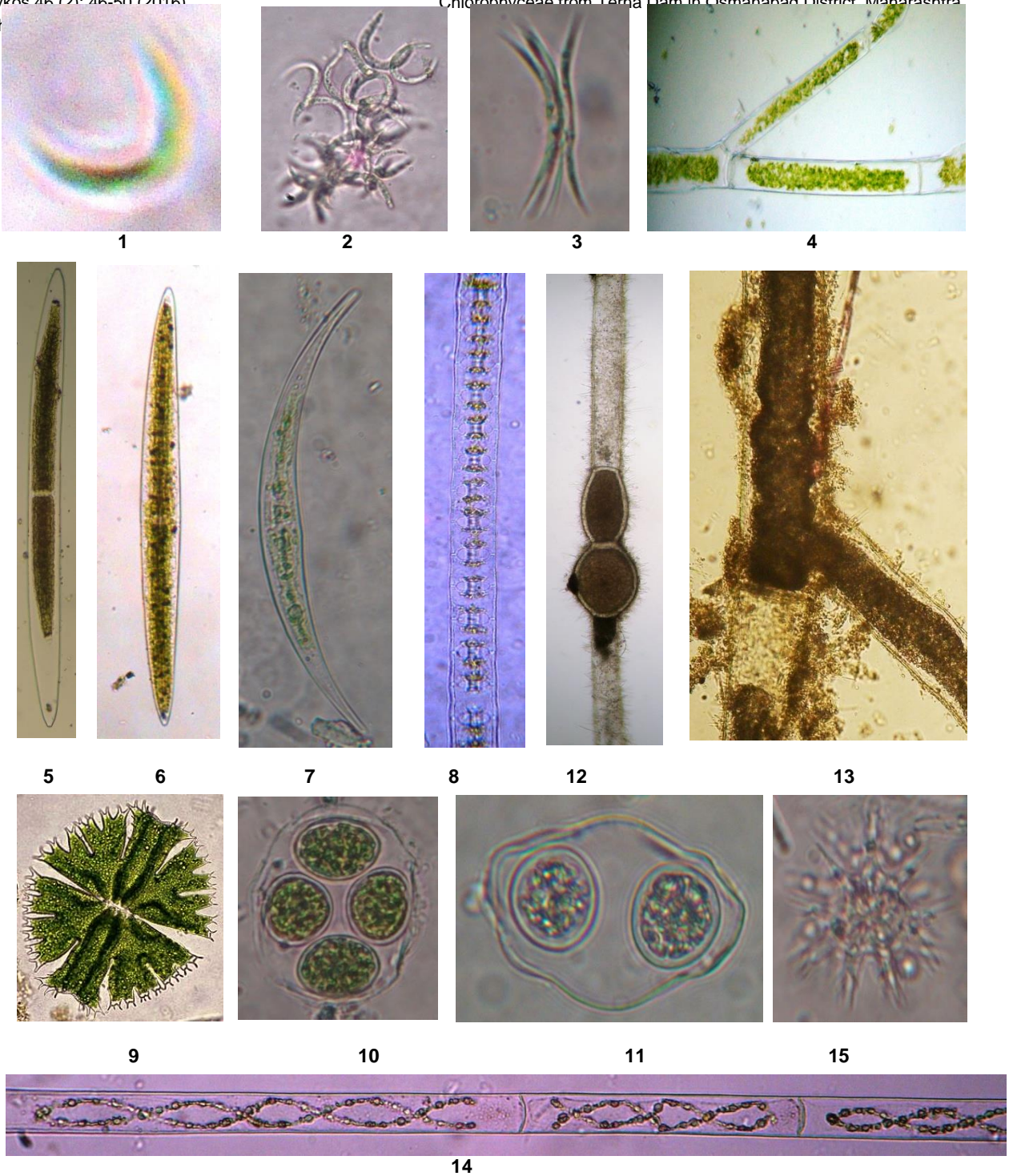


Plate:1 Fig. 1) *Anistrodesmus convolutus* var. *minutum* 2) *A. gracilis* 3) *A. tortus* 4) *Cladophora crystallina* 5) *Closterium acerosum* var. *angolense* 6) *C. acerosum* var. *elongatum* 7) *C. arcuarium* var. *arcuarium* 8) *Desmidium baileyi* f. *longiprocessum* 9) *Micrasterias apiculata* 10) *Oocystis irregularis* 11) *O. nodulosa* 12) *Pithophora polymorpha* 13) *Rhizoclonium africanum* 14) *Spirogyra acanthophora* 15) *Staurastrum arctiscon* var. *glabrum* 16) *S. ensiferum*

Scale: Fig.1,2,3,5,6,7,8,9,10,11,14,15 = 10x40; Fig. 4,12,13=10x10