

Study of algal flora of Navapur, District Nandurbar, Maharashtra, India.

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Abstract

The river Rangawali from Navapur of Nandurbar district (the district Nandurbar formerly known as west Khandesh lies in upper Tapi basin in the North-West corner of Maharashtra) was selected for taxonomical enumeration of algae. Algal samples were collected from five stations of Rangawali river for a period of one year (October 2006- September 2007). In this communication chlorophyceae is studied taxonomically. 27 species belonging to 10 genera were recorded. Genus *Scenedesmus* was observed dominant. This is first report from this rural area of Khandesh of Maharashtra.

Keywords: Chlorophyceae, Taxonomy, Rangawali river.

INTRODUCTION

The world diversity means variety, diverseness, differences, variations among the individuals in Nandurbar district of Maharashtra. The work on Chlorophyceae is known through Bharate and Tarar (1983), Jyaswal (1993), Ragothamam and Jyaswal (1993), More and Nandan (2005), Nandan (2006). No detail and systematic study of algal flora of River Rangawali from Navapur Taluka. The present investigation deals with taxonomic enumeration of 27 taxa of Chlorophyceae belonging to 10 Genera. In this group genus *Scenedesmus* was observed dominant with many species. This is the first report from this rural area of Khandesh of Maharashtra.

MATERIAL AND METHOD

The algal collection was made at monthly interval from October-2006 to September-2007 from five stations of Rangawali river from Navapur taluka. The sampling sites were selected carefully, so as to get maximum number of algal forms growing in the varied habitats. Another important aim of this method of selection is to correlate the species identification to the changes taking place in the habitats sampling was done from 16 km area of Rangawali River. i.e. from five different sites. Field note-book in maintained in which colour of the algae, habit and habitat were noted down on the spot. All collections were preserved in 4% formalin for further taxonomical investigation. Line drawings of different forms of algae were made by camera lucida. The algae were identified by relevant monographs and recent available literature.

Preparation of Semi-permanent Slides for Green Algae

A drop of glycerin formalin mountant (6 ml glycerin 10 ml of

40% formaldehyde + 84 ml of distilled water) was taken on slide, to which a drop of concentrated preserved sample was added and was covered by a cover slip of suitable size.

MORPHOLOGICAL DESCRIPTION

Chlorococcum humicola (Naegeli) Robenhorst

Philipose M.T. 1967, P.73, F.74. [Pl.1, Fig.1]

Cell spherical, solitary, chloroplast hollow sphere with a lateral notch and a single pyrenoid cell 4.9µ in diameter.

Habitat : On the moist soil.

Locality : Rangawali River S-I, S-III, June, 2007.

Chlorococcum infusionum (Schrank) Meneghin

Philipose M.T. 1967, P.73, F.74. [Pl.1, Fig.2]

Cells spherical, solitary chloroplast like a hollow sphere with a notch on one side and with a single Pyrenoid cells 17.2µ in diameter.

Habitat : On Moist soil on Bank of River.

Locality : Rangawali River S-I, S-V, July, 2007.

Chlorococcum vitiosum Printz.

Philipose M.T. 1967, P.73, F.74. [Pl.1, Fig.3]

Cells spherical with thin cell wall which is smooth all over the surface chloroplast hemispherical without pyrenoid nucleus central cells 8.3µ in diam.

Habitat : On Moist soil

Locality : Rangawali River S-I, June, 2007

Schroederia planctonica (Skuja) Comb. Nov.

Philipose M.T. 1967, P.90, F.88. [Pl.1, Fig.4]

Cells fusiform, tumid in the middle with drawn out apex and slightly curved hind end. Cell membrane fairly thick and produced into a long solid spine at either end. Chromatophore parietal with 1.2 pyrenoids cells 16.6µ broad, 142.8µ long with spines, and 35.7µ without spine.

Habitat : Planktonic

Locality : Rangawali River S-I, S-II, August, 2007.

Received: Oct 10, 2012; Revised: Nov 15, 2012; Accepted: Dec 26, 2012.

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***Schroederia setigera* (Schroeder) Lemmermann**

Philipose M.T. 1967, P.90, F.88. [Pl.1, Fig.5]

Cells solitary, free-floating, spindle shaped, slightly curved with the ends produced in to a long spine which is straight chloroplast single parietal and with a single pyrenoid. Cells 10.7µ broad, 130µ long with spine; 35.7µ long spines.

Habitat : Free floating

Locality : Rangawali River S-I, S-V, August, 2007.

***Conococcus elongates* Carter**

Philipose M.T. 1967, P.109, F.109. [Pl.1, Fig.6]

Cells spherical, solitary, cell with a transparent conical appendage from the outer side of the cell wall which is about three time longer then the diameter of the cell, cells 5.5 µ in diam.

Habitat : In fresh water stagnant water.

Locality : Rangawali River S-I, S-II, June, 2007.

***Pediastrum teras* (Ehr.) Ralfs**

Philipose M.T. 1967, P.128, F.130. [Pl.1, Fig.7]

Colonies rectangular, oval of 4 cells without inter cellular spaces. Marginal cells, divided into two lobes by a deep linear to cuneate incision on the outer side reaching to the middle of the cell. Each lobe truncate, slightly emarginated. Diameter of cells colonies 6.1µ and cell 3.3µ in diam.

Habitat : On submerged rock.

Locality : Rangawali River S-I, S-II, May, 2007

***Pediastrum teras var.excisum* (Robenh) Hansgirg**

Philipose M.T. 1967, P.129-30, F.130. [Pl.1, Fig.8]

Colonies rectangular, differs from the type in the lobes being more or less deeply concave. The colony 19.4µ in diameter with cells 9.4µ in diam.

Habitat : On stagnant water surface.

Locality : Rangawali River S-I, S-III, May, 2007.

***Tetraedron minimum* (A.Braun Raun) Hansgirg forma *apiculatum* (Reinsch) De Toni**

Philipose M.T. 1967, P.138, F.140. [Pl.1, Fig.9]

Cells small and quadrangular with the sides concave and angles rounded, cell wall smooth, cells 23.3µ in diam. Cell with a very short fine papilla from each angle.

Habitat : Attached to aquatic macroflora.

Locality : Rangawali River S-I, S-II, May, 2007.

***Tetraedron muticum* (A.Braun) Hansgirg.**

Philipose M.T. 1967, P.137, F.140. [Pl.1, Fig.10]

Cells small, flat and triangular with the sides slightly concave and angles broadly rounded, cell wall smooth cells 11.01µ in diam.

Habitat : In small pond

Locality : Rangawali River S-II, S-V, September, 2007.

***Tetraedron trilobulatum* (Reinsch) Hansgirg.**

Philipose M.T. 1967, P.137, F.140. [Pl.1, Fig.11]

Cell triangular, sides equal in length, and deeply concave, angles of cells broadly rounded cell membrane thick and smooth, cells 17.7µ in diam.

Habitat : In stagnant water.

Locality : Rangawali River S-II, S-IV, September, 2007.

***Chlorella parasitica* (Brondt.) Beijerinck.**

Philipose M.T. 1967, P.175, F.174. [Pl.1, Fig.12]

Cells ovoid with a single chloroplast which is in the form of a parietal plate, cells 6.1µ in diam.

Habitat : Water of river.

Locality : Rangawali River S-III, S-V, September, 2007.

***Chlorella vulgaris* Beijerinck**

Philipose M.T. 1967, P.173, F.174. [Pl.1, Fig.13]

Alga free living, cells solitary, spherical and with thin cell membrane, chloroplast parietal, cup-shaped and with a pyrenoid which is indistinct cells 7.7µ in diam.

Habitat : In tap water.

Locality : Rangawali River S-IV, S-V, October, 2006.

***Ankistrodesmus convolutus* Corda**

Philipose M.T. 1967, P.213-14, F.212. [Pl.1, Fig.14]

Solitary cells strongly curved with the end pointed cells, 1.6µ broad 219µ long.

Habitat : Spring on the river bank.

Locality : Rangawali River S-I, S-IV, S-V, June, 2007.

***Ankistrodesmus falcatus* (Corda.) Ralfs.**

Philipose M.T. 1967, P.211, F.212. [Pl.1, Fig.15]

Cells acicular to narrowly fusiform with the ends tapering to acute apices in fasciculate bundles of 2 cells 2.2 µ broad and 33.8µ long.

Habitat : Planktonic

Locality : Rangawali River S-I, S-II, S-III, May, 2007.

***Ankistrodesmus falcatus var. acicularis* A.Braun, G.S.West.**

Philipose M.T. 1967, P.213, F.212. [Pl.1, Fig.16]

Cells single, slightly curved and with pointed ends cells 3.5µ broad 83.3µ long.

Habitat : On moist soil

Locality : Rangawali River S-I, S-II, August, 2007.

***Selenastrum westii* G.M.Smith**

Philipose M.T. 1967, P.221, F.220. [Pl.1, Fig.17]

Colonies of 2 irregularly arranged cells, with their convex sides in contact cells lunate shape and with acuminate apices cells 1.6µ broad 26.4µ long.

Habitat : Planktonic in swamp.

Locality : Rangawali River S-III, S-IV, December, 2006.

***Scenedesmus bijugatus* (Turpin) Kuetzing**

Philipose M.T. 1967, P.252, F.255. [Pl.1, Fig.18]

Colonies flat of 4 cells arranged in a single linear series. Cells oblong-ellipsoid with the ends broadly rounded cells 3.3µ broad 7.2 µ long.

Habitat : Adhering to aquatic macro flora.

Locality : Rangawali River S-I, S-II, February, 2007.

***Scenedesmus bijugatus var.flexuosus* Lemmerman**

Philipose M.T. 1967, P.254, F.255 [Pl.1, Fig.19]

Colonies 8 celled with the cells arranged in an irregular spiral cells 3.8µ broad 11.1 µ long.

Habitat : Adhering to aquatic microflora.

Locality : Rangawali River S-II, S-III, S-IV, February, 2007.

***Scenedesmus dimorphus* (Turpin) Kuetzing.**

Philipose M.T. 1967, P.249, F.250. [Pl.1, Fig.20]
 Colonies 4-8 celled with the cells arranged in a linear series. The outer cells of the colony being attenuated, cells 3.3μ broad.
 Habitat : Planktonic
 Locality : Rangawali River S-I, S-V, April, 2007.

***Scenedesmus hystrix* Lagerheim**

Philipose M.T. 1967, P.266, F.267. [Pl.1, Fig.21]
 Colonies 4 celled cells oblong, cylindrical with obtuse ends and arranged in a single linear series cell membrane covered with minute spine cells 3.8μ broad 12.2μ longer.
 Habitat : In small ponds near the river.
 Locality : Rangawali River S-I, S-II, S-III, June, 2007.

***Scenedesmus quadricauda* (Turpin) Brebisson**

Philipose M.T. 1967, P.283-84, F.283. [Pl.1, Fig.22]
 Colonies 8-celled cells-oblong, cylindrical with rounded ends and arranged in a linear series poles of terminal cells with a long, straight spine, cell wall smooth and without ridges cells 3.8μ broad 14.9μ long spine 7.2μ long.
 Habitat : In stagnant water
 Locality : Rangawali River S-I, S-II, S-III, March, 2007.

***Scenedesmus quadricauda* (Turpin) Brebisson var. *quadrispina* (Chodat) G.M.Smith**

Philipose M.T. 1967, P.285, F.283. [Pl.1, Fig.23]
 Colonies 4 celled, cells broadly ovoid and about twice as long as broad. Poles of terminal cells with a single short recurved spine cells 5.5μ broad 12.2μ long spines 5.5μ long.
 Habitat : In small pond near river.
 Locality : Rangawali River S-I, S-II, April, 2007.

***Spirogyra biformis* Jao**

Randhawa, M.S. 1959, P.317, F.293a-b. [Pl.2, Fig.1]
 Vegetative cells $38.8 \times 139.23\mu$ with plane end walls, chloroplasts 1 making 4 turns. Zygospores ellipsoid with round ends, $36.89 \times 69.02\mu$ median spore wall yellow, smooth.
 Habitat : In small pond near river.
 Locality : Rangawali River S-III, S-IV, December, 2006.

***Spirogyra fennica* Cedereotz**

Randhawa, M.S. 1959, P.389, F.445. [Pl.2, Fig.2]
 Vegetative cells $17.8 \times 60.69\mu$ with end walls, 1 chloroplasts, zygospores ellipsoidal $23 \times 44\mu$ medium spore wall yellow-brown smooth.
 Habitat : Floating on water body.
 Locality : Rangawali River S-III, S-IV, January, 2007.

***Spirogyra mirabilis* Hossalla Kuetzing**

Randhawa, M.S. 1959, P.303-304, F.267. [Pl.2, Fig.3]
 Vegetative cells $27.37 \times 137.2\mu$ with plane end walls. 1 chloroplast making 4 turns. Zygospore ovoid, less frequent varying to ellipsoid, $23.8 \times 51.17\mu$ medium spore wall yellow-brown smooth.
 Habitat : Attach to the rock in running water.
 Locality : Rangawali River S-III, December, 2006.

***Spirogyra porangobae* Transeau**

Randhawa, M.S. 1959, P.403, F.476. [Pl.2, Fig.4]
 Vegetative cells $14.28 \times 95.2\mu$ with plane end walls, 1 chloroplasts making 9 turns, zygospores ellipsoidal $21 \times 47\mu$ medium wall yellow-brown smooth.
 Habitat : Attached to the rock.
 Locality : Rangawali River S-I, December, 2006.

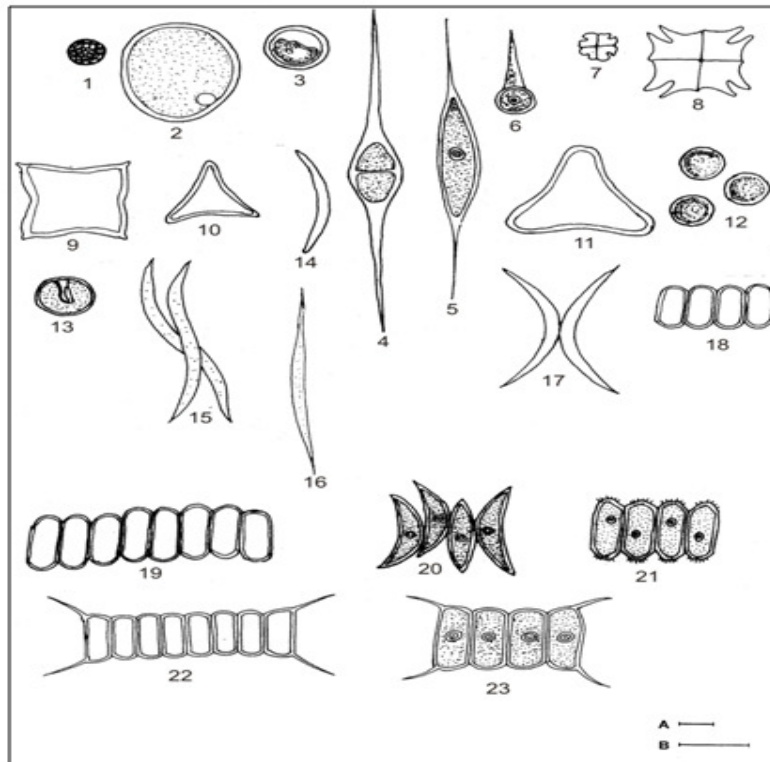


Plate 1.

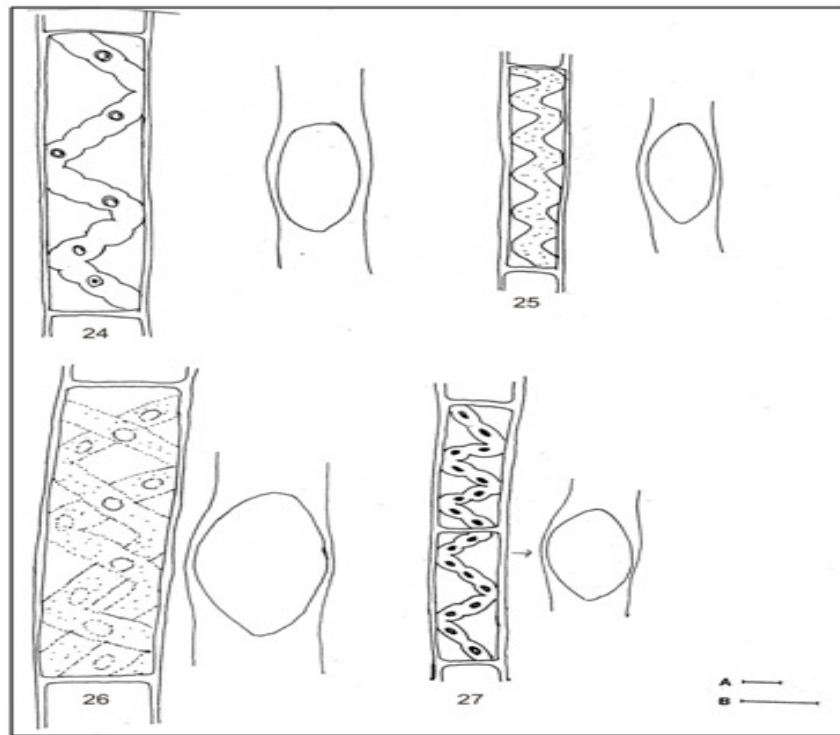


Plate 2.

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