



BIODIVERSITY OF SOME CHLOROCOCCALES FROM LENTIC WATER BODY IN DHULE DISTRICT OF MAHARASHTRA

D.S. Jain¹ N.S.Pawar² M.R.Kumavat³ and K.N.Borse⁴.

1. P.G.Dept.of Botany ,Gangamai Arts, Comm., and Science College Nagaon Dist.-Dhule 424005
 2. Dept. of Botany, S.S.V.P.S's Arts Commerce and Science College Shindkheda, 425406. M. S. India.
 3 ,4. P.G. Dept. of Botany, S.S.V.P.S's Late Dr. P.R.Ghogle Science College Dhule.424005
 Corresponding author:- nsp7109@gmail.com, M.No. 8087561259

ABSTRACT:

The present investigation was carried out by selecting lentic water body of Devbhane dam in Dhule district, of Maharashtra. Geographically The Devbhane dam is situated at Devbhane of Dist. Dhule. It lies at 21° 21' North latitude and 74° 48' East longitude. Dhule are rich in lentic water systems supporting a rich algal flora. While studying the biodiversity of algae attempt have been undertaken to analyze and bring out the algal floristic of this region. The present contribution is to study the biodiversity of Chlorococcales. Author collected 24 taxa and has been described in present communication. Line drawings were made by Camera Lucida. Taxa were identified with the help of standard monograph and recent literature. All taxa are being reported for the first time from this area. The present work enriches our knowledge of algal flora of this state.

Keywords:- Biodiversity , Chlorococcales , Lenticwater , Maharashtra.

INTRODUCTION:

Taxonomy of Algae from different aquatic habitats were studied extensively in India. But very few workers have paid attention on Biodiversity of Chlorococcales in India. In present study biodiversity of Chlorococcales was carried out in Devbhane dam of Dhule. 24 species of Chlorococcales was identified with help of Monographs and recent literature (Gunnar Nygaard 1972, Taketoshi Hinode 1962, Bernard.Ch.1909, Shashikant 1998, Smith.G.M. 1920, Sengar et al 1985, nandan and R.J. Patel 1984a,1985a, Scott and Prescott.G.W. 1961, West. W and West G.S.1907, Bodas 1991.) The present investigation have been undertaken to see the biodiversity of the algal forms in Devbhane dam. Such studies have not been conducted previously.

MATERIALS AND METHODS :

The Devbhane dam is situated near village Devbhane of tal. Dhule of Dist. Dhule. It lies at 21° 21' North latitude and 74° 48' East longitude. Three stations viz. DD-I, DD-II & DB-III were used for collection of algal samples at monthly intervals for two years and preserved in 4% formalin for taxonomic investigation. Line drawing of **Chlorococcales** were made by camera lucida. Standard monographs by Bernard.Ch.1909, and other relevant research publications identified the taxa of **Chlorococcales**.

RESULT & DISCUSSION :

In present study 24 species of Chlorococcales was identified from study area. (plate- 1 and 2) One species of *Oocystis* and one species of *Chlorella* was reported first time. Among Chlorococcales *Tetraedron* was dominant in present study.

SYSTEMATIC ENUMERATION OF CHLOROCOCCALES :

1. *Chlorococcum infusionum* (Schrank) Meneghini (Pl.1, F.1)
 J.Meneghini, 1842, P.27, Pl.II, F.3
 Cells usually spherical, and of variable dimensions, 14.51µ in diameter. Chloroplast like a hollow sphere with a notch on one side and with a single pyrenoid.
2. *Chlorococcum humicola* (Naegeli) Rabenhorst (Pl.1, F.2)
 I.Rabenhorst, 1868, P.58
 Cells spherical, solitary or a number of cells crowded together to form a stratum, cells 11.4µ in diameter, chloroplast a hollow sphere with a lateral notch and a single pyrenoid.
 Family : Characiaceae
3. *Characium orissicum* Philipose (Pl.1, F.3)
 M.T.Philipose, 1967, P.84, F.11c
 Cells pyriform, with broadly rounded apex and a gradually attenuated base forming a very short stalk, base of stalk without any clear attaching disc. Cells 10.69µ broad, 19.86µ long.

4. *Pediastrum ovatum* (Ehr.) A.Braun (Pl.1, F.4)
A.Braun, 1855, P.81
Colonies usually 4-8-16 (rarely 32) celled, with the cells arranged in a ring round a central space or with one or more interior cells and a number of marginal cells, perforate or almost imperforate, the perforations being small. Cell wall smooth or ornamented. Four-celled colonies up to 60 μ in diameter, cells 8.5-19 μ broad, 14-37 μ long.
5. *Schroederia planctonica* (Skuja) Comb.nov. (Pl.1, F.5)
M.T.Philipose, 1967, P.90, F.18a
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 5-28 μ broad, 34-146 μ long with spines, and 11.68 μ without spines.
6. *Schroederia setigera* (Schroeder) Lemmermann (Pl.1, F.6)
E.Lemmermann, 1898, P.311, F.17c
Cells solitary, free-floating, spindle shaped, straight or curved with the ends produced into a long, delicate or stout seta or spine, which is straight or curved. Chloroplast single, parietal and with a single pyrenoid, which is often inconspicuous or lacking in young cells. Cells 2.5-10 μ broad, 56-108 μ long with spines. Spines 13-27 μ long.
7. *Conococcus elongatus* Carter (Pl.1, F.7)
H.J.Carter, 1869, P.432, Pl.14, F.14-20.
Cells spherical, solitary or when young, united together in colonies of 4-8-16-32 cells. Each cell with a transparent conical appendage from the outer side of the cell wall which is about three times longer than the diameter of the cell, cells 5.1-6.4 μ in diameter.
8. *Pediastrum biradiatum* Meyen (Pl.1, F.8)
F.I.F.Meyen, 1829, P.773, Pl.43, F.21-22.
Colonies 4-8-16-32-64 celled (usually 8-16-32 celled) with medium sized perforations. Marginal cells in contact at the base only, and provided with two lobes formed by an incision reaching the middle of the cell, lobes dilated and incised at the apex. Cells 9-22 μ broad, 15-30 μ long. Colonies, 32 celled, 80-150 μ in diameter.
12. *Pediastrum simplex* Meyen (Pl.1, F.9)
F.I.F. Meyen, 1829, P.772, Pl.43, F.1-5
Colonies circular to oval, of 4-8-16-32 or more cells. Inner side of marginal cells nearly straight, outer side produced into a gradually tapering process, sides concave. Inner cells polygonal. Cells 8-13 μ broad, 19-26 μ long.
10. *Pediastrum integrum* Naegeli V. *perforatum* Raciborski (Pl.1, F.10)
M.Raciborski, 1889, P.7, Pl.2, F.5
Colonies 8-16-32 celled. Interior cells spherical to nearly rectangular with edges rounded and with small intercellular spaces. Peripheral cells of similar shape, joined to each other at the base, but free on the outside, with two short truncate processes from the outer face, one from each side. Cells up to 20 μ in diameter processes upto 8 μ long. Colonies up to 110 μ in diameter.
11. *Pediastrum tetras* (Ehr.) Ralfs. V. *excisum* (Rabenh.) Hansgirg (Pl.1, F.11)
A.Hansgirg, 1886, P.112
Colonies rectangular, 4-8.16 celled without intercellular spaces. Diameter of cells 5-15 μ . Differs from the type in the lobes being more or less deeply concave.
12. *Tetraedron bifurcatum* (Wille) Lagerheim F. *submammillata* (W. and G.S. West) (Pl.1, F.12)
W. et. G.S. West 1907, P.231, Pl.12, F.22.
Differs from the type in the angles from which the spines arise being submammillate. The cell membrane is also punctate. Cells 22.9 μ in diameter.
13. *Tetraedron regulare* Kuetz. V. *minus* (Reinsch) De Toni (Pl.2, F.1)
G.B.DeToni, 1889, P.605
Cells tetragonal with the sides slightly convex and with a long massive spine from each corner. Cells 23-46 μ in diameter with spines.
14. *Tetraedron regulare* Kuetz. V. *torsum* (Turner) Brunthaler (Pl.2, F.2)
J.Brunthaler, 1915, P.150, F.169
Cells tetragonal with the two halves twisted in a cruciate manner. Sides of arms slightly convex. Angles with a short spine. Cells 11.4-40 μ in diameter.
15. *Tetraedron trigonum* (Naegeli) Hansgirg (Pl.2, F.3)
A.Hansgirg, 1888, P.130
Cells flat, triangular with somewhat concave sides and rounded corners each ending in a stout spine. Cells, without spines, 18-30 μ in diameter, spines 5-10 μ long.
16. *Tetraedron trigonum* (Naegeli) Hansgirg F. *crassum* (Reinsch) De Toni (Pl.2, F.4)
G.B.De Toni, 1880, P.598.
Cells with straight or convex sides and stumpy angles each, with a short spine. Cell membrane very thick and frequently with pores. Diameter of cells 14-27 μ , thickness 12-17 μ , spines 5-6 μ long.

17. *Closteridium bengalicum* Turner (Pl.2, F.5)
W.B.Turner, 1892, P.158, Pl.20, F.25
Cells in aggregates, crescent shaped with rounded ends and with a short spine from each end. Cells 5-6 μ broad, 16-30 μ long, spines 5.6 μ long.
18. *Chlorella vulgaris* Beij. (Pl.2, F.6)
M.W.Beijerinck, 1890, P.758.
Alga free living. Cells usually solitary or in small colonies, spherical and with a thin cell membrane. Chloroplast parietal, cup-shaped and with a pyrenoid which is sometime indistinct. Cells usually 5-10 μ in diameter.
19. *Tetraedron limneticum* Borge *V.gracile* Prescott. (Pl.2, F.7)
G.W.Prescott, 1944, P.358, Pl.1, F.18; 1951, P.266, Pl.60, F.5
Differs from the type in having much narrower processes which almost adjoin at the base, there being scarcely any cell body. Cells 35.2-46.8 μ in diameter. Base of processes 5.3-8 μ broad.
20. *Oocystis crassa* Wittrock (Pl.2, F.8)
ex.V.B.Wittrock, 1880, P.117
Cells solitary or in colonies of 2-4, ellipsoid, nearly twice as long as broad and with mammillary thickenings at the poles. Chromatophores – parietal. Each cell with a pyrenoid. Cell 10-20 μ broad and 12-26 μ long.
21. *Ankistrodesmus falcatus* (Corda) Ralfs (Pl.2, F.9)
J.Ralfs, 1848, P.180, Pl.34, F.3 a-d.
Cells acicular to narrowly fusiform with the ends tapering to acute apices, usually in fasciculate bundles of 2-4-8 or more, rarely solitary. Chloroplast single, parietal and usually without pyrenoids. Cells 1.5-7.0 μ broad, 20-165 μ long.
22. *Selenastrum gracile* Reinsch (Pl.2, F.10)
P.Reinsch, 1867, P.65, Pl.4, F.3a-b
Cells lunate to sickle-shaped and quite narrow in proportion to the length. Apices of cells acute. Chloroplast without a pyrenoid. Cells 3-5 μ broad, 13-30 μ long.
23. *Selenastrum minutum* (Naegeli) Collin (Pl.2, F.11)
F.S.Collins, 1909, P.171, Pl.6, F.55
Cells crescent-shaped, usually uniformly curved and plump with pointed end, solitary or rarely, united in colonies, cells 2-3 μ broad, 7-9 μ long.
24. *Tetraedron regulare* Kuetz. *V.granulata* Prescott (Pl.2, F.12)
G.W.Prescott, 1944, P.359, Pl.3, F.1.

Cells pyramidal with convex or slightly concave sides. Angles broadly rounded with short spines. Cell walls granular cells 35-51.8 μ in diameter.

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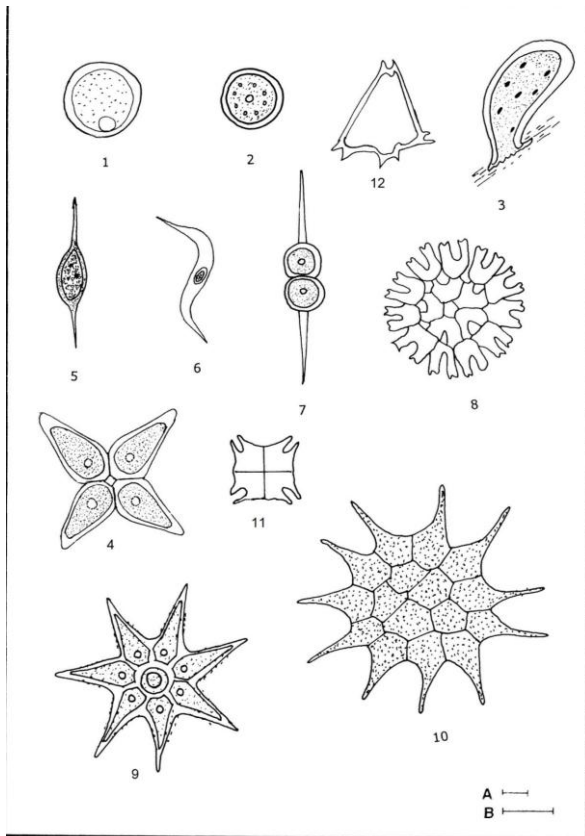


PLATE - 1

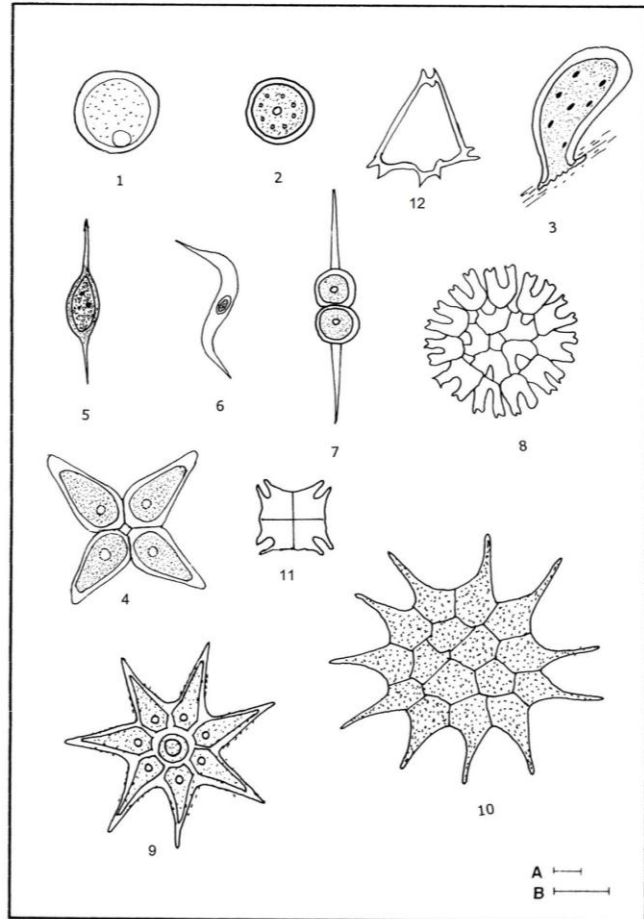


PLATE - 1