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Species diversity of chroococcaceae from water bodies around Nandurbar city

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Abstract
While exploring algal flora of from Nandurbar city area, ten luxurious growing Cyanobactera from family area Chroococcaceae were studied. The family members are growing in water bodies of city with good and flourishing conditions. It was found that 5 main genera with their 10 number of species of Chroococcaceae family is observe and recorded. The detail systematic investigation and habit were recovered.

Keywords: algae, chroococcaceae, cyanobactera, water bodies and nandurbar

Introduction

Cyanobacteria are an extremely diverse group of prokaryotic organisms and are capable of oxygenic photosynthesis, and represent most widespread phylogenetic groups of bacteria (Beck *C et al.,* 2012) [1]. They can found in freshwater, lakes, oceans and rivers (Scanlan D 2001) [9]. Cyanobacteria play important roles in global carbon and nitrogen cycles and also renewable resources as bio fuels with other biological benefits (Shih *et al.,* 2013). They also provide valuable contributions to soil fertility by fixing atmospheric nitrogen and play an important role in all types of water bodies.

Polluted water harbors specific characteristic type of blue green algae (Scanlan D 2001) [9].

To know the diversity of Chroococcaceae family from polluted water bodies around the city of Nandurbar is studied. Chroococcaceae family of usually colonial, marine or freshwater blue-green algae and reproduce by colonial fragmentation of body and simple cell division, family are usually isolated in a distinct order (Dhande *et al.,* 2019) [3].

Materials and Methods

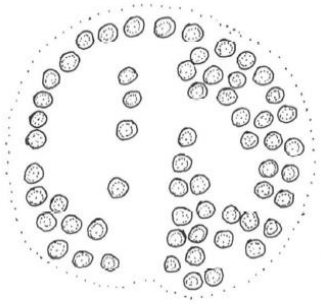
Water is the main essential requirements of all living organisms. Its qualities always are in top priorities in human civilizations. For current works to study in the diversity of Chroococcaceae member of Nandurbar city area has been selected. This study aims to understand various Chroococcaceae among the local water bodies of the city. Monthly collection of water and algae were made for years from June 2017 to May 2018. The collected algal samples were stored in the acid washed plastic bottles and sample immediately preserved in 4% formalin for microscopic observations.

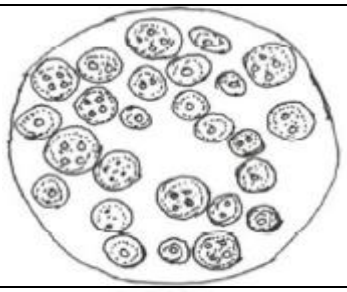
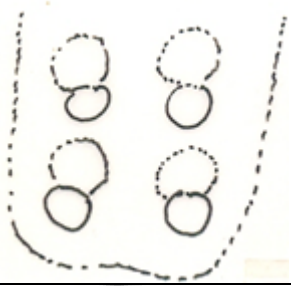
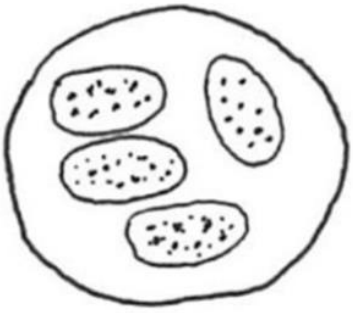
The algae were identified by relevant monographs and recent available literature (Kamat, 1963; Mahajan, 1983, Gonzalvies & Kamat, 1960 and Prasad BN and Mehrotra RK 1979) [5, 7, 4, 8].

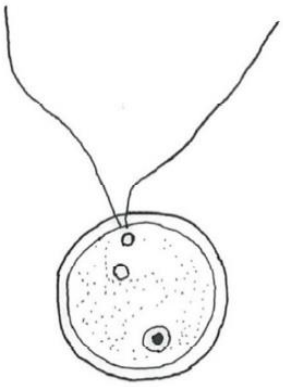
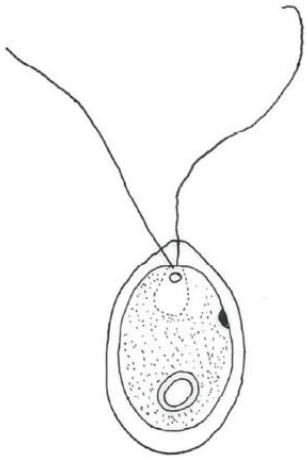
Results and Discussion

During current investigation of Chroococcaceae members from collected samples ten different species were recorded. Systematic enumeration of family Chroococcaceae for their distribution, habitat and taxonomical feature were recorded (Mahajan Neelima and Mahajan 1990) [6].

Table 1

Order	**Cyanophyceae**	
Family	**Chroococcaceae**	
Genus and Species		
1.	*Microcystis aeruginosa* Keutz. Desikachary, 1959, P. 93, Pl. 17, F. 1, 2, 6. Colonies round solid, becoming clathrate with distinct hyaline colonial Mucilage, cells 3-4.2 µm in diameter, spherical, generally with gas vacuoles.	

2.	*Microcystis viridis* (A.Br.) Lemm. Desikachary, 1959, Pl. 18, F. 1-6. Colonies round consisting of a large number of cells surrounded by a common mucilaginous sheath, margins of colonial mucilage definite and highly refractive; cells 2.8-5.6 µm in diameter spherical with gas- vacuoles.	
3.	*Chroococcus minutus* (Kuetz.) Nag. Desikachary, 1959, P. 103-105, Pl. 24, F. 4 and Pl. 26, F. 4. Cells oblong, single or in groups of 2-4, light blue green, with sheath 8.4-11.2 µ diameter, and without sheath 5.6-9.8 µ diameter, colonies 10-13 x 15-20 µ; sheath not lamellated, colorless.	
4.	*Chroococcus varius* A.Br Desikachary, 1959, P.107, Pl.24, F.5 Cells globular, without sheath 4µ, with sheath 5.95µ diameter sheath apparently thick, indistinctly lamellated, colorless.	
5.	*Gloeocapsa punctata* Nag. Desikachary, 1959, P. 115, Pl. 23, F. 2. Thallus gelatinous, light blue- green; cells without sheath 2.1 µ diameter, with sheath 5.6 µ broad, blue- green; sheath thick, colourless, unlamellated or scarcely lamellated; cells 2-16 in groups of colonies about 25 µ diameter.	
6.	*Gloeocapsa stegophila* (Itzings) Rabenh.v.crassa Rao, C.B. Desikachary, 1959, P. 119, Pl. 25, F. 2. Cells without sheath 4.2 µ, with sheath 8.4 µ diameter; 4 cells in globose groups, blue- green; sheath golden mostly unlamellated; spores with a dull brown, thin firm membrane.	
7.	*Gloeocapsa rupestris* (Lyngb.) Bornet v. *maxima* West Desikachary, 1959, P. 117, Pl. 25, F. 4. Thallus brownish, crustaceous; cells without sheath brown, outer daughter colonies often pale yellow to nearly colorless, very distinctly lamellated; colonies 15- 21.7 µm in diameter; spores with firm thin blackish brown wall.	

8.	*Chlamydomonas orbicularis* Pringsheim v. *indica* Iyengar Iyengar and Desikachary, 1981, P. 267, F. 150. Cell spherical 12 µm in diameter; papilla absent; cell wall thick; flagella 2 upto 1½ times as long as the cell, chloroplast cup shaped; pyrenoid single basal; Nucleus anterior eyespot in the anterior half.	
9.	*Chlamydomonas reinhardi* Dang. Iyengar and Desikachary, 1981, P. 269-270, F. 151: 4-6. Cells oval or ellipsoidal, both ends rounded 15.6-18.0 µm long 10.2-12.3 µm broad; cell wall thin, a little removed from the protoplast; papilla absent flagella 2, longer than the body; chloroplast massive, basal portion very thick, filling up the posterior half of the cell, the thin anterior portion reaching to the anterior end; pyrenoid single, posterior eye spot in the anterior one-third; nucleus slightly above the middle.	
10	*Chlorococcum vitiosum* Printz Philipose 1967, P.73, Pl. 4, F. 2-a, b. Cells spherical 8-9.8 broad; cells wall smooth; chloroplast parietal covering half of the cell, with even edge; nucleus one centrally located; pyrenoid absent. Nucleus central.	

Conclusion

The present study provides information about ten algae belongs to Chroococcaceae in five different genera that can be used for the preparation of algal based knowledge of Nandurbar and surrounding area of district.

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