

## **Studies Of chlorophyceae, Cyanophyceae of Vivekanand Sarover, Raipur (C. G.)**

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**Abstract:** Vivekanandsarover is situated in the centre of the city It occupies an area of 25 ha. It is widely used by people and also receives domestic wastewater throughout the year, as the waste water channel is diverted into the pond. In Algal member of chlorophyta, Cyanophyta and Desmids are reported. Seasonal changes in temperature affect the composition of flora and bring about seasonal migration. Water bloom is usually brought about in lakes and ponds by rapid multiplication of the members of Cyanophyceae, Chlorophyceae, algal flagellates on calm days, when the organisms' concentrate in the upper layer of the water. Generally in the temperate region in the month of August there is *Microcystis*, *aeruginosa* (Ganpati, 1959). In the pond *Aphanobaena*, *Aulosira*, *Scytonema*, *Aphanotheca*, *Cladophora*, *Stigeophora*, *Ulothrix*, *Hydrodictyon*, *Zygnema*, *Spirogyra*, *Volvox*, *Pediastrum*, *Sendesmus*. Since fish production is as in a need of the time, the above states problems have to be removed by better management for healthy development of zooplankton & phytoplankton's. The assessment of water quality and sewage water should be monitored before it is released into pond. Human activity is like bathing, washing is prohibited.

**Keywords:** Chlorophyceae, Cyanophyceae, Vivekanandsarover.

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### **I. Introduction**

Raipur is one of the oldest and largest cities of Chhattisgarh region. Raipur city is situated at 21° 14' 14" N. longitude 81° 38' 5" E, and 260 m above sea level. There are about 40 ponds and tanks. Gradually many of the ponds have been reclaimed while the remaining one has been highly eutrophic, stabilization pond. Most of the sewage and sullage from the city is discharged into the pond.

Vivekanandsarover is situated in the centre of the city. It occupies an area of 25 ha. It is widely used by people and also receives domestic wastewater throughout the year, as the waste water channel is diverted into the pond.

Phytoplankton, due to its key role in the ecosystem of the environment is directly related to the fish catch potential of a reservoir. The distribution, composition and succession of phytoplankton gives valuable clues for determining the fishing grounds, selection of suitable species of stocking and determining the level of utilization of the available food by the existing fish stock.

Vivekanandsarovar is very old lake which is as old as the city. A 37 ft high structure as Swami Vivekanand has been built in between the lake. The lake has colour light fountains.

### **II. Material Of Method**

The phyco-chemical parameters such as temperature, pH, dissolved oxygen, turbidity, conductivity, total alkalinity determined during seasons. Analysis was done according to the standard method of Trivedy and Goel (1984), APHA, AWWA and WPCF (1985). Monthly collection of water samples was done from the period of 2014-2015 and study the seasonal variation of phytoplankton. Water samples were collected from point of the pond generally surface up to the depth of one meter. Phytoplankton were concentrated either by keeping the sample standing for sufficient time (4-8) or by centrifugation of the sample at low speed, because high speed centrifugation may result in distortion of plankton cell. Preservation of phytoplankton was described by Sanju Singh, M. L. Naik. Algae were identified the relevant Monograph (Hustadt 1930, Pochman 1942, Desikachary 1959). Water samples were collected in plastic collection bottles from Vivekanandsarovar of Raipur. Collection of phytoplankton was done by using a plankton net with 38 cm diameter of the mouth and blotting silk no. 20 (173 meshes/inch). An iron tube was firmly tied to the tapering end of the net and the open end of collecting tube was covered by a piece of blotting silk tied with cotton thread so that phytoplankton could be transferred into separate plastic bottles. Samples were washed with formalin water. Identification was made by using Agrawal S.C. 1999.

### III. Observations

The phytoplankton species occurred in the reservoir during year 2014-2015 is listed-phytoplankton Diversity in vivekanandsarovar.

**Chlorophyceae** :Ankistrodesmus sp., Coelastrum sp., Clesterium sp., Pediastrum sp., Scenedesmus sp., Staurastrum sp., Cosmarium sp., Chlorella sp., Spriggyra sp., Ulothrix sp., Oedogonium sp.

**Cyanophyceae** :Anabaena sp., Chrococcus sp., Spirulina sp., Microcystis sp., spirulina sp., Nostoc sp., Merismopedia sp., Oscillatoria sp., Cylindrospermum , chrococcus .

#### 3.1. SEASONAL VARIATION OF MEMBERS OF PHYTOPLANKTONS MEMBERS OF CHLOROPHYCEAE

Parameter	Winter	Summer	Monsoon
1. Cladophora	+	++	++
2. Clostrium	+++	++	--
3. Ankistrodesmus	+++	++	--
4. Euglina	--	++	--
5. crucigeniacrucifera	-	++	+
6.Oocystis	--	+	++
7.Volvox	--	--	++
8.Stigeoclonium	--	--	++
9.Chaetophora	+++	++	--
10.Hydrodictyon	+	++	--
11.Oedogonium	+	+++	+
12.Pediastrum	+	++	+
13.Eudorina	-	-	+
14.Chlorella	+	+++	+
15.Sendesmus	+	++	-

#### 3.2 SEASONAL VARIATION OF MEMBERS OF CYANOPHYCEAE OF POND

Parameter	Winter	Summer	Monsoon
1. phanocapsa	+	-	+
2. Nostoc	++	++	--
3. Anabaena	++	++	++
4. Microcystis	+	+++	++
5. Meriosmopedia	+	++	+
6. Spirulinalaxissima	++	+	-
7. Cylindrospermum	+	++	+
8. Chrococcus	+	++	-
9. Lyngya	+	+	-
10. Oscillaria	-	++	-
11. Arthospira	-	++	+
12. Scytonema	-	++	+
13. Stigonema	-	+	+

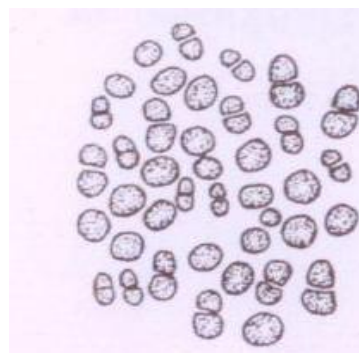
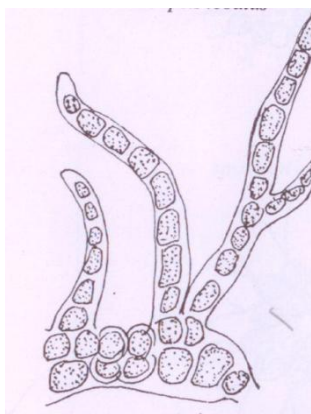
### IV. Result And Discussion

During the present investigation, from 12 sps.ofchlorophyceae, Cosmarium sp., Pediastrum sp., and Pediastrum, hydrodictyon, Volvox, stigeoclonium.ect are. dominated the pond, 8 species of cyanophyceae were identified.Microcystis sp., and Anabaenasps.Ocillatoriasps.dominated the pond. During December 2014 to January 2015 . There is no substitute for good water quality and quantity for fresh water prawn farming. The

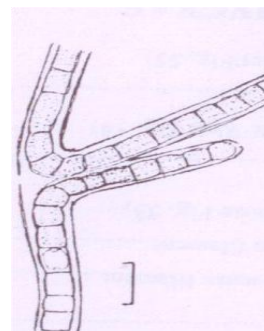
physico-chemical nature of water and its seasonal variation should be studied at the time of site selection for prawn farming.

In Algal member of chlorophyta, Cyanophyta, Chlorococcales and Desmidiaceae are reported. Seasonal changes in temperature affect the composition of flora and bring about seasonal migration. Water bloom is usually brought about in lakes and ponds by rapid multiplication of the members of Cyanophyceae, Chlorophyceae, algal flagellates on calm days, when the organisms concentrate in the upper layer of the water. Generally in the temperate region in the month of August there is *Microcystis aeruginosa* (Ganpati, 1959). The depth of water varies from 1-5 meters during the years. The pond is completely dependent on rainfall for supply of water. In the pond *Microcystis* spp. and *Lyngbya*, *Anabaena*, *Sytonema*, *Aulosira*, *Scytonema*, *Aphanotheca*, *Cladophora*, *Stigeophora*, *Ulothrix*, *Hydrodictyon*, *Zygnema*, *Spirogyra*, *Volvox*, *Pediastrum*, *Sendesmus*.

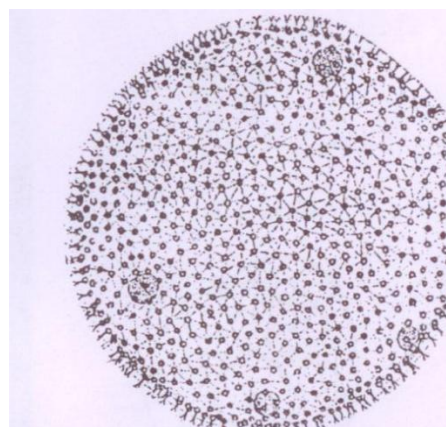
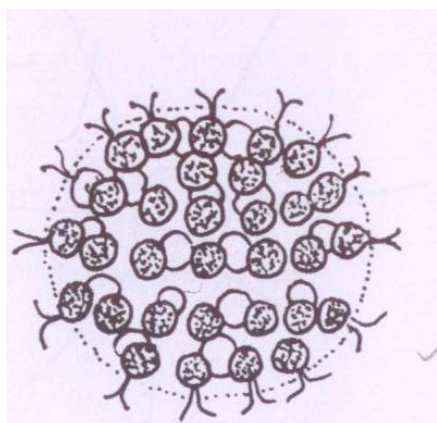
**Figures:-**



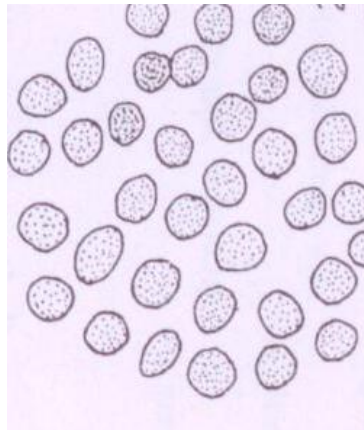
*Stigonema cylindrospermum* Sps.      *Chroococcus minimus* Sps.



*Aphanocapsa banarasensis* *Scytonema*



*Eudorina volvox*



**Aphanocapsa grevillei**

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