PHYTOPLANKTON DENSITY IN RELATION TO ENVIRONMENTAL VARIABLES IN DALVOI LAKE AT MYSORE, INDIA

J. MAHADEV AND SYED AKHEEL AHAMAD

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See end of the article for authors' affiliations

Correspondence to :
J. MAHADEV
DOS in Environmental Science,
University of Mysore,
Managangothri, MYSORE,
(KARNATAKA)INDIA

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SUMMARY

Water samples of the Dalvoi lake was collected from different spots during May 2001 to June 2002 and phytoplanktons were studied in relation to 16 environmental variables during this period. A total of 44 species of phytoplankton were identified under four classes *viz.* Chlorophyceae Euglenophyceae Bacillariophyceae cyanophyceae. Maximum density was recorded under Cyanophyceae and Chlorophyceae showed considerable fluctuations with environmental variables.

Key words : Environmental variables, Phytoplankton, Dalvoi Lake, Fluctuation, Distribution.

Now-a-days all major lakes are facing acute pollution problem and emitting foul odour, slit deposits and chocking due to excessive algal growth. The lake water physico-chemical and biological factors change with reference to the season. Phytoplanktons, include green algae, blue green algae, diatoms, desmids.Euglenoids etc. are the important among the aquatic flora. They are ecologically significant as they form the basic link in the food chain of all aquatic animals. Hosmani and Mallesh (1985), Hosmani and Naganandi (1998), stated that when there is large numbers of phytoplankton, they make the water greenish and cause deterioration of water quality as a result of various domestic purposes. In order to understand the impact of sewage on lake, the present work was undertaken. Dalvoi Lake is situated in the meadow of 10km South of Mysore city. The area of the lake is about 15 acres and in depth 9 mt. It receives sewage from city regularly. Growth of *Typha* and *Potomogeton* are abundant along the bunds. Water hyacinth spread all over the lake almost covers the surface. *Leman, Eichhornia, Nymphea* and *Azolla* species are dominant.

MATERIALS AND METHODS

The method of collection, preservation of phytoplanktons and estimation of physico-chemical parameters are same as described by Trivedi and Goel (1986) and APHA (1995). Separate water samples were collected for phytoplankton studies. Sedimentation of water was made in 4% formaldehyde. Phytoplanktons were counted in 1ml samples under a compound research microscope (40 x magnification) and identified according to Fritsch (1975).

RESULTS AND DISCUSSION

The results of physico-chemical characteristics of water are given in Table 1. The water temperature was moderately high during March and May, associated with

Table 1 : Physico-chemical parameters of Dalvoi lake (June 2001-May 2002)

Months	June	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Variables												
Temperature	29.1	28.5	27.4	27.8	28.9	28.6	29.0	29.4	29.6	31.6	30.2	31.8
pH	8.3	6.3	7.9	8.4	8.7	8.6	8.8	8.5	8.6	8.6	8.8	8.7
Free CO_2	-	10.3	6.6	-	-	-	-	-	-	-	-	-
DO	3.0	3.6	3.7	3.9	3.3	3.9	4.0	5.2	3.8	5.2	4.2	3.9
Total solids	860	760	890	810	880	890	920	960	940	890	910	910
Dissolved solids	630	670	630	610	590	580	680	680	580	620	630	650
Total alkalinity	346	345	394	386	480	368	420	378	386	390	412	396
Total hardness	398	378	410	418	396	397	427	460	580	408	434	480
Calcium	208	190	174	167	124	144	174	168	182	208	170	178
Magnesium	98	84	87	70	68	70	120	124	113	118	124	104
Chloride	176	140.6	166	181	202	204	210	188	210	208.2	220	240
Nitrate	48.8	42.2	43.8	41.42	40.30	40.30	39.9	39.3	38.7	38.0	39.2	39.3
Phosphate	13.7	12.72	13.5	12.2	12.23	11.21	11.64	11.02	10.9	11.76	11.3	11.6
BOD	28.0	26.0	32.0	38.0	46.0	44.0	30.4	28.6	32.0	34.0	30.0	36.0
COD	30.0	32.0	39.0	45.0	54.0	52.0	38.5	35.4	46.2	38.0	40.0	42.40
$CaCO_3Sl$	+1.44	+1.96	+1.80	+1.38	+1.66	+1.71	+1.54	+1.77	+1.88	+1.56	+1.71	+1.66