PHYTOPLANKTON DIVERSITY OF KANHER DAM , SATARA

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Abstract :

The importance of phytoplankton in any water body cannot be over emphasized. The present study was carried out to determine the phytoplankton diversity of Kanher dam. Water samples were collected from 4 sampling sites and the phytoplankton species were determined following standard procedures. Phytoplankton's groups observed are *Chlorophyceae, Bacillariophyceae, Myxophyceae, and Eulenophyceae* at sampling in the month of July and May throughout one year study period. The minimum number of species Phytoplankton were recorded *Myxophyceae* at sampling sites.

Keywords:Phytoplankton**,***Chlorophyceae,Bacillariophyceae,Myxophyceae*

Introduction :

Biodiversity is the degree of variation of life forms within a given species, ecosystem, biome or an entire planet; Biodiversity is a measure of the health of ecosystems and is in part a function of climate. In terrestrial habitats, tropical regions are typically rich whereas Polar Regions support fewer species. But unfortunately in the recent decades, rate of decline and even disappearance of animal species and related habitats, ecosystems and genes (i.e. biodiversity) has increased throughout the world. This loss of biodiversity is deplorable in it and has adverse effects on economic development since it is the basis for the food, fibers, drink, medicines, industrial processes, agriculture, fisheries and all activities we rely on for our survival.

Flynn et al., (2013) defined Phytoplankton as a polyphyletic group with utmost variation in size, shape, colour, type of metabolism, and life history traits. Due to the emerging knowledge in nutritional capabilities of microorganisms, our view of phytoplankton has drastically changed .The spatial mapping of phytoplankton assists to determine hotspots area based on abundance and diversity. Some studies analyze the spatial distribution and diversity of plankton (Badsi H, Ali HO, Loudiki M, Aamir A,2021). Measures of diversity are frequently seen as indicators of the status of ecological systems. Phytoplankton diversity has relationship with productivity in ecology. According to Sabita Kumari et al.,(2018)nature and its contributions to a good quality of life are often perceived and valued by people in starkly different and often conflicting ways. Co-construction of assessments of the state of the world's biodiversity and the benefits it provides to humans Phytoplankton are at the base of aquatic food webs and of global importance for ecosystem functioning and services.

Studies of the ecology of lake phytoplankton have provided a wealth of insight into the interactions between abiotic factors and biotic ones such as competition and predation. Theoretical investigations into the effect of lake thermal stratification on phytoplankton communities have been especially fruitful have provided

predictions for the occurrence of plankton blooms among others(Huisman J, Weissing FJ (1995), . Diehl S (2002).

Materials and methods :

In the present study analysis of phytoplankton, the sample of selected site of Kanher Dam, Satara was collected. Center of Kanher Dam was selected as site. The sample of water for the phytoplankton study were collected in one liter container from the surface water by means of conical bolting silk net having 10cm diameter and 75 cm length and 25 meshes per centimeter. A glass beaker of 50ml capacity was fixed at the lower narrow end of the net and collected sample was transferred into small plastic bottles and the sample to bring to the laboratory and the estimation was carried out by standard methods of which was given by Kodarkar (1992), Trivedi and Goel (1983, 87, 99), Wetzel R.G. (1983), WHO (1984), World lake vision committee (2003), and APHA (1989), Welch P (1952), Yadav and H.G. Verma (1994), etc.

Results and discussion :

In the present investigation period i.e. June 2013 to May 2014 04 Phytoplankton s groups was observed *Chlorophyceae, Bacillariophyceae, Myxophyceae, and Eulenophyceae* at sampling site A, B, C and D in the month of July and May throughout one year study period. The minimum number of species Phytoplankton's were recorded *Myxophyceae* at sampling sites A, B, C and D respectively. In the present study it was observed that class Chlorophyceace recorded 4genera; Pediastrum, scenedesmus arcuatus ,spirogyra spp and occilatoria. The highest number of spirogyra was recorded 06 in the month of February while highest number of occilatoria as 06 was recorded in April. Pediastrum spp were recorded 02 in the month of January, May and December.

During present investigation, cyclostella sp , Meiosira granulata ,Navicula placeta was found in class Bacillariophyceae . Highest value of cyclostella was recorded 07 in the month of February and lowest value that is 03was recorded in June.Meirosira granulata was found to be highest 06 in the month of March while low 02 in July and December. Navicula placeta was recorded high 07 during April while low value 02 was seen in July. Mustapha (2010) showed the total phytoplankton to be positively correlated with phosphate,nitrate, DO, sulphate, carbon dioxide, total alkalinity, pH, conductivity and TDS. Only transparency and temperature showed negative correlation with the phytoplankton. Sharma (2010) found positive correlation between Chlorophyceae and DO, pH and calcium whereas; calcium had negative correlation with Bacillariophyceae during winter season. Result shows Mycoxystic elegans was found high 07 during January and low 02 in May. Nostoc sp we're found to be highest 07in December . It was also observed that Euglena spirogyra was recorded high 07in the month of January while low 02 in November.

Euglena eherenbergii was recorded high 07 in January and low 03 during May June and August. Phacus sp was recorded high during January, February and low 03 in the month of June and July. The productivity of an aquatic environment is directly correlated, with the density of phytoplankton (Narasimha, 2013) as they play an important role as primary producers and thus can affect higher trophic levels by providing nutritional bases for zooplankton and subsequently to other invertebrates, shell fish and finfish (Emmanuel and Onyema, 2007). Gupta and Shukla, (1990) reported, Pollution indicator algal forms have been reported from

Cyanophyceae, Bacillariophyceae and Chlorophyceae During summer, increasing temperature enhances the rate of decomposition due to which the water became nutrient rich similarly due to concentration followed by evaporation in summer season the nutrient concentration increases and abundant food present in form of photosynthesis. The high phytoplanktons population density during the summer season could be related to stable hydrological factors and low water level; while low density during the monsoon season attributed to heavy flood and fresh water inflow. They were resumed again in monsoon due to dilution and high water level shinde S.E ,et al (2011). Narayana (2006) found the minimum density of phytoplankton during monsoon and maximum during summer in Lentic

Water bodies, Karnataka. Banakar (2005) observed the peak of phytoplanktons during April while lowest peak in July and August in village pond at Imalia (Vidisha) India

Table No.-25

PHYTOPLANKTON : **Phytoplankton (mg/lit.)** at Kanher Dam, Distict- Satara. From:June-2013 to May-2014.

Class	Genera	Jun	Jul	Aug	Sep	Oct.	Nov.	Dec.	Jan.	Feb.	Mar	Apr.	May
Chlorophyceae	*Pediastrum sps.*	03	03	04	04	03	03	02	02	05	05	04	02
	Scenedesmus arcuatus	04	04	03	04	03	03	04	04	05	05	03	03
	Spirogyra sp.	04	03	04	04	04	03	04	05	06	05	04	03
	Oscillatoria	03	03	03	03	03	04	05	05	04	05	06	04
Bacillariophyceae	*Cyclostella sp.*	03	04	04	04	04	05	05	05	07	05	06	04
	Meiosira granulata	03	02	03	04	03	03	02	04	05	06	05	04
	Navicula placeta	02	03	03	04	05	04	03	03	05	06	07	04
Myxophyceae	*Mycrocystic elgans*	03	04	04	04	04	03	03	05	07	05	04	02
	Nostoc sp.	04	03	03	03	03	03	05	07	05	06	04	03
Eulenophyceae	*Euglena spirogyra*	03	04	04	03	03	02	04	02	05	06	07	04
	Euglena eherenbergii	03	04	03	04	05	04	06	07	05	05	04	03
	Phacus sp.	03	03	04	04	04	04	03	05	05	04	04	03

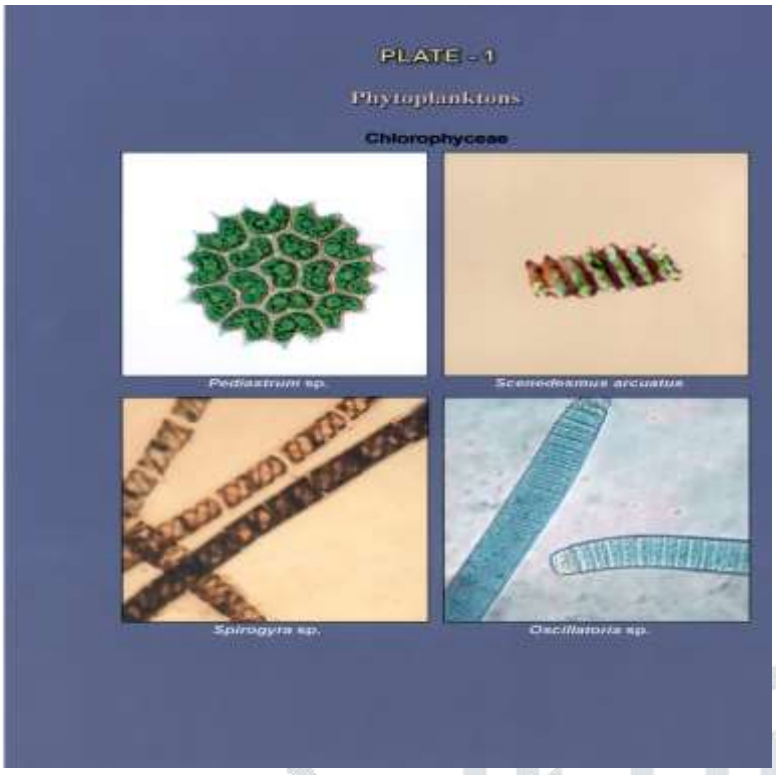
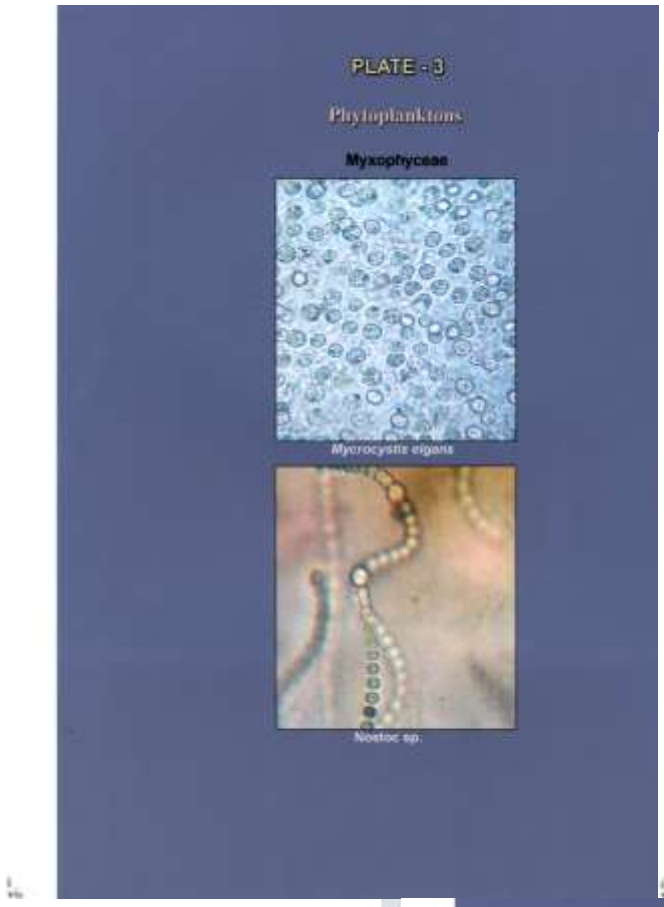
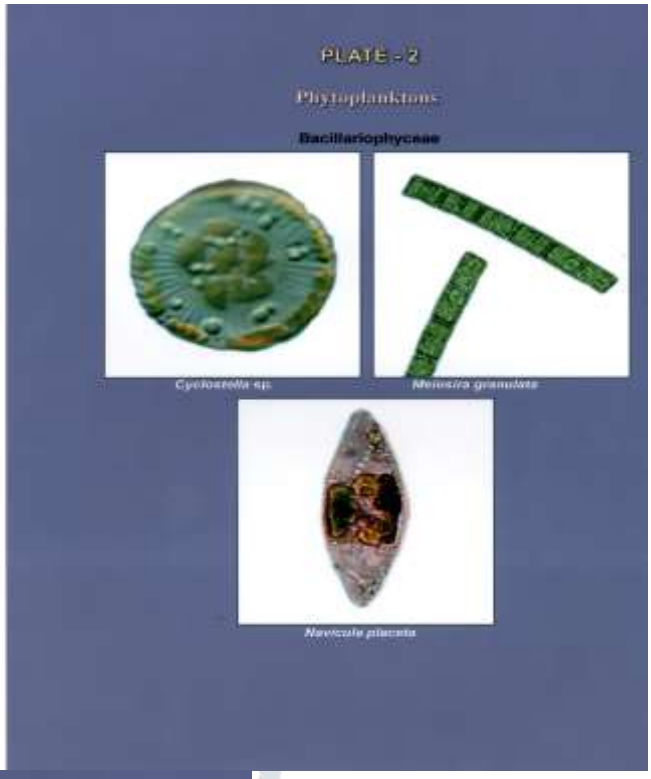


PLATE - 1
Phytoplanktons
Chlorophyceae
Pediastrum sp.
Scenedesmus arcuatus
Spirogyra sp.
Oscillatoria sp.





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