
QUANTITATIVE AND QUALITATIVE ASSESSMENT OF PHYTOPLANKTON IN LIMBOTI DAM, TALUKA LOHA, DISTRICT NANDED (M. S.) INDIA.

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ABSTRACT

Quantitative and qualitative assessment of Phytoplankton of Limboti dam, TalukaLoha, District Nanded, Maharashtra. The study was carried out from June 2019 to May 2020. Phytoplankton quantitative and qualitative assessment was composed of 28 species of chlorophyceae, 23 species of Bacillariophyceae, 18 species of cyanophyceae, 9 species of Euglenophyceae. Among phytoplankton particularly chlorophyceae was the dominant group throughout the study. The highest count of 265 species was recorded in the month of May. The qualitative and quantitative assessment of variation of Limboti Dam showed high quantity of phytoplankton population during study periods. The present study revealed that the water Limboti Dam useful for pisciculture, irrigation and for drinking purpose.

Keywords:Limboti dam,Phytoplankton, Chlorophyceae, Bacillariophyceae, Cyanophyceae

INTRODUCTION

The different groups of phytoplanktons exist in different types of water bodies planktonic study is a very useful tool for the assessment of water quality in any type of water body and also contributes to an understanding of the basic mature and general economy of the dam. The Limboti dam is a large reservoir having full water spread area during rainy season. The 6000 hector field comes under irrigation of this dam. The under capacity of this dam is 3.5 T.M. The water of the dam drinking is supplied to the three taluka namely Kandhar, Loha and Ahmadpur. Plankton is one of the most important foods for Zooplankton, fishes and many other aquatic organisms. Phytoplankton functions as the primary producers in the aquatic biotopes. The phytoplankton diversity and density is controlled by water quality and other biotic communities in a water body, (Reid and wood, 1976). Phytoplanktons are the most sensitive floating communities which is being the first target of water

pollution thus any undersirable changes in aquatic ecosystem affects diversity as well as biomass of plankton community (summarwar 2012). However, light penetration, temperature, nutrient enrichment, toxic substances, mixing of water, parasites, herbivores and heterotrophic microorganism activities influenced the phytoplankton growth (Reynolds 1987). Maske et. al. 2010. In this review, we presented an elaborative literature synthesis on the phytoplankton ecology and various factors interacted in freshwater lakes of north, south, east and west regions of India. It should assess qualitatively for anthropogenic changes which resulted nutrient enrichment. It provides a ground for future studies on management of freshwater lakes with phytoplankton distribution. Hence qualitative and quantitative assessment studies of phytoplanktons are of great importance in dam water body.

MATERIAL AND METHODS

The water samples for phytoplankton assessment were collected from the dam once in a month between 8:00 a.m. to 10:00 filtered through phytoplankton net of 20 μ mesh size made up of bolting silk. The filtrate was preserved in 4% formaldehyde solution. Samples were examined under coslabtrinocolor microscope with inbuilt CCD camera. And identified using standard literature, John D.M. et. al. (2005), APHA (2005).

a.m. at regular interval from June 2019 to May 2020. The water samples were collected by filtering 50 liters of water is

RESULT AND DISCUSSION

The phytoplankton communities of the present water body and the total number of phytoplankton species and monthly average of qualitative and quantitative identified species. The list of phytoplankton observed is given below.

Table 1. Checklist of Phytoplankton from Limboti dam.

<p>Chlorophyceae:</p> <p><i>Ankistrodesmusfalcatus, Chlamydomonarconfalcatus, Chlorella conglanerata, Chlorella vulgaris, Cladphoraglmara, Closterdium, Cosmariumcontractum, C. angulosum, C. granatum, C. divergent Helimed SP., Hydrodictyon SP., Micrasterias SP., Monarphidiumcontortum, Oscillatoriaprinceps, OedogoniumPatulum, Pediastrum duplex, Pediastrum simples, Pleurococcus sp., Pithophora, Scenedesmusarcuratus, S. obliquus, Spirogura, UlothrixZonta, U. gonata, Willearectangularis, Zygenemasp.</i></p>
<p>Euglenophyceae:</p> <p><i>Euglena stellata, E. acus, E. granulate, E. viridis, E.Pisciformis, E. acus, E. anabaena, Phacusankylonoton, Trachelomonas sp.</i></p>
<p>Bacillariophyceae:</p> <p><i>Achanthesexigua, A. exilis, A. hungarica, Bacillariaparadoxa, Cymbellaaffinis, Cyclotella sp., Diatom sp., D. Vuloare, Fragillariacapurina, Gyrosignakutzingi, Gyrosigma sp., Naviculagraccills, N. radiosa, N. viridula, Nitzschiasubtilis, N. Vermicularis, Pinnularia sp., Rhopaldiagibba, Rhopalodia sp., Synedraaffinis, S. ulna, S. acus.</i></p>
<p>Cyanophyceae:</p> <p><i>Anabaena beckii, A. constricta, Anacystis sp., Aphanothecanidulanus, Calothrix sp., Coelospermious sp., Gloeocapsa sp., Microcystisaeruginosa, Merismopediapunctata, Notoc, Oscillatoriarriguda, O. foreau, O. chlorine, O. limosa, Phormidiummucooid, P. tenue, Spirulina major, S. subsalsa.</i></p>

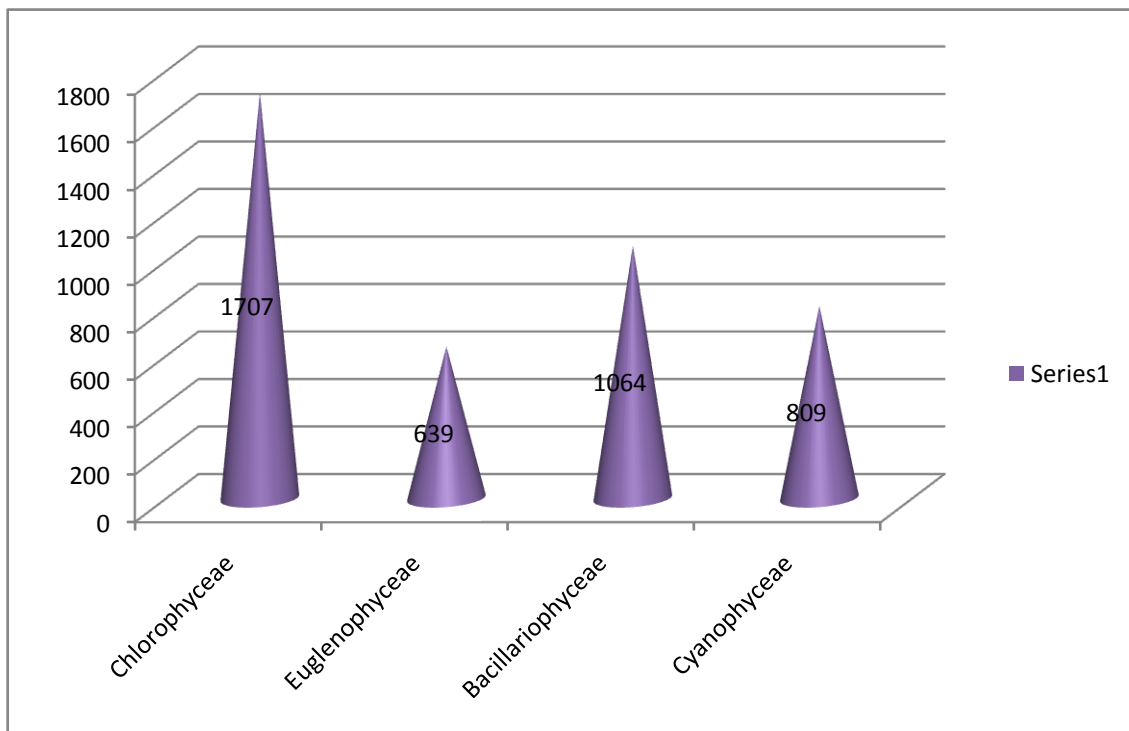
Research works required further investigation to explain the relation between phytoplankton communities and lake water chemistry and other factors in Indian scenario. Phytoplankton ecology plays an important role for indicating the eutrophication. Indian freshwater lakes provide an assessment of cultural eutrophication which controls light and temperature on phytoplankton. The present observation is similar to those observation made by other workers. Reid and wood

(1976), Reynold (1987), John (2005), Khapekar and Deshpande (2007), Maske et. al. (2010), Maitisk (2011), Summarwar (2012), Jogdand and Sirsat (2012), Munjare (2013), Sharma Jyoti et. al. (2015), Chavhan and Lanjekars (2016), Pawar (2017), Chunne and Nasare (2018), Pawar (2019).

Table 2. Monthly Quantitative and Qualitative Assessment of (No/Lit) of different Phytoplankton groups of Limboti Dam during the Year June 2019 to May 2020

Phytoplankton Group	Monsoon Season				Winter Season				Summer Season				Total
	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	
1	2	3	4	5	6	7	8	9	10	11	12	13	14
Chlorophyceae	107	94	66	52	73	112	130	175	89	210	234	265	1707
Euglenophyceae	42	33	24	29	32	41	49	53	60	75	94	107	639
Bacillariophyceae	75	69	52	41	36	43	70	95	12	136	147	188	1064
Cyanophyceae	61	43	35	29	21	55	74	80	93	98	102	118	809
Total Phytoplankton	285	239	177	151	162	251	323	403	454	519	577	678	4219

Figure 1. Different Phytoplankton Groups in Limboti dam during the year June 2019 to May 2020.



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