



**SEASONAL VARIATION OF PHYTOPLANKTON COMMUNITY IN THE
BHINDAWAS WATER RESERVOIR, JHAJJAR DISTRICT, HARYANA**

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ABSTRACT

The study of phytoplankton seasonal variation was carried out by sampling water taken from the Bhindawas Water Reservoir, Jhajjar District of Haryana during 2017- 2018. Chlorophyceae and Bacillariophyceae species dominated mostly in variety and percentage composition. A low diverse community of phytoplankton in the monsoon period showed the better water quality than in pre and post-monsoon. The present study showed that the environmental factors and nutrition status of a water reservoir are key factor in seasonal variation of phytoplankton community composition.

Key Words: Phytoplankton, Bhindawas, Water Reservoir

INTRODUCTION

The seasonal variation of phytoplankton diversity in a body of water correlates with their occurrence and physicochemical factors. The phytoplankton population represents a water body's biological wealth which is an important link in the food chain (Boyd, 1982; Hossain et al., 2007). In many aquatic systems, phytoplankton is the primary producer and an important food source for other organisms. Freshwater species composition and seasonal variations of planktonic and

benthic forms are influenced by interactions between physical and chemical factors (Cetin and Sen, 2004). Furthermore, climate has a significant impact on water quality and, as a result, biodiversity within water bodies (Boyd and Tucker, 1998). Phytoplankton sensitivity and variation in species composition are usually adequate explanations for demonstrating the change within an ecosystem (Devassy and Goss, 1988). The present study focuses on seasonal variation phytoplankton community for knowing the quality of water in the Bhindawas water reservoir, Jhajjar District, Haryana.

MATERIALS AND METHODS

In order to analyze phytoplankton of the Bhindawas water reservoir 5 phytoplankton samples were collected monthly by scooping water from the lake (in pre-monsoon [March-May], post-monsoon [September-November] and monsoon [June-August]) between 9:30-10:30 am in 400 ml amber color bottles, fixed with Lugol's iodine solution in a 100:1 ratio. The phytoplankton samples collected were left overnight or more to concentrate by the gravimetric method. Sometimes a centrifuge instrument was used for faster sedimentation. After the completion of the sedimentation process, the supernatant part was pipetted out and finally the sample was concentrated to 4 ml (Ghosh, Barinova and Keshri 2012). The drop count method (Trivedy and Goel, 1984) was followed for quantitative estimation of phytoplankton. Phytoplankton densities were expressed as organisms per liter. Identification of Phytoplankton in different class of different genera was carried out underresearch microscope.

RESULTS AND DISCUSSION

The seasonal and annual results are recorded in table no.1. Chlorophyceae was observed to be the most dominant class of phytoplankton in pre monsoon (20459) and post Monsoon(19319) and Bacillariophyceae was most abundant class(21858) in post monsoon season. It is observed that the density of phytoplankton is remarkably influence by variation in seasons. Seasonal variations in phytoplankton are related to a variety of environmental factors in aquatic environments (Çetin and Şen, 2004). These variations in phytoplankton growth are complicated due to interactions between ecological factors and regeneration rate of nutrients (El-Gindy and Dorgham, 1992)

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Table- 1: Seasonal Variations of Phytoplankton Phytoplankton Community in the Bhindawas Water Reservoir

Sl. No.	Phytoplankton	2017-18														
		Monsoon					Pre- Monsoon					Post- Monsoon				
		Station I	Station II	Station III	Station IV	Station V	Station I	Station II	Station III	Station IV	Station V	Station I	Station II	Station III	Station IV	Station V
1	Chlorophyceae	3678	3760	3592	3849	3050	3966	4001	4238	3874	4380	3890	3863	3737	3992	3837
2	Bacillariophyceae	3123	3475	3512	3391	3081	4168	3996	4044	4266	3917	4312	4132	4019	4230	5165
3	Cyanophyceae	1178	1494	2837	937	2995	1231	1382	4229	1145	4602	1381	1560	3473	1444	3292
4	Euglenophyceae	842	946	707	678	1206	1189	1222	1236	958	1206	1523	1405	1104	1569	1206