



## Morphoecological Studies Phytoplankton of Bakchhera Dam (Rewa District) with special reference of BOD and COD

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### Abstract

In dam ecosystems, phytoplankton communities can be studied by adopting taxonomic-based approaches. However, these approaches suffer from identification issues and are sometimes of limited ecosystem ecological value. The recent development of functional approaches may allow an evaluation of other aspects of ecosystem quality, functions and interactions with abiotic parameters or other communities. In the present work phytoplankton of Bakchhera Dam of Rewa district Madhya Pradesh was investigated and various morphoecological parameters such as BOS and COD was reported.

**Key-words:** Phytoplankton, Rewa, Dam

### Introduction

In water bodies, phytoplankton communities are key elements of ecosystems, regulating biogeochemical cycles and representing one of the most important photoautotrophic primary producer. Because of their rapid responses to water quality and anthropogenic pressures, phytoplankton communities are commonly used as trophic and ecological indicator. Therefore, they are mainly studied using a classical taxonomic-based approach, i.e. abundance and biovolume of species. The selection is usually based upon the most common species of the phytoplankton community, for which information and ecological profiles can be established. Therefore, the assessment is only based on a part of the community. Data can be aggregated at higher taxonomic level (family or phylum) to take into account all available taxa. However, different taxa of the same phylum can indicate a very different ecological status while species from

different phylum can reflect very similar ecological conditions. Moreover, the ecological significance can be neutralized at the phylum level by species indicative of opposite conditions. Phytoplankton play the role of primary producer in aquatic food chain and are important indicator of ecosystem health and integrity. However, due to the massive proliferation of phytoplankton, both the physico-chemical factors and phytoplankton in Bakchhera Dam of Rewa district Madhya Pradesh are in the eutrophication stage, and the availability of phytoplankton in Bakshera Dam of is constantly changing and in an unstable stage. It is important to know when the blooms of phytoplankton occur. In the present investigation BOS and COD was reported.

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## Methodology

### Study sites

The present study was conducted in Bakchhera Dam, which is present in Raipur Kalchuriyan, Rewa District of Madhya Pradesh.

The census code of this hamlet is 467336, which is located in Raipur - Karchuliyan Tahsil of Rewa in Madhya Pradesh, India. The total area of this village is 281.71 Hectares. The Tahsildar office is located in Raipur - Karchuliyan and it is 8.0 kilometre distance from this location.



**Fig. 1: Location of Bakchhera Dam in Rewa District**

### Study duration

The study was conducted for a period of one year and four reading were taken in a year in random way.

### BOD

BOD measures the amount of oxygen required or consumed for the microbiological decomposition (oxidation) of organic material in water. It is calculated by keeping a sample of water containing a known amount of oxygen for five days at 20°C.

### COD

Chemical Oxygen Demand (COD) is an alternative measure of the oxygen equivalent of the organic matter content of a sample that is susceptible to oxidation by a strong chemical exigent. COD can be empirically related to BOD.

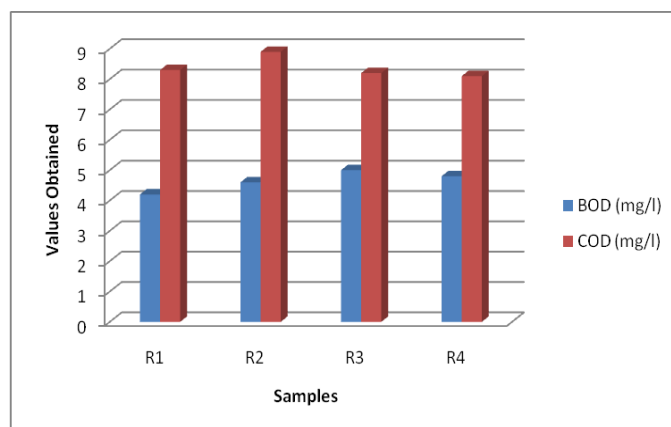
After this correlation is determined for a specific source, it is a useful measure obtained from an instantaneous chemical test. Dissolved oxygen concentration (DO) is a better general environmental monitoring indicator that is also applicable to assessing organic pollution. DO also has known concentration limits for a variety of aquatic species.

## Results and Discussion

The study was conducted for a period of one year to determine the BOD and COD of Bakchhera Dam, which is present in Raipur Kalchuriyan, Rewa District of Madhya Pradesh. During this tenure four reading were taken and the results are presented in table 1.

**Table 1: BOD and COD of Phytoplankton of Bakchhera Dam**

S/No.	Parameters	R1	R2	R3	R4
1.	BOD (mg/l)	4.2	4.6	5.0	4.8
2.	COD (mg/l)	8.3	8.9	8.2	8.1



**Graph 1: BOD & COD Values of Phytoplankton of Bakchhera Dam**

## Conclusion

The result indicated that the BOD and COD in Bakchhera Dam, which is present in Raipur Kalchuriyan, Rewa District of Madhya Pradesh is found within the limit.

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