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Research Article

Phycological studies of Segwal dam at Barwani district, (Madhya Pradesh) India

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Abstract

The present paper deals with the phycological studies of Segwal dam at Barwani district of Madhya Pradesh. The study revealed in all 22 species belonging to 20 genera of algae. Out of these 8 species belong to Cyanophyceae, 7 species to Chlorophyceae, 4 species to Bacillariophyceae and only 1 species of Euglenophyceae and 2 species of Dinoflagellates . On account of human activties, the dam water is gradually becoming polluted day by day. Hence such adverse activities should be checked by the concerning authorities as early as possible.

INTRODUCTION

Phycology is one of the branches of biological sciences which deals with algae. Algae are generally aquatic and characterized by parenchymatous plant body having cellulose cell walls, chlorophyllose cells, starch as reserve food, light being essential for growth and with progressive complexity in reproduction. Algae are variously used as food for human beings, fodder for cattle and fishes, scavengers to clear sewage, fertilizer to increase the soil fertility, but some members of algae are also harmful causing contamination of water which ultimately results in death of aquatic organisms.

Segwal dam (22.03^{0}C"11'N Lat., 70.21^{0}C"46'E Long. and about 250 m above ms) is situated in Segwal village which is 70 km from Barwani , Madhya Pradesh. It is about 150 km from Khandwa Central Railway station. The climate of this area is monsoonic and the average annual precipitation is 734 mm. The minimum and maximum temperatures are 11.3^{0}C (in February) and 45.5^{0}C (in May) respectively. The dam water is polluted by anthropogenic activities, hence it is gradually becoming unsuitable for drinking purposes. So far as no research work has been done about the water quality and occurrence of phytoplankton in this aquatic body, hence the present investigation has been undertaken.

MATERIALS AND METHODS

The present work was done in the year 2018-2019 and during this period frequentvisits were performed at Segwal dam in different seasons of the year .The algal samples were collected with the help of plankton net and brought to the laboratory for identification both in living as well as preserved conditions. The identification was done with the help of standard literature and monographs (Agarker, Agarkar and Banergi, 1983; Ahmed, 1967; Desikachary, 1959; Hegde,1986; Kamat,1984 and Mahajan,1987). During this investigation, the various algae reported from Segwal dam are enumerated in Table 1 and diversity of algaeand total number of species with their locations are shown in Table 2. The collected material is deposited in Botany Department,Govt.S.N.P.G.College, Khandwa for future records.

Table 1. showing the taxonomic enumeration of algae in Segwal dam in 2018-19

Class: Cyanophyceae
1. *Anabaena*
2. *Aphanothece*
3. *Chroococcus*
4. Cylindrospermum
5. *Merismopedia*
6. *Phormidium*
7. *Oscillatoria princeps*
8. *Oscillatoria curviceps*

Class: Chlorophyceae
1. *Chlorella*
2. Closterium
3. *Cosmarium*
4. *Pediastrum*
5. *Scenedesmus denticulatum*
6. *Scenedesmus quadrifida*
7. *Spirogyra*

Class: Bacillariophyceae
1. *Cymbella*
2. *Navicula*
3. *Nitzschia*
4. *Pinnularia*

Class: Euglenophyceae
1. *Euglena*

Class : Dinoflagellates
1. *Ceratium*
2. *Dinobryon*

Table 2 Showing the diversity of algae and total number of species with their locations

Locations	**Cyano-Phyceae**	**Chloro-phyceae**	**Bacillario-phyceae**	**Eugleno-phyceae**	**Dinoflagellates**	**Toatal**
1. Station I (North side)	6	6	3	1	2	18
2. Station II (East side **)**	8	7	4	1	2	22
Station III (South side)	4	2	3	1	2	10

RESULTS AND DISCUSSION

During biological analysis of sampling water of Segwal dam, It was revealed that five groups of algae i.e. Cyanophyceae, Chlorophyceae, Bacillariophyceae, Euglenophyceae and Dinoflagellates are present in all 22 algal species belonging to 20 genera were identified. Out of this 8 members belong to Cyanophyceae, 7 to Chlorophyceae, 4 to Bacillariophyceae, 1 to Euglenophyceae and 2 members to Dinoflagellates. Members of Bacillariophyceae were reported during summer months than that of winter months. The members of Cyanophyceae were reported throughout the study year. As regards Chlorophyceae , the members were reported during summer and rainy months in the present study.

Thus it is obvious that the dominant groups are Cyanophyceae and Chlorophyceae. Members of Euglenophyceae and Dinoflagellates are reported from all the selected stations during summer months.

The important genera are *Anabaena, Chlorella, Netrium, Scenedesmus denticulatus, Closterium, Oscillatoria princeps, Aphanothece, Pinnularia, Cymbella, Nitzschia, Euglena* and *Ceratium.* The water is polluted by anthropogenic activities and fishing practices. Moreover various pesticides used by the agriculturists also cause contamination of the aquatic bodies. Hence in order to check the contamination of water, it is necessary that these anthropogenic activities should be controlled and fishing practices should also be banned by the concerning authorities. Further research work is in progress.

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