

Diversity of Phytoplankton in Jaliyapani Reservoir Distt.Barwani (M.P.)



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Abstract

Biodiversity is the shortened form of two word's "biological" and "diversity". It refers to all the variety of life that can be found on earth (plants, animals, fungi and Micro-Organism) as well to the communities that they from habitats in which they live. Biodiversity is not only the sum of all ecosystem, species and genetic material. Rather, it represents the variability within and among them. Phytoplankton constitutes a vital link in the food chain of an ecosystem and fish yield is to a great extent depending on their abundance. The abundance of Phytoplankton is more of less governed by the interaction of number of Physical, Chemical and biological processes. The present investigation was undertaken to study the biodiversity of Phytoplankton in "Jaliyapani Reservoir" of Disst Barwani. M.P. A total 30 species belonging to four groups have been identified. Chlorophyceae 15 species Bacillariophyceae 6 species Cyanophceae 8 species and Euglenophyceae 1 species contributed to Phytoplankton in the Jaliyapani reservoir. Phytoplankton diversity of this reservoir is higher in comparison to running water body link river Nalaha (Narmada). Where only 30 genera of Phytoplankton occur.

Keywords: Phytoplankton, Diversity, Jaliyapani Reservoir.

Introduction

The proposed study area i.e, Jaliyapani reservoir, of Dist. Barwani is situated in the South – Western part of the state of M.P. It lies between the parallels of 21°62'30"N- latitude and 76°55'00" E-longitude. It covers an area of 3664.68 sq. k.m. Satpura in the south, Vindhyanchal in the study area in maikal range in the east. Physiological area is hilly with plains the general topographic elevation is 167-200 m. from mean Sea-level.Average annual rainfall is around 400-700mm.(i.e.2070 inch) contributed by south west monsoon.

Plankton is weakly swimming but most drifting small organism that in habit called the water column of ocean, and bodies of fresh water. The name comes from the Greek team, plankton meaning "Wanderer" and "drifter". Plankton is composed of tiny plant called phytoplankton and animal called zooplankton, as well as organism that are not easily classified in to those two groups (such as Protozoa' s and bacteria). Plank tonic organism are suspended in water and are so small that even slight current move them about .Fish eat phytoplankton, zooplankton and tiny plants and animals attached to objects on the pond bottom. They are also being used as bioindicators of water quality. Many studies on phytoplankton and water quality of fresh water have been conducted from all over India.

Aim of the Study

The present investigation was undertaken to study the biodiversity of Phytoplankton in "Jaliyapani Reservoir" of Disst Barwani. M.P. A total 30 species belonging to four groups have been identified. Chlorophyceae 15 species Bacillariophyceae 6 species Cyanophceae 8 species and Euglenophyceae 1 species contributed to Phytoplankton in the Jaliyapani reservoir. Phytoplankton diversity of this reservoir is higher in comparison to running water body link river Nalaha (Narmada). Where only 30 genera of Phytoplankton occur

Material and Methods

The plankton samples were collected following Welch and Lind by filtering 40 liters of water through small plankton net made up of bolting silk no. 25 (64 u mesh size). The concentrate was preserved in 5% formalin solution for phytoplankton study respectively. The systematic identification of plankton was made by standard Key of Adoni A.D(1985) ., Apha Awwa

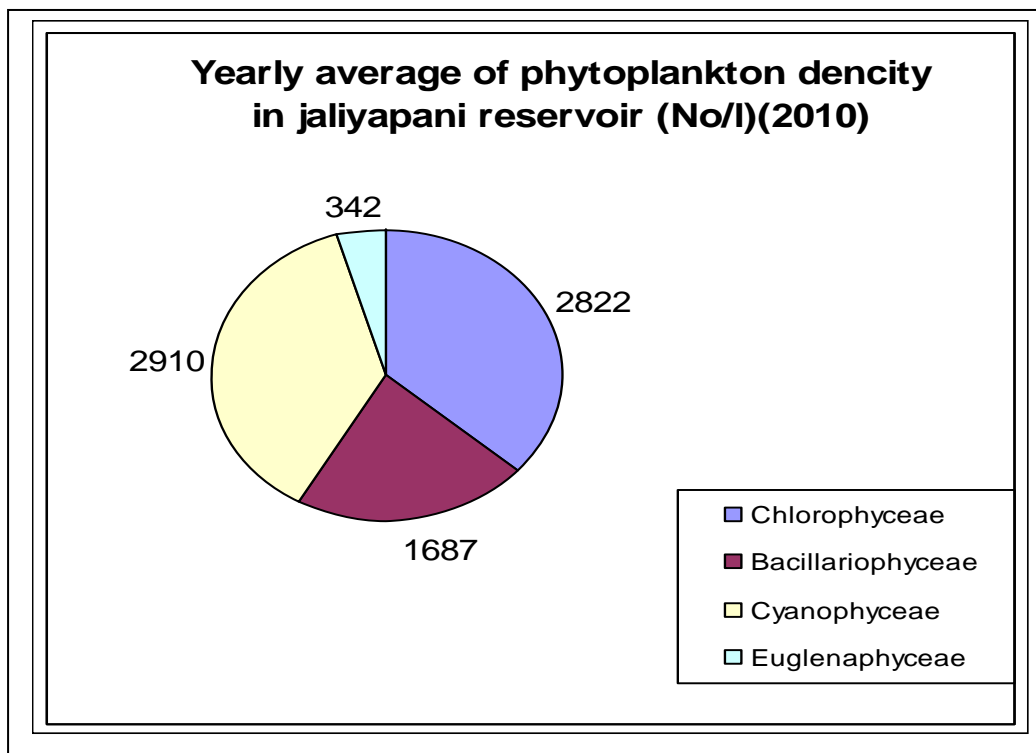
and WPCE, Standard methods for the examination of water and wastewater, Batnagar (1984)., Limnology of lower lake of Bhopal with special references. Biswas S. P., Boyd,(1981). Influences of Nunia Nullan (Canal) Discharge on plankton.Abundances and Diversity. Chouhan, P. and Kanhere (2006)., Study of fish productivity in to fresh water ponds.,Gaikawad S.R., Kumar(2005). Diversity of plankton in the oslofjord; Rapp, Gautam A(1988) Limnological studies and seasonal variation in the plankton organism and primary production in the upper lake of Bhopal., Lawis (1974). Mahor R.Kanhere., diversity and seasonal fluctuation of zooplankton in fresh water reservoir Tighra Gwalior (M.P., Zafar AR.(1986)., Studied zooplankton of Fresh water Reservoir Nyari-II Rajkot District, Gujarat, India..Life Sciencem Bulletin, 4(1&2)2007(17-20.).

Result and Discussion

A Total of 30 species belonging to group have been identified. Chlorophyceae 15species Bacillariophyceae 6 specie Cynophyceae 8 species and Euglenophyceae 1 species contributed to phytoplankton into Jaliyapani reservoir.Some species

of Chlorophyceae are Chara sp., Ankistrodesmus sp., Cloreaala sp., Coelastrum sp., Volvox sp., Zygnema sp., Ulothrix sp., Spirogyra sp., Scenedes musdiamorph sp., Pediastrum sp., Pandorina sp.,Oedogonium sp., Mougeotia sp., Gonium sp., Closterium sp., Bacilliaophyceae are Frustulia sp., Pinnularia sp., Amphora sp., Diatoma sp., Novicula sp., Tabellaria sp. Cyanophyceae are Microcystis sp.,Merismopedia sp., Anabaenopsis sp., Aphanizomenon sp., Spirulina sp., Nostoc sp., Oscillatoria sp., Liyngbya sp. Euglenophyceae Euglena sp.Protozoan the minimum density was noticed in May and maximum recorded in September month.Similar observation made by D.Verma R.K²⁰.

We were recorded Chlorophyceae (36.36%), Bacillariophyceae (21.73%), Cynophyceae (37.49%) and Euglenophyceae (4.40%).A number of Cynophyceae are higher than other groups but Chlorophyceae species density of in higher than Cynophyceae. We were found Chlorophyceae and Cynophyceae similar and Bacillariophyceae and Euglenophyceae are similar in the reservoir.



Remarking An Analisation

Table - 01 :- Monthly variation in Phytoplankton density in Jaliyapani Reservoir (No./I) (2010)

S. No	Name of group and species	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Annual Total	Status
Chlorophyceae															
1	Chara sp.	23	11	0	2	2	6	12	24	26	14	21	21	162	C
2	Ankistrodesmus sp.	23	13	6	7	4	1	9	26	23	25	25	23	185	C
3	Cloreaala sp.	21	8	8	12	7	3	14	23	28	28	26	21	199	A
4	Coelastrum sp.	16	5	7	8	6	8	2	21	41	31	18	25	188	A
5	Volvox sp.	21	9	4	6	4	4	11	27	27	36	12	15	176	A
6	Zygnema sp.	14	6	6	13	3	6	18	45	24	21	27	17	200	C
7	Ulothrix sp.	18	2	3	3	2	4	14	32	16	24	29	12	159	C
8	Spirogyra sp.	16	6	1	7	2	2	15	26	38	28	32	24	197	A
9	Scenedesmusdiamorph sp.	21	7	0	12	1	0	11	38	61	26	17	22	216	A
10	Pediastrum sp.	25	4	9	5	4	4	13	29	24	19	82	38	256	A
11	Pandorina sp.	21	9	3	0	3	6	0	18	41	24	24	24	173	A
12	Oedogonium sp.	12	8	5	9	0	3	8	34	35	25	10	22	171	A
13	Mougeotia sp.	14	4	6	4	7	0	14	14	36	28	33	26	186	C
14	Gonium sp.	16	7	9	9	0	2	8	15	37	27	39	18	187	A
15	Closterium sp.	8	3	3	5	3	3	3	26	47	21	24	21	167	C
Total species		269	102	70	102	48	52	152	398	504	377	419	329	2822	
Bacillariophyceae															
1	Frustulia sp.	0	14	4	6	2	6	26	26	56	29	23	19	211	A
2	Pinnularia sp.	21	21	12	5	6	4	18	35	32	33	31	25	243	A
3	Amphora sp.	65	41	21	0	4	5	41	39	54	38	34	45	387	A
4	Diatoma sp.	25	21	11	8	6	8	13	58	58	58	40	25	331	A
5	Novicula sp.	24	23	8	7	5	0	25	41	36	45	41	26	281	C
6	Tabellaria sp.	0	21	4	7	6	0	23	25	38	37	39	34	234	C
Total species		135	141	60	33	29	23	146	224	274	240	208	174	1687	
Cyanophyceae															
1	Microcystis sp.	25	12	15	8	12	6	45	38	62	12	52	23	310	A
2	Merismopedia sp.	23	4	12	9	5	7	26	45	32	15	21	25	224	A
3	Anabaenopsis sp.	31	14	13	5	6	0	38	52	41	16	26	36	278	A
4	Aphanizomenon sp.	30	12	8	4	8	8	34	46	22	25	32	62	291	A
5	Spirulina sp.	29	16	21	15	7	14	39	36	46	74	35	32	364	A
6	Nostoc sp.	54	15	12	8	2	6	35	38	38	65	36	23	332	C
7	Oscillatoria sp.	54	38	28	10	4	8	67	89	120	141	109	83	751	A
8	Liyngbya sp.	46	14	26	0	9	0	55	39	45	35	45	46	360	A
Total species		292	125	135	59	53	49	339	383	406	383	356	330	2910	
Euglenaphyceae															
1	Euglena sp.	23	16	21	21	2	1	31	62	54	41	32	38	342	A
Total species		23	16	21	21	2	1	31	62	54	41	32	38	342	

A=Abundance, C=Common

Phytoplankton
Group: - Chlorophyceae



Fig :-1.Chara Sp



Fig:-2.Ankistrodesmus sp.



Fig: -3.Coelastrum sp.

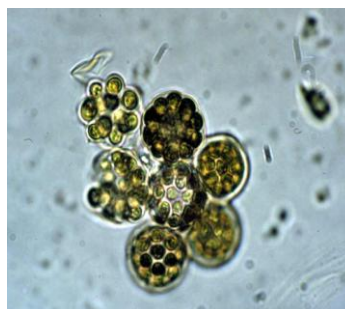


Fig: -4. Chlorella sp.



Fig:-5.Volvox sp.

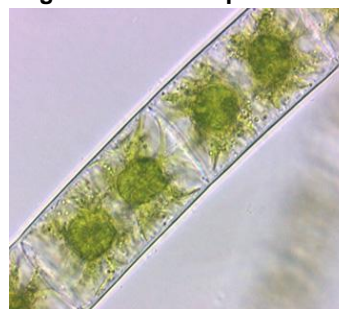


Fig:-6. Zygnema sp.

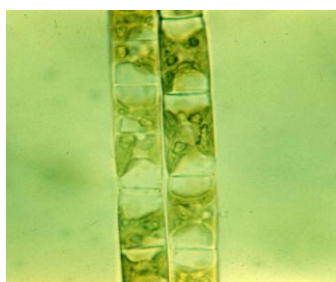


Fig :- 7.Ulothrix sp.

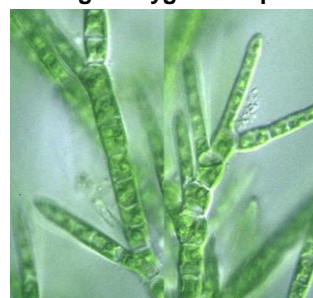


Fig :-8.Spirogyra sp.



Fig :-9.Scenedesmusdiamorph sp.



Fig :-10.Pediastrum sp.



Fig :-11.Pandorina sp.

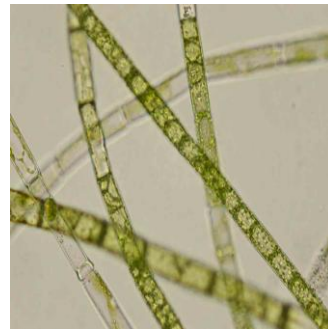


Fig :-12.Oedogonium sp.

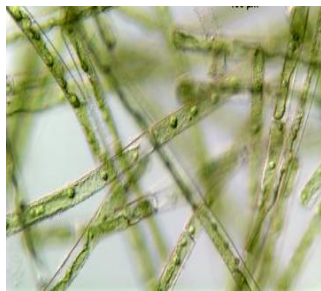


Fig :-13.Mougeotia sp.

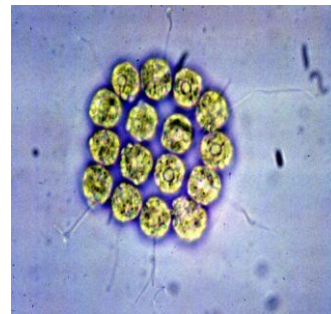


Fig :-14.Gonium sp.



Fig :-15.Closterium sp.

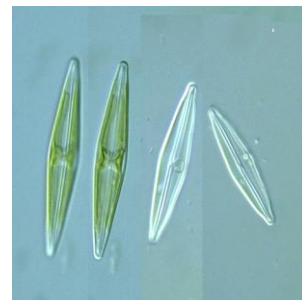


Fig :- 16.Fengularia sp.



Fig :- 17.Pinnularia sp.

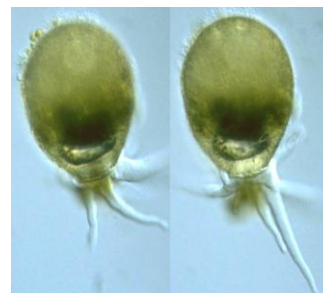


Fig :- 18.Amphora sp.



Fig :-19.Diatoma sp.



Fig :-20.Novicula sp.

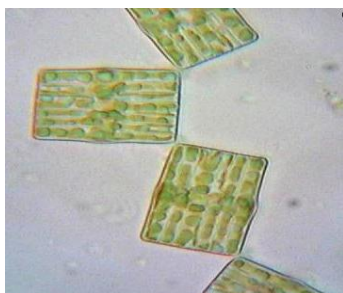


Fig :-21.Tabellaria sp.

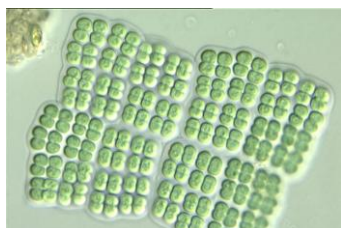


Fig :-23.Merismopedia sp.



Fig :-25.Oscillatoria sp.



Fig :-27.Liyngbya sp.

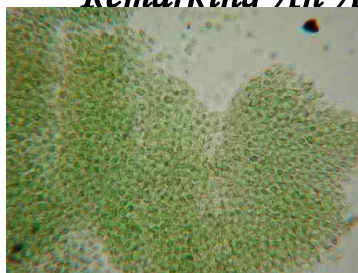


Fig :- 22.Microcystis sp.



Fig :- 24.Aphanizomenon sp.



Fig :-26.Nostoc sp.



Fig - 28.Euglena sp.

Phytoplankton genera identified in Reservoir during Jan. to 2008 to 2010

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