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Physico-Chemical Properties and Biodiversity of Ishangagar Tank at Chhatarpur District (M.P.)

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Abstract

Assaying of Ishangagar tank water was performed in Ishangagar village of Chhatarpur district (M.P.) during 2012-2013 via physico-chemical properties and biodiversity. Water samples were collected from specific sites and subjected to analysis. Fluctuation of physico-chemical parameters and biodiversity in different seasons. Given were from the observed results it can be interred that in summer season. Water quality of tank very critical (polluted) for microbial population growth and for animals also.

Keywords: Phyico Chemical, Biodiversity.

Introduction

Tank are the most important water resourc for villagers. The water quality of these tanks is major factor in determining the welfare of Cities and Villages but these days the quality of pond waters is getting worse due to poor sanitation facilities for the people or with the demand of water for domestic, agriculture and animals. Keeping these facts in view quick simple and analytic methods of quality. Evaluation of tank water was carried out in Ishangagar Chhatarpur district of (M.P.) This region is an important place of biodiversity of tropical dry deciduous region. The parameters analyzed were physic-chemical (BOD, COD, Cod and metal concentration (Ca, N, P, and NO_3) bacterial cells count specific activities of Cynobacterial cells, flora and fauna given in this paper.

Material and Methods

Water sample were collected from the site tank in sterilized polypropylene capped bottles, Kept in the cold condition. Brought and stored in the laboratory and subjected to analysis.

Chemical and biological methods for water pollution studies by Trividy and Goel (1986) were adopted for physico-chemical analysis.

pH, Total hardness, dissolved O_2 , free CO_2 , P, N, Cl, Nitrogen Total Nitrates analyzed as per methods given by APHA (1980)

Biological parameters for bacteria and Cyanobacteria counting done by und et al (1958). Identification done by according to Desikaxhary (1959) Flora and founa by phyto –sociological methods by Rauin keir (1936).

Table -1

Seasonal Variation in Dissolved Oxygen of Water at Study Site during (2012-2013)

Table -2

Seasonal variation in Dissolved Carbon Di-Oxide of Water at Study Site (During 2012-2013)

Seasons	Littoral Zone		Limnatic Zone		Average
	Max.	Min.	Max.	Min.	
Rainy	1.80	1.82	1.83	1.81	1.82
Winter	2.52	2.60	2.59	2.55	2.57
summer	2.44	2.45	2.46	2.46	2.45

Table -3
Seasonal Variation In Ph Of Water At Study Sites
(During 2012-2013)

Seasons	Littoral Zone		Limnatic Zone		Average
	Max.	Min.	Max.	Min.	
Rainy	7.80	7.93	7.65	7.85	7.83
Winter	7.50	7.60	7.58	7.55	7.55
summer	7.90	7.98	7.98	8.13	7.98

Table -4
Seasonal Variation in Minerals of Water at Study
Sites (During 2012-2013)

Seasons	Cal	Mg	P	NO ₂	NO ₃	CL
Rainy	28.15	10.11	0.18	0.40	0.04	21.42
Winter	45.55	7.63	0.31	0.25	0.05	19.38
summer	43.00	19.55	0.18	0.48	0.02	21.09

Table -5
Biodiversity of Bacteria and Cynobacteria

S.No.	Group	Genus
1.	Bacillariophyceae	Synedra, Asteriondla, Navicula, Nitzchia Cosmariam, Closterium, Fragillaria
2.	Cynophyceae	Microcystis, Anabaena , Osallatoria, Nostoc Gloetrichie.

Result and Discussion

During the study period seasonal variation in Dissolved oxygen maximum values found in summer season 13.56 while minimum in winter 5.61 Dissolved Carbon dioxide maximum 2.57 in winter and minimum 1.82 in rainy season. pH range was highest in summer 7.78 and lowest in winter.

In minerals Calcium and Chloride level is much higher than Mg, P, N and nitrate. In winter

calcium level reached upto 45.55 and calcium 21.42 in rainy season. In physico-chemical study phosphorus level and nitrogen level is less than others.

Biological studies shows there are of species of bacteria and species of cynobacteria present (Given in table 4-5) In the present study the phytoplankton have studied. The microcystis was dominant in all the seasons. The minimum phytoplankton were during July in both years.

Conclusion

Present study revealed that cyprinidae (carps) were the dominant fish and catla was a major contributor among corps. Carps are fast growing fish and popularity preferred fishes from point of view of their suitability following species were noted to be suitable for Ishanagar Tank. Catla-catla, Labeo rohita, Cirrhinus mrigals Labeo calbasu Barbus tor and Cirrhinus reba etc. physico-chemical components are also favorable for above fishes.

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