

PHOSPHATE PRESENT IN THE BACK POND WATER SAMPLE OF NERUL

*** Dr. Yashodhara Varale**

Department of Environmental Study, Dr. Ambedkar College of Commerce and Economics,
WADALA (E) MUMBAI

Email Address: Yashodharavarale@gmail.com

ABSTRACT

The pond water samples were collected from the back pond water, Nerul and analysed every month for six months. So, we have studied levels of phosphate in back pond water near the sewage disposal sites. Phosphate content was 2.3 mg/L.

Keywords: Pond water sample, Pollutants, Phosphate.

1. Introduction

Due to increase the discharge of domestic wastes, bathing and washing cattle's in back water ponds, nerul created serious problems of water pollution. In developing countries like India, this problem has become acute day by day [1-3]. In the present study, the levels of phosphate were studied in the back pond water at nerul. The pond water samples were taken from ponds in the glass bottles by following standard procedure. Samples were taken from ponds which are located at Nerul. The samples were collected every month for six months and analysed in laboratory for the levels of phosphate [2-3].

2. Materials and Methods Experimental

Methodology for determination of phosphate there are several methods available for the determination of orthophosphate viz. vanado – molybdate method, molybdenum blue method and ascorbic acid method^{4, 5}. Out of these, vandomolybdate method was chosen in the present work for the estimation phosphate in water samples. This method is considered to be slightly less sensitive than the molybdenum blue method but it has been particularly useful for phosphorus determination carried out by means of schooner Oxygen flask method^{6, 7}. The phosphor -vanado-molybdate complex formed between the phosphate, ammonium vanadate and ammonium molybdate is bright yellow in colour and its absorbance is measured at 465 nm.

3. Reagents

- a) Ammonium vanadate solution.
- b) Ammonium molybdate solution.

c) Standard phosphate solution.

4. Results and discussion

Phosphates occur in natural wastes and waste water as Orthophosphates, condensed phosphate and organically bound phosphates, in solution, particulate matter and in the bodies of aquatic of micro-organism. Orthophosphates are applied to agricultural or residential cultivated land as fertilizers and transported in to surface water during stormy runoff. Organic phosphate is formed. Primarily by biological processes from orthophosphates. They are contributed to sewage by loody wastes and food residues. The quantities of phosphates varied throughout the investigation at all stations of pond waters. This might due to constant contamination of domestic sewage, cloth washing, bathing, decay of aquatic organisms and mankind activities similar collaboration between amount of phosphate and human activities was observed by Hutchinson. (1957)

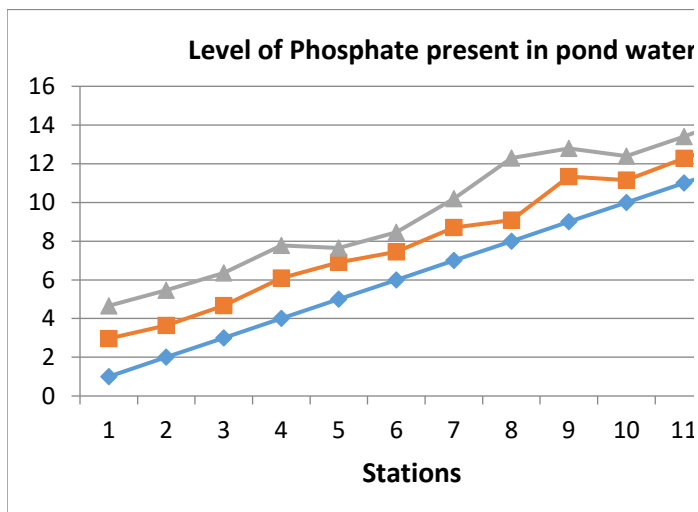
From Table, concentration of phosphate in back pond water and leaching from the agricultural land is also strong possibility. Ranged from 1.57 mg/L. In January to 2.15 mg/L in June).

Table 1: Total Phosphate (mg/lit) in pond water sample

stations	Jan	Feb	Mar	April	May	June
1	2.29	5.99	2.22	1.93	1.72	0.02
2	2.15	4.02	1.33	1.26	1.07	0.07
3	2.55	5.21	1.65	1.47	1.23	0.03
4	3.26	5.55	2.18	1.61	2.12	2.12
5	2.82	4.81	2.04	1.85	2.15	2.15
6	2.17	4.32	1.48	1.33	1.18	1.18
7	1.75	4.93	1.43	1.64	1.26	0.00
8	1.57	1.04	0.99	1.23	1.18	0.00
9	1.58	4.63	1.21	1.33	12.26	0.70
10	1.60	4.74	1.16	1.32	1.27	0.00
11	2.46	3.47	2.71	1.25	1.58	0.01
12	2.35	4.43	1.56	1.36	1.46	0.00

Fig. 1 Phosphate (mg/lit) in pond water sample

Stations	Average	SD
1	1.97	1.69
2	1.65	1.81
3	1.67	1.69
4	2.09	1.69
5	1.90	1.74
6	1.44	1.01
7	1.70	1.50
8	1.08	3.21
9	2.33	1.46
10	1.16	1.24
11	1.28	1.12
12	1.27	1.26



5. Conclusion

The present study has shown higher phosphate level regardless of seasonal fluctuations, indicating succession of surface water i.e. pond water from Oligotrophic to eutrophic state. Water at sampling site 4,5,6,7 showed higher average value of phosphate to city sewage and domestic waste mixing in to the surface waters. A contribution, most likely due to industrial effluents and leaching from the agricultural land, is also a strong possibility. A similar profile emerged regardless of seasons. According to Edmondson, therefore, sewage effluents have been regarded on good source of phosphates

6. References

- [1]. A. K. Peter, Sources and Classification of Water Pollutions, in Industrial Pollution Van Nostrand Reinhold Co., New York, 5, 1974, 120-126.
- [2] American Public Health Association (APHA), American Water Works Association (AWWA) & Water Environment Federation (WEF) Standard Methods for the Examination of Water and Wastewater, 2012; 21st Edition, Washington, D.C
- [3]. C. B. Rao. On the Distribution of Algae in a Group of Six Small Ponds, J. Ecol., 43,291-308., 1955
- [4]. D. S. Ramteke and C. A Moghe , Manual on Water and Waste Water Analysis NEERI Nagpur, 3, 135- 138 . 1986,
- [5]. H. M. Raghunath, Importance of Ground Water, Wiley Eastern Ltd. New Delhi, India.
- [6]. N. J. Pawar, Hydro Chemical Facies of Shallow Ground Water from the Poona Area, Maharashtra Hydrology of Volcanic Terrain, S. S University of Poona, 2, 137-153,1986
- [7]. S. R. Rao and S. M. Shah, Elemental Concepts in the Environmental Samples BARC, Mumbai, 2, 520-527 ,1976
- [8]. W. Salomons, H. Kirdijk and R, Boxma, Effectt of Waste Disposal on Ground Water, Proc. Exeter. Symp., 39, 257-269 ,1982
- [9]. W. A. Petly John ,Water Quality in a Stressed Environment, Burgess Publishing Co., Minnesota, 4, 48-55,1972
- [10].Varale Y.S., Study of dissolved oxygen present in the underground water of Nipani town, *Current world environment*, 4(2), 421-423, 2009
- [11].Varale Y.S.,Study of chemical oxygen demand present in the underground water of nipani town, *Acta Chim. Pharm. Indica* , 2(2),82-84.2012
