

Comparative study of biological oxygen demand of some ponds of Durg District (C.G) India

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Abstract: In the present study report biochemical oxygen demand values of some selected ponds of Durg district located minimum 10 km distance to each other that is used by local person of that area. The values ranged from 3 to 7mg/l. comparatively there is variation found the values due to location and depends upon the use.

Key words : BOD, Pond Durg District.

I. Introduction

Water is the most important gift of nature to the mankind and very essential for survival of life and various body activity. But due to uncontrolled population, deforestation, industrialization and modern agriculture which result in the continuous discharge of pollutants, which are more hazardous to everyday life, they become more toxic for all forms of life. If the toxic chemicals mixed in water bodies they alter the food chain as well as ecological balance. Toxic pollutants when enter in the water body it change the physicochemical properties of water and cause of various pathological changes in the body of living organisms (both animal and plant).

BOD is an important parameter that indicates the magnitude of water pollution by the oxidizable organic matter and oxygen used to oxidize inorganic material such as sulphides and ferrous ions (APHA 1971, Desmukh et al. 2012). It measures the ability of naturally occurring microorganisms to digest organic matter. It provides a quantitative measure of the amount of oxygen required to maintain the growth and activities of the biological organisms responsible for the aerobic digestion of the organic and putrescible matter.

This test is widely used to determine the degree of pollution (NEERI 1998) in lakes and streams and their self purification capacity and efficiency of waste water treatment methods. This test is mainly a bioassay procedure involving measurement of O₂ consumed by bacteria while stabilizing organic matter under aerobic condition. Durg is one important city of C.G. state located near back of river Shivnath. There are many ponds located in the city its water is used for different purposes by the local people of that area for different activities.

II. Material And Methods

The samples were collected from different ponds located in the city for analysis of BOD. Water analysis was performed by Winkler's method as given in NEERI (1986).

III. Result

The BOD test may be considered as wet oxidation procedure in which the living organisms serve as the medium for oxidation of organic matter to CO₂ and water. A quantitative relationship exists between the amount of oxygen any given organic compound to CO₂, water and ammonia (Sawyer and McCarty, 1978). In the present investigation the mean value of BOD were observed maximum in sample 6, 7 and 8 due to contamination of water and highly used by local people of that area. The mean values of BOD are given in table 1.

IV. Discussion

The BOD indicates amount of organic matter present in polluted water due to that it can be decomposed by bacteria under aerobic condition. This test is widely used to determine the degree of pollution inside the water bodies (NEERI 1998).

V. Conclusion

It can be concluded from the observation that the values are well above the permissible level in all sample sites. The permissible level of BOD in potable water is 6mg/l as suggested.

The highest BOD was in sample site 4 due to presence of high amount of organic matter comes from manmade source and due to highly utilization by local people of that area.

Singh (1997) recorded the BOD value ranging from 1.4 to 1.2 mg/l from river Ganga at Patna. Dubey (1997) recorded BOD values between 12 to 16.8 mg/l in Narmada river. Shivkumar (1998) recorded the BOD values at different station in Godavari at different station. Desmukh (2012) recorded BOD value of Godavari river from 1998 to 1999. Desmukh et al recorded values of Kham river range from 2.60 to 26.5 mg/l. Pondhe 1995, Reddy et al 1994, Joshi et al 1995 also study the BOD value of different rivers. Kulkarni et al (1995) noted BOD values in the range of 2.8 to 5.36 mg/l from Sadatpur reservoir.

It was observed that sample sites 3, 4, and 9 have more BOD value. It is very polluted and unfit for public supply and other home apod for thpliance. and presence of high amount of organic matter due more used by common local person of that area. so it should be try to check the pollution of that area. and aware people toward this.

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SN	Sample site	Value of BOD(mg/l)
1	Borsi pond	5.5
2	Shitla pond	5.8
3	Talpuri pond	6.0
4	Polsay pond	6.2
5	Pond of gayanagar	4.0
6	Pond of Shankar nagar	3.6
7	Gaya Nagar pond	4.2
8	Nehru Nagar Pond	5.6
9	Pond of Mohan Nahar	6.0
10	Pond of Deepak nagar	5.8

Graph 1 showing The mean BOD value

