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BOD Present in Pond Water Sample of Nipani Town

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Abstract: ***During present investigation of pond water pollution was calculated with the mearsument of level of Biological Oxygen Demand (BOD) contents. The pond water samples were collected from twelve ponds from Nipani town near sugar factory and analyzed every month throughout the year. So, we have studied levels of BOD in pond water sample. BOD was 30 mg/lit. The seasonal analysis indicated that the levels of BOD were generally higher in summer and winter than their levels in rainy season.***

Keywords: Pond water sample, pollutant, Biological Oxygen Demand (BOD)

1. Introduction

Industrialization and urbanization created serious problems of water pollution of surface water i.e. ponds, underground water tube-wells. In developing countries like India, this problem has become acute day by day.

In the present study, the levels of BOD were studied in the vicinity of Halsiddhanath sugar factory located at Nipani [1-2]. The pond water samples were taken from twelve underground tube wells in the glass bottles by following standard procedure. Samples were taken from twelve underground tube wells which are located at 1. Bhim Nagar, 2. Nagoba lane, 3.Kharade lane, 4. Namar mal, 5. Shivaji Nagar, 6. Andolan Nagar, 7. Kmgar Chowk, 8.Ambale plot, 9. Mestri Nagar, 10. Ramling Temple, 11. Mestri Nagar, 12. Bhise lane. The samples were collected every month throughout the every year and analyzed in laboratory for the levels of BOD [3-4].

2. Materials and Methods

BOD is the the amount of oxygen required by bacteria , while stabilizing decomposable organic matter under aerobic conditions. The decomposition of oraganic matter and metabolic activities of bacteria result in utilization of a part of the dissolved oxygen . The depletion of oxygen is considered as a measure of the amount of degradable organic matter in the sample under analysis.

Hammer (1977) gave details about the BOD test for polluted water and treated. effluents . This test was performed for the samples from industrial effluents in the present area under the study

Calculations- BOD = (Initial D.O – Final D.O) / ml of water volume of BOD bottles

3. Results and Discussion

The variations in the BOD were observed in pond water samples. Pond water samples higher level of BOD in February at sampling station 21 And corresponding low level of DO observed , clearly indicated that , the waste was mostly biodegradable and of human origin. The high level of BOD at sampling station 21 and 22 was more than the desirable limit (30mg/lit) .Suggested by Bureau of Indian Standards (Fig-20). At many places, BOD values in winter found in the range of 0 to 285 mg /lit, indicating wider fluctuations due to variable natural & man-made conditions in the pond water. The seasonal variations in (Table No-70) clearly shows that coverage value for various seasons , registering higher values in summer i.e. 31.49 mg/lit, followed in rainy season was 9.89 mg/lit. and in winter season was 6.40 mg /lit . This trend is similar to that observed by Varghese et.al (1992) in their studies. The trend in variation in BOD was due to variation in the quantum of natural flow surface water as a function of season as well as variation in the quantum of waste discharged. It is observed that higher level of BOD was due to flow of domestic as well as industrial waste. (Trivedi, 1998)

Table 1: Biological Oxygen Demand (mg/lit) in Pond Water Sample

Stations	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	10	40	6	60	55	20	10	11	12	11	12	10
2	5	32	120	20	2	19	12	13	13	14	16	11
3	8	90	16	21	4	13	8	9	10	11	12	8
4	40	87	280	45	105	50	35	30	29	32	35	25
5	16	37	18	43	4	26	15	16	17	18	19	14
6	20	35	50	8	7	24	14	16	18	16	18	12
7	10	29	28	10	13	30	16	18	20	20	22	17
8	5	30	60	14	18	6	5	4	5	4	6	4
9	12	28	61	12	14	9	4	5	7	8	8	6
10	15	40	63	11	55	0	8	10	12	7	10	7
11	12	20	4	3	8	8	6	7	8	8	9	29
12	10	34	7	20	5	50	30	35	36	33	34	25

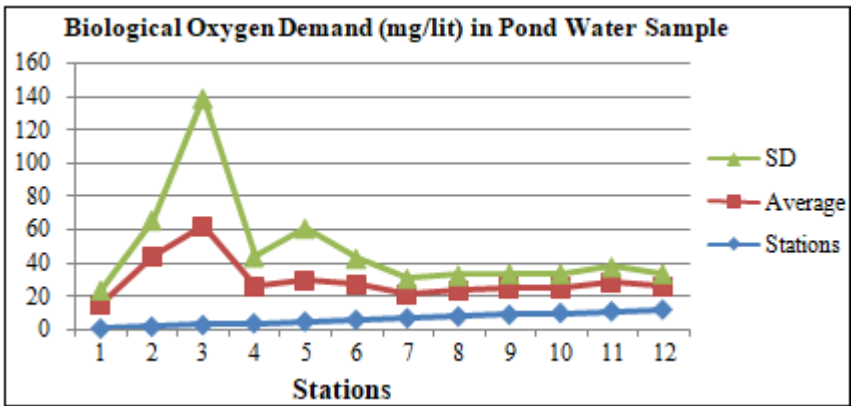

Figure 1: Biological Oxygen Demand (mg/lit) in Pond Water Sample

Stations	Average	SD
1	14	9
2	42	22
3	59	77
4	22	18
5	24	32
6	21	16
7	14	10
8	15	10
9	16	9
10	15	9
11	17	10
12	14	8

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