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STUDY OF CHEMICAL OXYGEN DEMAND PRESENT IN THE UNDERGROUND WATER OF NIPANI TOWN

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ABSTRACT

The ground water samples were taken from twelve tube-wells from Nipani town and analysed every month throughout the year. We have studied levels of chemical oxygen demand (COD) in this underground water. COD content was found higher than the desirable limit of COD (150) mg/L.

Key words: Underground water, Pollutants, Chemical oxygen demand (COD).

INTRODUCTION

In recent years, concern about environmental issues due to unplanned development, rapid urbanization, and rapidly increased industrialization has focused to attention of community to safeguard the changing environmental degradation, industrial effluents and domestic sewage are directly discharged into water bodies. This effects lack concern about growing water pollution in the country[1,2,3]. Therefore, assessment of water quality is an important mission and it can be carried out by using various physico-chemical and biological method as a first step in water quality management.

In the present study, the level of COD was studied in the vicinity of Halsiddhanath Sugar factory located at Nipani[4,5,6]. The underground water samples were taken from twelve tube-wells in the glass bottles by following standard procedure. Samples were taken from twelve underground tube-wells which are located at 1. Yamgarni 2. Janata housing colony 3. Jamdar Plot 4. Bagwan Galli 5. Kumbhar Galli 6. Burud Galli 7. Azad Galli 8. Ambale Plot 9. Mangalwar Peth 10. Ambalzari Nala 11. Nagoba Galli 12. Ayodhya Nagar. The samples were collected every month throughtout the year and analysed in laboratory for the levels of COD.

RESULTS AND DISCUSSION

Chemical oxygen demand (COD)

The average concentration of COD is found higher than the desirable limit of COD (150 mg/L) i.e. 3.29 mg/L to 172.08 mg/L. At sampling site at 4, 17, 21, 22 and 29 high COD was found, because of high load of discharge of industrial effluent in the present study[7,8].

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Higher COD level observed during Winter season as compare to summer season and followed in rainy season at various sampling stations due to waste material brought in during rainy season which gets deposited along the banks during summer, coupled with low microbial activity[9,10]. (Table 1 and 2).

Table 1: Chemical oxygen demand (mg/L) in tube-well water samples during the monitoring period (January 1999 to December 1999)

Stations	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
1	50.72	320.4	6.68	290.3	43.47	54.72	34.06	32.83	38.04	35.61	38.07	38.9
2	20.73	7.73	220.37	8.25	18.12	62.8	36.76	36.3	40.05	20.45	31.35	20.3
3	86.92	80.87	20.04	28.92	50.77	45.65	28.26	28.37	41.07	20.45	30.03	77.8
4	192.5	632.77	160.28	62.97	105.26	162.17	95.65	98.52	100.2	95.5	107.5	172.07
5	129.37	84.9	75.3	70.43	60.55	82.76	45.46	45.25	47.3	39.4	56.07	116.71
6	105.84	47.34	110.1	20.73	25.37	70.85	43.6	42.76	46.74	45.75	60.09	98.25
7	22.73	7.62	19.84	28.92	3.6	91.21	50.28	54.72	35.36	35.78	12.07	20.45
8	42.44	7.82	19.55	20.65	28.67	18.24	14.75	10.95	12.85	20.2	18.02	38.4
9	86.91	7.75	20.5	16.5	43.02	27.38	18.6	16.4	67.7	39.4	24.03	77.8
10	65.18	15.43	7.81	12.4	283.14	36.47	20.47	21.4	26.45	35.66	18.02	58.35
11	50.32	38.87	3.94	45.3	10.78	27.36	18.66	16.45	95.75	87.65	108.12	40.63
12	43.46	40.35	3.29	28.9	17.9	16.17	90.45	90.6	108.12	100.02	97.11	35.91

Table 2: Chemical oxygen demand (mg/L) in pond water samples during the monitoring period (January 1999 to December 1999)

Stations	Average	S.D
1	81.98	105.18
2	43.6	57.73
3	44.93	24.18
4	165.45	152.31
5	71.13	28.69
6	59.79	30.21
7	31.88	24.41
8	21.05	10.53
9	37.17	26.48
10	50.07	75.5
11	45.32	34.56
12	56.02	38.24

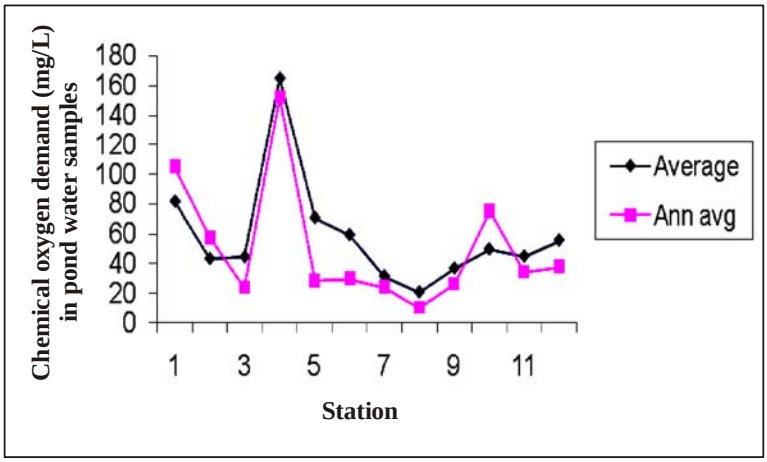

Fig. 1: Chemical oxygen demand (mg/L) in pond water samples during January 1999 to December 1999

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