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Short Communication

Distillery Effluent Induced Changes in BOD and COD of Narmada River Water at Khedighat, Barwaha, M.P.

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ABSTRACT

Present paper describes BOD and COD value of Narmada river at Khedighat, Barwaha (M.P.). Both the parameters were studied at three study point (A, B, C). BOD and COD were higher in study point B and C in comparison to study point A. However, both the studied parameter were within permission limits and thus not causing any serious threat to River Narmada.

Distillery industry produces alcoholic beverages through fermentation process. Effluent from distillery contains a large amount of organic matter, which affect physicochemical properties of water (Prakash et al. 2007). Mixing of these effluents in rivers creates organic pollution, which disturbs or damage the aquatic life (Chakrobarty 1964, Singh & Sharma 1984, Malik et al. 2002, Yadav et al. 2004). The Narmada river is one of the holy and major rivers of Madhya Pradesh. In the present paper, pollution status of Narmada river is described with respect to BOD and COD. The BOD is the empirical test to determine the relative oxygen requirement of water mostly due to organic ingredient. Its application is to calculate the pollution load. Samples was collected from the following three study points.

Study point A: River Narmada at Khedighat, which is approximate 700 m before the effluent discharge from the respective factory.
Study point B: River Narmada at Mehta Khadi village where mixing of effluent takes place.
Study point C: River Narmada near Vimaleshwar temple, approximately 500 m away from the effluent mixing point.

BOD and COD of study points A, B, and C are described in Table 1. In the present investigation, BOD ranged from 2.3 mg/L in January to 17.3 mg/L in April. The maximum permissible limit for the discharge of effluent for BOD is 30 mg/L. Trivedy & Goel (1986) also described BOD as an essential parameter in pollution control management of streams.

Chemical oxygen demand is the amount of oxygen required by organic substances in wastes to oxidize them by strong a chemical oxidant but it does not suggest whether the waste is degradable biologically, nor does it indicates the rate at which biological oxidation would proceed. However, it gives a reliable parameter for judging the extent of pollution in water (Mishra & Saxena 1988). In the present investigation, the range of COD was from 10.0 to 68.0 mg/L. The minimum and maximum values were in the months of May and January and April respectively. Dakshini & Soni (1979) observed maximum COD of 45.20 mg/L in Rajghat drain entering Yamuna at Delhi. Mahadevan &

Table 1: Seasonal variation in BOD and COD at various study points.

Months	S.P. A		S.P. B		S.P. C	
	BOD	COD	BOD	COD	BOD	COD
April-03	2.8	13	17.6	68	13.2	60
May-03	3.6	10	15.6	40	11.3	32
June-03	14.2	45	13.0	38	13.0	46
July-03	10.6	16	10.3	56	8.6	30
August-03	7.0	24	8.4	30	4.6	20
September-03	3.6	26	16.6	50	5.8	16
October-03	3.8	16	4.6	56	3.6	13.6
November-03	3.5	17	7.8	45	3.8	20
December-03	2.5	12	9.2	60	4.9	30
January-04	2.3	10	6.8	48	10.6	46
Febuary-04	2.4	12	10.4	64	4.3	22
March-04	2.6	15	9.6	52	12.2	45

Where, S.P. = Study point, BOD = Biochemical oxygen demand (mg/L), COD = Chemical oxygen demand (mg/L)

Krishnaswamy (1983) found COD up to 108.6 mg/L in river Vaigai. Ghose & Shrivastava (1988) have recorded 10.0 to 45.0 mg/L COD in river Ganga at Patna. The maximum permissible limit for the discharge of effluent for COD is 250 mg/L.

In the present study discharge of distillery effluent in the studied points, increase the value of BOD and COD but in the permissible limit. This showed that effluent water was properly treated prior to discharge in river.

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