



STUDY OF WATER QUALITY PARAMETERS OF PURNA RIVER WATER IN PIMPALGAON KALE REGION

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Abstract

The present study is focused on the determination of physico-chemical parameters, such as temperature, pH, EC, hardness, chlorides, alkalinity, DO, BOD, COD, phosphate and sulphate of water samples from different sampling points. Increase of pollution concentration indicate an increase in the pollution load due to local sewage and industrial effluents and anthropogenic activities and discharge of wastes to the discharge into river at Erode district. In the present study water samples were collected from the Purna river water in pimpalgaon kale. Therefore the study revealed that how the Purna River is contaminated by effluents from small scale and dumping of wastages from bazaars and domestic use wastages. So water quality management is urgently required to achieve the water quality standards determined by WHO. Correlation coefficient showed highly significant positive and negative relationship.

Key words: Purna River is contaminated by effluents Total dissolved solids, physico-chemical, Local waste.

Introduction

The river bank and they are using water from the river and discharging the treated and untreated wastes. The people living in the downstream are using the water for their irrigation, drinking and other local activities. As per the survey conducted, about 130 dyeing units and 10 tanneries are in operation in catchment area and expected to discharge the trade effluent (both treated and untreated) either directly or indirectly through drain. The present study was aimed at analyzing some important characteristics of wastewater considered herein for the Purna river water in pimpalgaon kale. Physic-chemical parameters such as pH, temperature, EC, TS, TDS, TSS, chloride content, Hardness, alkalinity, DO, BOD, COD, SO₄, PO₄ etc were carried out.

Method

Purna river water in pimpalgaon kale locations comprises of many small tanning and dyeing units which drains the majority of their effluents into the river without proper effluent treatment. Besides, the water resource was used for local and fishing purposes. Water samples from all the sites were collected in sterile glass bottles, brought to the laboratory, processed within 1-5 Hours, and stored at -27°C for further analysis.

Following physico-chemical properties were studied. Total dissolved solid (TDS) of water and fixed residue was measured by evaporation method. Dissolved oxygen (DO) and biochemical oxygen demand (BOD) of water was measured by sodium thiosulphate titration method. Chemical oxygen demand (COD) was measured by titration of potassium dichromate and sodium thiosulphate.

Table 1 Physico-chemical parameters of Purna river water in pimpalgaon kale.

		(Mean ±SD)	(Mean± SD)	(Mean ±SD)	(Mean ± SD)	Standard
1	Temperature °C	27 ± 0.1	25 ± 0.13	25± 0.13	25 ± 0.25	-
2	pH	8.85 ±0.09	7.86 ± 0.09	7.63 ± 0.14	7.63 ± 0.13	6.5 to 8.5
3	EC (µS/cm-1)	792 ±46.5	820 ±29.56	464 ±12.08	553 ± 15.62	-
4	TS (mg/l)	1588 ±238.39	1480 ±69.6	1404 ±104.34	1560 ±71.39	-
5	TDS (mg/l)	800 ±232.9	805 ±246.35	1104 ±268	1006 ±219	1100
6	TSS (mg/l)	732 ±131.87	790 ±86.85	550±68.57	53.98 ±69.1	-
7	TH (mg/l)	120 ±22.22	140 ±31.83	170±9.67	120 ±17.79	600
8	Chloride (mg/l)	160 ±58.25	180 ±30.64	210 ±22.67	155 ±9.38	350
9	DO (mg/l)	4.04 ±0.51	4.59 ±0.32	4.42 ±0.29	4.45 ±0.27	-
10	COD (mg/l)	150 ±39.06	204 ±63.26	146 ±17.34	165 ±11.42	350
11	BOD5 (mg/l)	34 ±1.9	37 ±4.23	24 ±3.04	24 ±3.04	-
12	PO4 (mg/l)	4.04 ±0.51	5 ±0.32	4.42±0.29	4.45 ±0.27	0.2
13	SO4 (mg/l)	57 ±3.85	59 ±4.1	26±1.06	34 ±2.05	-

Results and Discussion

The water samples were analyzed for physicochemical characteristics. The physicochemical parameters were analyzed namely Temperature, pH, EC, TS, TDS, TSS, Total Hardness, DO, COD, BOD5, Chloride, PO4 and SO4 (Table 1). The variation in river water temperature frequently depends on the season, geographic location, sampling time and temperature of wastes entering the stream.

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