SPECTROPHOTOMETRIC DETERMINATION OF GROUND WATER QUALITY DATA OF AURANGABAD DISTRICT

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Abstract

Environmental pollution is one of the most horrible ecological crisis to which we are subjected today. Due to rapid increase in industrialization and transport in Aurangabad city, it is a need to analyse various spots of Aurangabad city. In the present work spectrophotometric analysis was carried out.

Key words: Aurangabad, Water samples, Spectrophotometer.

Introduction:

Water is one of the most important compounds that profoundly influence life. Water is a unique component of nature and has played the crucial role in the evolution of life from molecules to water pollution.It may be divided into three categories i.e. ground water pollution, surface water pollution and sea water pollution.

Materials& Methods:

The water samples were collected seasonwise during the investigating period between 2013 – 2014 and analyzed spectrophotometrically using the methods prescribed in NEERI.

Results & Discussion:

The results of water quality assessment of different parameter are summarized in the

Table-1.

Parameters	Site	Summer season	Rainy season	Winter season
Sulphate (mg / L)	A	27	16.5	9
	B	22	20.5	13.5
	C	23	19	10
	D	21	18	9
Phosphate (mg / L)	A	0.425×10^{-3}	0.475×10^{-3}	1.425×10^{-3}
	B	0275×10^{-3}	0.1625×10^{-2}	0.5×10^{-3}
	C	0.225×10^{-3}	0.175×10^{-3}	0.175×10^{-3}
	D	0.273×10^{-3}	0.145×10^{-2}	0.215×10^{-3}
Nitrite (mg / L)	A	3	7	5.5
	B	2	6.5	4.5
	C	2	4.05	5.5
	D	3	4	4.5

Standards according to ISI, WHO

- Sulphate – 200 – 1000 mg / L

- Phosphate – 0.1 mg / L

- Nitrite - <0.1 mg / L

In the present investigation concentration of sulphate was found highest in summer season. High concentration of sulphate is observed in the areas with high atmospheric pollution. Discharge of industrial wastes, domestic sewage in water tends to increase its concentration.

Domestic sewage, detergents and agricultural effluents are the main sources of phosphate, high concentration of phosphate leads to increase in the growth of algae and entrophication. All the samples were found to have phosphate with in the standard limit.

Nitrite represent an intermediate form during denitrification and nitrification reactions in nitrogen cycle.Presence of even a small quantity of nitrite will indicate the organic pollution and the availability of partially oxidized nitrogenous matter. The high concentration of nitrites can also cause 'Blue-Baby' disease in infants.

Conclusion:

The data recorded from the present study reveals that the water samples of Aurangabad city is not so polluted. But simply primary treatment is necessary because the values of sulphate, phosphate and nitrite is very close to the desirable limits specified by WHO and ISI.

Hence it has been concluded that before supplying the water as drinking water, it must be treated or purified.

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