



## STUDY OF SOME PHYSICO-CHEMICAL PROPERTIES OF DRINKING WATER OF WAGHADI RIVER

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### Abstract:

Study of some physico-chemical properties were carried out from various sites. Variations of different parameters has been investigated such as temperature, pH, electrical conductivity, dissolved oxygen, total dissolved solids, hardness, alkalinity. Waghadi River is not potable without improving the quality of water.

**Keywords:** Water quality, TDS, pH Temperature, Waghadi river.

### Introduction:

Water is a life of all living organism. River is the major resource of fresh water that fulfills the demand of fresh water of urban area. Water reservoirs are generated by human beings. Due to vast industrialization and continuous degradation in quality of water these resources get highly polluted which affects the human health and disturb the aquatic ecosystem. Near about 1% of the global water reserve is available in the form of fresh water for direct

use. The present paper deals with the physico-chemical analysis of drinking water of Waghadi river.

### Geological Location of Waghdi river:

Waghadi river is one of the important tributes of river Vainganga that flows through the cities of Yavatmal and Kelapur. Thereafter, the river merges into the Godavari. Physico-chemical properties of water are regulated by the metrological conditions and chemical properties.



### Material and Methods:

Samples of the water collected from various sites of Waghdi river samples were collected in polythene bottles by using standard procedure NEERI manual 1988. From each sampling sites and brought to the laboratory for the analysis of various physico-chemical parameters viz., temperature, pH, electrical conductivity, dissolved oxygen, total dissolved solids, hardness, alkalinity by using standard procedure (APHA 2005, Yadav and Shrivastava 2011; Singham et al. 2010; Behera et al. 2014). Temperature of water samples were

recorded with the help of thermometer. The pH of water samples was measured with the help of digital pH meter; Electric conductivity was recorded by using calibrated conductivity meter. Dissolved oxygen was recorded by Winkler's titration, Total dissolved solids was determined gravimetrically by evaporating known volume of water to dryness in a pre-weighed crucible on steam bath. Total hardness was determined by titrating with EDTA using Erichrome black T as indicator. Alkalinity was recorded by titrating a known volume of water sample with 0.02M HCL.

### Physico-chemical parameters of water analysed from various sites

S.No.	Parameters	Site 1	Site 2	Site 3
1	Colour	colourless	colourless	colourless
2	Odour	odourless	odourless	odourless
3	Temperature	30°C	24°C	32°C
4	pH	8.2	7.6	9.2
5	Conductivity	0.470 mho cm <sup>-1</sup>	0.450 mho cm <sup>-1</sup>	0.440 mho cm <sup>-1</sup>
6	D.O	5.8 mg/lit	6.8 mg/lit	5.4 mg/lit
7	TDS	300 mg/lit	500 mg/lit	600 mg/lit
8	Hardness	120 mg/lit	100 mg/lit	140 mg/lit
9	Alkalinity	62 mg/lit	65 mg/lit	89 mg/lit

**Result and Discussion:**

Temperature of water samples were found to fluctuate between 24<sup>o</sup>C to 32<sup>o</sup> C. Temperature plays a key role and affects the various parameters like alkalinity, DO, electrical conductivity. Temperature also influence on its taste. The pH of water is important factor depends upon the chemical changes and life process. Dissolved oxygen is essential for growth of aquatic flora and fauna. Total hardness differs from 100mg/lit

**Conclusion:**

The water quality of river contains total alkalinity, hardness. The water is alkaline in nature therefore, is not potable, unless treated and may cause health problems.

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