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## ANALYSIS OF WATER QUALITY USING PHYSICO-CHEMICAL PARAMETERS OF MANIHARI RIVER IN TAKHATPUR, BILASPUR DISTRICT, CHHATTISGARH

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**Abstract:**-This paper present to study of Physico-chemical parameters of Manihari river in Takhatpur, Bilaspur District Chhattisgarh. Monthly change in Physical and Chemical Parameters such as water Temperature, Turbidity, Total Dissolved Solid, pH, Dissolved Oxygen, Total Hardness, Chloride, Alkalinity, Phosphate and Nitrates. Were analyzed for a period of Six month from September 2014 to February 2015.All parameters were within the permissible limits. The result indicate that the River is Non-Polluted and can be used for domestic and irrigation purpose.

**Keywords:**Physico-Chemical Parameters, Monthly Variation.

### INTRODUCTION

Water is one of the most important compounds to the environment. Better quality of water described by its Physical, Chemical and Biological Characteristics. But some correlation was possible among these parameters and the significant one would be useful to indicate quality of water. Due to increased population, use of fertilizers in agriculture and other activity. The natural aquatic resources are causing varied pollution in aquatic Environment leading to water quality and depletion of aquatic system. It is therefore necessary that the quality of drinking water should be checked at variety of water borne disease. The physic-chemical parameters of water and the dependence of all life process of these factors make it desirable to take as an environ in present study involves the analysis of water quality in term of Physico-Chemical parameters of manihari river. Takhatpur, Bilaspur District Chhattisgarh. The river water is basically used for domestic and agriculture purpose. In India still now several researchers have done study on Physico-Chemical characteristics of standing water resources.

### MATERIALS AND METHODS

The water samples from Manihari river were collected from four different station in the morning hours between 8 to 10 am, in polythene bottle regularly for every month. The water samples were immediately brought in to laboratory for the estimation of various Physic-Chemical parameters like water Temperature and pH were recorded at the time of sample collection, by using Thermometer and pocket digital pH meter. Other parameters such as Turbidity, Total Dissolved Solid, Dissolved Oxygen, Total Hardness, Chloride, Alkalinity, Phosphate and Nitrates were estimated in the laboratory by using standard methods as prescribed by APHA, AWWA.

### RESULT AND DISCUSSION

The monthly variation in Physico-Chemical Parameters is presented in table.

**Table-1. Physical parameters of Manihari River Takhatapur, Bilaspur, Chhattisgarh**

Month	Temperature °C	Turbidity NTU	TDS mg/lit	pH
SEPTEMBER	26	5	0.5	7.8
OCTOBER	25.5	0.5	0.5	7.6
NOVEMBER	24	2	2.1	7.4
DECEMBER	22	2.5	0.6	7.5
JANUARY	22	10	0.4	8.0
FEBRUARY	23	12	0.3	8.5

**Temperature-**

In the present study of the water temperature ranges from 22°C to 26°C. The maximum (26°C) temperature was recorded in the month of September (Before Winter) and minimum (22°C) in the month of December (winter). It showed that higher temperature in before winter and relatively lowers in winter.

**Turbidity-**

The turbidity of water fluctuates from 0.5 to 12 NTU. The maximum value (12 NTU) was recorded in the month of February (summer) it might be due to human activities, decrease in the water level and presence of suspended particulate matter and minimum value (0.5NTU) in the month of October.

**Total Dissolved Solids-**

The total dissolved solid fluctuates from 0.3 mg/L to 2.1 mg/L. The maximum value (2.1 mg/L) was recorded in the month of November and minimum value (0.3 mg/L) in the month of February.

**pH-**

The pH was alkaline value ranges from 7.4 to 8.5. The maximum pH value (8.5) was recorded in the month of February and minimum (7.4) in the month of November. The factors like air temperature bring about change the pH of water.

**Table-2. Chemical parameters of Manihari River Takhatapur, Bilaspur, Chhattisgarh**

Month	DO mg/lit	Hardness mg/lit	Chlorides mg/lit	Alkalinity mg/lit	Phosphate mg/lit	Nitrates mg/lit
SEPTEMBER	9.0	95	38.0	190	5.2	5.2
OCTOBER	8.8	75	43.2	170	0.2	4.5
NOVEMBER	6.5	80	45.0	150	0.3	4.3
DECEMBER	9.2	80	47.2	140	5.4	5.4
JANUARY	8.0	80	42.0	120	1.5	8.0
FEBRUARY	9.5	100	30.0	124	3.5	10.5

**Dissolved Oxygen-**

The value of DO fluctuates from 6.5mg/L to 9.5 mg/L. The maximum value (9.2) was recorded in the month of February (summer) and minimum value (6.5) in the month of November (winter).

**Hardness-**

The value of Hardness fluctuates from 75 mg/l to 100mg/l. The maximum value (100 mg/l) was recorded in the month of February and minimum value (75mg/l) in the month of October.

**Chlorides-**

The value of chloride range from 30.0mg/l to 47.2 mg/l. The maximum value (47.2 mg/l) was recorded in the month of December and minimum value (30 mg/l) in the month of February.

#### **Alkalinity-**

Total alkalinity range from 120mg/l to 190mg/l. The maximum value (190mg/l) was recorded in the month of September and minimum value (120mg/l) in the month of January.

#### **Phosphate-**

The value of Phosphate fluctuates from 0.2 mg/l to 5.4 mg/l. The maximum value (5.4mg/l) was recorded in the month of December and minimum value (0.2 mg/l) in the month of October.

#### **Nitrates-**

The value of Nitrate ranges from 4.3mg/l to 10.5 mg/l. The maximum value (10.5mg/l) was observed in the month of February and minimum (4.3mg/l) in the month of November.

#### **REFERENCES**

1. APHA, Standard methods for examination of water and waste water. American Public Health Association, Washington, D.C. (1989).
2. Manivaskn, N., physico-chemical examination of water sewage and industrial effluents. Pragati Prakashan, Meerut (1986).
3. Trivedi, P. K. and Goel, P. K., chemical and biological method for water pollution studies. Env. Publication, Karad (1986).
4. Manual on water and waste water analysis. NEEI publications (1988).
5. Robrt, M., "water" the Wave of Life (1972).
6. Joshi, B. D., Pathak, J. K., Singh, Y. N., Bist, R. C. S. and Joshi, P. C., on the physico-chemical characteristics of river Bhagirathi in the uplands of Garhwal Himalayas. Himalayan J. Env. Zool. 4(1), 64-75 (1983).
7. ABCM-SAC joint committee, Analyst., 81: 721 (1956).
8. Approved method for the physical and chemical examination of water 2nd Edn. Institute of water Engineers, London (1953).
9. Vogel, A. I., A Text book of quantitative inorganic analysis including elementary instrumental analysis. 5th Edn. ELBS publication (1991).
10. American society for Testing and Materials, "Annual Book of ASTM Standards", part 23, ASTM Philadelphia (1972).
11. James, Mc-Coy W., chemical analysis of industrial water. Chemical Publishing Company, New Yoark (1669).
12. Meites, L., Hand book of analytical chemistry. Mc. Graw Hill book company, New York (1963).
13. Tiwari, T. N. and Patel, M. K., physico-chemical parameters of ground water of Dharward district: some correlations, Ind. J. Envir. Prot., 10(5), 330-332 (1990).
14. Garg, D. K., Goel, R. N. and Agrawal, V. P., correlation among water quality parameter of ground water, Roorkee City. Ind. J. Envir. Prot., 10(5), 355-359 (1990).

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