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Assessment of Water Quality Index of Hiran River at Sihora Region in Jabalpur City (M.P.)

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Abstract - *River water is used for various purposes such as drinking, bathing, irrigation etc. In the recent times the ecology of River Hiran is seriously affected by the disposal of sewage, industrial waste and various human activities. The objective of this work is to study the physical, chemical and biological parameters of water sample in Hiran River. Hiran River is situated near Sihora region district Jabalpur .The water samples collected were analyzed, as per standard methods parameters such as Temperature, pH, Turbidity, Alkalinity, Total Hardness, BOD, Chloride, DO were measured. Raised values of physicochemical parameters indicate the pollution of river in water due to domestic wastes, municipal sewage, industrial effluent and agricultural run-off that influence the water quality directly or indirectly.*

Key Words: BOD, pH, Chloride, DO, Temperature.

1. INTRODUCTION

Water is the basic and primary need of all vital life processes. Even today it is the major consideration for all socio-economic cultural, industrial and technological developments. We need consumption of water for our good health. Today water resources have been the most exploited natural systems. Pollution of water bodies is increasing steadily due to rapid population growth, industrial proliferation, urbanization, increasing living standard and wide share of human activities. So it's become very important to do continuous monitoring of certain water quality indicators or parameters in order to keep the health of water bodies at good condition.

Hence keeping the above scenario in mind the present study has been undertaken to assess the impact of surrounding area of Sihora region on water quality of river Hiran.

2. MATERIALS AND METHODS

Water samples were collected from the five different sampling locations in the stretch of Sihora region of Jabalpur City. The sampling locations were selected as follows:

1. Bhagraji,
2. Majhgawan,
3. Lal Patthar
4. Sihora Rail Patthar,
5. Kundam.

Sampling locations were selected according to the intake point of raw water used by water supply department. Sample collection was usually completed during mornings between 9.00AM to 12.00 PM every for further analysis.

Water samples from the River were directly collected from the above five stations in one liter plastic cans. The water samples were collected from a depth of 30cm using Ruttner Water Sampler. Sampling and Analytical procedures were followed as per the Standard Methods (APHA, 2005).

3. RESULTS AND DISCUSSION

The present study was conducted at selected sampling station of Hiran River at Sihora town, Jabalpur. Physico-chemical parameters were carried out in the samples collected from the study area to study the drinking water quality and pollution level. The average value of all five sample points was located in the Table -2. According to Water Quality Index the values of all the parameter were found to be within the limits.

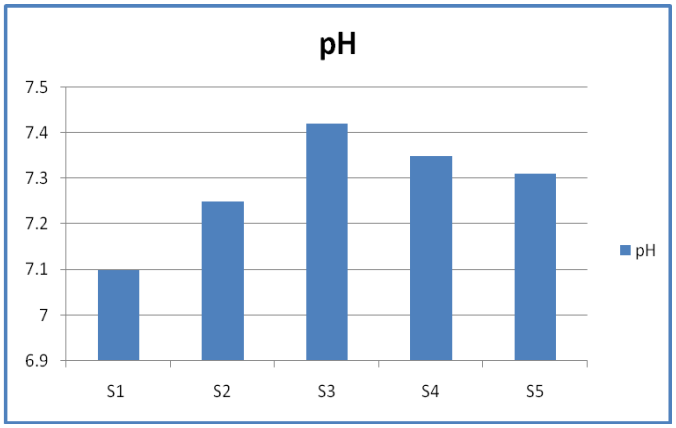
Table 1: Water Quality Parameter Standards Given By WHO and ISO

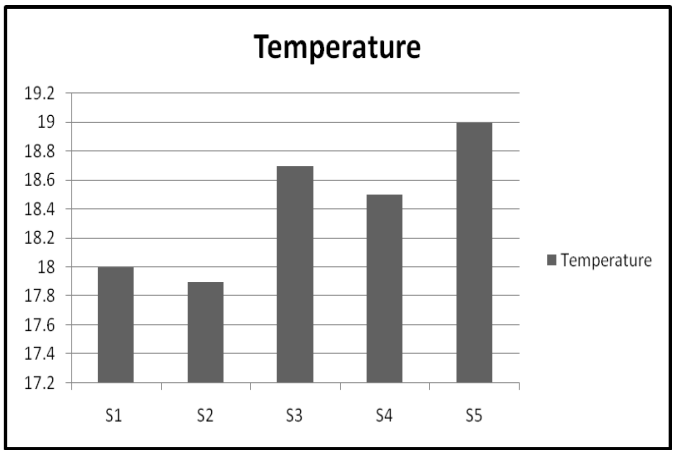
Parameters	WHO Standard	ISO Standard
Temperature	-	4-12
Turbidity	5	5
pH	7.0 – 8.0	6.5-8.5
Total Hardness (mg/L)	100	200-600
Alkalinity (mg/L)	120	200-600
Chloride(mg/L)	250	200-1000
D.O.(mg/L)	4	5
B.O.D(mg/L)	2	5

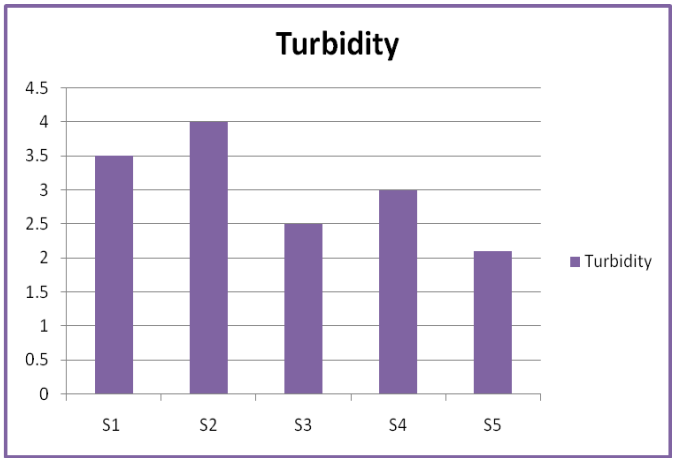
Table 2: Water quality parameter of Narmada River Sample from Study area

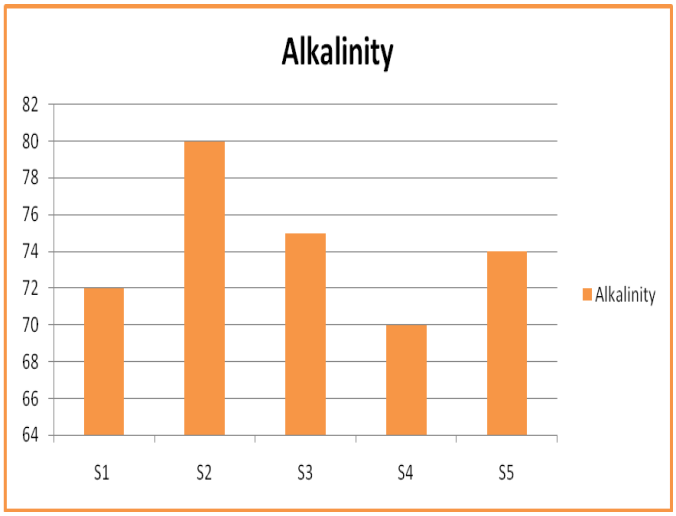
Parameters	S1	S2	S3	S4	S5
Ph	7.24	7.2	7.4	7.25	7.3
Temperature	18	17.9	18.7	18.5	19
Turbidity	3.5	4	2.5	3	2.1
Alkalinity	72	80	75	70	74

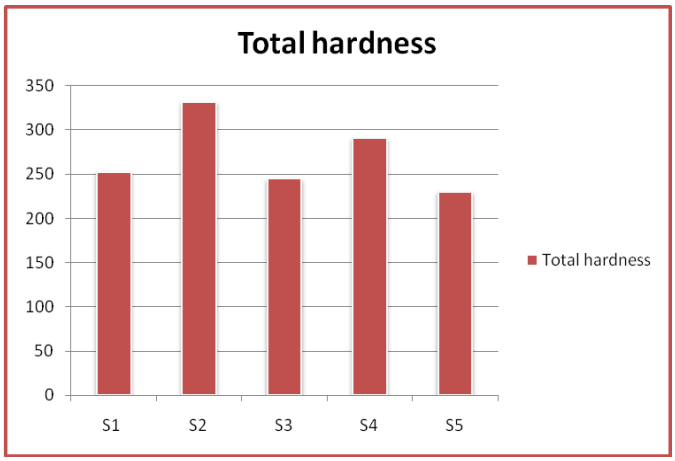
Total hardness	253	332	245	291	230
Chloride	205	135	270	231	235
Dissolve Oxygen	8	7.6	8	7.8	8.3
B.O.D.	1.1	1.3	1.5	1.2	1.4

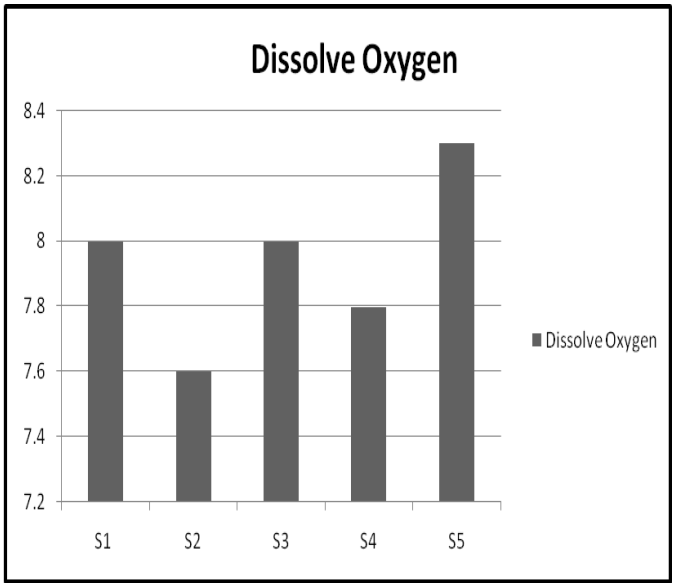


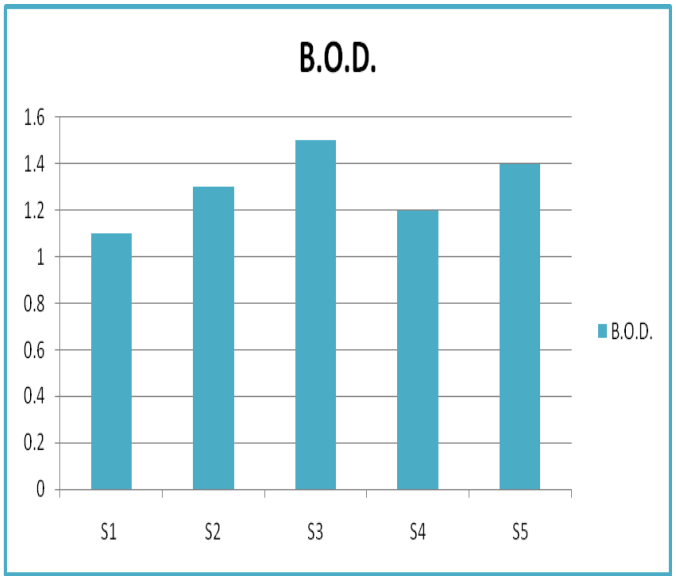












4. CONCLUSION

The data revealed that there were considerable variations in physic-chemical parameters at different stations of Hiran River. Significant spatial changes were observed in pH and chloride. The major sources of chloride in river water include agricultural run-off, discharge of industrial and municipal waste water and chlorination of public water supplies. The quality parameters determined for sources of the area show that the water of Hiran River at all the locations was quite within the acceptable range and shows that the overall quality of water is suitable and safe for domestic and irrigation purposes.

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