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STUDY OF PHYSICO-CHEMICAL CHARACTERISTICS IN RIVER GANGA AT SARSAIYA GHAT AND GOLA GHAT IN 2013 IN DISTRICT KANPUR IN UTTAR PRADESH

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ABSTRACT

Water samples from river Ganga at Sarsaiya Ghat and Permut Ghat in Kanpur in Uttar Pradesh were collected and physico-chemical parameters were determined using standard analytical procedure in Jan. to Dec. 2013. pH (8.2-9.3),Chloride and phosphate contents of water samples were determined 18-25 mg/l and 0.06-0.14 ppm respectively, Total hardness 96.6-166.2 mg/l, fluoride level were also 6.0-6.3 mg/l, DO of samples were 6.1-6.9 mg/l, BOD were 6.5-7.5mg/l and COD were 30-40 mg/l. These results were said to their agreed with the limits set by World Health Organization (WHO) for drinking water.

Keyword*: *Physico-Chemical, WHO, Drinking Water.

I. INTRODUCTION

Water the most essential requisites that nature has provided to sustain life on earth.About80% earth surface is covered by water. The deteriorate quality of water create various problems for mankind. The growth in population, about 90% of which occur in urban areas, increases the demand for water for domestic and industrial uses. Water pollution from domestic and human waste is the main cause for human being water born disease. The industrial water pollution is due to inadequate measure adopted in the industry for the abatement of pollution. It is need of time to protect environment for present and future generations. The purpose of study into prepares qualitative assessment of abiotic and biotic conditions prevailing in river Ganga.

II. MATERIAL AND METHOD

The Kanpur on National Highway no.1 and 2 and falls on the Broad Gauge NR Railway line between Delhi and Kolkata.

Water samples were collected in clean polythene bags and subjected to chemical analysis for measurement of different parameters such as temperature, pH, DO, BOD, COD, fluoride, chloride, phosphate, hardness and total dissolved by standard analytical method in Jan. to Dec. 2013.

III. RESULT AND DISCUSSION

The values of different parameter with respect to sampling stations (Sarsaiya Ghat and Gola Ghat) are given in Table-1 and Table-2. The transparency values of sample were 19.5-54.5 cm. Maximum value is 54.5 in Feb.2013 at Gola Ghat while minimum value is 19.5 cm in Jun. 2013 at Gola Ghat. The temperature of water was 16.4-36.4^{0}C. Maximum value is 36.4 in Jun.2013 at Gola Ghat while minimum value is 16.4 in Jan. and Jun.2013 at Gola Ghat. The WHO (1992) did not recommend any definite temperature for drinking water. The pH value were 8.1-9.3, Maximum value of pH is 9.3 in Jan.2013 at Gola Ghat While minimum is 8.1 in Apr, 2013..

Total dissolved were 135.0-139 mg/l .Maximum value is 139 mg/l in Jul. and Aug.2013 at Gola Ghat as well as Sarsaiya Ghat while minimum value is 135 mg/l in Jan.2013 at Gola Ghat,which are under limits. The total hardness of water was 96.6-166.2 mg/l. The maxim um value is 166.2 in Jun.2013 at Sarsaiya Ghat while minimum value is 96.6 in Sept.2013 at Sarsaiya Ghat. The levels of hardness are below the levels (300 mg/l) as laid down by Indian standard and thus water is soft. Fluoride level were 6.0-6.3 mg/l, the maximum value is 6.3 mg/l in July 2013 at Sarsaiya Ghat and Gola Ghatb while minimum value is 6.0 mg/l in May 2013 at Sarsaiya Ghat and Gola Ghat, which are low. The chloride contents of water were 14-25 mg/l. The maximum value is 25 mg/l in March. and Apr.2013 at Gola Ghat while minimum value is 14 mg/l in May, Jun. and Jul.2013 at Sarsaiya Ghat which is below the prescribed limit (250mg/l) The COD value of water were 25-40 mg/l. Maximum value of COD is 40 in Dec.2013 at Gola Ghat while minimum 25 mg/l in June and July 2013 at Sarsaiya Ghat..

The DO value of water were 5.0-7.1 mg/l. Maximum value of DO is 7.1 mg/l in Jan. and Dec.2013 at Gola Ghat while minimum is 5.0 in June 2013 at Gola Ghat which are permissible limit. The BOD value of water were 4.0-7.5 mg/l. Maximum value of BOD is 7.5 in May 2013 at Sarsaiya Ghat. while minimum value is 4.0 mg/l in Jan, 2013at Sarsaiya Ghat.

Table- 1. Physico-chemical characteristics in river Ganga at Sarsaiya Ghat, Kanpur

Month	Temperature ^{0}C	Transparency cm	pH	DO mg/l	BOD mg/l	COD mg/l	Chloride ppm	Phosphate mg/l	Total hardness mg/l	TDS mg/l	Fluoride mg/l
Jan.	16.4	50.5	8.9	6.9	4.0	36	15	0.09	111.2	135	6.1
Feb.	18.9	52.0	8.8	6.3	5.5	36	15	0.09	107.3	136	6.1
Mar.	23.6	38.5	8.6	6.1	6.5	31	16	0.09	143.9	136	6.2
Apr	31.4	37.0	8.1	6.2	6.0	30	15	010	155.2	135	6.1
May	35.5	29.0	8.4	5.4	7.5	26	14	0.11	160.1	136	6.0
Jun	36.1	20.0	8.3	5.8	7.0	25	14	0.12	166.2	137	6.2
Jul	28.2	24.0	8.8	6.1	5.0	25	14	0.10	98.8	139	6.3
Aug	23.6	20.5	8.7	6.5	5.0	26	15	0.08	98.8	139	6.2

Sept	24.5	24.0	8.5	6.6	5.5	31	16	0.11	96.6	138	6.1
Oct	18.7	28.0	8.9	6.4	4.5	31	16	0.10	99.7	136	6.1
Nov	18.4	35.5	8.8	6.7	4.5	30	17	0.10	110.4	136	6.2
Dec	18.3	48.0	8.9	6.9	4.5	39	17	0.11	111.1	137	6.1

Table-2: Physico-chemical characterstics in River Ganga at Gola Ghat,Kanpur

Month	Temperature ^{0}C	Transparency cm	pH	DO mg/l	BOD mg/l	COD mg/l	Chloride ppm	Phosphate mg/l	Total hardness mg/l	TDS mg/l	Fluoride mg/l
Jan.	16.7	52.5	9.3	7.1	5.5	36	21	0.10	111.2	135	6.1
Feb.	18.7	54.5	9.2	6.9	5.5	35	22	0.12	107.4	136	6.1
Mar.	23.2	39.5	9.1	6.4	7.5	35	25	0.11	143.8	136	6.2
Apr	31.1	36.5	8.3	6.6	7.0	35	25	014	155.1	135	6.1
May	35.6	20.5	8.2	5.2	7.5	38	23	0.08	160.0	136	6.0
Jun	36.4	19.5	8.2	5.0	7.0	30	23	0.10	166.1	137	6.2
Jul	28.4	22.0	8.2	5.4	6.5	36	19	0.05	98.9	139	6.3
Aug	23.5	20.0	9.2	5.9	6.5	36	19	0.06	98.8	139	6.2
Sept	24.2	25.0	8.9	6.2	7.0	35	18	0.06	96.6	138	6.1
Oct	18.4	29.5	8.6	6.8	7.5	36	18	0.09	99.7	136	6.1
Nov	18.6	37.0	9.1	7.0	6.0	35	19	0.10	110.4	136	6.2
Dec	18.3	49	9.0	7.1	6.0	40	19	0.11	111.1	137	6.1

IV. CONCLUSION

It is need of time to protect environment for present and future generations. The purpose of study into prepares qualitative assessment of abiotic and biotic conditions prevailing in river Ganga.

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