# STUDY OF P^H OF SAI RIVER WATER AND ITS CO-RELATION WITH OTHER WATER PARAMETER

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## ABSTRACT

Much work has been done on pollution of rivers passing through dignified cities but small contributory rivers covering rural areas or less dignified cities has been paid less attention or, have totally been ignored. In small rivers such as Sai due to less water content the pollution level has gone up. In the present investigation an attempt has been made to find pH of river water.

## 1. INTRODUCTION

River has been a very important source of life from the start of civilization and indeed some of the oldest civilization of the world developed along the riverbank, like Indus and Nile. Despite a close Linkage of humanity with rivers, it has been men own diversified activities which contaminated/polluted the rivers (HYNES HBN 1966). Today most of the rivers of the world receive millions of liter of sewage, domestic waste industrial and agricultural effluents with growth of industries and population along the bank of rivers (Asthana & Singh 1994), the quantum as well as variety of waste have increased several times which eventually play havoc with the aquatic life and human health.

River has been treated as sacred since ancient times in India. Now many of them have become polluted on account of our selfish interest (Chaudhari1982). Thus there are fourteen major rivers in India Brahmani, Brahamputra, Covery, Ganga, Godavri, Indus, Krishna, Mahanadi, Mahi, Narmada, Perrair, Sabarmati, Subarnarkha, Tapi, Gomti which share 83% of the total drainage basin, contributes 85% of the total surface flow and also house 80% of total population of country (Sikandar 1987) though much work has been done on pollutions of rivers passing through dignified cities but small contributory river covering rural areas or less dignified cities have been paid less attention or have totally been ignored. One of them is Sairiver (Bhaskaran et al. 1983). Although Sai River is smaller in comparison to Gomti river but it is also a much polluted river. The ever expanding socio-economic, cultural & technological spans rapid growth of population and industrialization in the country, it has become vital to check the pollution in small rivers like Sai, Varuna, Peeli, and Bakulahi and in other small rivers and its removal, because these small rive are connected to big rivers and increase the pollution in them.

Majority of water bodies as ponds, lakes streams, river sea and ocean have become polluted owing industrial growth, urbanization and some man-made problems (Ikmal and Asthana 1998).

Quite a number of world rivers get heavy influx of sewage, domestic garbage, industrial effluents and agricultural wastes etc. which contains substance ranging from simple nutrients to highly toxic chemicals (Habib, S. Minski 1982). In our country, all the prominent fourteen revers have become polluted Goadawari, Ganga, Gomti, Kaweri, Narmada, Damodar, Jamuna, like big river many small river have become polluted from the sewage and industrial effluents one of them is Sai River which passes through Hardoi, Raibareilly and Pratapgarh District. Sai River is also the cause of pollution in Gomtiriver because finally it meets in Gomti river at Jalapur, Jaunpur, that further adds pollution to Ganga river at Saidpur (Ghazipur).

## 2. MATERIAL AND METHODS

The water of river as sample is taken in the last week or each month at monthly interval from January 1996 to December 1997. Polyethylene bottles of two liter are used for the collection of water sample. Each sample from different sampling sites ($P_1$, $P_2$, $P_3$ and $P_4$) is brought to laboratory in ice box for the analysis of $P^H$.

$P^H$ was measured in the laboratory with the help of electronic glass electrode Elico $P^H$ meter model L1-120(Glastone 1965). $P^H$ meter was standardized with stock buffer before each reading.

## 3. RESULTS AND DISCUSISON

The changes in the range of $P^H$ are presented in fig. 1 & 2. Generally pH values are greater than 7.4 at all the sites and maximum value of pH values are greater than 7.4 at all the sites and maximum value of $P^H$ were recorded 7.8 and 7.9 at sites $P_4$ in December 1996, 1997 respectively. The $P^H$ of the river water showed significant variation.

The pH of the river water showed positive correlation with $C\bar{I}$ (r=.537) at site $P_1$(Kapoor and Saxena 1982), r=402 at site $P_2$, r=.226 at $P_3$r=3.24 at $P_4$ bin 1996), (r=.720 at $P_1$r=600 at $P_2$, r=.498 at $P_3$ r=.670 at $P_4$ in 1997). $P^H$, has better correlation ship with $C\bar{I}$ in (1997) comparison to 1996.

Acid and alkali balance of water is guided by pH. In the case of pollution created by acidic and alkaline wastes $P^H$ serves as to denote the extent of pollution. Chemical and biochemical reactions are mostly governed by the $P^H$ and adverse effects of most of the acids appear below pH 5 and of alkaline more than 9.5. The pH of the natural water varied from 6.5 – 8.5(Warren 1971). The pH of water changes with time due to exposure to air, biological activities and variation in temperature. Precipitation of metal hydroxide is governed by pH and increasing pH decreases the solubility of metal hydroxide.

The water of Sai River is found to be slightly alkaline in present investigation. But in rainy season, decrease in pH is recorded possibly due to dilution of river water with rain and flood water, while in summer; pH was slightly higher due to the possible utilization of free $CO_2$ during photosynthesis. $P^H$ was highly significant among the sites.

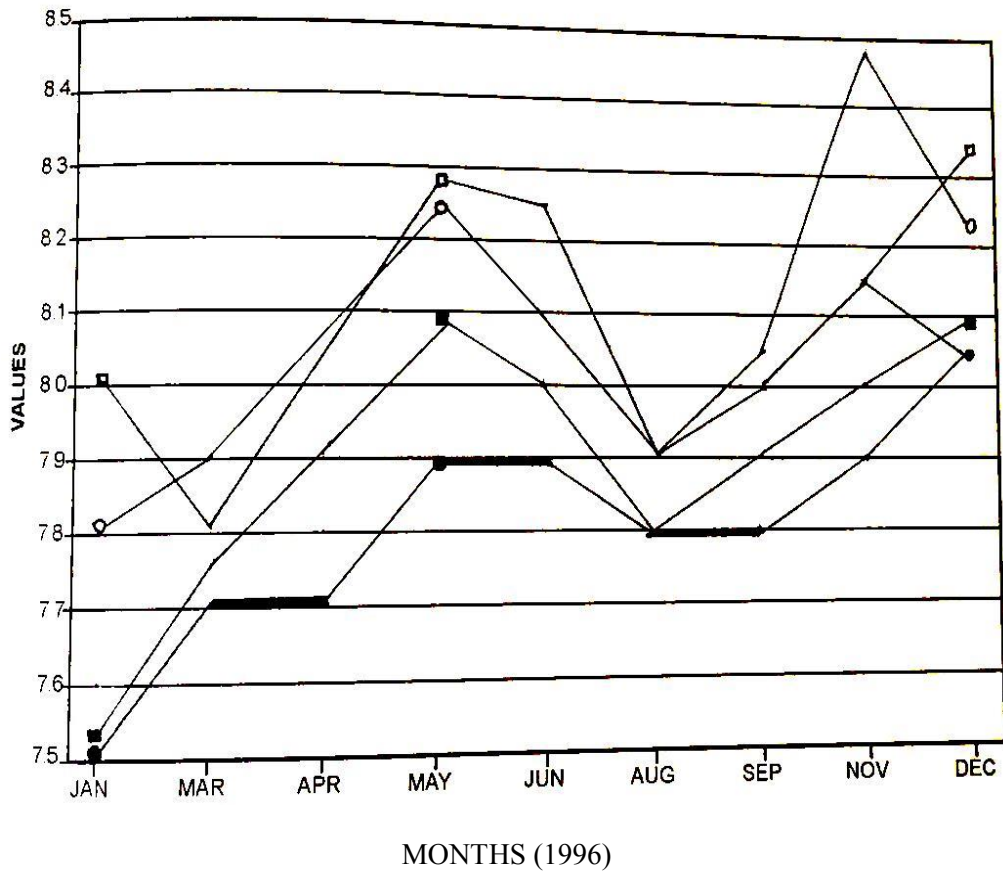$$P_1 = \bullet, \ P_2 = \blacksquare, \ P_3 = \bigcirc, P_4 = \square$$

MONTHS (1996)

Fig. 1: Monthly variation in pH at different sampling sites of the Sairiver at pratapgarh city.
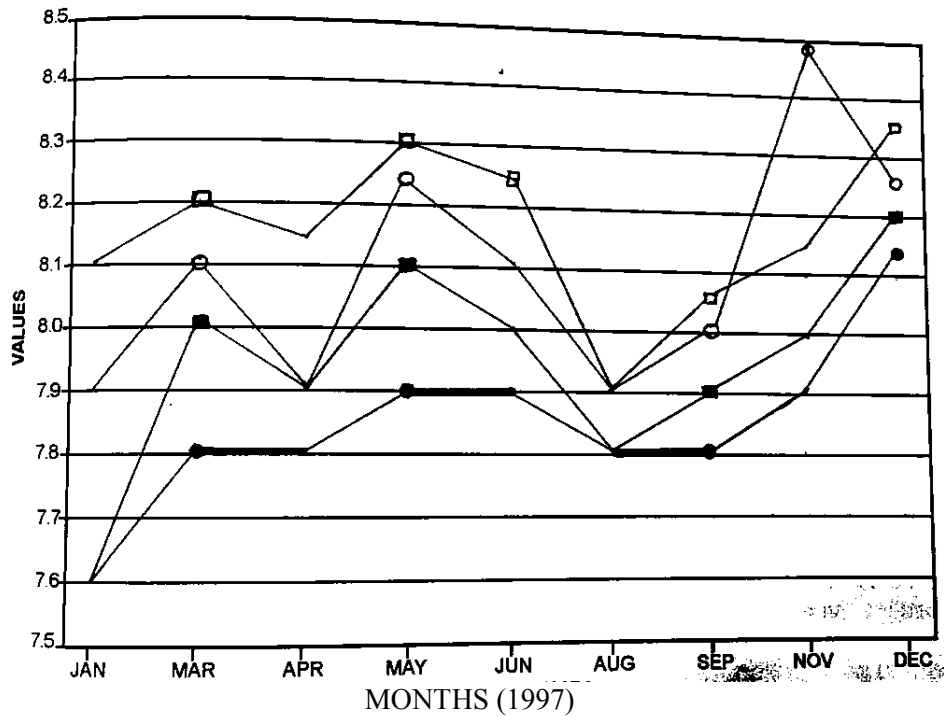


MONTHS (1997)

Fig. 2: Monthly variation in pH at different sampling sites of the Sairiver at pratapgarh city.

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