

*Research Paper :*

## Analysis of abiotic parameters of river Sikrahana, near Motihari, Bihar, India

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### ABSTRACT

The present study concerns with the abiotic parameters of sikrahana river water, located near motihari, the district head quarter of east champaran. The exact location of the spot is 84°43'48"E and 26°46'48"N. This analysis was carried out from January 2010 to December 2010. The abiotic parameters such as water temperature, turbidity, hardness, pH, alkalinity free CO<sub>2</sub>, DO, BOD, COD, CHLORIDE, PHOSPHATE, SULPHATE etc. were analyzed during the present investigation. The data obtained from the analysis were compared with the data recommended for water quality standard by WHO and BIS.

**KEY WORDS :** Sikrahana, Abiotic, Parameter, Champaran

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Water is the elixir of any life. It is one of the prime necessities of life. We can hardly live for a few days without water. There are many resources of water on the Earth. Due to its unique properties water is of multiple uses such as drinking, irrigation, fishery and energy production (Iscen *et al.*, 2008) for living organism. About 77 per cent of water is used in agricultural sector in India. Although water is very abundant on the earth yet it is very precious. Out of the total reserves of the world about 97 per cent is salty while only 3 per cent is fresh water (Gleick, 1996). Even this small fraction of fresh water is not available to us as most of it is locked up in polar ice caps and just 0.003 per cent is readily available to us in the form of ground water and surface water. Abiotic parameters are very important for any aquatic ecosystem. In aquatic environment, the biotic fauna especially fish perform their all biological phenomenon in aquatic medium. Addition of organic matter or sewage depletes the oxygen and increases the CO<sub>2</sub> owing to bacterial degradation. Addition of nutrients also increases the algal growth which when die and decompose further deplete the oxygen and increases the BOD. Due to increase in BOD some of the aquatic insects dies and change the whole aquatic ecosystem. The present study forms to know the water quality of river Sikrahana.

### EXPERIMENTAL METHODOLOGY

Water sample of the river were taken in a cleaned 1.5 liter plastic bottle from the two spots (Sapaha ghat

G1 and Dhanahi ghat G2) from January 2010 to December 2010 in every month. The exact location of the sampling spot is 84°43'48"E and 26°46'48"N. Sapaha ghat is about 1.5 km while Dhanahi ghat is about 11km from the Sagauli railway junction. Analysis of sample water was done for different abiotic parameters such as water temperature, turbidity, hardness, pH, alkalinity free CO<sub>2</sub>, DO, BOD, COD, Chloride, Phosphate, Sulphate etc. following the standard methods.

### EXPERIMENTAL FINDINGS AND ANALYSIS

Results of the analysis is given in the Table 1.

#### Color:

Color of water indicates the degree of pollution caused by human materials, metallic substances, weeds and protozoa etc. Industrial waste waters also contribute to color. Yellow color of water indicates the presence of organic matter. At Ghat-1 the color of water is slightly yellowish but at Ghat-2 the color is clear and colorless.

#### Temperature:

Temperature is an important parameter to determine the pH, Conductivity and dissolved ions etc. Temperature of the water at both the Ghats are fluctuated throughout the research year. Temperature ranged from 9.1°C to 38.3°C at Ghat-1 while at Ghat-2 it was ranged from 10.2°C to 37.1°C.

#### Turbidity:

Turbidity is caused due to presence of particulate