



RESEARCH ARTICLE

Assessment of Color, Odour and Taste in Chambal River at Dholpur District

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ABSTRACT

River Chambal is an important source of water in dholpur district. It also has historic significance. Increasing population, industrialization and ignorance lead to various pollution threats to aquatic life. For this purpose hydrobiological studies can be conducted in water including physical and chemical parameters. It is also important to observe color, odor and taste of water whether it is usable for human consumption or not. On the basis of above statement, present study is conducted in River Chambal at dholpur district.

Key words: Color, Odor, Taste, Chambal River

INTRODUCTION

Water is most vital resource for all kinds of life on the planet because without water in living beings mechanical and physiochemical activities can not sustain. Water is also the resource, adversely affected both qualitatively and quantitatively by all kinds of human activities on land, in air or in water. Though, the defilement of water as a result of human activities is a phenomenon as old as hills, the increasing industrialization, urbanization and developmental activities and consequent pollution of water has brought a variable crisis. The increasing population, galloping technology and economic development have created awareness of environmental crisis and need for balancing the nature. It is must that man should start to think in harmony with the nature seems to be a green today most of the Rivers of world received millions of liters of sewage, domestic waste, industrial and agricultural effluents containing substances varying in characteristics from simple nutrients to highly toxic substance. The industry continued to be one of the most significant causes of pollution of aquatic ecosystems due to a diverse kind of waste produced by them.

COLOUR

Even pure water is not colourless. It has got a pale green-blue tint in large volume. The colour in natural water may occur due to the presence of humic acid, fulvic acid, metallic ions such as Manganese, suspended matter, phytoplankton, wheats and waste products. The colour of water sample was detected by visual comparison method. Colour of water sample was determined by the platinum-cobalt method, which is normally used for preparation of colour standards, in which one colour unit is equivalent to the colour produced by 1.0 mg/litre of platinum.

Process: The colour of the water sample was matched with standard colour tubes by looking vertically through the tubes towards white surface placed at such an angle that light is reflected upward through the column of liquid. In case the colour of the sample was units, the sample was diluted with distilled water. The pH of the sample measured as the colour was highly related to pH calculation. Colour units + Estimated colour X dilution factor.

ODOUR

Principal: The odour of water present mainly due to dissolved impurities often organic in nature. The odour depends on the actual contact with the receptor organ. The odour may be of natural origin, caused by living and decaying aquatic organism, and accumulation of gases like NH₃ and H₂S etc. Many algae also impart odours of water. Odour of water sample was measured

as "Threshold odour number" which is equal to ratio of dilution of sample at which the odour is just detectable. The sample was diluted with odour free water until least perceptible odour is detected by tester.

Process: The approximate range of threshold odour number (ton) was determined by diluting 200 ml, 50 ml, 12 ml, and 2.8 ml, of sample in a 500 ml glass flask to 200 ml with odour free water. These flasks were then placed in water both at desired temperature. One blank with only odour free water was also kept. Further, dilution of the sample was done on the basis of preliminary range of odour was dilution at which odour was just detected at particular temperature was determined. Blanks were also inserted in between the sample dilution. The flasks were allowed to smell in sequence from least concentration of the sample. The observation were recorded on the basis of odour that was detected in each flasks.

Calculation:

$$\text{TON} = \frac{A + B}{A}$$

Where

A = ml sample, B = ml odour free dilution water

When total volume was prepared to 200 ml, the volume of A+B was found to be 200.

TASTE

Taste is main physical parameter for identify the presence of polluted in the water. The objectionable taste some ground of aesthetic values. The taste of water imparting the presence of organic substances. Besides many inorganic chemicals are also capable of imparting a characteristics taste. Taste of water identified by Voznaya's method (1981) which measured in mg/litre concentration of the substances in water.

RESULTS AND DISCUSSION

COLOUR: The colour of Chambal water samples has been observed slightly muddy of green tinge in different collecting time period as given below.

Table 1: Average Colour

Month	Colour			
	Site A	Site B	Site C	Site D
Oct-04	Green tinge	Green tinge	Green tinge	Slightly muddy
Jan-05	Green tinge	Green tinge	Green tinge	Slightly muddy
April-05	Green tinge	Green tinge	Green tinge	Slightly muddy
July-05	Slightly muddy	Slightly muddy	Slightly muddy	Slightly muddy

Site A= High way, Site B= Shamshan Ghat, Site C= Shergarh Fort, Site D= Near railway bridge

ODOUR

No odour of water samples has been observed from all the collecting site of Chambal water.

Table 2: Average Odour

Month	Odour			
	Site A	Site B	Site C	Site D
Oct-04	Odour less	Odour less	Odour less	Odour less
Jan-05	Odour less	Odour less	Odour less	Odour less
April-05	Odour less	Odour less	Odour less	Odour less
July-05	Odour less	Odour less	Odour less	Odour less

Site A= High way, Site B= Shamshan Ghat, Site C= Shergarh Fort, Site D= Near railway bridge

TASTE

The water of Chambal is tasteless from all the collecting stations.

Table 3: Average Taste

Month	Water flow measurement m/sec			
	Site A	Site B	Site C	Site D
Oct-04	Taste less	Taste less	Taste less	Taste less
Jan-05	Taste less	Taste less	Taste less	Taste less
April-05	Taste less	Taste less	Taste less	Taste less
July-05	Taste less	Taste less	Taste less	Taste less

Site A= High way, Site B= Shamshan Ghat, Site C= Shergarh Fort, Site D= Near railway bridge

From the present experimental datas which collected from different sampling stations after each three months intervals. It has been observed that temperature of Chambol water slightly varies at up stream site D. The temperature rises in down stream site indicate that sewage as well as other waste which are responsible for acidic and alkaline effect are responsible for increasing the temperature and during summer season this may be due to evaporation of surface water requiring heat from the water body. The colour of water from upstream site to downstream site become dark muddy. It is due to the fact that Chambol River brings mud from coastal reason. The odour observe the effect of pollutants in Chambol River.



Fig. 1: Upstream site

Fig. 2: Downstream site

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