

THE TEMPERATURE AND TDS CHARACTERISATION OF GOMATI RIVER IN AND AROUND JAUNPUR CITY

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The temperature and total dissolved solid in water decides its quality and hence the applicability. Not only the pH colour, smell and other water parameters such as D.O., B.O.D. C.O.D. and electrical conductivity are affected by the dissolved solid in it. The dissolved solid may be some acid, alkali, metal cations and anions. The heavy metals if present in dissolved state control the various properties of water and may cause diseases. Thus the evaluation of their concentration leads to the acceptability and denial of its applicability. The temperature of water in Gomati river has been measured periodically in different sites at the varying depths. The concentration of heavy metals at the experimental sites and some anions have been estimated.

INTRODUCTION

The planet earth along with living organisms and atmosphere (air, land and water) which sustain life is known as the 'Biosphere'. The different components of the biosphere interact in very delicately controlled and orderly manner. Any adverse effect on this delicate balance of the biosphere caused by man's carelessness or excessive exploitation of natural resources can lead to the creation of unfavourable conditions. The unfavourable conditions created by man himself-theated the survival not only of man himself but also other living organisms. It is very common to find warning at public places, reading as "Air unfit for breathing", "water unfit for drinking", "Do not eat fish caught here" and so on.

With extremely slow rate of climate change human health, crops and living pattern are minutely affected without much strain. But with advancing population and industrial growth the climate change is acquiring higher and higher speed imposes significant stress on all living beings. The effect of climate change on human health [1], ecological status [2, 3], distribution of taxonomy groups [4, 5], marine life [6, 7] and adoptation behaviour [8, 9] have widely been studied. The effect of temperature change on fish-life has been a subject of keen interest to zoologists [10]. The human health is highly affected by heavy metals as observed by medical scientists [11]. The role of inorganic ions in controlling the human health has been studied exhaustively [12, 13]. It has been established that the quality of total dissolved solids [14] in water decides its quality for different purposes.

Water is a God gifted boon on the earth but, if polluted becomes poison. The various applications of water prove its significance to extent that without it no one can survive on the globe. It is not only an air-say but has been observed and established by several scientists [15, 18].

METHODS AND MATERIALS

The temperature and TDS magnitudes at four different places S₁, S₂, S₃ and S₄ have been measured by usual methods [19, 20].

Table 1. Periodic and Positional values of Temperature and TDS

Year	Parameters	Sites			
		S ₁	S ₂	S ₃	S ₄
1996-1997	Temp. (°C)	23.43	24.150	24.0	24.23
	TDS (mgL ⁻¹)	225.55	220.5	225.2	220.2
1997-1998	Temp. (°C)	24.233	24.4	24.8	25.150
	TDS (mgL ⁻¹)	235.45	230.50	230.54	240.45
1998-1999	Temp. (°C)	24.34	24.53	24.92	25.32
	TDS (mgL ⁻¹)	238.52	233.62	232.62	242.68
1999-2000	Temp. (°C)	24.46	24.61	24.98	25.56
	TDS (mgL ⁻¹)	240.65	235.68	234.85	244.86
2000-2001	Temp. (°C)	24.67	24.71	25.13	25.78
	TDS (mgL ⁻¹)	243.58	238.16	236.57	246.67

RESULTS AND DISCUSSION

A critical scanning of data given above reveals the following facts –

1. The temperature and the concentration of the total dissolved solids increases regularly on moving onwards from the entry to the exit point of the Gomati river through the city town. A discrepancy in sites S₁, S₂ and S₃ may be attributed to experimental error and composition of drain effluents and soil composition of the river bank.
2. Increasing trend in both parameters has been observed in the advancing years.
3. The desired limit [21] of TDS for drinking water in 500 mgL⁻¹ while its permissible limit is 2000 mgL⁻¹. Thus the Gomati river water at the observation time has been found fit for drinking, bathing, cooking, laundrying & irrigation.

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