

Study of Pollution of Water Collected from Different Places of Saryu River in Ayodhya and Nearby Places

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Abstract:- The quality of water is of vital concern for mankind since it is directly related with human welfare and society. It is matter of history that pollution in drinking water caused water borne diseases and effect metabolism of living being. At present its effect is seen in rural as well as urban areas. The disposal of untreated domestic sewage burnt human and animal carcasses and runoff from agricultural fields containing pesticides and other agro-chemicals are major sources of water pollution in Saryu river and other too. So in present investigation water quality of Saryu water and water from nearby places has been studied. Water samples have been collected from three different places one from Guptarghat, one from Nayaghat and other from nearby hand pump. Present study shows that the absorbance are beyond the permissible limit for river water and not suitable for beneficial uses without proper treatment of pollution of water collected from different places of Saryu river in Ayodhya and nearby places.

Introduction:

Water is source of life. It covers 70% of the earth, but only small portion of these precious natural sources is fit for human consumption as per requirement of NDHB. Out of earth's total water, 97% is stored in oceans which are not fit for human consumption. The further 3% is stored in rivers have a special place in the lives of the Indians and other too. They consider rivers to be sacred, take holy dip during Amavasya, Pooranmasi and on other religious occasions. River water is used for irrigation which in return gives food to people. They also maintain the ecology of the region and bring prosperity. An area without a river is considered to be poor. Unfortunately, during the past two decades the river quality has deteriorated at a rapid pace. One of the major reasons for this is the untreated waste water being released to the rivers, turning them to be a dirty drain. The Ganga and the Yamuna, the two most sacred rivers of our country are no exception to it. Thousands of crores of rupees is being pumped to save the rivers through various plans.

The present project report is a small initiative towards creating awareness amongst the community about the importance of rivers and how the community is affected if they are not properly managed. I hope when this project report when distributed to various stakeholders like the community, students and teachers, government officials and scientists would create an impact on the minds of people which in turn would find solutions to this monstrous problem.

The Saryu river is one of the most sacred and important river of India. It is basically Ghaghra river but at Ayodhya it is called Saryu river due to historical reason. It is seen that various variety of domestic sewage and dirty water is released into the Saryu River which causes various type of pollution causing serious problem on human health and natural balance too. So it is necessary as we feel to assess the pollution in above two sacred places. Literature survey has shows that there are many reports on water quality measurement for various other popular rivers due to their ethical as well as agricultural importance [1,2,3,4,5]. It is seen that nearly no attention has been given to water quality measurement of Saryu river. So in our present study we have tried to assess pollution of saryu river by measuring absorbance of river water.

Experimental:

A spectrum is a graphical representation of the amount of light absorbed or transmitted by a matter as a function of the wavelength. A UV-visible spectrophotometer measures absorbance or transmittance from the UV range to which the human eye is not sensitive to the visible wavelength range to which the human eye is sensitive.

In the following table 1 standard spectra is given for ready reference.

S. No.	Color	Wavelength Range (nm)
1.	Violet	380-345
2.	Blue	435-480
3.	Green	480-560
4.	Yellow	560-595
5.	Orange	595-650
6.	Red	650-780

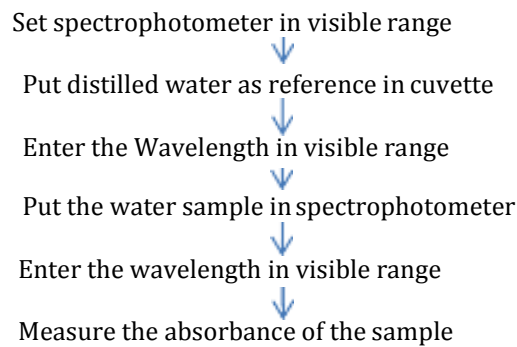
Table 1: Comparative list of color and wavelength range



Fig.1. UV spectrophotometer

Procedure:

Flow diagram for measurement of absorbance is shown below.



Absorbance of river water:

Wavelength	350	450	500	600
Absorbance	0.597	0.937	0.838	0.728

Absorbance of RO water:

Wavelength	350	450	500	600
Absorbance	0.077	0.054	0.053	0.050

Absorbance of hand pumps water of Microbiology Department:

Wavelength	350	450	500	600
Absorbance	0.074	0.055	0.055	0.055

Absorbance of K.M. sugar mill water:

Wavelength	350	450	500	600
Absorbance	0.134	0.092	0.079	0.070

Graph of absorbance:

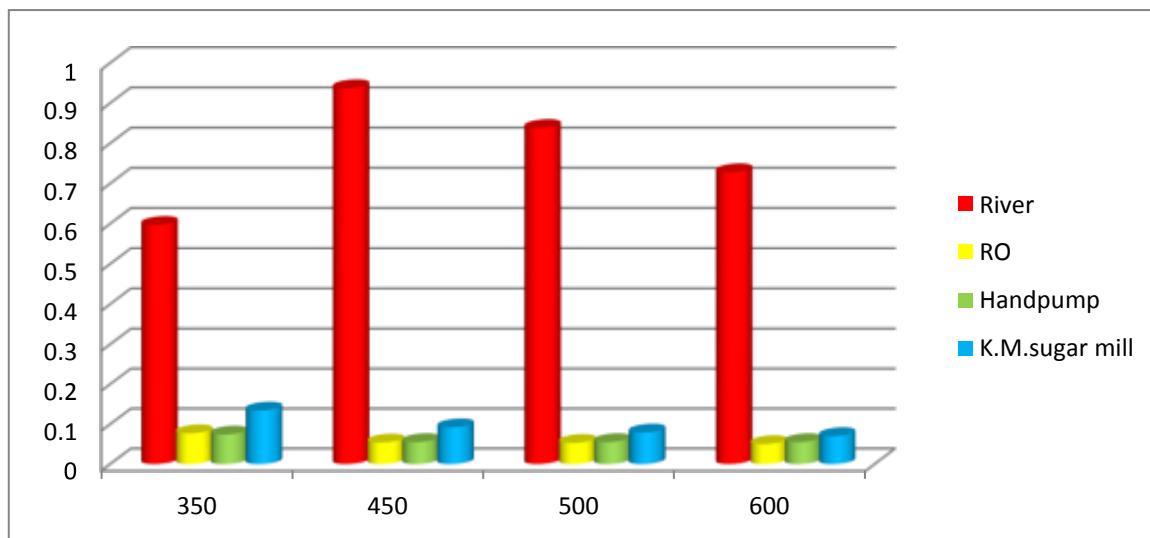


Fig.2 Bar diagram for absorbance of water

Result and Discussion:

In the Ayodhya area (Guptarghat) the absorbance of River water sample is more than the nearby hand pump, R.O., and K.M.sugar mill water sample shown by bar diagram in fig.2. Hence it is concluded that the river water is polluted.

Conclusion:

The absorbance at some of the sites was beyond permissible limit hence water is polluted and is not suitable for beneficial uses without conventional and special treatments. The river is highly polluted due to discharge of domestic and industrial waste through several drains. The increase in value of chloride, fluoride, nitrate and total hardness were also due to the domestic discharges. Increased concentrations of pesticides and heavy metals in water at Guptarghat and at Nayaghat area could be due to high discharge of water from city area, industries, various drains, and agriculture run off.

Acknowledgement:

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