RESEARCH PAPER:

Potability of drinking water at various sites of Sagar city, Madhya Pradesh

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Asian Journal of Environmental Science, (June, 2010) Vol. 5 No. 1 : 8-10

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SUMMARY

Bacteriological quality of drinking water of all the sampling station near the Sagar city was taken for study. To verify the report, drinking water available at various station of Sagar city were examined for its potability. Analysis of heterophic bacteria in aquatic system is of primary importance for evaluating its tropic status, as well as for assessing input of microorganisms from extra aquatic environments. Coliform have been recognized as suitable microbiological indicator of water quality because, it is considered as traditional bacteriological tool for measuring the effectiveness of water treatment against fecal contamination.

Key words : Heterotrophic bacteria, Coliform bacteria, Water quality

Accepted : *January, 2010*

Provision of safe drinking water is a adequate basic necessity for the well-being and socio-economic development of the community. Throughout the developing world, supply of potable water to urban and rural population has been challenging task. Both nationally and internationally a reliable and safe water supply is essential basic reqyurenebt for development and stability. The World Health Organization estimates that burning dung (waste of animal) and drinking contaminated water together cause 8 million deaths per year.

Natural water always contains dissolved and suspended substances of organic and mineral. These enter the water with atmospheric precipitation and from soils where water comes into contact with underground streams or in surface water bodies. Water pollutant can be defined as a "Physical, chemical or biological factor causing aesthetic detrimental effects on aquatic life and on those who consume water. Majority of water pollutants however, is in the form of chemicals which remain dissolved or suspended in water and give an environmental response which is usually not acceptable.

The public health acceptability of water is evaluated by the presence of indicator bacteria. These microorganisms are widely employed to determine the potability of drinking water through the use of standardized test procedure. Bacteriological analysis of drinking water is primarily carried out to asses water potability and to determine a course of action for the protection of population against water borne disease. Bacteria of the coliform group are considered as the primary indicators of fecal contamination and are some of the most frequently applied indicators of water quality.

Study area:

The study area comprised of four sampling sites surrounding the Sagar city. Rajghat dam (S_1) is 22 km situated at south east of Sagar city. The dam is made on Bewas river. Second study site of water works (S_2) is constructed on the Patharia hilltop of the University of Sagar. Third study site Funnusa well (S_3) is located at Katra bazaar of Sagar city. It stores water from Bewas river and other sources. As the well is not covered and located in high air pollution zone, the stored water gets contaminated due to human activities. Forth study site Rambag well (S_4) is situated at Bada bazaar area and which supplies water to different area of Rambag and near by locality (Table 1). The water is used for the domestic purpose and is also located in air pollution zone, thus gets contaminated due to human activity.

MATERIALS AND METHODS

The surface and ground water samples were collected in presterilized glass bottles from four different sampling stations at during Jan. - Dec. 2004. The bottles were brought to the laboratory in an ice box and immediately processed for bacteriological tests. Heterotrophic plate count and total coliform were analyzed by pour plate dilution and multiple tube fermentation techniques. The methods used APHA (1992), Aneja (2002) and