

Microbial groundwater contamination and effective monitoring system

■ A. KUMAR, L. NIRPEN, A. RANJAN, K. GULATI, S. THAKUR AND T. JINDAL

Article Chronicle :

Received :
19.02.2014;

Accepted :
25.05.2014

Key Words :
Fecal coliform,
Bacterial
ransportation,
Aerosol,
Groundwater
contamination,
Microbial hazard

SUMMARY : Global urbanization and livestock agriculture are responsible for microbial contamination for groundwater aquifer. Presence of pathogenic microbes and hazardous chemicals in the water bodies has deteriorated the water quality and poses a serious threat to public health. The objective of this review is to summarize the microbial groundwater contamination, their transport system into groundwater aquifer, existence, survival rate and various monitoring system. Livestock agriculture as well as urban wastewater is considered as one of the most important causes of bacterial contamination of surface and groundwater. Factors influencing fecal bacteria and enteric virus survival include moisture, soil type, temperature, pH, manure application rate, nutrient availability and competition. Cool, moist environments are considered optimal for bacterial survival. Field scale transport studies have shown significant transport of bacteria and viruses from sewage to groundwater through infiltration. Methods employed for microbial detection represent multitude culture, molecular and chemical techniques. The basic and rapid monitoring tactics for microbial analysis provide the effective tools to control the fundamental source for groundwater contamination.

HOW TO CITE THIS ARTICLE : Kumar, A., Nirpen, L., Ranjan, A., Gulati, K., Thakur, S. and Jindal, T. (2014). Microbial groundwater contamination and effective monitoring system. *Asian J. Environ. Sci.*, 9(1): 37-48.

Author for correspondence :

A. KUMAR
Department of Amity
Institute of Environmental
Toxicology Safety and
Management, Amity
University, NOIDA
(U.P.) INDIA
Email: akumar6@amity.edu

See end of the article for
Coopted authors'