



Category: Miscellaneous

# Analysis of ground water and soil samples from severely arsenic affected blocks of Murshidabad district

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## Abstract

Contamination of groundwater and soil by arsenic is a serious threat to existence of mankind on the globe. Arsenic contaminates soil and groundwater by natural biogeochemical cycles. However, due to anthropogenic activities like indiscriminant use of arsenic in disinfectants, weedicides, medicines and fertilizers, arsenic toxicity is a severe environmental issue, both at national and global level. U.S. Environmental Protection Agency and World Health Organization prescribed the permissible limit of arsenic in drinking water to be 10 µg/l. Exposure to arsenic at higher levels over a considerable period of time leads to skin lesions and cancer, disorders of cardiovascular, respiratory, gastrointestinal, hepatic and renal systems. Murshidabad is one of the severely arsenic affected districts of West Bengal. We have analyzed soil and groundwater samples from some of the highly arsenic affected blocks of Murshidabad district. Both the soil and groundwater samples have an alkaline pH, a characteristic of the presence of arsenic in the tested samples. Unfortunately, the socio-economic conditions of these villages force the residents to use groundwater as the source of drinking water. Presence of considerably high amount of total dissolved solids in water samples make them further unfit for consumption. High amount of phosphate and iron present in some of the water samples takes a toll on the detoxification and excretory system of the body, if those water samples are consumed on a regular manner. Contamination of soil by the aforesaid contaminants results in biomagnification of these pollutants in the food chain. We could also isolate certain potentially arsenic resistant bacteria from the contaminated soil and water samples. At the next level we have surveyed an arsenic affected village to analyze the clinical manifestation of arsenic poisoning. In this village subjects developed rampant skin lesions throughout the body due to exposure to arsenic contaminated groundwater. Also, the disorders of various physiological systems could be observed in the subjects leading to death of the subject in extreme cases. Children as young as 13 years are also the victims of arsenic toxicity. Further research for bioremediation and inhibition of biomagnification of arsenic is the need of the hour to combat the menace of arsenic toxicity.

## References

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