

Use of Silver Nanoparticles for Detection of Arsenic Trioxide Contamination of Water

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Abstract: Arsenic trioxide is a potent contaminant of groundwater. It is highly toxic, causing chronic poisoning, skin lesions, and skin cancer. Its permissible limit in drinking water in India is less than 0.05 ppm. Several methods have been proposed for the detection of arsenic. Present research investigates the use of silver nanoparticles for the detection of Arsenic trioxide contamination in water. Silver nanoparticles were synthesized using AgNO₃ solution and plant (*Epipremnum aureum*) extract. Standard Arsenic trioxide solution was prepared in 0.005M NaOH solution and its known aliquots were prepared in distilled water. Constant volume of Silver- Nanoparticles was allowed to react with different concentrations of Arsenic trioxide. Color change was observed showing absorption maxima at 353 nm with an increase in absorbance with Arsenic trioxide concentration from 1 ppm to 100 ppm. Use of silver nanoparticles is a rapid and cost-effective method for detection of Arsenic trioxide contamination of water.

Keywords: Arsenic Trioxide, Water Contamination, Silver nanoparticles, Green Synthesis

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