

## Biosorption of arsenic(III) ion from aqueous solution using *Aspergillus fumigatus* isolated from arsenic contaminated site

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### ABSTRACT

The biosorption of As(III) ion onto the dry biomass of *Aspergillus fumigatus* isolated from the arsenic contaminated soil. The effect of initial As(III) ion concentration (100–260 ppm), pH (3, 4, 5) and temperature (25, 30, 35°C) on arsenic removal has been investigated. In addition the polarity and surface energy of the fungal biomass was determined by FTIR spectroscopy. The biosorbents varied with the pH of the medium and the maximum biosorption at initial concentration of 180 ppm of As(III) ion was obtained at pH 5. The effect of temperature on the biosorbents was varied with different As(III) ion concentration and the maximum adsorption occurred at 35°C. The maximum biosorption capacities ( $q_m$ ) of fungal biomass were 106, 101 and 134 ppm at pH 3, 4 and 5 respectively. Similarly at 25, 30 and 35°C the maximum biosorption capacities ( $q_m$ ) were 144, 125 and 175 ppm respectively for As(III) ion per gram of dry biosorbent. The experimental biosorption equilibrium data for As(III) ion were in good agreement with those calculate by Langmuir and Freundlich model

*Keywords:* *Aspergillus fumigatus*; As(III) ion; Biosorption; pH; Sorption performance; Temperature

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