Investigation on *Melia azedarach* biomass for arsenic remediation from contaminated water

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**ABSTRACT**

The arsenic removal efficiency of *Melia azedarach* biomass was investigated. The effects of pH, biosorbent dose, adsorbate concentration and temperature on the arsenic adsorption were investigated. Batch experiments were conducted using different amounts of biosorbent (2–10 g) at varying amounts of adsorbate (50–500 \(\mu\)g/L) at 20°C. The effect of pH (2–11) on adsorption process was also investigated. The data fit into isotherm models. The study revealed that As(III) and As(V) removal was >90% at an adsorbent dose of 10 g/L, adsorbate concentration of 100 \(\mu\)g/L under pH range of 7–8 for 30 min. Temperature does not significantly affect the As removal efficiency. The experimental data follow Freundlich isotherm. Arsenic adsorption on biomass is confirmed by using scanning electron microscope. This study is pioneer report on *Melia* biomass for arsenic removal, and it is concluded that being environmentally safe technology, *M. azedarach* biomass can be efficiently utilized for arsenic removal.

**Keywords:** Arsenic; Biomass; *Melia azedarach*; Biosorbent; Adsorption isotherms

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