

## **Comparative study on adsorption of Pb(II) ions by alginate beads & mangrove-alginate composite beads**

### **ABSTRACT**

The aim of the present study report on the adsorption performance of alginate bead (AB) and mangrove-alginate composite bead (MACB) bead adsorbents for the removal of Pb(II) ions from aqueous solution. The effects of pH and initial concentration with contact time on the adsorption properties of Pb(II) onto both adsorbent were investigated and were described by isotherm and kinetic studies. The isotherm adsorption data were fitted well to Freundlich isotherms for both beads and the maximum adsorption capacities of the AB and MACB beads were 29.02 mg g<sup>-1</sup> and 10.84 mg g<sup>-1</sup>, respectively. The kinetics adsorption data were best described to a pseudo-second-order kinetic models showing that the MACB beads had a higher kinetic adsorption rate at 2.6084 g mg<sup>-1</sup> min<sup>-1</sup> compared to AB at 0.7043 g mg<sup>-1</sup> min<sup>-1</sup>.

**Keyword:** Mangrove; Composite bead; Lead; Alginate bead; Isotherm; Adsorption