Proceedings of the Canadian Society for Mechanical Engineering International Congress 2022
CSME Congress 2022
June 5-8, 2022, Edmonton, AB, Canada

Adsorption of Lead (II) ions in aqueous solution using carbonized rice bran

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ADSORPTION OF LEAD (II) IONS IN AQUEOUS SOLUTION USING CARBONIZED RICE BRAN

Heavy metals are toxic to the living bodies even though present in trace amounts. In this study, carbonized rice bran adsorbent was used for the adsorption of lead (II) ions in aqueous solution. The charcoal was characterized using XRD and SEM-EDX. The batch experiments were performed to optimize the parameters for the maximum adsorption of the lead ions and the parameters included were – pH, initial ion concentration, and amount of adsorbent, contact time and temperature of the lead solution. A dose of 6 g L-1 of bio sorbents in solutions with an initial pH of 8.5, an initial Pb(II) concentration of 10 mg L-1 and a contact time of 60 min resulted in the maximum Pb(II) removal efficiency. The results indicate that carbonized rice bran is an effective low cost adsorbent for the removal of lead ions from aqueous solutions due to its high metal uptake capacity.

Keywords Adsorption, Carbonized rice bran, Lead ions, Wastewater Treatment