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Adsorption and Recovery of Immobilized Coffee Ground Beads for Silver Ions from Industrial Wastewater

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Graphical abstract

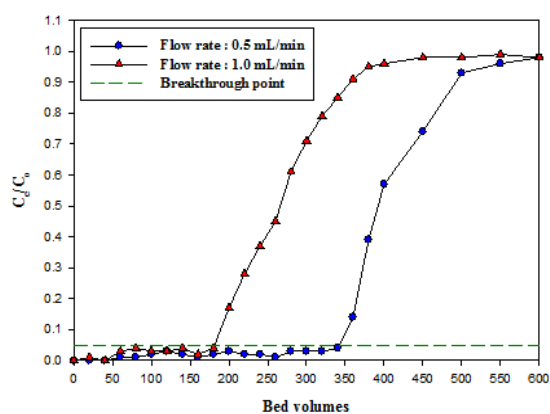


Fig.7 Effect of flow rate on breakthrough curve of silver ions using immobilized coffee ground beads (One bed volume : 1.57mL, Influent concentration : 20ppm, Immobilized coffee ground beads : 1.5g, Influent pH of silver solution : 6.0, Breakthrough point : 0.05)

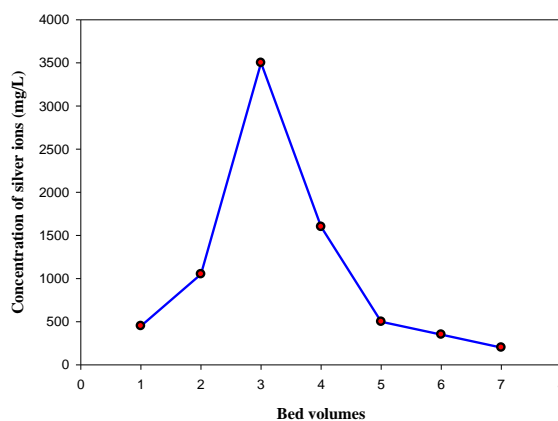


Fig.8 Development of desorption of silver ions using 1.0M of HNO₃ solution (Loading amount of silver ions : 12.5 mg, One bed volume : 1.57mL, Flow rate : 0.5 mL/min)

Abstract

To efficiently adsorb silver ions from industrial wastewater, powdered coffee grounds were immobilized as a bead form by modified polyvinyl alcohol and boric acid method. The beads with 2.0mm of diameter have the 9.87 m²/g of surface area and were stable in the range

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