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Study of Fe(II) biosorption using pleurotus spent mushroom compost in a fixed-bed column

Abstract

The potential use of Pleurotus spent mushroom compost as a biosorbent for Fe(II) removal from aqueous solutions was investigated. The experiments were conducted in a fixed-bed column to investigate the influence of various parameters such as flow rate, bed depth and initial concentration on the biosorption of Fe(II). The results of breakthrough time, exhaustion time as well as the Fe(II) uptake and percentage of removal are highly influenced by the flow rate, bed depth and the initial Fe(II) concentration. The results demonstrated that the breakthrough time and exhaustion time increased with decreases in flow rate and initial Fe(II) concentration. Conversely, the breakthrough and exhaustion time decreased as the bed depth decreases.

Keywords

Biosorption; Breakthrough time; Exhaustion time; Fe(II) removal; Pleurotus spent mushroom compost