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Sorption of actinides using chemically and thermally modified biosorbents

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Abstract

The removal of thorium and europium (as homologue for trivalent actinides) from aqueous solutions was explored using winery by-products in batch-type systems and at variable actinide initial concentrations. The modification of the winery by-products included chemical treatment with NaOH, Na₂CO₃ and NaCl, and biomass carbonisation. The investigations were performed by means of gamma-spectrometry using radioactive tracers and optical spectroscopy (UV-Vis). The results showed significant sorption capacity of the tested materials demonstrating their applicability in soil remediation and (waste)water treatment technologies.

Keywords

Actinide sorption; winery waste, q_{max}; thermodynamic and kinetic parameters

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