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OPTIMIZATION OF PROCESS VARIABLES FOR CADMIUM REMOVAL FROM SYNTHETIC WASTEWATERS BY SPHAGNUM MOSS PEAT

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Abstract

The efficiency of Cd (II) removal from aqueous solutions was investigated using Sphagnum moss peat as sorbent. A 2^3 orthogonal central composite design was successfully employed for experimental design and analysis of results. The combined effect of the initial solution pH, peat dosage and initial Cd (II) concentration was studied and optimized using Response Surface Methodology (RSM). The optimum values of these variables were found to be pH = 4.72, 14.7 g peat /L and 13.64 mg Cd /L, respectively; in this point the removal efficiency is the maximum one (103.52 % given by empirical model and 99.9 % verified experimentally).

Key words: cadmium removal, optimization, peat adsorbent, response surface methodology

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