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EQUILIBRIUM AND KINETIC STUDIES ON THE ADSORPTION OF PENICILLIN G BY CHESTNUT SHELL

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Abstract

Because of their toxic effects on the food chain and sources of water, antibiotics are potential pollutants that represent an important environmental problem. The objective of this research was to study the adsorption of penicillin G (PEN G) onto chestnut shell using a batch adsorption system. Maximum adsorption was achieved at pH 3.0. The equilibrium uptake capacity (mg/g) increased with increasing levels of initial penicillin G concentration. The uptake capacity of penicillin G onto chestnut shell was determined using the Langmuir model and was found to be 100 mg g⁻¹. It was found that the Freundlich isotherm model fitted the equilibrium data best. Additionally, the results of adsorption kinetics studies fitted the pseudo-second-order equation best.

Key words: adsorption, chestnut shell, isotherm, kinetic, Penicillin G

Received: July, 2012; Revised final: December, 2012; Accepted: January, 2013

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