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TECHNICAL FACULTY IN BOR



BOOK OF ABSTRACTS

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REMOVAL OF COPPER IONS FROM AQUEOUS SOLUTIONS USING HAZELNUT SHELLS AS AN ADSORBENT

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Abstract

Removal of heavy metals from industrial wastewaters can be achieved by various methods, such as chemical precipitation, coagulation, complexation, adsorption with activated carbon, ion exchange, solvent extraction, electrodeposition, cementation, etc. In addition to the processes listed above, it is necessary to mention the process of biosorption. Biosorption represents an efficient method of purification and removal of heavy metals from aqueous solutions with corresponding advantages such as specific affinity, low cost, and simple design. This paper presents a kinetic analysis of copper ions adsorption onto hazelnut shells. The experimental kinetic data were analyzed using four kinetic models: the pseudo first-order kinetic model, the pseudo second-order kinetic model, the interparticle diffusion kinetic model, and the Elovich kinetic model. The obtained results indicate that the biosorption of copper ions onto hazelnut shells follows the pseudo second-order kinetic model, with a correlation coefficient of $R^2 = 0.9613$. This indicates that the chemical interaction between the surface functional groups is the limiting factor of the process rate.

Keywords: *Biosorption, Copper ions, Hazelnut shells, Adsorption kinetics*

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- [1] S.K. Gunatilake, Methods of Removing Heavy Metals from Industrial Wastewater, Journal of Multidisciplinary Engineering Science Studies, 1 (2015) 12-18.



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