OB3. **COPPER (II) IONS REMOVAL FROM SIMULATED WASTEWATER USING A CHITOSAN COMPOSITE ADSORBENT-STUDY OF PROCESS EQUILIBRIUM, KINETICS AND THERMODYNAMICS**

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Heavy metals contribution to the major pollution in water has attracted significant attention since they are not biodegradable and tend to accumulate in living organisms, being potentially toxic at very low concentrations. To overcome this issue, a novel chitosan/magnetite adsorbent has been previously prepared by our team by an in-situ method using chitosan and ferrous chloride as raw materials, nitrate ions as a mild oxidizing agent and glutaraldehyde as crosslinker.

The aim of this study is to evaluate the applicability of the novel material as a highly efficient, environmentally friendly and cost-effective adsorbent for Cu^{2+} ions removal from simulated wastewater. The adsorption behavior of chitosan composite microparticles for Cu^{2+} was investigated as a function of pH, contact time, initial metal ion concentration and temperature. The adsorption isotherms were analyzed using the Langmuir, Freundlich and Dubinin–Radushkevich models.

The adsorption and desorption mechanisms were discussed. The adsorption kinetics was tested for the pseudo-first order and pseudo-second order kinetic models. The results show that our novel material is a promising adsorbent for removal of Cu^{2+} from contaminated water.

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