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Entitled

*EVALUATION OF FUNCTIONALIZED MAGNETITE NANOPARTICLES FOR THE REMOVAL OF
HEAVY METAL IONS FROM AQUEOUS MEDIA*

by

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Abstract

Sorption is one of the most efficient techniques for the removal of heavy metal ions from waste water. It involves the use of solid materials, known as sorbents, which can be natural or synthetic in origin. Recently, synthetic nanomaterials of various compositions have been used as sorbents. Among these materials, calcium phosphate; also known as hydroxyapatite (HAp), and magnetite were previously investigated as potential sorbents. In the current study, commercial HAp, and magnetite nanoparticles as well as their physical and chemical mixtures were investigated as potential sorbents for the removal of Cd²⁺ ions from simulated wastewater. A comparison is made between the structure, morphology and properties of physically prepared HAp: magnetite and HAp chemically grown onto magnetite nanoparticles. A detailed characterization of all sorbents was carried out, both as prepared and after thermal treatment at various temperatures. A batch study was used to study the effect of different parameters on the efficiency of Cd²⁺ ions sorption.

Keywords: Magnetite nanoparticles, sorption, heavy metal ions