Current trends of removal dyes from water by magnetic nanomaterials

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Abstract: *Due to the global pollution of aqueous reservoirs, there is a deep need to develop water purification techniques, including applying sorbent materials. Among many sectors, the textile and paper industry generates a tremendous amount of water pollutants leading to the dyes and pigments released into the environment, particularly groundwater and drinking water. Such compounds harm health leading to many disorders, so their removal is essential. In this work we focused on removal anodic dye especially Congo Red. We prepare iron oxide nanoparticles doped zinc to 10% additive by co-precipitation method, which used to disposal CR by photoassisted degradation as also adsorption. The nanomaterials were characterize by morphology studies, optical properties, magnetization and crystallinity. The best results obtain for Fe3O4@10%Zn sample, where more than 70% dye was reduced by photocatalytic effect at 60 minutes. However, for the same sample receive adsorption efficiency about 62% at 120 minutes. To conclude prepared nanomaterial is effective in water pollutant treatment. The main advantage of the proposed material is magnetic separation that enables the fast removal of sorbent from the solution without filtration or centrifuging.*

Keywords: *water pollution, dyes, wastewater treatment, magnetic nanoparticles*

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