

عنوان مقاله:

Preparation of ZnXFe₃-XO₄@chitosan Nanoparticles as an Adsorbent for Methyl Orange and Phenol

محل انتشار:

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خلاصه مقاله:

We have propounded an easy preparation process for the synthesis of chitosan-covered ZnXFe₃-XO₄ nanoparticles by the application of FeCl₂.4H₂O, FeCl₃.6H₂O, and Zinc Acetate. The synthesized nanoparticles, which went through various analysis methods, including transmission electron microscopy (TEM), scanning electron microscope (SEM), Energy-dispersive X-ray spectroscopy (EDS), X-ray diffraction (XRD), vibrating-sample magnetometer (VSM), and Fourier transform infrared (FT-IR) spectroscopy, were later on exploited as adsorbent for phenol and Mo contaminations. Trapped within a matrix of chitosan, the synthesized ZnXFe₃-XO₄ nanoparticles had a size of less than 30nm. The EDS and FTIR analysis methods demonstrated the presence of Zn element inside the structure and the NH₂ group on nanoparticles' surface, respectively. The coated nanoparticles had a magnetic saturation of 55 emu/g. Accordingly, the results showed that the synthesized nanoparticles had a very high capacity phenol and methyl adsorption.

کلمات کلیدی:

Ferrite Magnetite, ZnFe₂O₄, NH₂ Magnetic Nanobeads, chitosan

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