

عنوان مقاله:

Synthesis and characterization of a nanomagnetic adsorbent modified with Thiol for magnetic and investigation of its adsorption behavior for effective elimination of heavy metal ions

محل انتشار:

نشریه پیشرفته شیمی، دوره 5، شماره 1 (سال: 1401)

تعداد صفحات اصل مقاله: 14

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خلاصه مقاله:

The main purpose of the current research was the synthesis of a novel nanomagnetic adsorbent modified with Thiol containing groups and investigating its adsorption behavior for effective elimination of heavy metal ions from environmental waters. To this end, first, the co-precipitation method was utilized to prepare Thiol-modified magnetite nanoparticles (NPs). Then, the surface of magnetic NPs was modified with Thiourea formaldehyde polymeric material, followed by purification and identification of the synthesized products. Finally, the efficiency and performance of the synthesized nanoparticles for heavy metal ions removal were investigated in the aqueous solution. The synthesis mechanism of modified nanomagnetic adsorbents were investigated and identified through various analyses including (FT-IR), (XRD), (SEM) and (VSM). The results indicated that modified nanomagnetic adsorbents were able to remove and extract the chromium (II) and cobalt (II) from aqueous solutions. Further, Langmuir and Freundlich adsorption isotherms were studied and the results showed that adsorption data of both analytes were fitted well with Langmuir isotherm. Thus, the single-layer adsorption mechanism and the homogeneous adsorbent surface can be considered

کلمات کلیدی:

Nanomagnetic adsorbent, Thiourea formaldehyde polymer, Adsorption behavior, Removal of heavy metal ions

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