عنوان مقاله:

Synthesis, characterization and degradation activity of Methyl orange Azo dye using synthesized CuO/α-Fe2O3 nanocomposite

محل انتشار:

فصلنامه پیشرفت ها در فناوری محیط زیست, دوره 2, شماره 3 (سال: 1395)

تعداد صفحات اصل مقاله: 9

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خلاصه مقاله:

This study investigated the photo-degradation of methyl orange (MO) as a type of azo dye using a CuO/α-Fe2O3 nanocomposite. A CuO/α-Fe2O3 powder with a crystalline size in the range of 27-49 nm was successfully prepared using simple coprecipitation along with a sonication method. The characterization of the synthesized sample was done via XRD, FE-SEM, EDS, FTIR and DRS analyses. The Tauc equation revealed that the band gap of the nano composite in the direct mood was 2.05 ev, which is in the visible light range. The effect of operating factors containing dye concentration, photocatalyst dosage and pH on dye degradation efficiency was measured. Response Surface Method (RSM) was employed to specify the parameter effects. The photocatalytic activity of the CuO/α-Fe2O3 nanocomposite was evaluated by degradation of MO under visible light irradiation. The results showed that the pH value played a very effective role in the dye degradation process efficiency. Also, the photocatalytic degradation of .MO obtained was equal to 88.47% in the optimal values

کلمات کلیدی:

(CuO/α-Fe2O3،Methyl orange ،Nano composite ،Photodegradation،Response Surface Method (RSM