

عنوان مقاله:

Synthesis and characterization of new spinel $Mn_{0.5}Cu_{0.5}Cr_2O_4$ and degradation of Malachite Green from wastewater in comparison with $CuCr_2O_4$

محل انتشار:

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خلاصه مقاله:

In this study phase- pure new spinel structure, $Mn_{0.5}Cu_{0.5}Cr_2O_4$ was prepared by hydrothermal method successfully and the degradation of Malachite green as an organic pollutant was investigated and compared with $CuCr_2O_4$. Purification of obtained nanoparticles was measured by using X-ray diffraction method (XRD) in which crystal structure and the structural properties were studied by using X'Pert package and Fullprof program. Also, the morphology of obtained materials was modified by field-effect scanning electron microscopy (FESEM). These materials were characterized by Fourier-transform infrared spectroscopy (FTIR) and thermogravimetric analysis (TGA), respectively. UV-vis diffuse reflectance analysis was done for determination of band gap which evaluated ۱.۳۷eV. The photocatalytic application of synthesized materials was evaluated by the degradation of malachite green (MG) in the presence of H_2O_2 that were assessed by UV-vis spectroscopy analysis. The comparison study of photocatalytic result revealed that $Mn_{0.5}Cu_{0.5}Cr_2O_4$ has higher activity than $CuCr_2O_4$.

کلمات کلیدی:

$CuCr_2O_4$, Hydrothermal Method, Malachite green, $Mn_{0.5}Cu_{0.5}Cr_2O_4$, Photocatalytic Activity

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