

Abstract

Mg@NiO composites with activated carbon were synthesized by solution combustion method. Using X-ray diffraction (XRD), Fourier-transform infrared spectroscopy (FTIR), scanning electron microscopy, and UV-Vis DRS spectroscopy, respectively, the crystal structure confirmation, functional group identification, surface morphology, and optical properties of the synthesized composite material were examined. The existence of the crystalline nature of Mg@NiO as FCC structure and Ni₂O₃ as hexagonal phases was confirmed by XRD after sintering at 700 °C. Functional groups like Ni-O and C-O were confirmed by FTIR in the produced samples.