Abstract

The ZnO-NiO and CdS/ZnO-NiO nanocomposites were synthesized using (sodium dodecyl sulfate) SDS as surfactant by sol-gel method and the effect of time on feed rate during synthesis was also studied.The characterization of nanocomposites was done using Fourier Transform Infrared (FTIR) Spectroscopy, Thermogravimetric Analysis (TGA), Scanning Electron Microscopy-Energy Dispersive X-ray spectroscopy (FESEM-EDX), X-Ray Diffraction (XRD) and Transmission Electron Microscopy (TEM).The average crystallite size of cubic shape ZnO-NiO and CdS/ZnO-NiO was 2-6 to 1-6 nm using the scherrer equation.The band gap of 4.3-2.9 eV to 2.6 eV was calculated by wood and tauc relation while both results shows that the after doping a big decrease was noticed in the particle size and band gap calculations. FESEM-EDX illustrated the fiber and flate like plates.The TEM characterized the average crystallite size 13.68 to 11.46 nm closed to XRD values. The fingermark powder that made by ZnO-NiO and CdS/ZnO-NiO nancomposites is best for the development of latent fingermarks on porous,non-porous and semiporous surfaces.