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Preliminary Study of Hydrothermal Synthesis of TiO_2-GO Composites as a High Performance Photocatalyst

Abstract

In this study, the addition of graphene oxide (GO) into TiO2 was investigated. GO was prepared by modified Hummer method before it was added into TiO2 via hydrothermal method. The graphite and GO was characterized by Raman spectra, Fourier transform infrared spectroscopy (FTIR), X-ray diffraction (XRD) and scanning electron microscope (SEM) along with the TiO2-GO composites also have been characterized. The morphology of TiO2 deposited on the surface of the GO sheet was observed by SEM. the phase formation of anisotropic anatase (TiO2) of the TiO2-GO was detected in XRD. The photocatalytic activity was determined by calculating the photodegradation efficiency of methylene blue (MB) under UV light irradiation. The photodegradation of MB were increased with time for TiO2-GO compared to pure TiO2. The results indicated that TiO2-GO composites was successfully produced using hydrothermal method for the photocatalytic application.