



Superior photodegradation activity of MoS₂/TiO₂ nanofibers for phenol under visible light irradiation

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ABSTRACT

Binary composite MoS₂/TiO₂ nanofibers (MTN) were elaborated by electrospinning technique. The photocatalytic efficiency of the binary nanofibers was controlled via different ratios between MoS₂ and TiO₂. The structural, morphology and optical properties of the prepared nanofibers were detected by Raman spectroscopy, Fourier-transform infrared spectra, scanning electron microscopy and UV–Vis diffuse reflectance spectra. The prepared nanofibers were showed remarkable performance in photocatalytic efficiency of phenol compounds degradation under visible light. MTN nanofibers recorded superior photocatalytic activity (96%) and high stability of several cycles under visible light. Therefore, MoS₂/TiO₂ nanofibers have massive implementation prospects for the treatment of wastewater from toxic organic contamination due to their excellent photocatalytic performance reusability and recyclability.

Keywords: Photocatalytic; Molybdenum sulphide; TiO₂; Phenol degradation

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