

Supporting information

Construction of In situ Self-assembled FeWO₄/g-C₃N₄ nanosheet

Heterostructured Z-scheme Photocatalysts for Enhanced Photocatalytic

Degradation of Rhodamine B and Tetracycline

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1. Materials

Melamine, ethylene glycol, ferric chloride hexahydrate, sodium tungstate dihydrate, sodium acetate, ammonium oxalate, iso-propanol, Terephthalic acid and Rhodamine B were obtained from S. D. Fine Chemicals, Mumbai, India. 1, 4-benzoquinone and Tetracycline were purchased from Sigma-Aldrich, India. All the chemicals used in this study were of analytical grade and were used without further treatment and double distilled water was used throughout this study.

2. Characterization

The crystal structure and phase purity of the as-prepared samples was characterized by powder X-ray diffraction (XRD) using the Cu-K α radiation ($\lambda=0.15406$ nm) on a Rigaku Miniflex 600 X-ray Powder Diffractometer in the 2θ range of $10^\circ\sim 80^\circ$. Scanning electron microscopy (SEM, ZEISS, EVO 18) and transmission electron microscopy (TEM, Tecnai G² 20 (FEI) S-Twin) were utilized to characterize the morphologies and microstructures of the samples and high resolution transmission electron microscopy (HRTEM) image were also recorded on a Tecnai G² 20 (FEI) S-Twin microscope. The Energy-dispersive spectroscopy (EDS) measurements were performed with X-ray energy dispersive spectrometer installed on a ZEISS, EVO 18 microscope. X-ray photoelectron spectroscopy (XPS) analysis was performed on a Kratos AXIS Ultra spectrometer using Al K α as an X-ray source (1486.71 eV). Fourier transform infrared (FTIR) spectra of the samples was recorded on a Shimadzu IR Prestige-21 spectrophotometer using the KBr pellet technique. UV–vis diffuse reflectance spectra (DRS) were recorded on a Shimadzu UV-3600 UV–Vis-NIR spectrophotometer using BaSO₄ as a reference. The photoluminescence (PL) spectra were measured on a JASCO FP-8500 spectrofluorometer with an excitation wavelength of 360 nm.

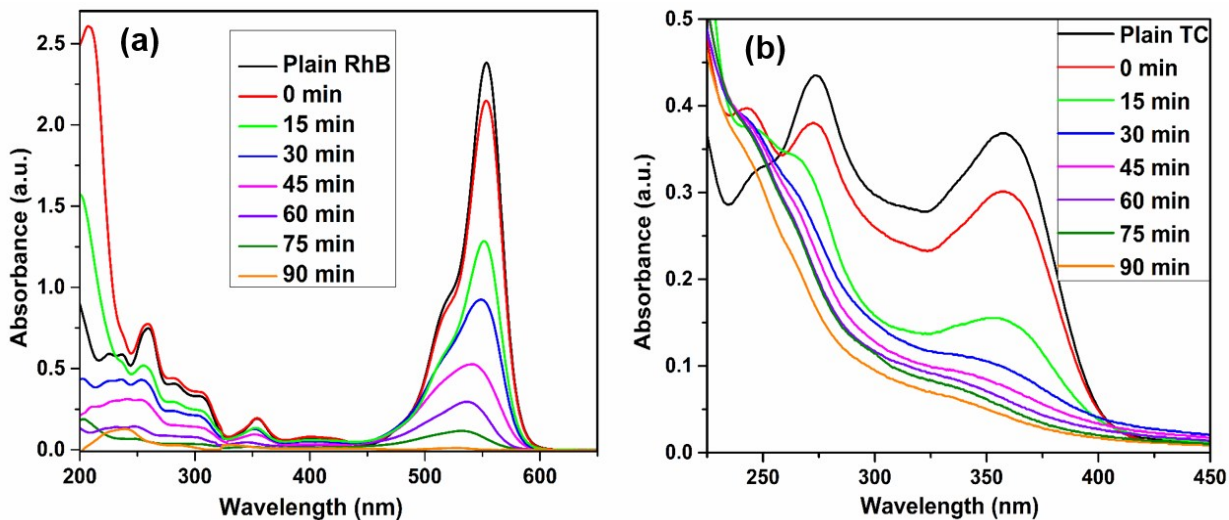


Fig. S1 Time-dependent Uv-vis absorption spectra of (a) RhB and (b) TC solution over the 10-FWO/CNNs composite.

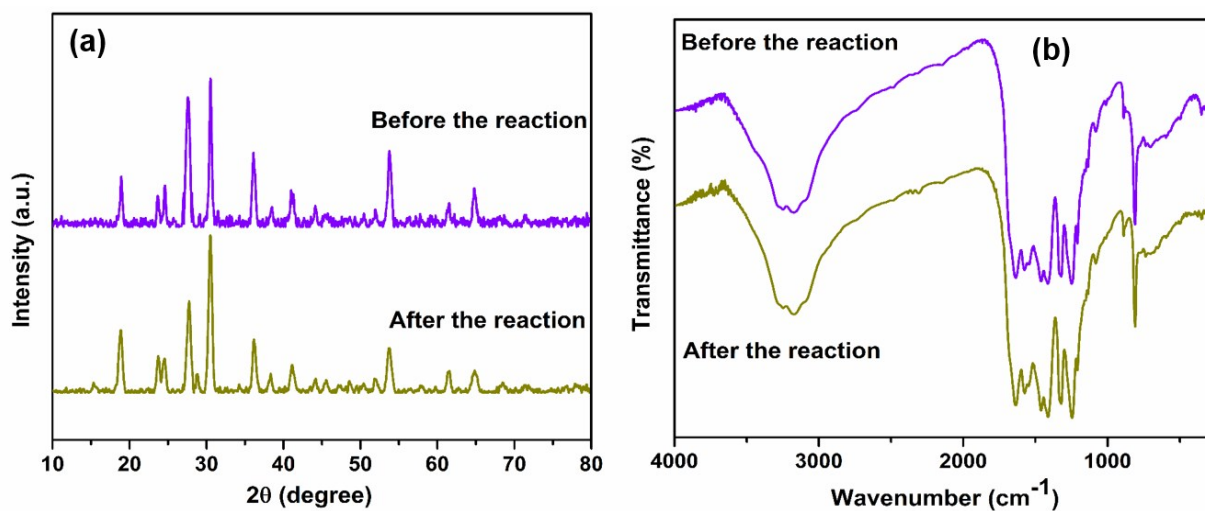


Fig. S2 (a) XRD patterns and (b) FTIR spectra of the 10-FWO/CNNs composite before and after photocatalytic reaction.