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Supplementary Materials

Novel Indium Vanadium Oxide Nanosheet-Supported Nickel Iron Oxide Nanoplate Heterostructure for Synergistically Enhanced Photocatalytic Degradation of Tetracycline

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1.1. Reagents

NH_4VO_3, $InCl_3.4H_2O$, HNO_3, $FeCl_3.6H_2O$, $NiCl_2.6H_2O$, ethylene glycol, benzoquinone, triethanolamine, and isopropyl alcohol were purchased from Sigma-Aldrich. All chemicals were used without further purified.

1.2. Characterizations

X-ray diffraction was analyzed through a Shimadzu 6100 X-ray diffractometer with Cu Kα radiation. Field emission scanning electron microscopy images and energy dispersive X-ray spectra of prepared samples were conducted through a HITACHI, S-4800 system. A HITACHI H-7600 electron microscope was used to obtain transmission electron microscopy (TEM) images, as well as Tecnai G2 F20 S-Twin electron microscope was used to obtain high-resolution transmission electron microscopy (HRTEM) images. A Thermo Scientific Kα X-ray source was used for collect X-ray photoelectron spectroscopy. The UV-vis diffuse reflectance spectra were performed on a VARIAN, Cary 5000 spectrophotometer. The photoluminescence spectra of the catalysts were examined through a Horiba IHR550 fluorescence spectrophotometer.

1.3. Photocatalytic test

The photocatalytic performance of as-prepared samples was evaluated for the removal of tetracycline (TC) under visible light irradiation. In general, 15 mg of $InVO_4/NiFe_2O_4$ photocatalyst was added to 50 mL of TC aqueous solution (40 mg/L) followed by sonication for 2 min for homogenization. Prior to illumination, the reaction system was vigorously stirred for half an hour in the darkness to reach the adsorption-desorption equilibrium. In turn, the above suspension was expose to visible light. Further, the photocatalytic performance of the prepared catalysts was evaluated by using a 100-W solar simulator. In the meantime, 3 mL of reaction suspensions were collected at given time interval and separated by centrifugation.

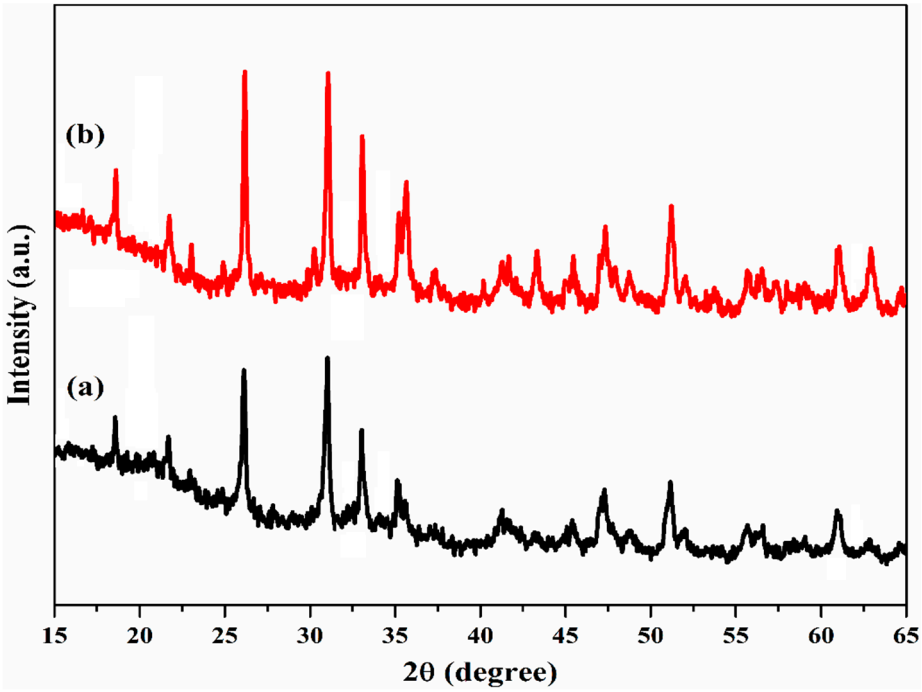

Figure S1. XRD pattern of IVNF-5.0 nancomposite (a) before and (b) after photocatalytic activity.

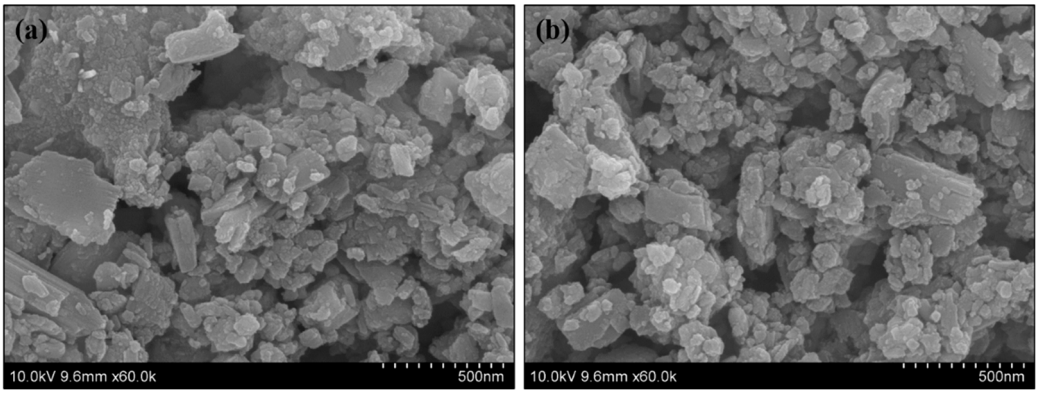

Figure S2. SEM images of IVNF-5.0 nancomposite (a) before and (b) after photocatalytic activity.

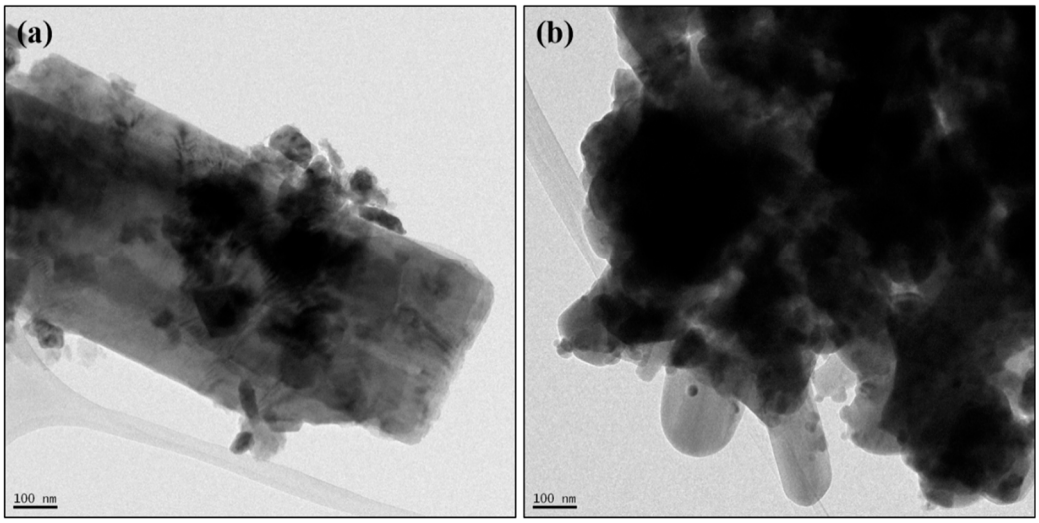

Figure S3. TEM images of IVNF-5.0 nancomposite (a) before and (b) after photocatalytic activity.