

## Supporting information

### The enhanced photocatalytic activity of TiO<sub>2</sub>(B)/MIL-100(Fe) composite via the Fe-O cluster

#### Characterizations

Transmission electron microscope (TEM, JEOL, JEM-2010) was used to observe the morphology and structure of samples. X-Ray diffraction (XRD) was used to analyze the crystal phases of samples. UV-vis diffuse reflectance spectra (DRS) was obtained for optical properties analysis. The binding energies of each element was analyzed by X-ray photoelectron spectroscopy (XPS). FT-IR spectrometer and Raman were used for chemical bonding analysis. Photoelectrochemical properties of samples was investigated by using a CHI-660C electrochemical station with a standard three-electrode system. The saturated calomel electrode (SCE) and Pt wire were used as the reference electron and counter electrode, respectively. The sample was coated on indium tin oxide (ITO) glass as working electrode. The electrolyte was 0.5 M Na<sub>2</sub>SO<sub>4</sub> solution (pH = 7), and light source was 300 W Xe lamp.

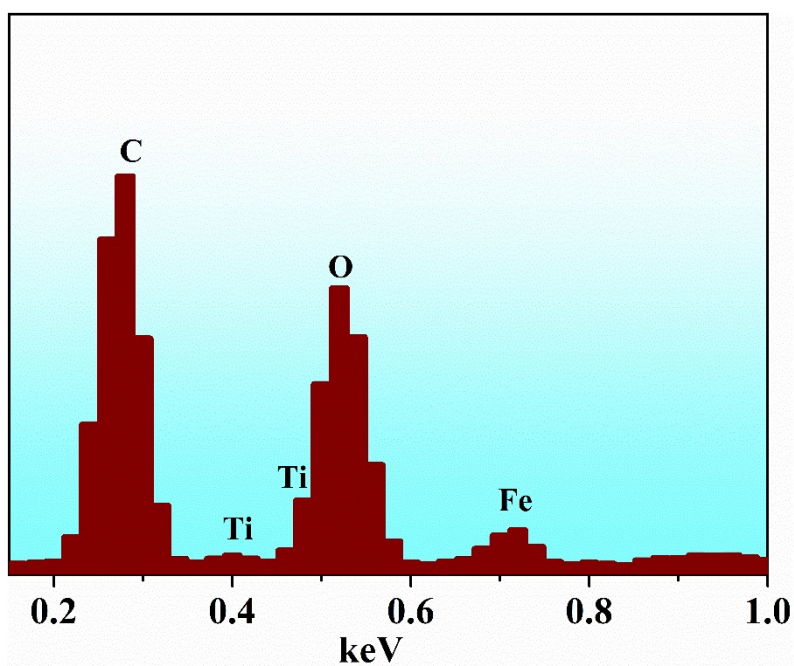


Fig. S1 EDS spectra of TiO<sub>2</sub>(B)/MIL-100 composite.