Electronic Supplementary Information (ESI) for

Solvothermal synthesis of MIL-53(Fe) hybrid magnetic composite for photoelectrochemical water oxidation and organic pollutant photodegradation under visible light

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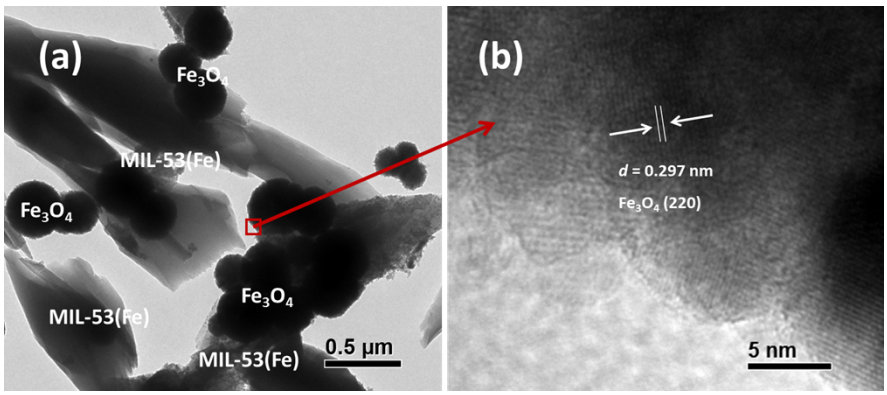

Fig. S1 TEM (a) and HRTEM (b) of the MHMCs

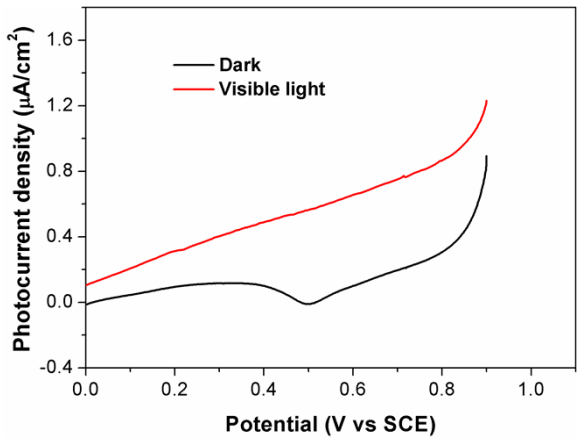

Fig. S2 Linear-sweep voltammagrams of the Fe_2O_3 film electrode collected with a scan rate of 10 $mV \cdot s^{-1}$ in dark and under visible light illumination in 0.5 M Na_2SO_4 aqueous solutions.

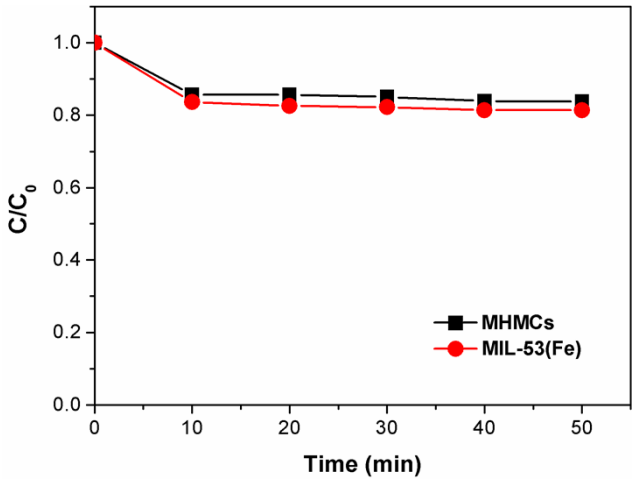

Fig. S3 Time profiles of adsorption of RhB over the MHMCs and MIL-53(Fe) in the dark.

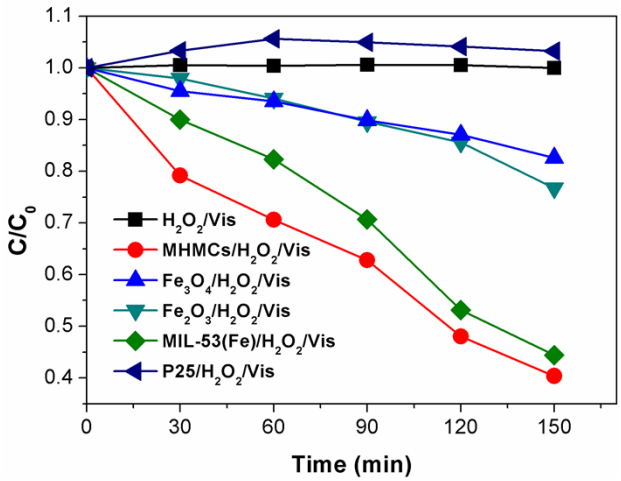

Fig. S4 Degradation of PNP in different photocatalytic systems under visible light irradiation (experimental conditions: PNP, 10 mg·L^{-1}; catalyst dosage, 0.4 g·L^{-1}; H_2O_2, 20 mM).

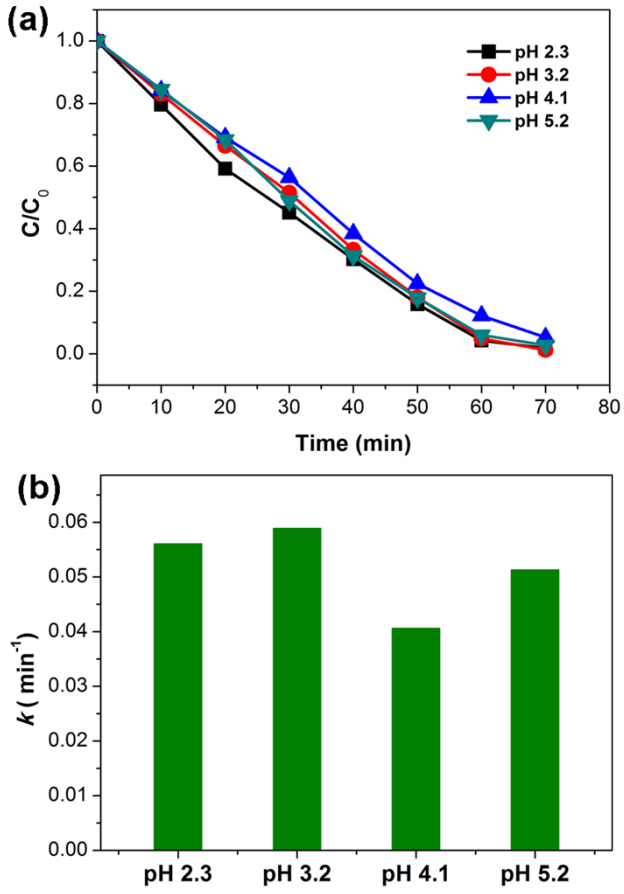

Fig. S5 (a) Effect of initial pH on the degradation of RhB in MHMCs/H_2O_2 system under visible light irradiation. (b) The corresponding apparent reaction rate constants of the photodegradation of RhB at different initial pH.

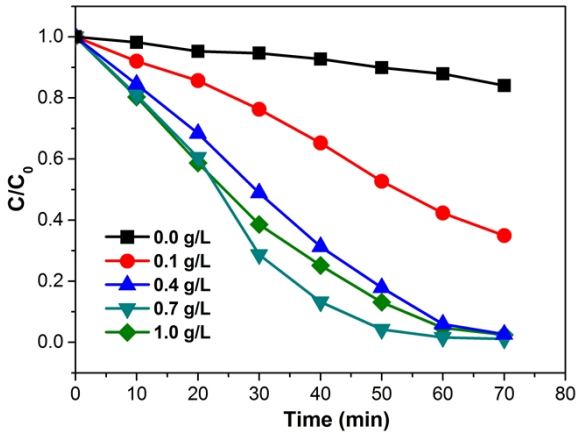

Fig. S6 Effect of catalyst dosage on the degradation of RhB in MHMCs/H_2O_2 system under visible light irradiation.

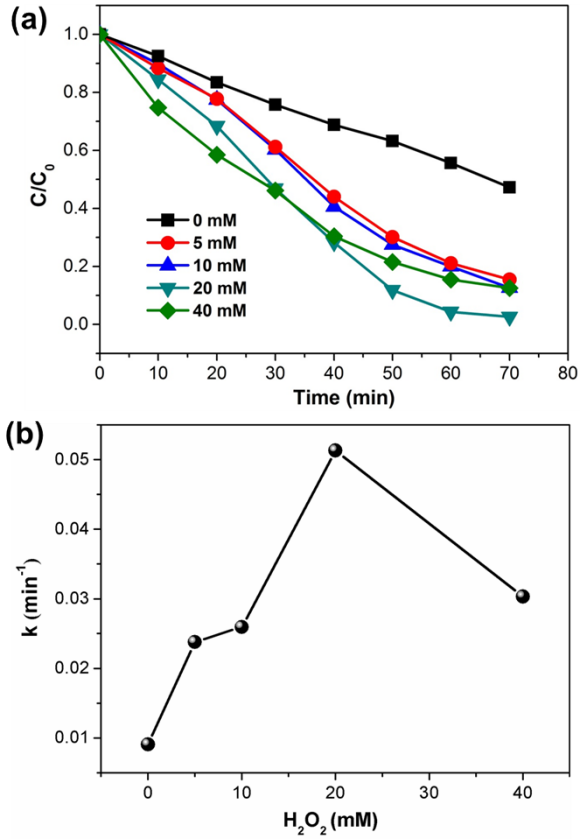

Fig. S7 (a) Effect of H_2O_2 concentration on the degradation of RhB in MHMCs/H_2O_2 system under visible light irradiation. (b) The corresponding apparent reaction rate constants of the photodegradation of RhB at different H_2O_2 concentration.

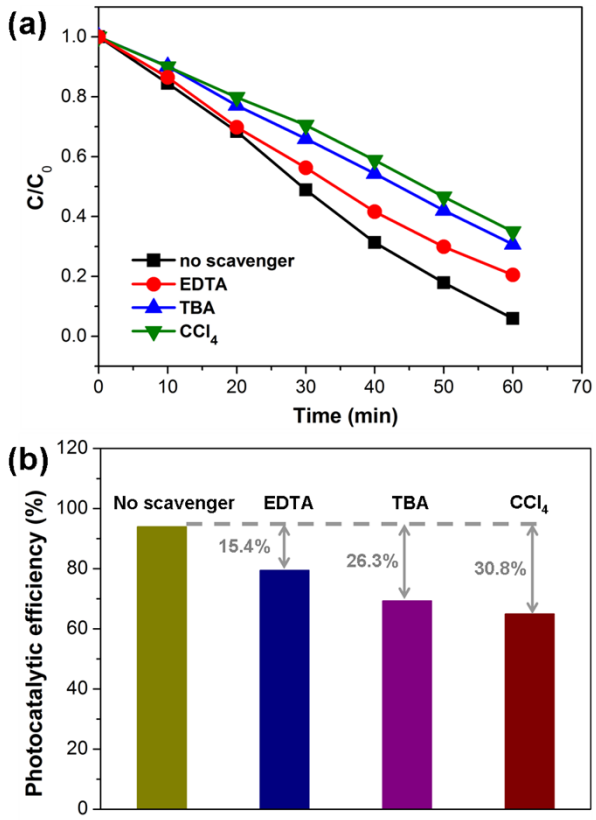

Fig. S8 (a) Photodegradation of RhB over MHMCs-H_2O_2 system under visible light irradiation in the presence of trapping systems (scavenger amount: 12 mM). (b) Comparison of the depression efficiency of MHMCs-H_2O_2 system for the photodegradation of RhB.

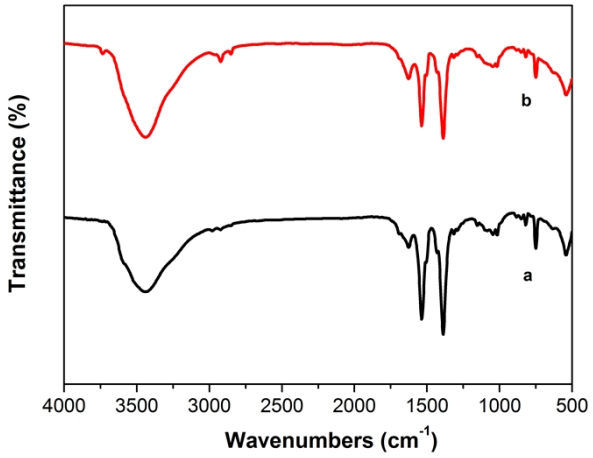

Fig. S9 FTIR spectra of the MHMCs before (a) and after (b) photocatalytic reaction.

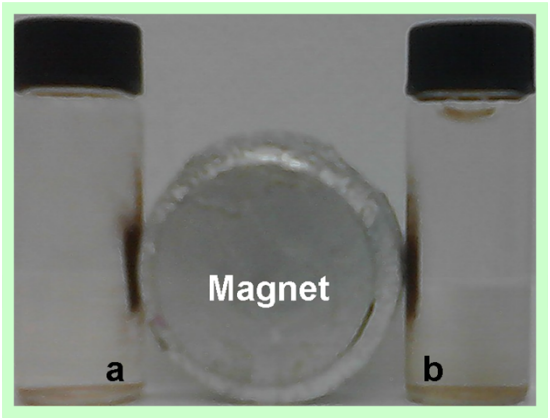

Fig. S10 Magnetic response of the MHMCs before (a) and after (b) photocatalytic reaction to an external magnetic field.