

Supplementary Information

Enhanced selective photocatalytic property of a novel magnetic retrievable imprinted ZnFe₂O₄/PPy composite with the specific recognition ability

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Experimental Section

1 Synthesis of PPy

PPy was prepared by chemical oxidation. One mL Py monomer was dispersed in 50 mL distilled water at ambient temperature. Then, under nitrogen protection, 50 mL 0.2M APS solution was added slowly to the mixture. After magnetic stirring for 3 h, the resultant product was dried under vacuum at 40°C for 12 h to obtain a black powder of PPy.

2 Adsorption experiments

The adsorption capacity was tested in accordance with the following steps: 0.1 g of the sample was added to 100 mL ciprofloxacin solution (20 mg L⁻¹), and analyzed at intervals of 10 min at 303 K. After 60 min in the dark, the sample was isolated by a magnet, and the concentration of the solution was measured with the UV-vis spectrophotometer 2450 (Shimadzu Co., Japan).

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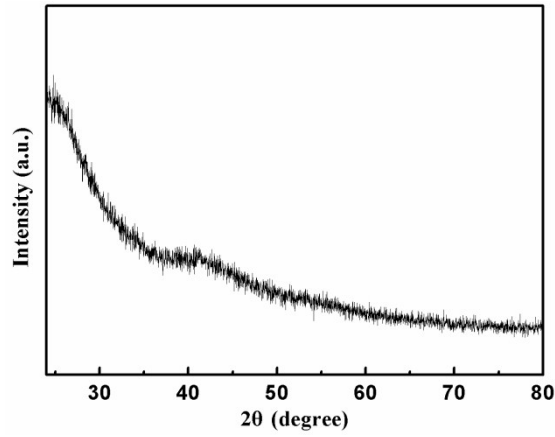


Fig. S1 The XRD spectra of PPy

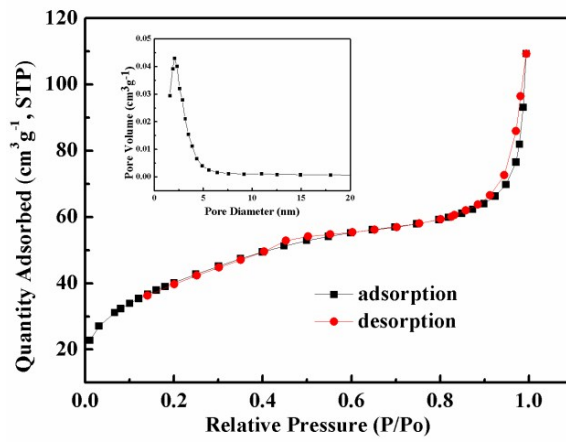


Fig. S2 Nitrogen adsorption-desorption isotherms and pore diameter distributions (insert) of ZnFe₂O₄

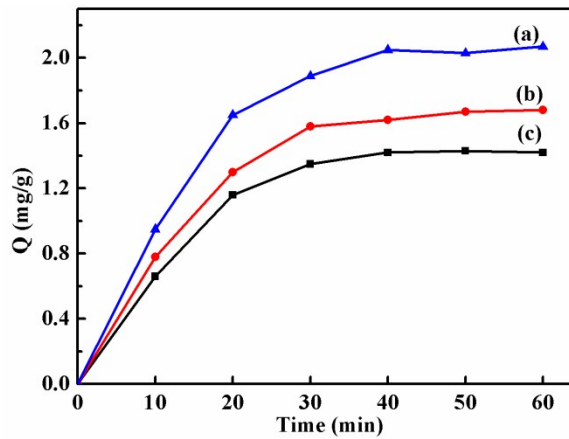


Fig. S3 Adsorption curves of ciprofloxacin over the different samples (a: imprinted ZnFe₂O₄/PPy composite, b: non-imprinted ZnFe₂O₄/PPy composite, c: ZnFe₂O₄)

The adsorption curves of ZnFe₂O₄, imprinted ZnFe₂O₄/PPy composite and non-imprinted ZnFe₂O₄/PPy composite are shown in Fig. S3. After about 60 min, the solution almost reached the

adsorption-desorption equilibrium, with the adsorption capacity of samples follows the following order: imprinted $\text{ZnFe}_2\text{O}_4/\text{PPy}$ composite > non-imprinted $\text{ZnFe}_2\text{O}_4/\text{PPy}$ composite > ZnFe_2O_4 . The different adsorption abilities could be attributed to the large numbers of imprinting cavities in the imprinted polymers surface, such that the increased BET surface area enhanced the adsorption ability. Another important reason is that the three-dimensional imprinted cavities are consistent with the target structure, so that the imprinted $\text{ZnFe}_2\text{O}_4/\text{PPy}$ composite exhibits strong recognition and adsorbs more target pollutant.