

# Supplementary materials

**A facile heterogeneous system for persulfate activation by  $\text{CuFe}_2\text{O}_4$**

**under LED light irradiation**

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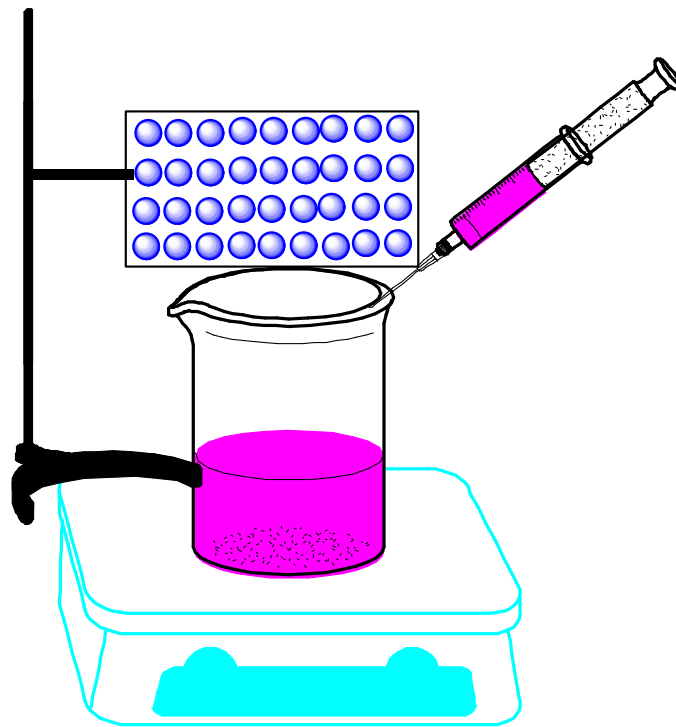


Fig. S1 The experiment set-ups for the experiment

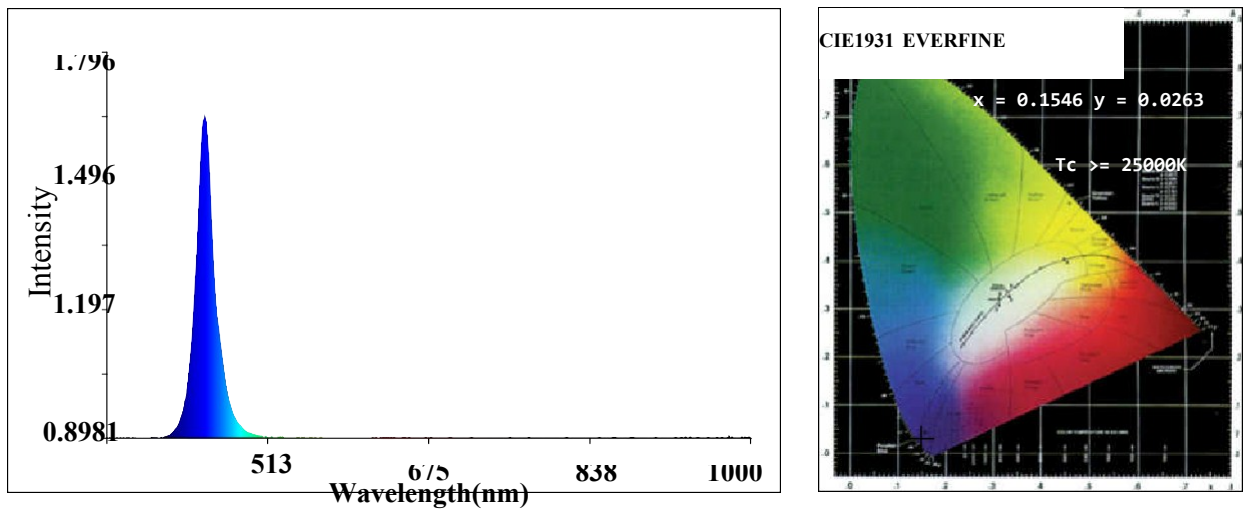


Fig. S2 The photo-luminescence spectra of LED light ( $T_c = 100000K$ ,  $\lambda_d = 454.1nm$ , Purity = 98.6%, R = 1.0%, G = 13.1%, B = 86.0%,  $\Delta\lambda_d = 18.0$  nm)

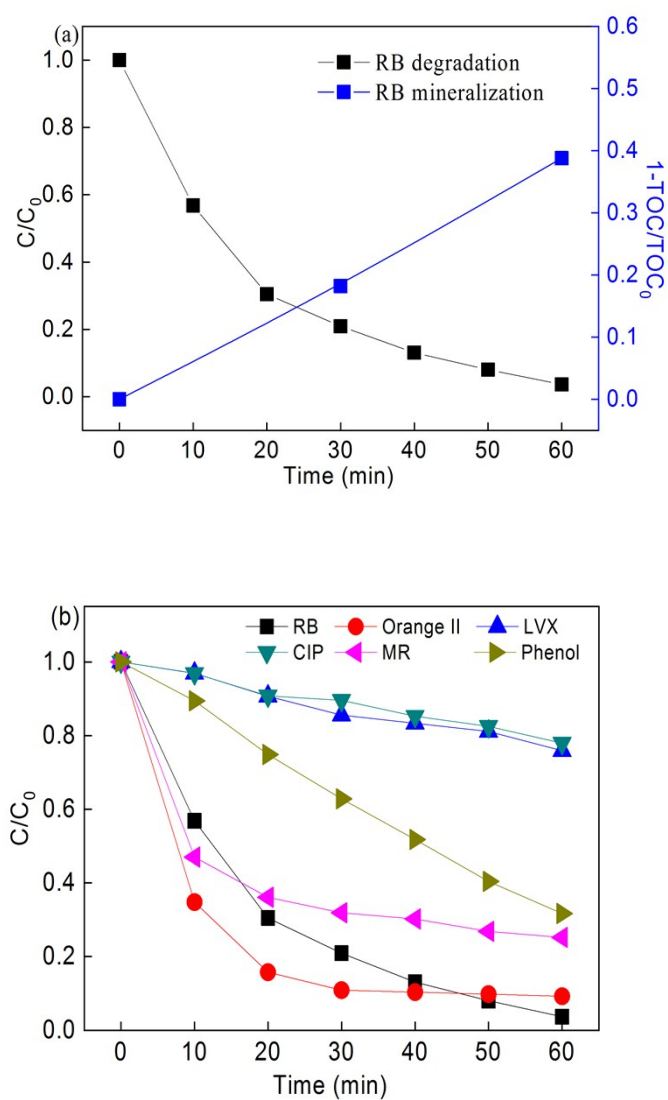


Fig. S3 (a) The degradation and mineralization of RB in  $\text{CuFe}_2\text{O}_4/\text{PS}/\text{LED}$  system, (b) degradation efficiency of various kinds of organic pollutants. Initial conditions:  $[\text{CuFe}_2\text{O}_4] = 0.5 \text{ g L}^{-1}$ ,  $[\text{PS}] = 0.2 \text{ mM}$ ,  $[\text{organic pollutants}]_0 = 20 \text{ mg L}^{-1}$ , neutral pH.

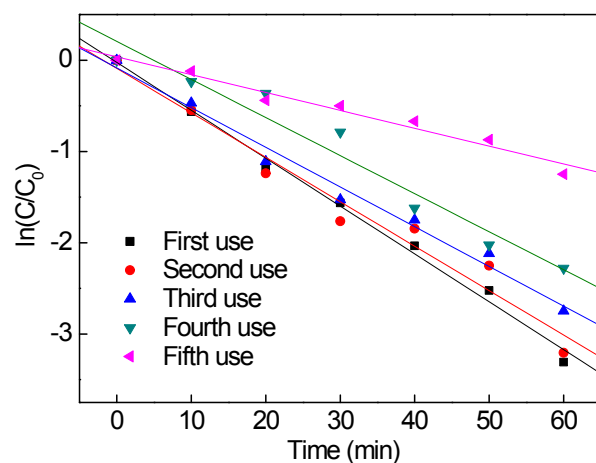


Fig. S4 Reusability of  $\text{CuFe}_2\text{O}_4$  for RB removal kinetic curves. Initial conditions:  $[\text{CuFe}_2\text{O}_4] = 0.5 \text{ g L}^{-1}$ ,  $[\text{PS}] = 0.2 \text{ mM}$ ,  $C_0 = 20 \text{ mg L}^{-1}$ , neutral pH.

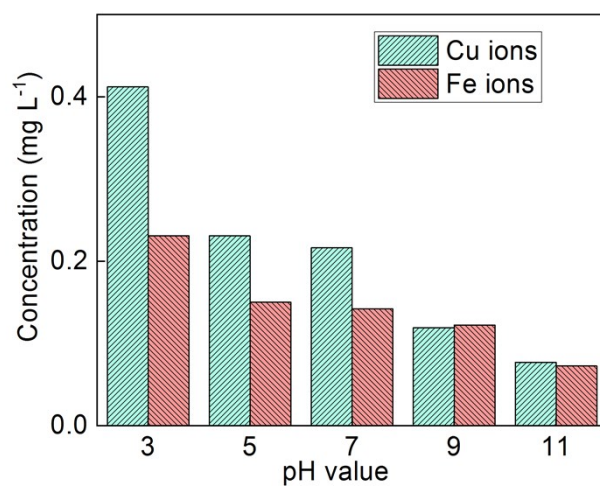


Fig. S5 The iron and copper leaching concentrations under different pH value. Initial conditions:  $[\text{CuFe}_2\text{O}_4] = 0.5 \text{ g L}^{-1}$ ,  $[\text{PS}] = 0.2 \text{ mM}$ ,  $C_0 = 20 \text{ mg L}^{-1}$ .

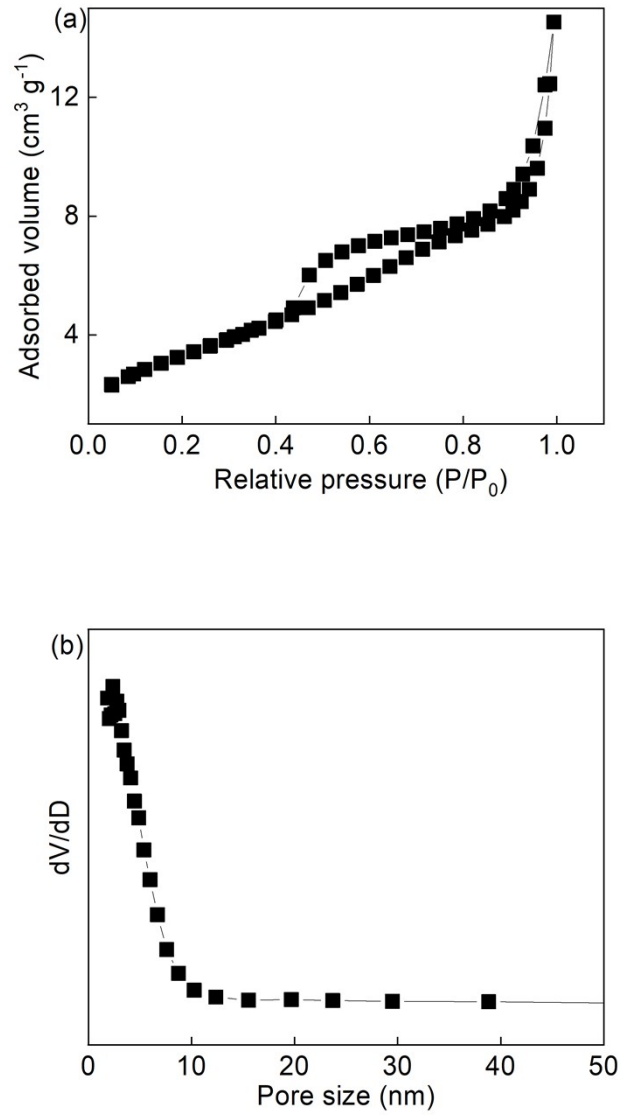
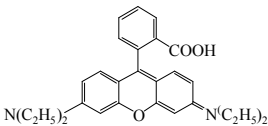
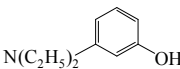
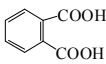
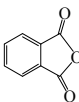
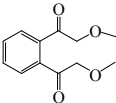
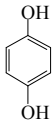
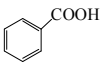



Fig. S6 (a) The  $\text{N}_2$  adsorption-desorption isotherms of prepared  $\text{CuFe}_2\text{O}_4$ ,  
(b) pore size distribution.

Table S1 Main reaction intermediates for the degradation of RB in the CuFe<sub>2</sub>O<sub>4</sub>/PS/LED identified by GC/MS analysis.

No.	Identified intermediates	Structure	m/z
0	Rhodamine B		443
1	3-(diethylamino) phenol		165
2	Phthalic acid		166
3	Isobenzofuran-1,3-dione		148
4	Methyl hydrogen phthalate		222
5	Hydroquinone		110
6	Benzoic acid		122
7	o-xylene		106