

Efficient removal of levofloxacin by activated persulfate with magnetic CuFe₂O₄/MMT-k10 nanocomposite: Characterization, Response surface methodology, and Degradation mechanism

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Figure captions

Figure S1 EDS spectroscopy of CuFe₂O₄/MMT-k10.

Figure S2 (a) Nitrogen adsorption and desorption isotherms and (b) BJH pore size distribution plots for CuFe₂O₄ and CuFe₂O₄/MMT-k10.

Figure S3 The normal plot of residual of RSM.

Figure S4 Residuals vs. Predicted map of RSM.

Figure S5 Cycle experiment for LVF degradation(a) and effect of free radical scavenger on degradation efficiency of LVF(b).

Figure S6 Proposed mechanism of CuFe₂O₄/MMT-k10 / PS system for LVF degradation.

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Table S2 The Langmuir and Freundlich isotherm parameters for LVF adsorption on $\text{CuFe}_2\text{O}_4/\text{MMT-k10}$.

Table S3. Variance (ANOVA) analysis for LVF removal.

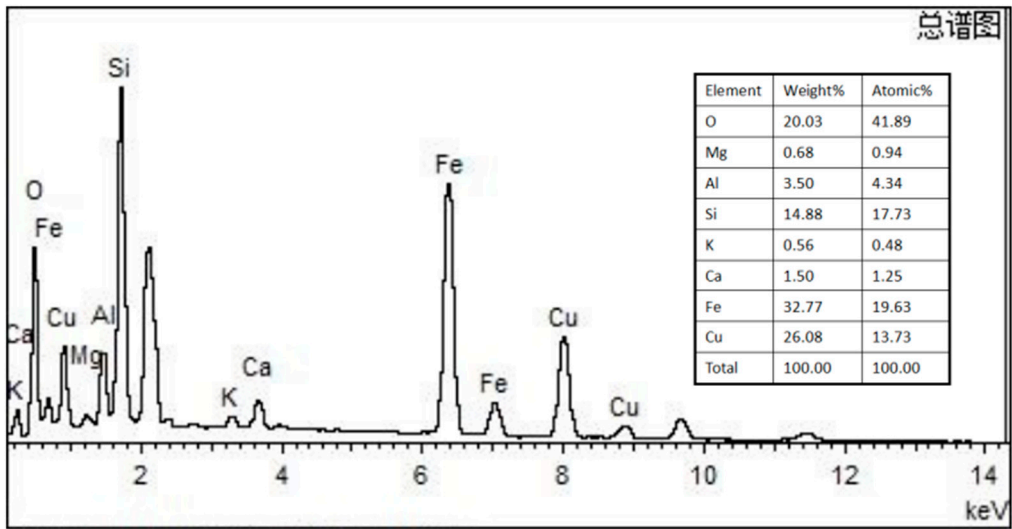
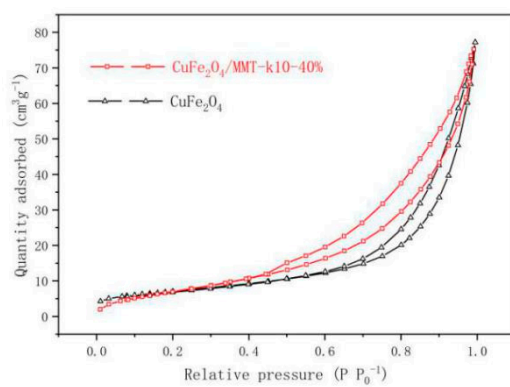


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(a)



(b)

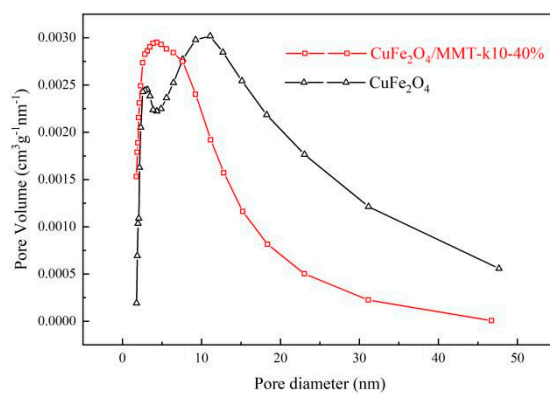


Figure S2 (a) Nitrogen adsorption and desorption isotherms and (b) BJH pore size distribution plots for

CuFe_2O_4 and $\text{CuFe}_2\text{O}_4/\text{MMT-k10}$.

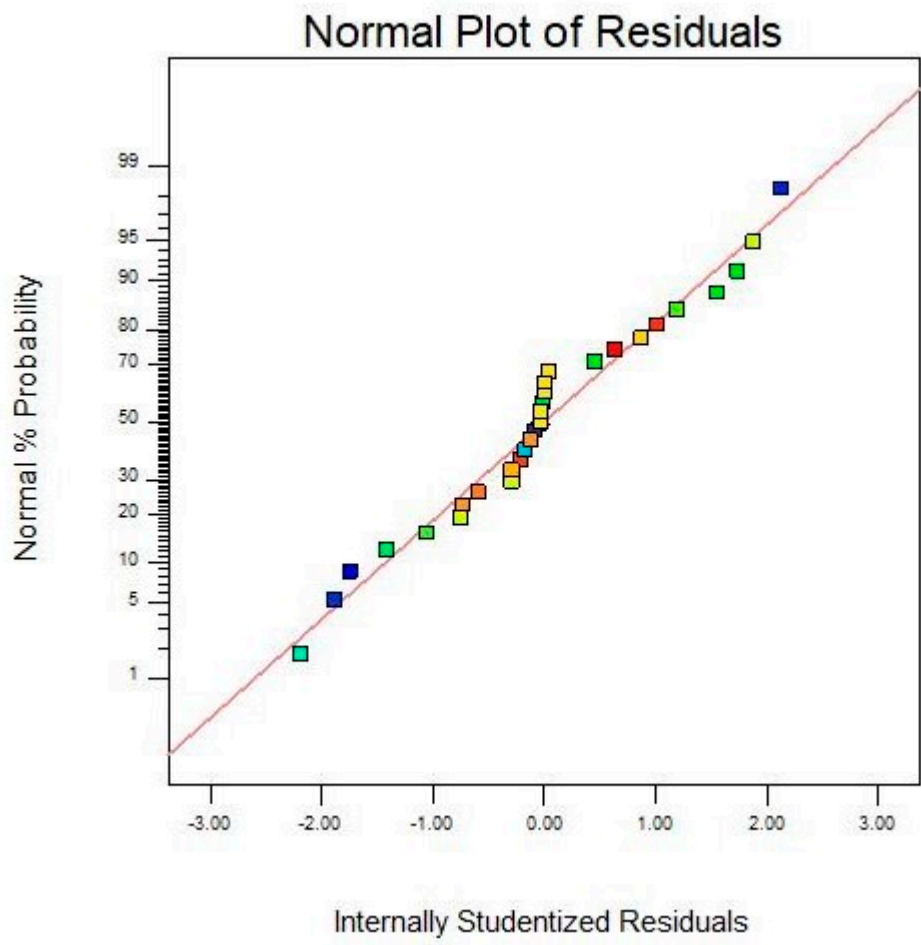


Figure S3 The normal plot of residual of RSM.

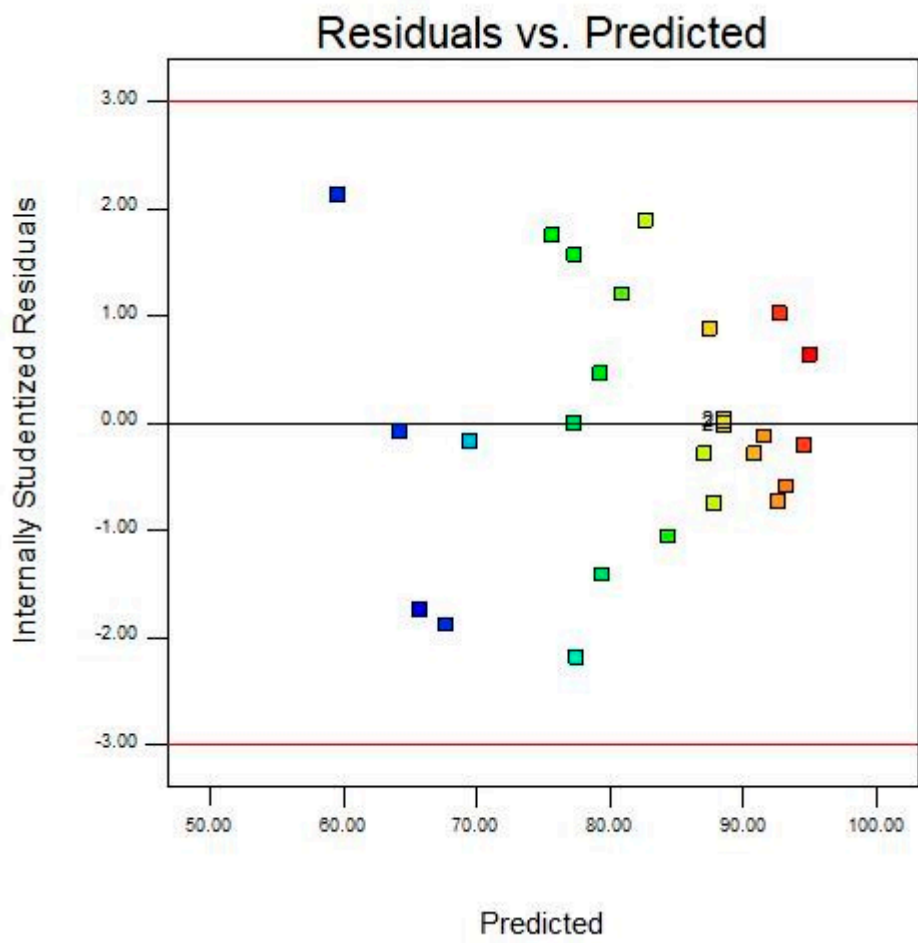
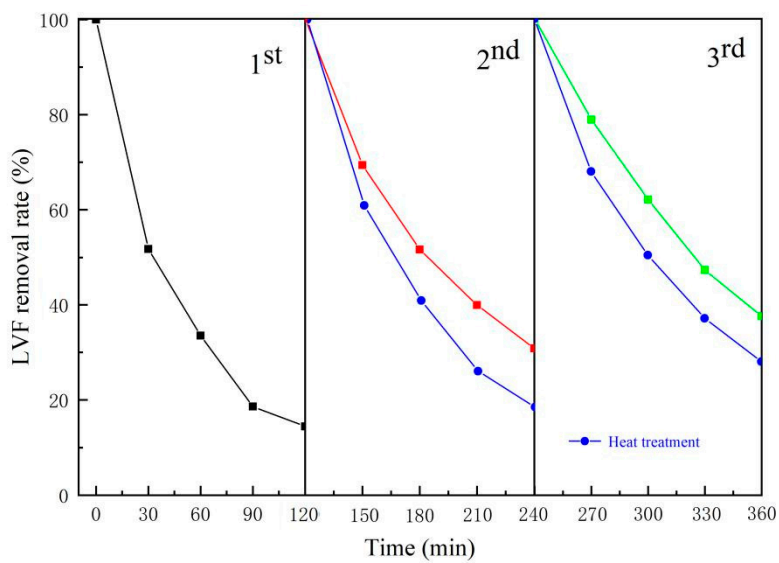


Figure S4 Residuals vs. Predicted map of RSM.

(a)



(b)

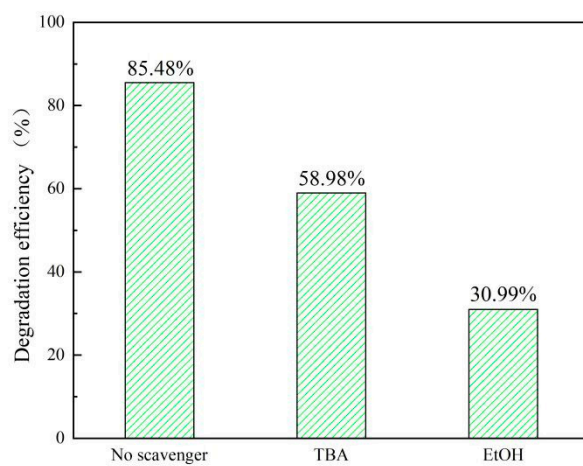


Figure S5 Cycle experiments for LVF degradation (a) and effect of free radical scavenger on degradation efficiency of LVF

(b). Reaction conditions: $C_0[\text{LVF}] = 10 \text{ mg/l}$, $C_0[\text{PS}] = 1.0 \text{ g/l}$, $C_0[\text{catalyst}] = 1 \text{ g/l}$, $T = 25^\circ\text{C}$ and initial $\text{pH} = 6$ (unadjusted).

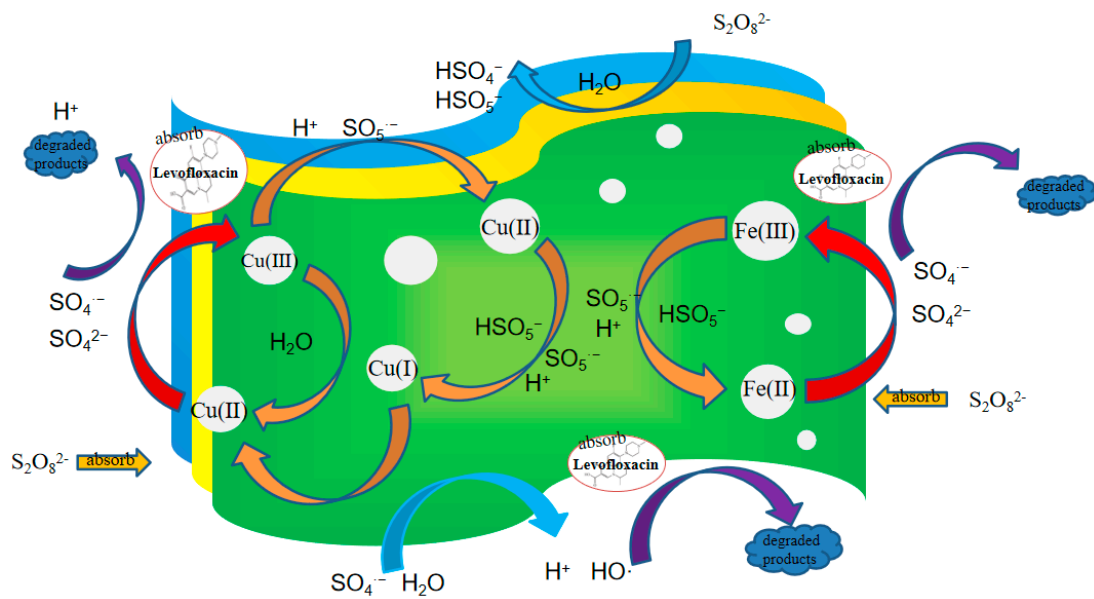


Figure S6 Proposed mechanism of CuFe₂O₄/MMT-k10 / PS system for LVF degradation.

Table S1 Nitrogen adsorption data for CuFe₂O₄ and CuFe₂O₄/MMT-k10.

Samples	BET Surface Area (m ² g ⁻¹)	Pore Volume (cm ³ g ⁻¹)	Average Pore Size (nm)
CuFe ₂ O ₄	25.150	0.11943	18.99456
CuFe ₂ O ₄ /MMT-k10	66.627	0.19301	11.58741

Table S2 The Langmuir and Freundlich isotherm parameters for LVF adsorption on CuFe₂O₄/MMT-k10.

Sample	Langmuir model			Freundlich model		
	q ₀	KL	R ²	KF	n	R ²
CuFe ₂ O ₄ /MMT-k10	35.8	0.071	0.994	2.273	4.999	0.952

Table S3. Variance (ANOVA) analysis for LVF removal.

Source	Sum of Squares	df	Mean of Square	F Value	P Value
Model	2709.02	14	193.50	21.77	< 0.0001
A	357.52	1	357.52	40.23	< 0.0001
B	111.02	1	111.02	12.49	0.0033
C	761.61	1	761.61	85.70	< 0.0001
D	1132.96	1	1132.96	127.48	< 0.0001
AB	0.72	1	0.72	0.08	0.7797
AC	7.56	1	7.56	0.85	0.3719
AD	17.22	1	17.22	1.94	0.1856
BC	2.89	1	2.89	0.33	0.5775
BD	13.69	1	13.69	1.54	0.2349
CD	3.42	1	3.42	0.39	0.5449
A2	36.41	1	36.41	4.10	0.0625
B2	15.47	1	15.47	1.74	0.2083
C2	207.55	1	207.55	23.35	0.0003
D2	143.69	1	143.69	16.17	0.0013
Residual	124.42	14	8.89		
Lack of Fit	124.39	10	12.44	1777.04	< 0.0001
Pure Error	0.03	4	0.01		
Cor Total	2833.44	28			
R ² = 0.9561					
Adj R ² = 0.9122					
C.V.% = 3.61					