

Supporting Information

Highly Effective Removal of Ofloxacin from Water with Copper-Doped ZIF-8

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S1. PXRD Patterns, N₂ Adsorption-Desorption Isotherms, FT-IR Spectrum of Cu-ZIF-8s and Contents of Cu and Zn in Cu-ZIF-8s

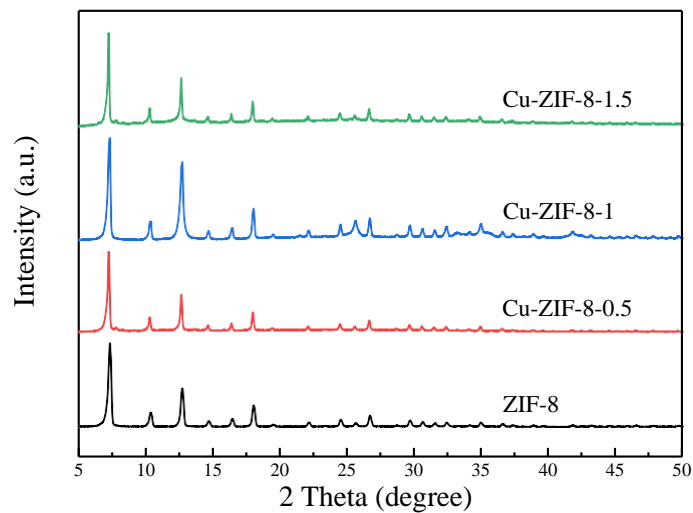


Figure S1. PXRD patterns of ZIF-8, Cu-ZIF-8-0.5, Cu-ZIF-8-1 and Cu-ZIF-8-1.5.

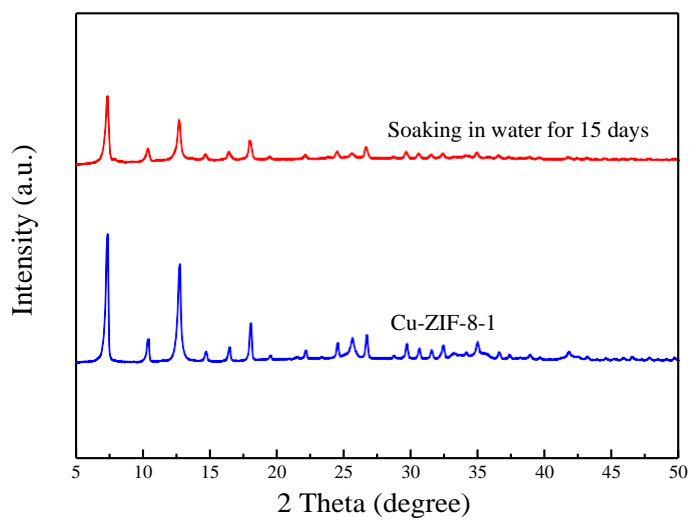


Figure S2. PXRD pattern of Cu-ZIF-8-1 after soaking in water for 15 days.

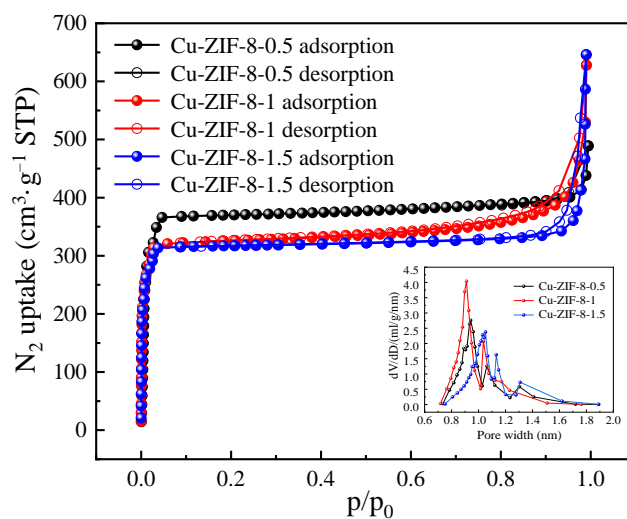


Figure S3. N₂ adsorption-desorption isotherms of Cu-ZIF-8-0.5, Cu-ZIF-8-1 and Cu-ZIF-8-1.5.

Table S1. Specific surface area, mesopore volume, micropore volume and pore size of samples.

MOFs	S_{Langmuir} (m ² ·g ⁻¹)	V_t (m ³ ·g ⁻¹)	D (nm)
Cu-ZIF-8-0.5	1641.07	0.6837	1.5641
Cu-ZIF-8-1	1438.27	0.7353	1.6124
Cu-ZIF-8-1.5	1388.96	0.7540	1.7239

Table S2. Contents of Cu and Zn in Cu-ZIF-8s.

MOFs	content of Cu (%)	content of Zn (%)	Cu:Zn
Cu-ZIF-8-0.5	3.633	24.671	1 : 6.79
Cu-ZIF-8-1	6.889	20.731	1 : 3.01
Cu-ZIF-8-1.5	9.967	17.300	1 : 1.74

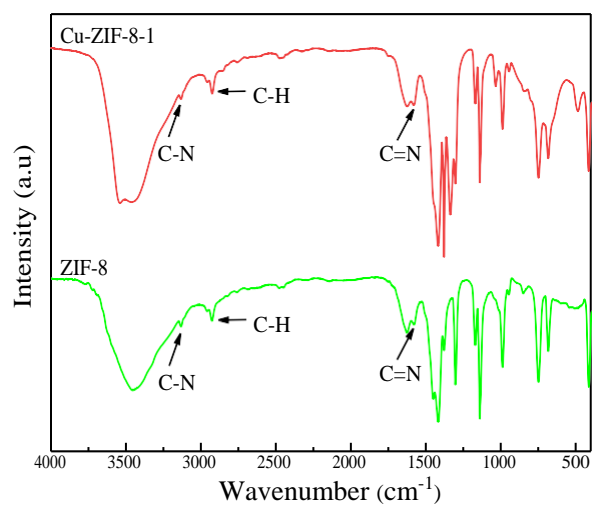


Figure S4. FT-IR spectrum of ZIF-8 and Cu-ZIF-8-1.

S2. Fitting Results of Kinetic Models

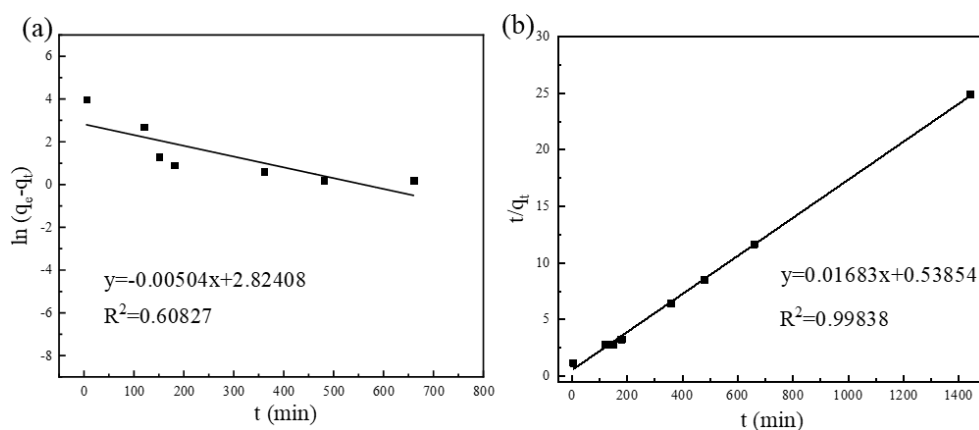


Figure S5. Fitting results of kinetic models on ZIF-8: Pseudo-first-order model (a); Pseudo-second-order model (b).

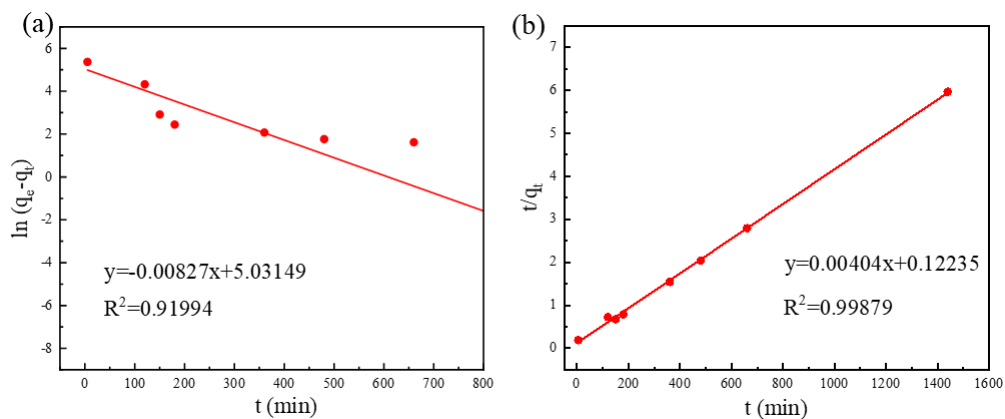


Figure S6. Fitting results of kinetic models on Cu-ZIF-8-1: Pseudo-first-order model (a); Pseudo-second-order model (b).

Table S3. Kinetics model parameters of OFX adsorbed on ZIF-8.

MOF	Pseudo-first-order model			Pseudo-second-order model		
	$q_{e,cal} \text{ (mg} \cdot \text{g}^{-1}\text{)}$	$k_1 \text{ (min}^{-1}\text{)}$	R^2	$q_{e,cal} \text{ (mg} \cdot \text{g}^{-1}\text{)}$	$k_2 \text{ (g} \cdot \text{min}^{-1} \cdot \text{mg}^{-1}\text{)}$	R^2
ZIF-8	16.8454	0.0050	0.6083	59.4177	0.0005	0.9984

S3. Adsorption Capacities of OFX by Different Adsorbents

Table S4. Adsorption capacities for the removal of OFX by different adsorbents

Adsorbents	T (°C)	Capacity (mg·g ⁻¹)	Refs.
Cu-ZIF-8-1	30	599.96	This work
MIL-101(Cr)-SO ₃ H	30	450.4	[1]
HRP-CsGOn	35	378	[2]
Mesoporous SiO ₂	25	290.9	[3]
Activated carbon cloth	25	253	[4]
CVL	55	160.81	[5]
Activated carbon	25	132	[6]
DES-MUiO-66-NH ₂	25	97.6	[7]
Co-CNT/NPC 3/1	Room temperature	78.42	[8]
BNNSs	25	72.5	[9]
NBC	25	54.054	[10]
Halloysite clay	35	44.7	[11]
rGO-MoS ₂	25	37.31	[12]
DES-RHA	30	30.2	[13]
Fe/Zn + H ₃ PO ₄ -SBC	25	25.4	[14]
Zn ₃ (BTC) ₂	Room temperature	25.3	[15]
nFe	30	12.8	[16]
RHA	30	7.2	[17]
Met-GO/SA	35	3.436	[18]
GO/SA	35	1.798	[18]

S4. Fitting Results of Adsorption Isotherms

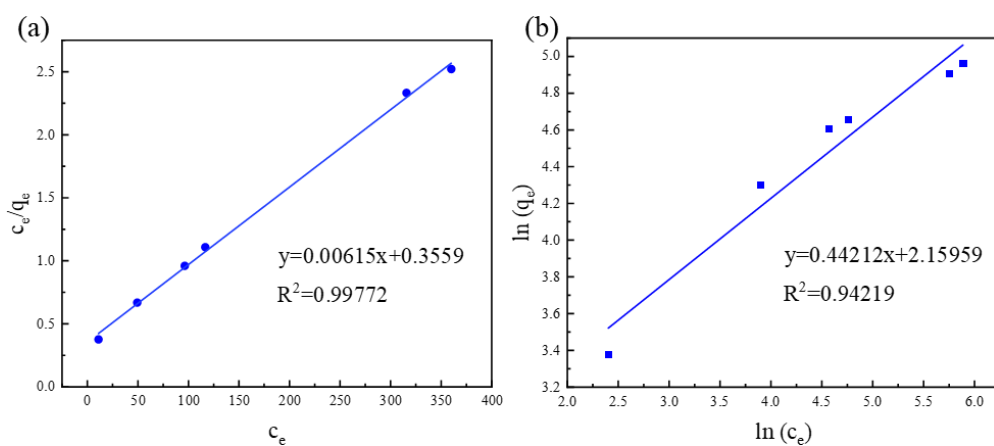


Figure S7. Fitting results of adsorption isotherms on ZIF-8: Langmuir model (a); Freundlich model (b).

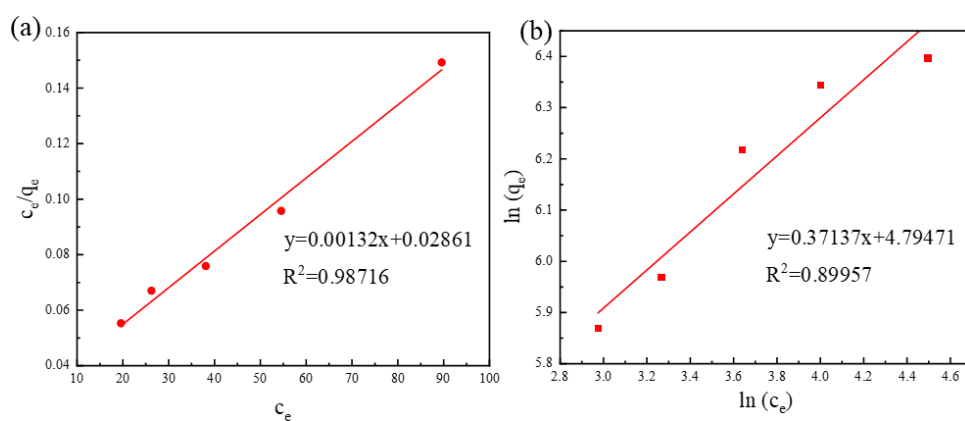


Figure S8. Fitting results of adsorption isotherms on Cu-ZIF-8-1: Langmuir model (a); Freundlich model (b).

Table S5. Model parameters for OFX adsorbed on the ZIF-8.

MOF	Langmuir isotherm model			Freundlich isotherm model		
	q_m	K_L	R^2	K_F	$1/n$	R^2
	($\text{mg} \cdot \text{g}^{-1}$)	($\text{L} \cdot \text{g}^{-1}$)		($(\text{L} \cdot \text{mg}^{-1})^{1/n} \text{mg} \cdot \text{g}^{-1}$)	($\text{g} \cdot \text{min}^{-1} \cdot \text{mg}^{-1}$)	
ZIF-8	162.6016	0.0173	0.9977	8.6676	0.4421	0.9422

S5. SEM Images of Cu-ZIF-8-1 after Adsorption

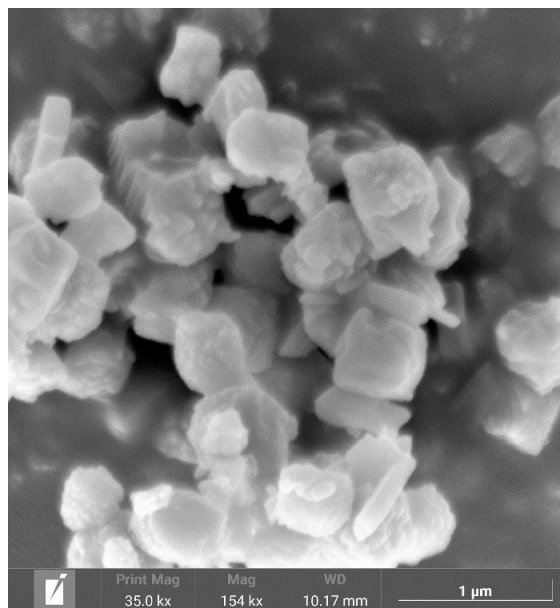


Figure S9. SEM images of Cu-ZIF-8-1 after adsorption ($c_0 = 200 \text{ mg} \cdot \text{L}^{-1}$).

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