

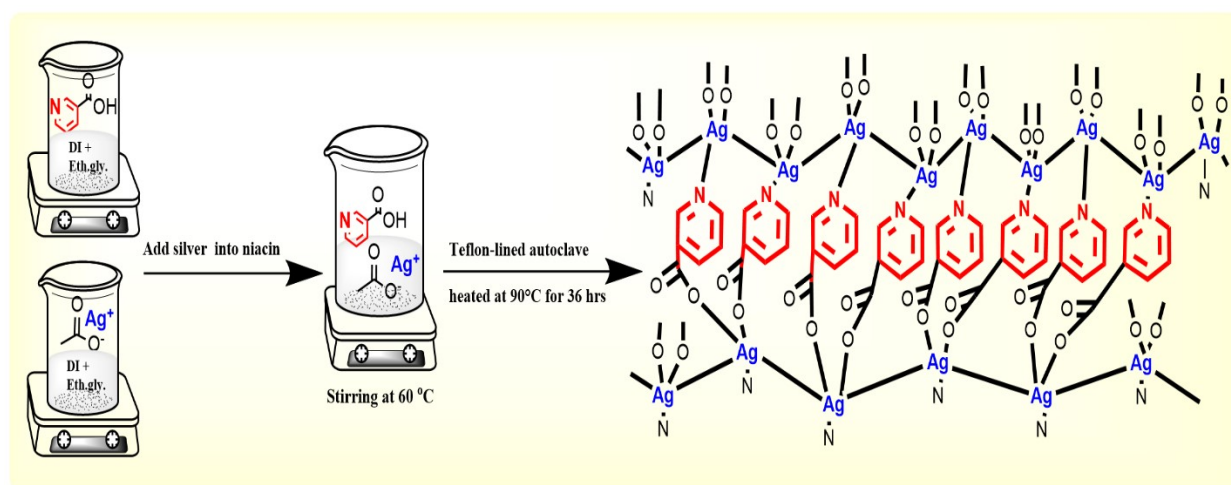


Figure S1: scheme for the prepared MOF

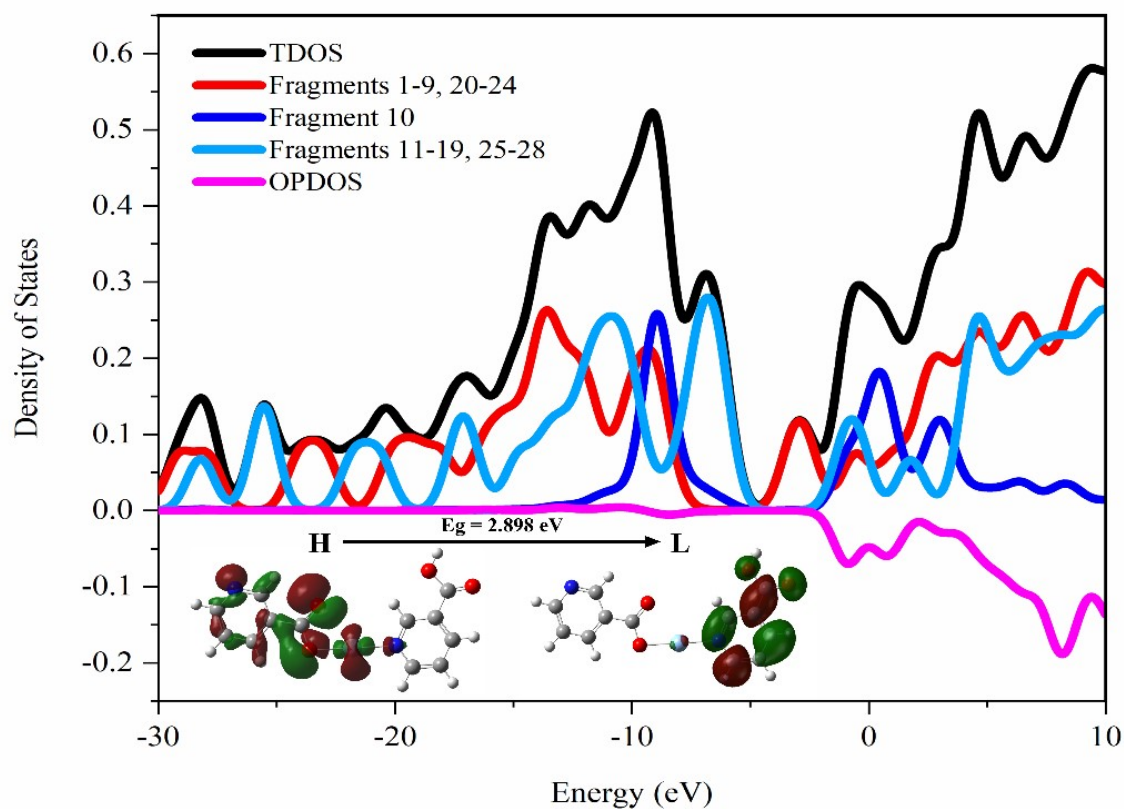


Figure S2: PDOS and TDOS of Ag-MOF obtained from DFT calculations

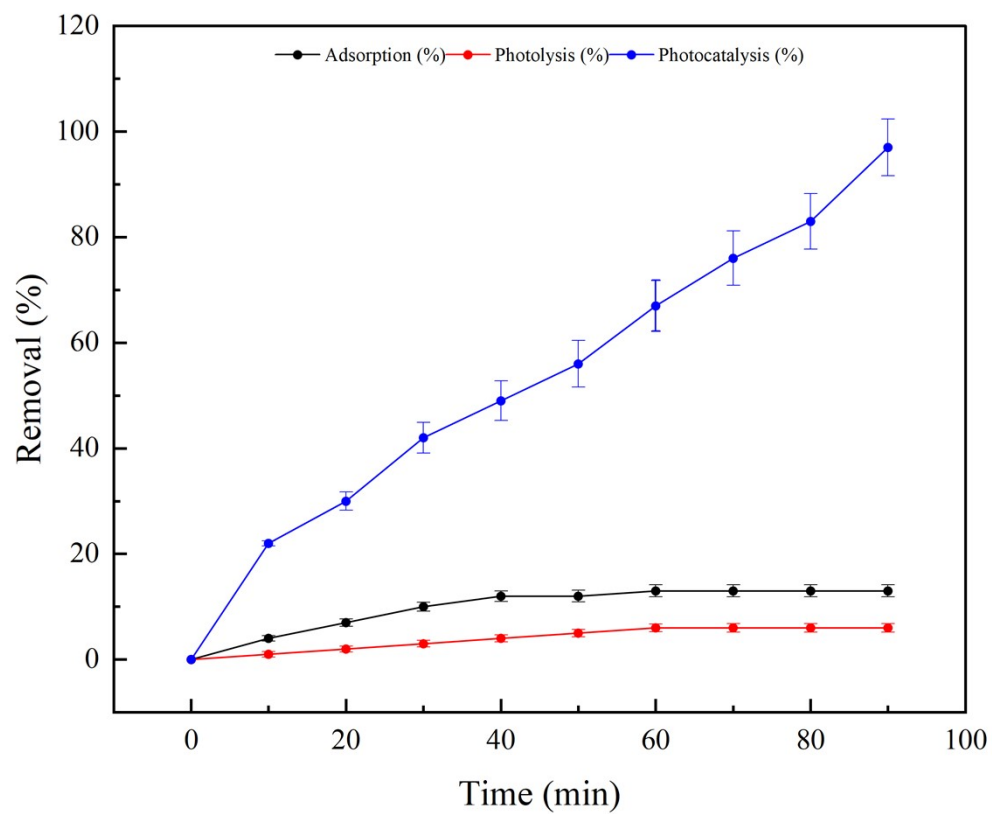


FIGURE S3: adsorption, photolysis, and photocatalysis for MG removal over 90 min

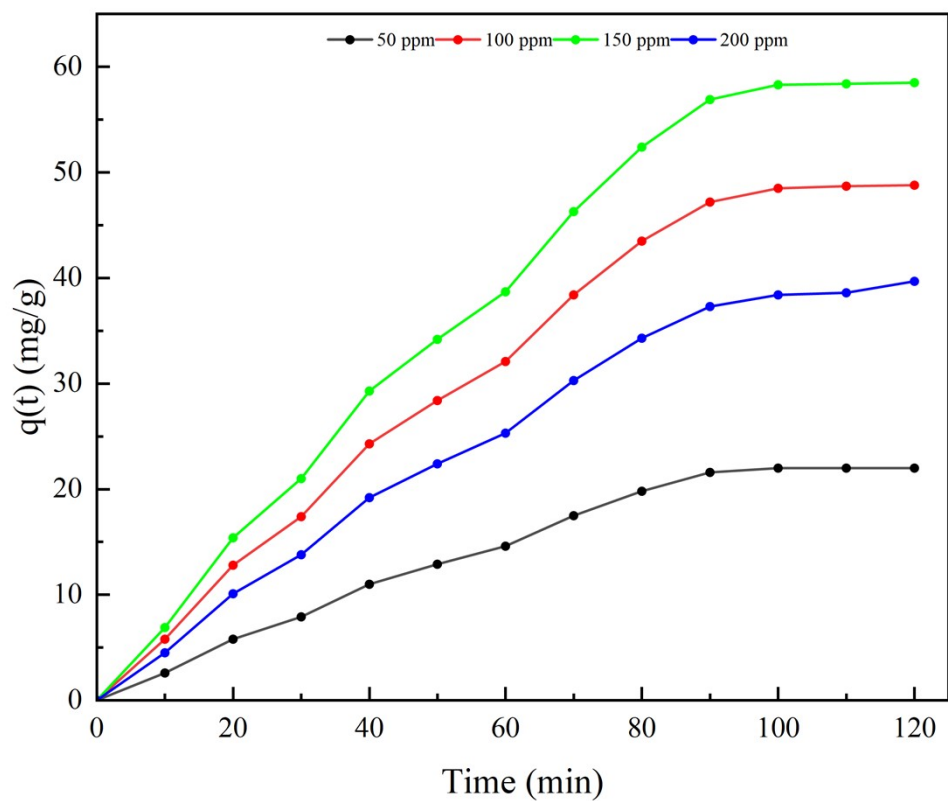


Figure S4: $q(t)$ profiles for concentration-dependent uptake kinetics

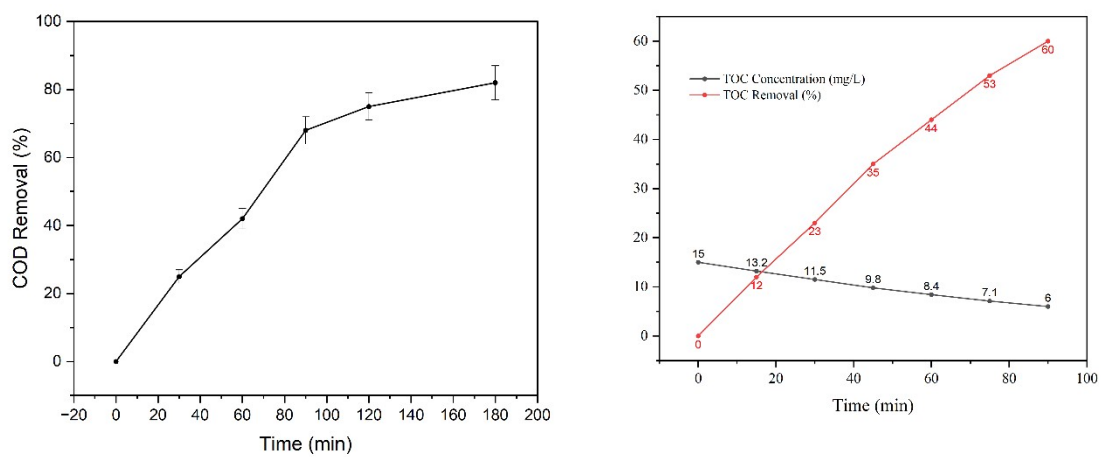


Figure S5: TOC and COD removal efficiency

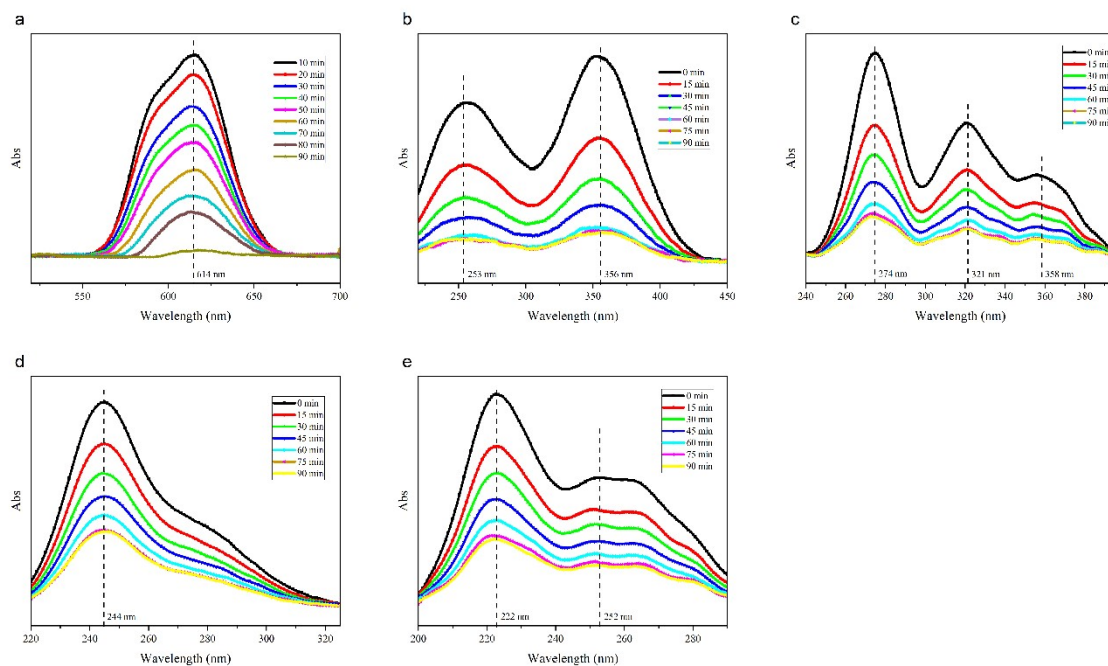


FIGURE S6: UV-Vis spectra for a: MG dye, b: tetracycline, c: norfloxacin, d: acetaminophen, and e: atrazine

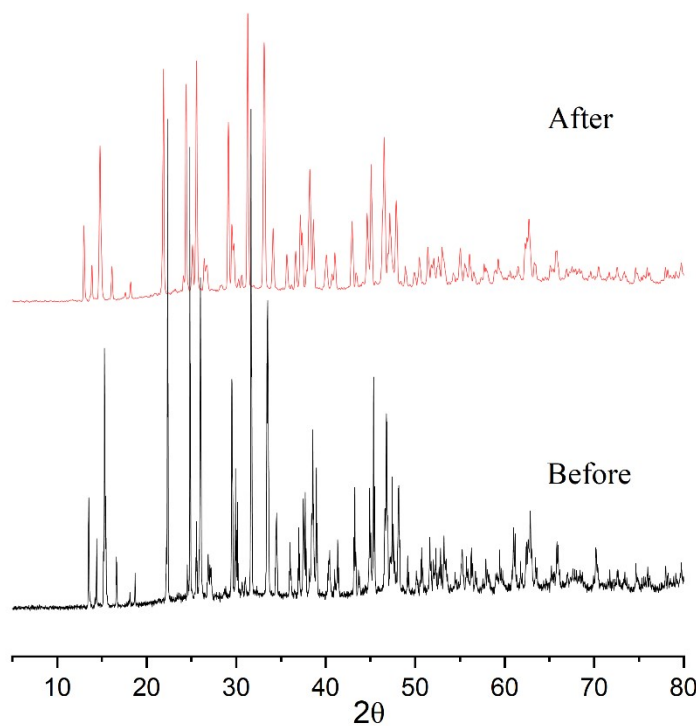


Figure S7: Powder X-ray diffraction (PXRD) of the catalyst before and post-reaction

Table S1: catalyst dosage, initial malachite green (MG) concentration, and pH while keeping other parameters constant (irradiation time: 90 min, volume: 50 mL)

Effect		Mean Efficiency (%)	SD (%)
Catalyst Dose (g)	0.05	50	0.816497
	0.1	76	2.828427
	0.15	97	2.44949
	0.2	86	1.414214
Initial Dye Conc (mg/L)	50	84.66667	3.091206
	100	95.66667	1.699673
	150	75	3.559026
pH	6	75.33333	1.699673
	8	96.33333	1.247219
	10	56.33333	1.247219

Table S2: Photocatalytic decomposition isotherms

C _o mg/L	C _e mg/L	q _e mg/g	σ _{Ce} m/gL	σ _{qe} mg/g	Langmuir q _e mg/g	Langmuir σ _{qe} mg/g	Freundlich q _e mg/g	Freundlich σ _{qe} mg/g
50	6	22	0.8	1.1	21.5	1.1	20.8	1
100	4	48	0.6	2.4	49.2	2.5	47.5	2.4
150	33	58.5	4.5	2.9	57.8	2.9	59.2	3
200	74	63	9	3.2	64.1	3.2	62.8	3.1

Table S3: Dose-dependent scavenging experiments

IPA		BQ	
Concentration (mM)	Degradation Efficiency (%)	Concentration (mM)	Degradation Efficiency (%)
0	97	0	97
0.1	86	1	96
0.25	70	5	93
0.5	52	10	91
1	31	20	89