Electronic Supplementary Material (ESI) for RSC Advances.

Supporting Information

Mechanistic investigation of photocatalytic degradation of organic dyes by a novel zinc coordination polymer

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Table S1. Summary of crystallographic data and refinement parameters for $\{[Zn(TIPA)(seb)_{0.5}](NO_3)\cdot 3.5H_2O\}_n$ (**1**).

formula	$C_{32}H_{36}N_8O_{8.5}Zn$
space group	$P2_1/n$
a (Å)	11.9804(14)
b (Å)	13.4380(2)
c (Å)	21.061(2)
β, °	97.313(11)
V, (Å^3)	3363.0(6)
Z	4
D_{calc} (g/cm^3)	1.450
μ, mm^{-1}	0.795
θ range, °	3.429 – 28.673
data/parameters	7602/380
goodness of fit	0.957
R_1/wR_2 ($I > 2\sigma(I)$)[a]	0.0854/0.1655
R_1/wR_2 (all data)[a]	0.2105/0.2350

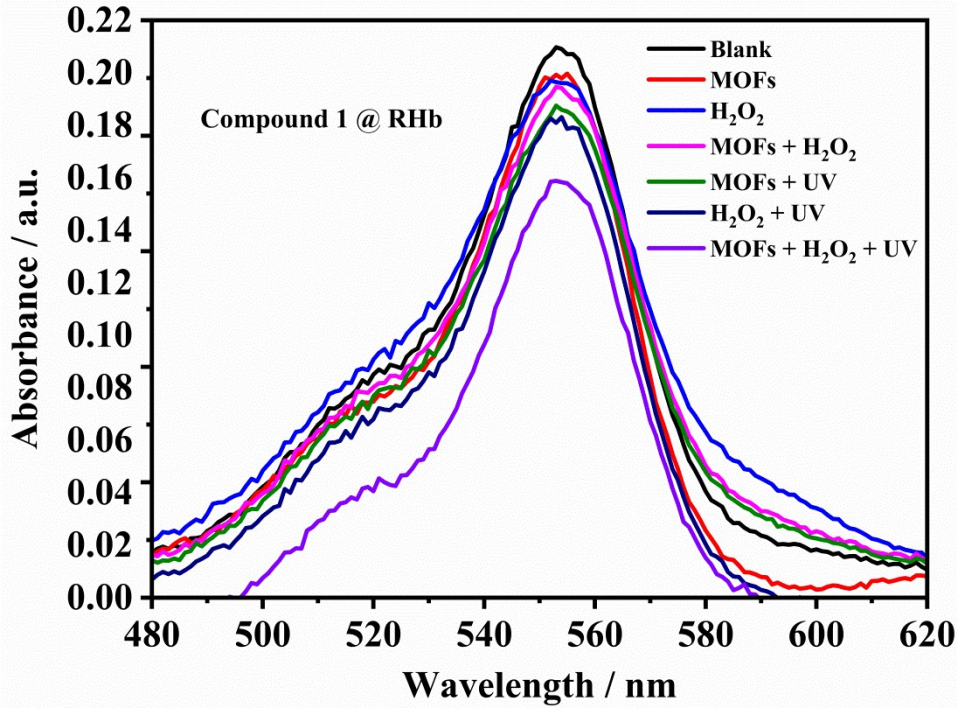
[a] $R1 = \Sigma||F_o| - |F_c||/\Sigma|F_o|$.

$wR2 = \{\Sigma[w(F_o^2 - F^2)^2]/\Sigma[w(F_o^2)^2]\}^{1/2}$ where $w = q/\sigma^2(F_o^2) + (a*P)^2 + b*P$.

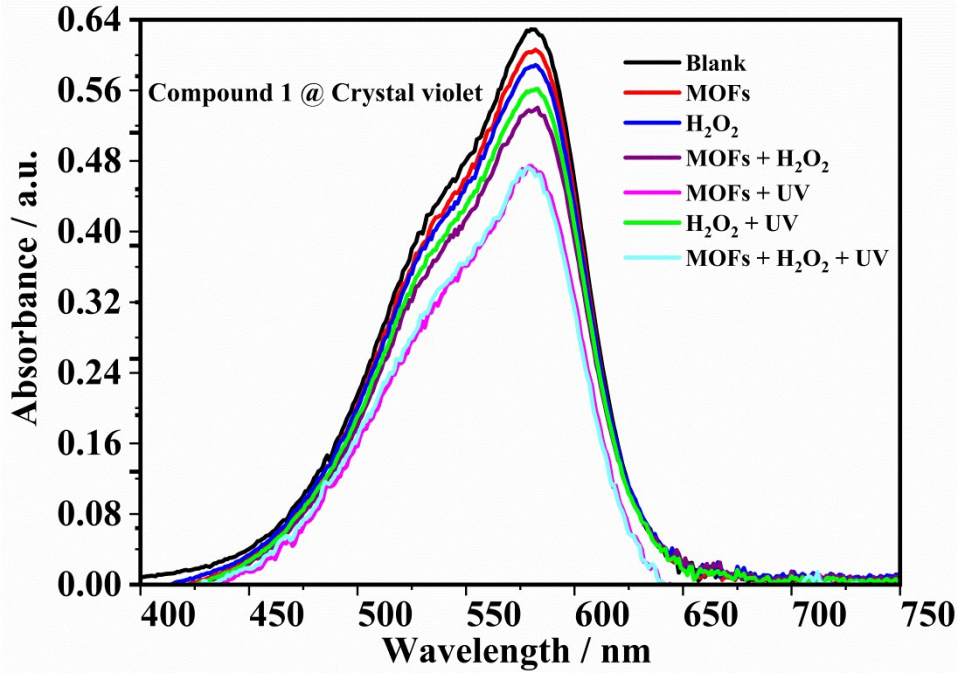
Table S2. Selected bond distances [Å] and bond angles (°) for $\{[Zn(TIPA)(seb)_{0.5}](NO_3)\cdot 3.5H_2O\}_n$ (**1**).

Zn(1)-O(1)	2.119(10)	Zn(1)-O(2)	2.473(9)
Zn(1)-N(3)	2.023(5)	Zn(1)-N(5)#1	2.015(6)
Zn(1)-N(7)#2	2.020(5)	Zn(1)···Zn(1)#3	13.529(2)
Zn(1)···Zn(1)#4	15.443(2)	Zn(1)···Zn(1)#1	15.516(2)
N(5)#1-Zn(1)-N(3)	109.6(2)	N(5)#1-Zn(1)-N(7)#2	100.2(2)
N(3)-Zn(1)-N(7)#2	104.5(2)	N(5)#1-Zn(1)-O(1)	129.8(3)
N(3)-Zn(1)-O(1)	93.5(3)	N(7)#2-Zn(1)-O(1)	116.5(2)
N(5)#1-Zn(1)-O(2)	91.8(3)	N(3)-Zn(1)-O(2)	149.2(3)
N(7)#2-Zn(1)-O(2)	92.6(3)	O(1)-Zn(1)-O(2)	55.7(3)

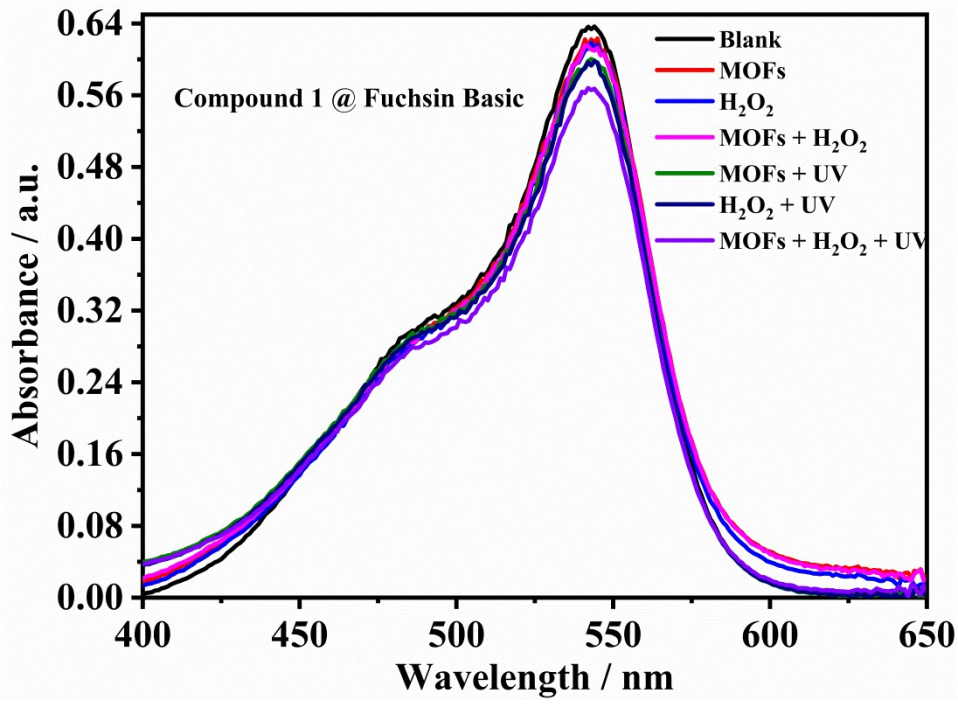
Symmetry transformations used to generate equivalent atoms:
#1 -x,-y+1,-z+1 #2 -x+1/2,y+1/2,-z+3/2 #3 -x-1,-y,-z+2
#4 -x+1/2,y-1/2,-z+3/2


Compound 1 @ RHb
Blank
MOFs
H2O2
MOFs + H2O2
MOFs + UV
H2O2 + UV
MOFs + H2O2 + UV
Absorbance / a.u.
Wavelength / nm
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16
0.18
0.20
0.22
480
500
520
540
560
580
600
620

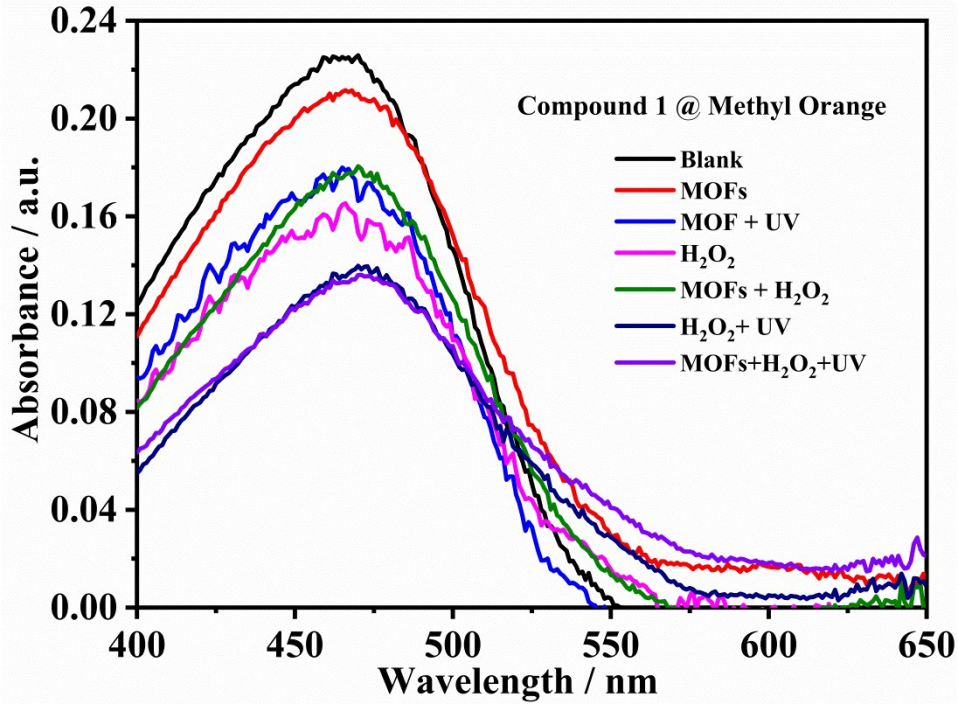
(a)


Compound 1 @ Crystal violet
Blank
MOFs
H2O2
MOFs + H2O2
MOFs + UV
H2O2 + UV
MOFs + H2O2 + UV
Absorbance / a.u.
Wavelength / nm
0.00
0.08
0.16
0.24
0.32
0.40
0.48
0.56
0.64
400
450
500
550
600
650
700
750

(b)



(c)



(d)

Figure S1. Photocatalytic degradation of RHb (a), crystal violet (b), fuchsin basic (c) and MO (d) by compound **1**.

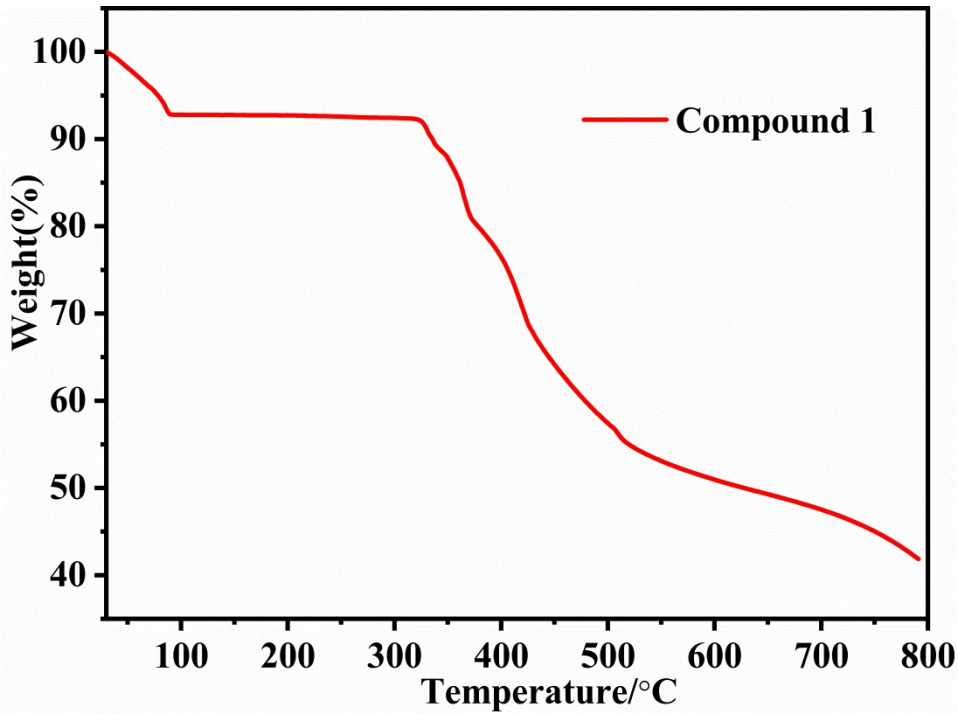


Figure S2. The TGA curves of compound **1**.

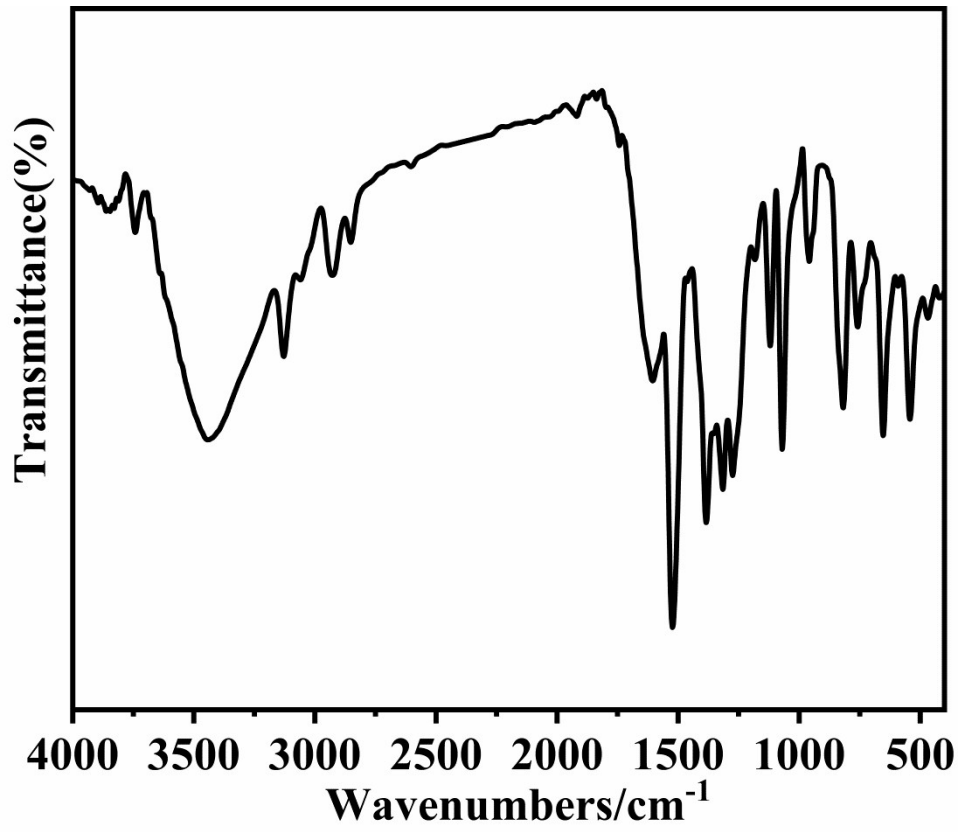


Figure S3. The FT-IR spectrogram of compound **1**.

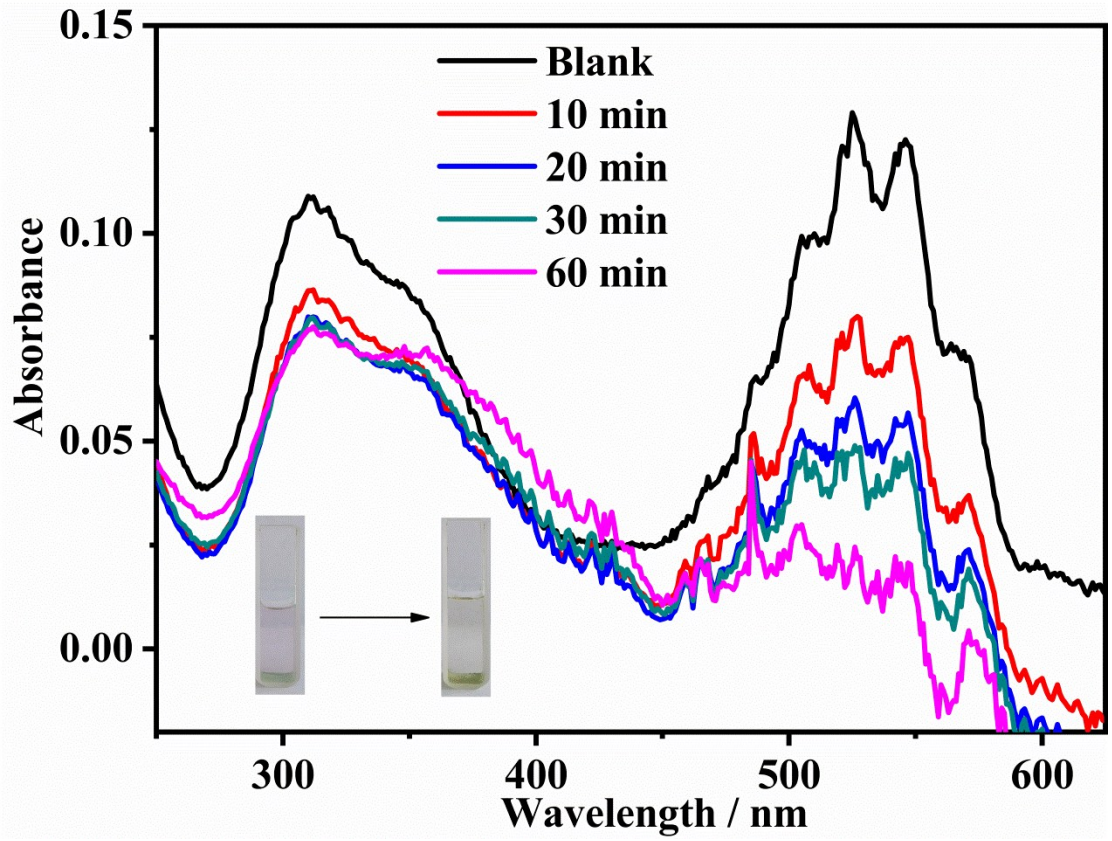


Figure S4. UV-vis absorption spectra of the supernatant solution remaining after MnO_4^- adsorption at various time intervals.

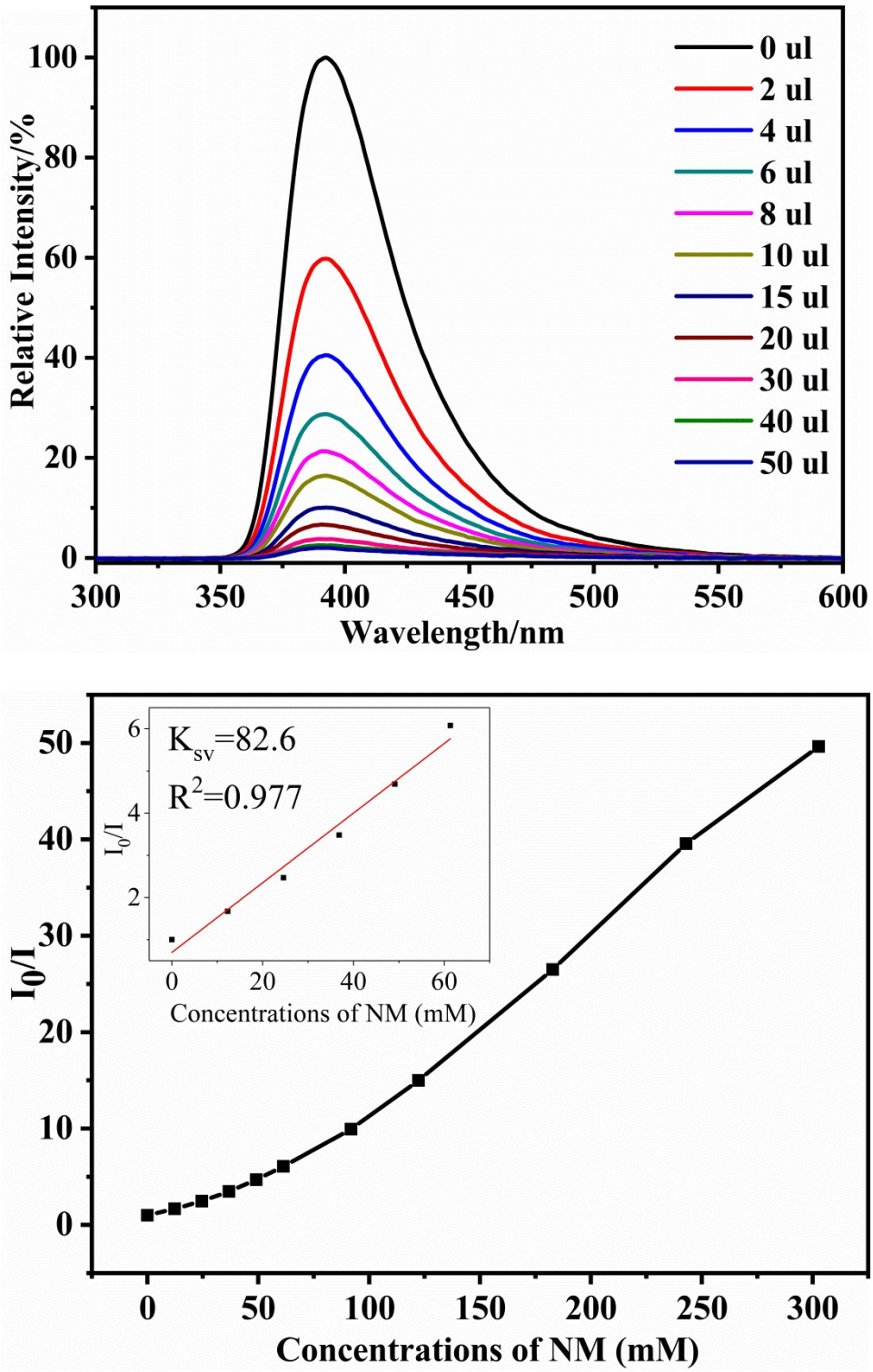


Figure S5. (top) Photoluminescence spectra and (bottom) SV curve for suspensions **1** by gradual addition of NM. The inset: the quenching linearity relationship at low concentrations of NM.

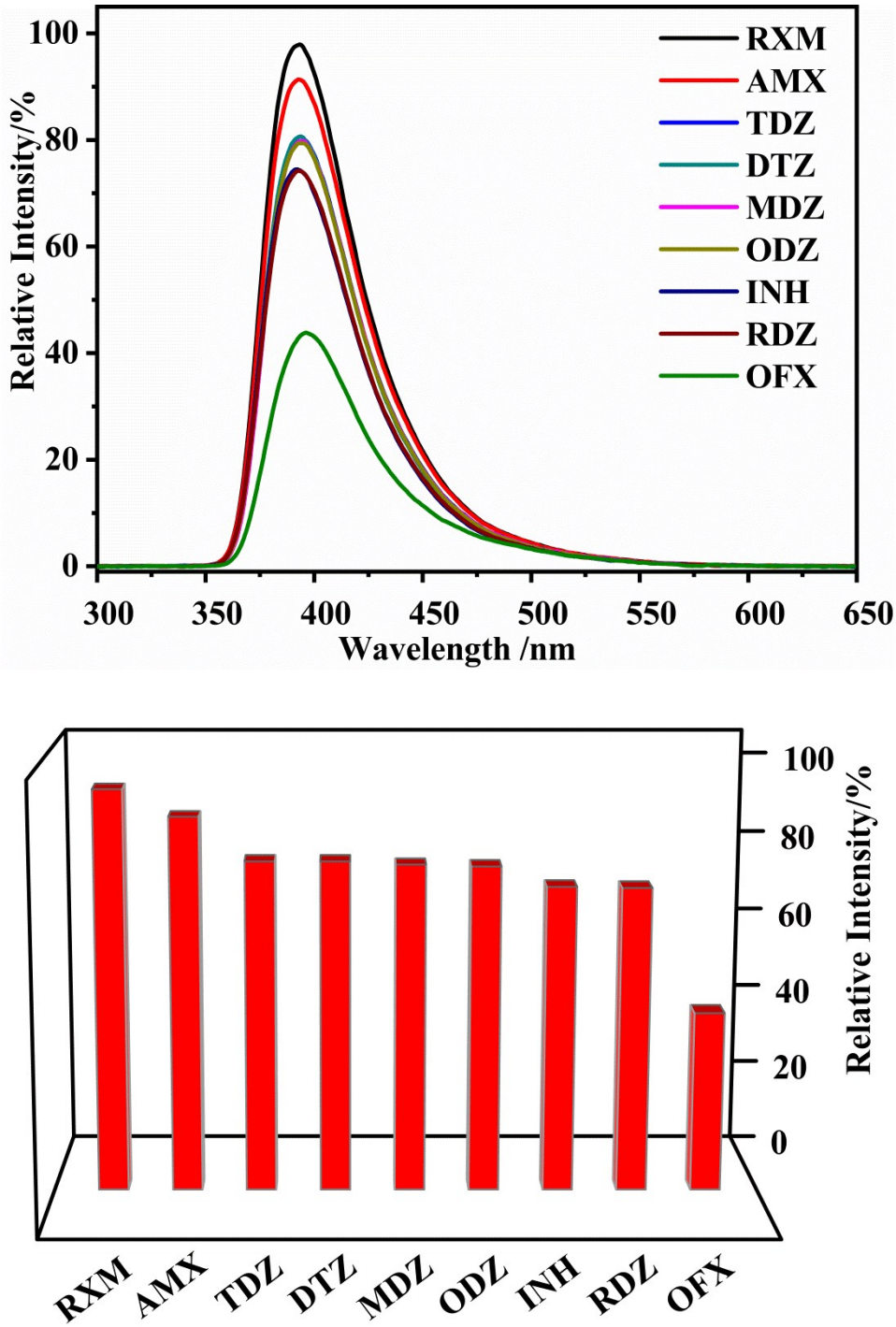


Figure S6. (top) Photoluminescence spectra of suspensions **1** introduced into various antibiotics. (bottom) Luminescence intensities after introduced into various antibiotics of suspensions **1.**

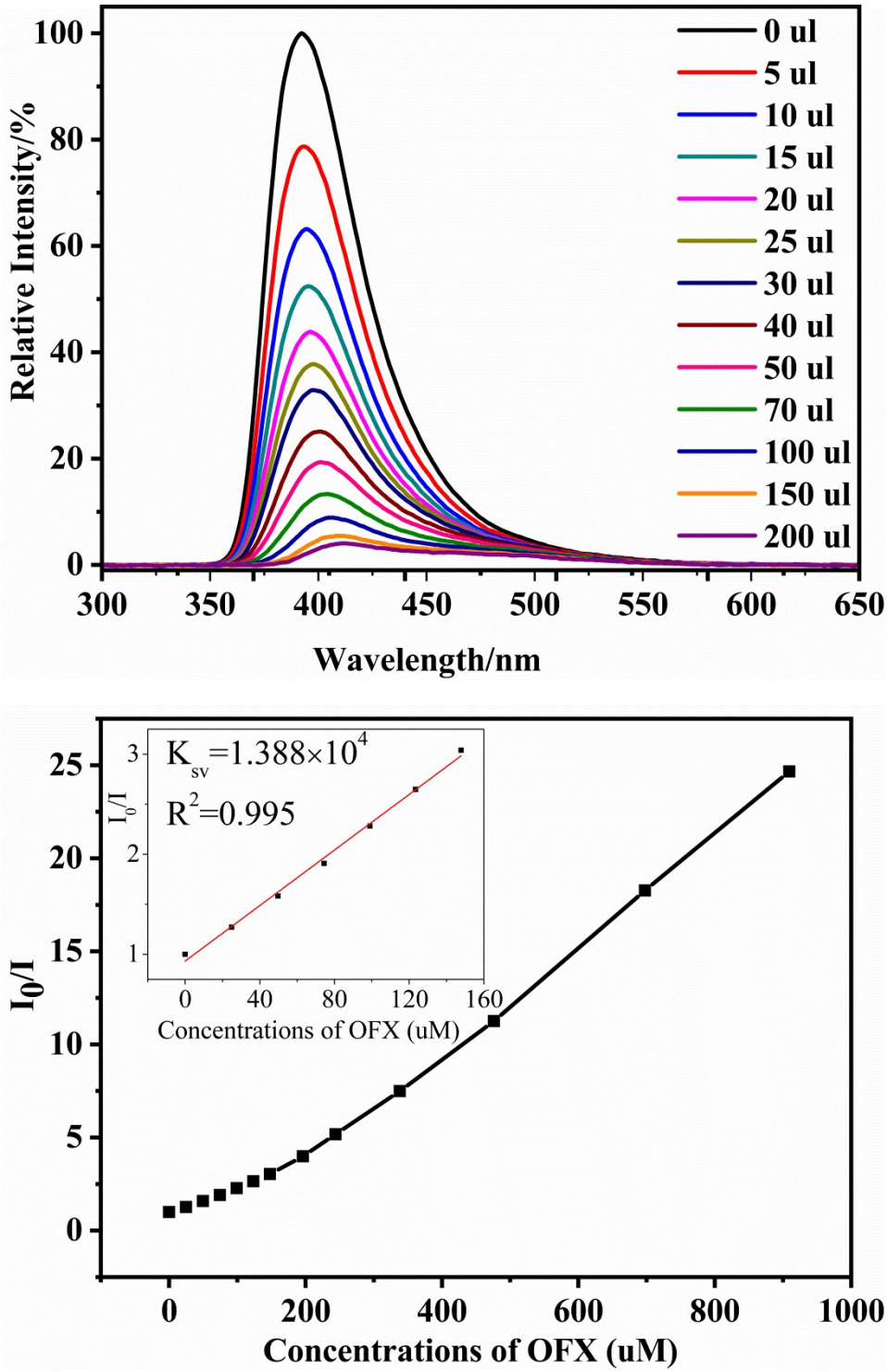


Figure S7. (top) Photoluminescence spectra and (bottom) SV curve for compound **1** by gradual addition of OFX. The inset: the quenching linearity relationship at low concentrations of OFX.

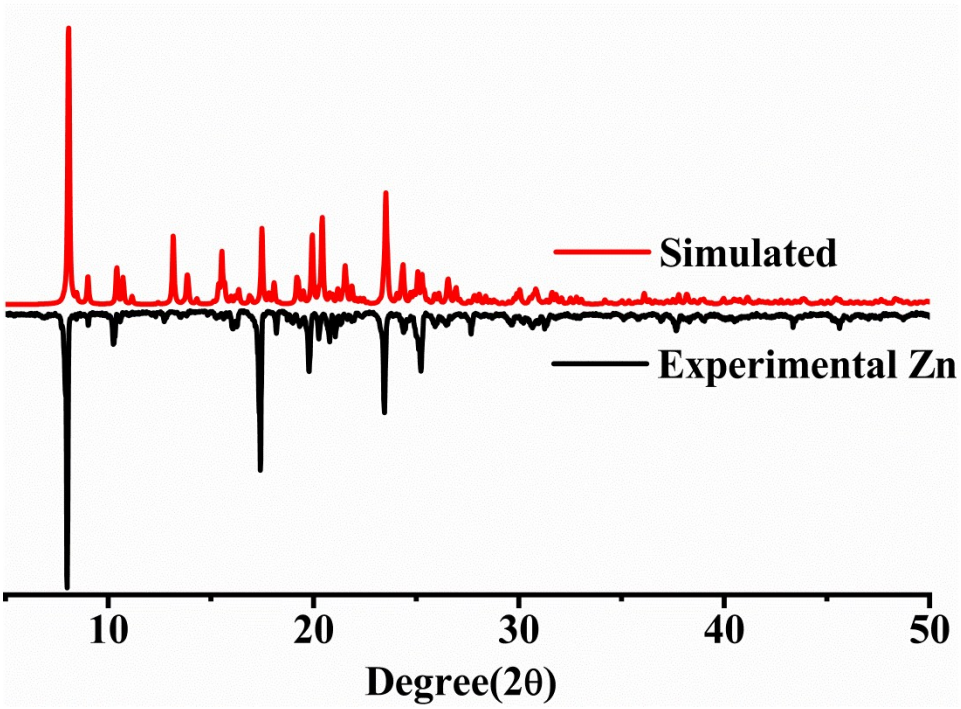


Figure S8. Experimental (black) and simulated (red) powder XRD patterns for **1**.

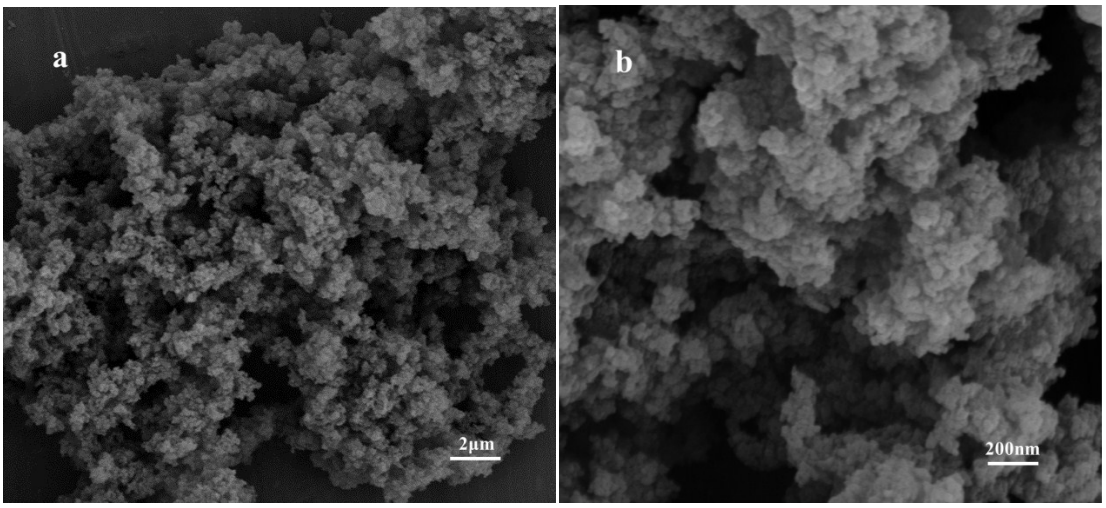


Figure S9. SEM images of complex **1** in the scale of 2 μm (a) and zoom in 200 nm (b), respectively.