Electronic Supplementary Information (ESI)

Facile fabrication and luminescent properties of a new Zn^{II} coordination polymer-based fluorescence sensor toward antibiotics

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Table S1. Selected bond lengths (Å) and angles (°) for **JXUST-17**.

Zn1—O2	1.9404(15)
Zn1—O4^{i}	1.9860(15)
Zn1—N1	2.011(2)
Zn1—N3^{ii}	2.0837(19)
O2—Zn1—O4^{i}	100.37(7)
O2—Zn1—N1	103.90(8)
O4^{i}—Zn1—N1	129.84(8)
O2—Zn1—N3^{ii}	114.57(7)
O4^{i}—Zn1—N3^{ii}	104.60(11)
N1—Zn1—N3^{ii}	104.04(8)

[a]Symmetry codes: (i) *x*-1/2, -*y*, *z*; (ii) *x*-1/2, -*y*+1, *z*.

Table S2. SHAPE analysis of Zn^{II} ion in **JXUST-17**.

Ions	Label	Shape	Symmetry	Distortion (τ)
Zn1	SP-4	Square	D_{4h}	23.496
	T-4	Tetrahedron	T_d	**1.492**
	SS-4	Seesaw or sawhorse	C_{2v}	4.805
	Vtbpy-4	Axially vacant trigonal bipyramid	C_{3v}	3.464

Table S3. The luminescence sensors with turn-off effect based on some selected MOFs/CPs.

Analyte	MOF/CP	Luminescence effect	$K_{sv}(M^{-1})$	LOD(μM)	Ref.
NFT	$[Zn_2(BIBT)(AIPA)_2]_n$	Turn-off	1.77×10^6	0.185	This work
	$\{[Tb_4(BTDI)_3(H_2O)_4]\cdot4H_2O\cdot solvents\}_n$		1.74×10^5	0.39	[S1]
	$\{[Mg_2(APDA)_2(H_2O)_3]\cdot5DMA\cdot5H_2O\}_n$		8.82×10^4	0.53	[S2]
	$[Cd_3(TDCPB)(DMAc)_2]\cdot DMAc\cdot4H_2O$		1.05×10^5	------	[S3]
	$[Tb_4(BTDI)_3(DMF)_4]_n$		4.36×10^4	0.86	[S1]
	$\{[NaCd_2(L)(BDC)_{2.5}]\cdot9H_2O\}_n$		3.57×10^4	1.15	[S4]
	$\{[Tb(TATMA)(H_2O)\cdot2H_2O\}_n$		3.35×10^4	------	[S5]
	$[CdL(NO_3)_2\cdot4H_2O]_n$		4.64×10^4	------	[S6]
	$\{[Cd(L)_{0.5}(bpe)_{0.5}(H_2O)]\cdot x(solvents)\}_n$		2.0×10^4	0.38	[S7]
	$[Cd_3(CBCD)_2(DMA)_4(H_2O)_2]\cdot10DMA$		6.39×10^4	0.128	[S8]
DCN	$[Zn_2(BIBT)(AIPA)_2]_n$	Turn-off	1.581×10^4	0.981	This work
	$\{[Tb_4(BTDI)_3(H_2O)_4]\cdot4H_2O\cdot solvents\}_n$		1.23×10^5	0.34	[S1]
	$\{[Zn_2(bpdc)_2(BPyTPE)]\}_n$		--------	0.63	[S9]
	$\{[Zn_2(L)_2(TPA)]\cdot2H_2O\}_n$		2.36×10^4	1.90	[S10]
	$[Tb_3(HDDB)(DDB)(H_2O)_6]\cdot NMP\cdot3H_2O$		6.42×10^4	0.14	[S11]
	$[Eu_2(dtztp)(OH)_2(DMF)(H_2O)_{2.5}]\cdot2H_2O$		6.25×10^4	-----	[S12]

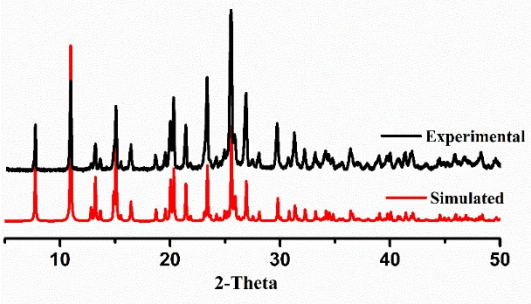


Fig. S1 The simulated and experimental PXRD patterns of **JXUST-17**.

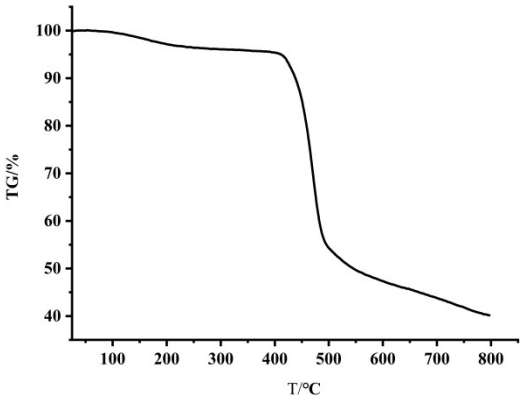


Fig. S2 The TGA curve of **JXUST-17** under N_2 atmosphere.

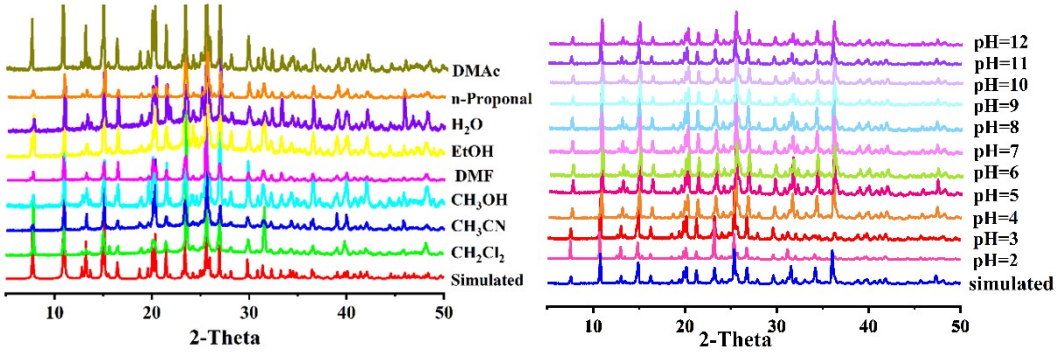


Fig. S3 (a) The PXRD patterns of **JXUST-17** soaked in different solvents for 24 hours; (b) the PXRD patterns of **JXUST-17** in aqueous solution with different pH values.

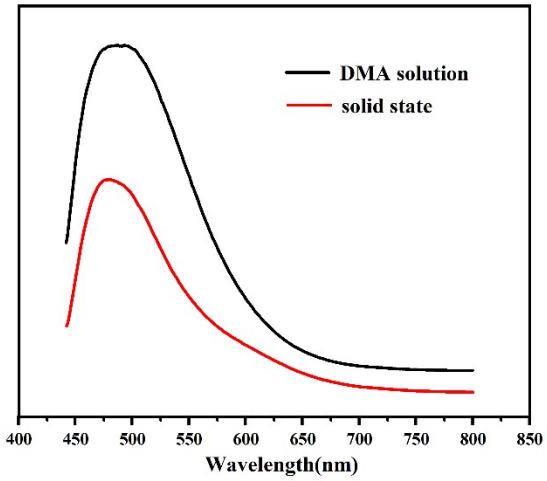
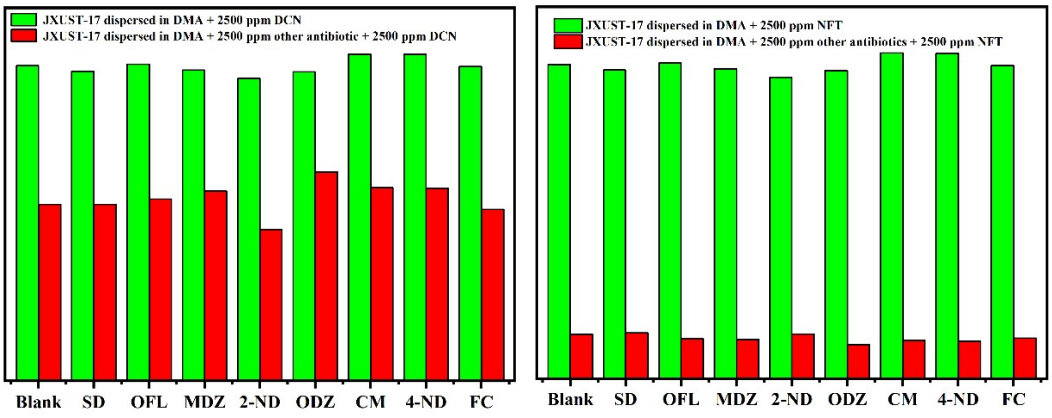


Fig. S4 The emission spectra of **JXUST-17** in DMA solution and in solid state at room temperature.



(a) **(b)**

Fig. S5 Competition experiments of **JXUST-17** with the interference of other antibiotic molecules in DMA and 2500 ppm DCN solution (a); competition experiments of **JXUST-17** with the interference of other antibiotic molecules in DMA and 2500 ppm NFT solution (b).

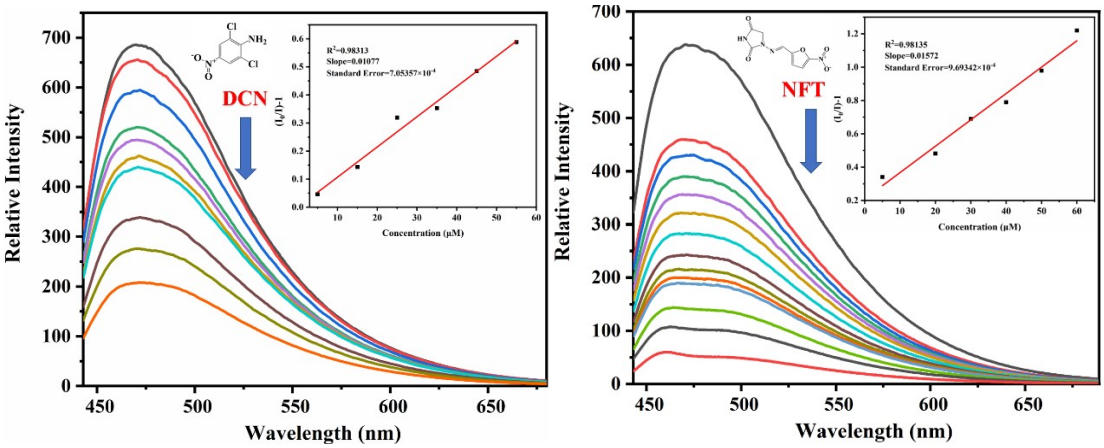


Fig. S6 Fluorescence emission spectra of **JXUST-17** in DMA suspension after various concentrations of DCN and linear fitting of DCN (a) and NFT (b) with fluorescence intensity at low concentrations.

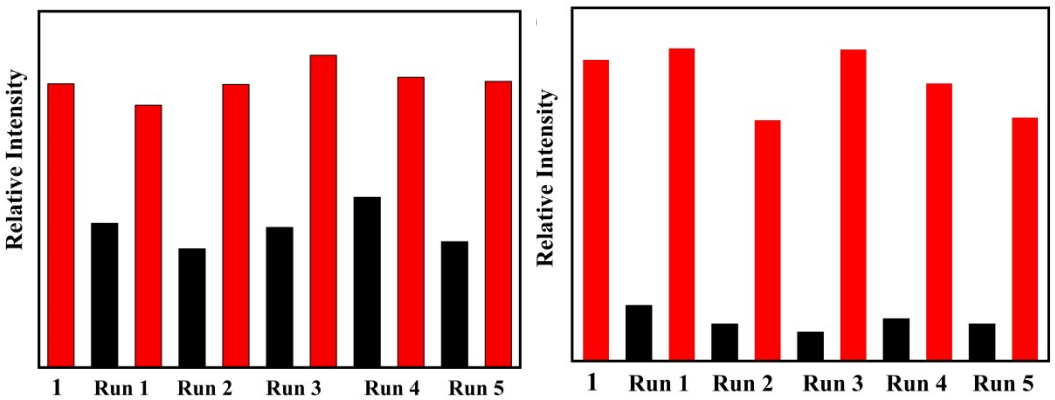


Fig. S7 Relative fluorescence intensity of **JXUST-17** sensing DCN (a) and NFT (b) after five cycles of recycling experiments.

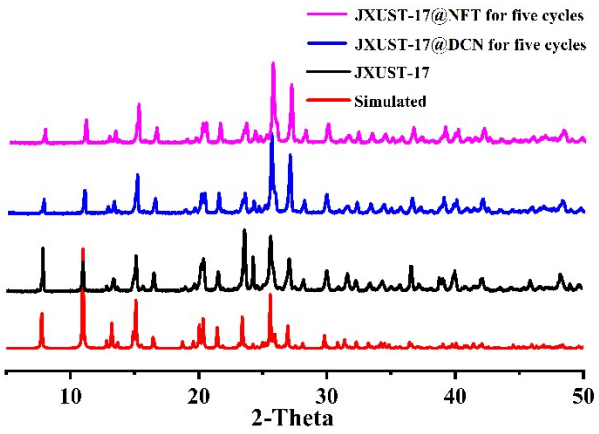


Fig. S8 The simulated and experimental PXRD patterns of **JXUST-17** upon the addition of NFT and DCN after five cycles of recycling experiments.

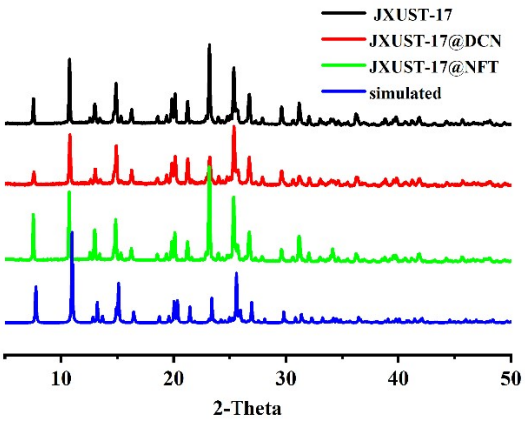


Fig. S9 The PXRD patterns of **JXUST-17** dispersed in DMA solutions containing NFT and DCN.

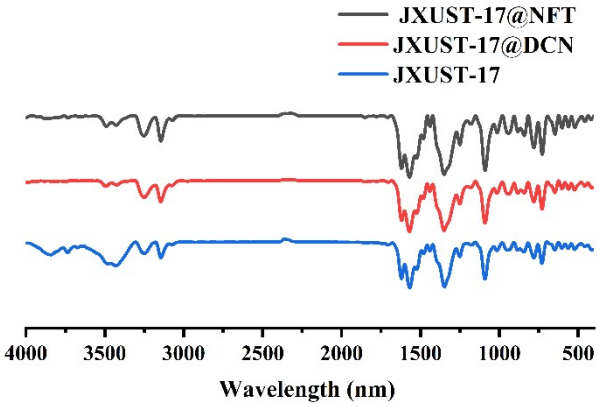


Fig. S10 IR spectra of **JXUST-17**, **JXUST-17**@DCN, and **JXUST-17**@NFT at room temperature.

References

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