Electronic Supplementary Information (ESI)

Stable bifunctional Zn^{II}-based sensor toward acetylacetone and L-histidine by a fluorescence red shift and turn-on effect

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Table S1. Selected bond lengths (Å) and angles (°) for **JXUST-15**.[a]

Zn1—O1	1.958(13)	Zn1—N1^{i}	2.0280(17)
Zn1—N1	2.0280(17)	Zn1—O1^{i}	1.958(13)
O1—Zn1—N1	113.9(4)	N1—Zn1—N1^{i}	95.86(10)
O1—Zn1—N1^{i}	114.9(3)		

[a]Symmetry code: (i) $-x+1/2, y, -z+1/2$.

Table S2. SHAPE analysis of Zn^{II} ion in **JXUST-15**.

ion	label	shape	symmetry	distortion(τ)
Zn1	SP-4	Square	D_{4h}	25.798
	T-4	Tetrahedron	T_d	**1.919**
	SS-4	Seesaw	C_{2v}	6.576
	vTBPY-	Vacant trigonal bipyramid	C_{3v}	4.412

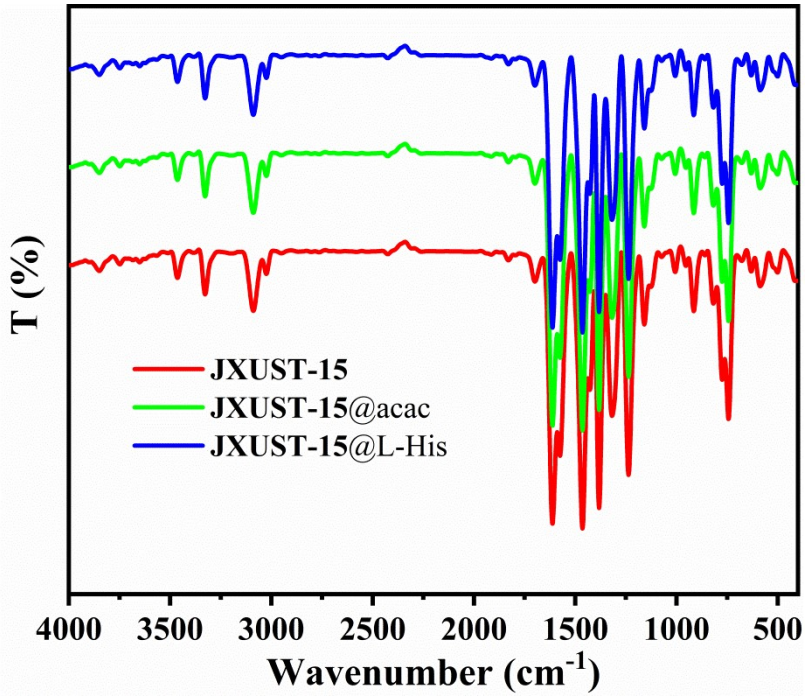


Fig. S1. IR spectra of **JXUST-15**, **JXUST-15**@acac and **JXUST-15**@L-His at room temperature.

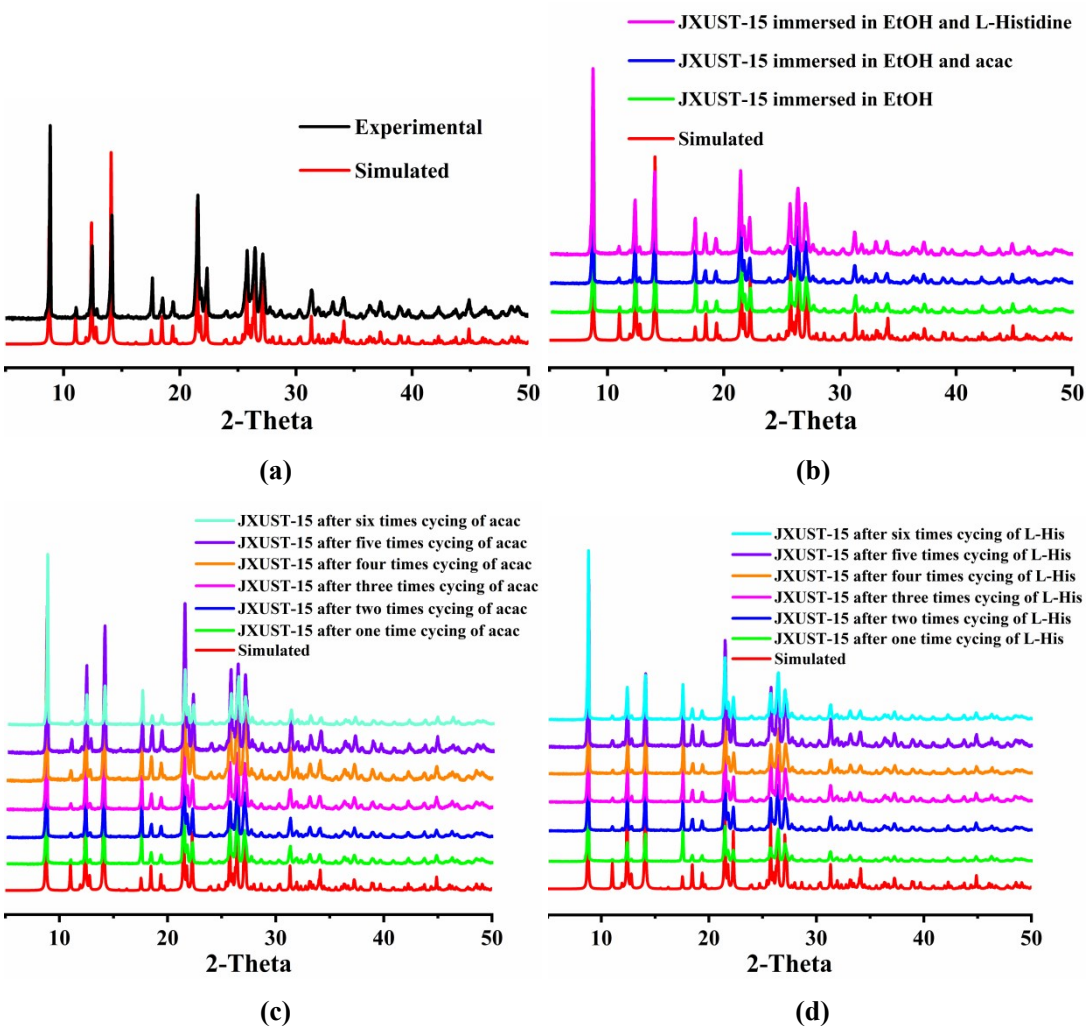


Fig. S2. (a) The simulated and as-synthesized PXRD patterns of **JXUST-15**; (b) PXRD patterns of samples immersed in EtOH, EtOH with acac or L-His solution for 24 h of **JXUST-15**; (c) PXRD patterns of **JXUST-15** after recycling six times of acac with EtOH solution; (d) PXRD patterns of **JXUST-15** after recycling six times of L-His with EtOH solution.

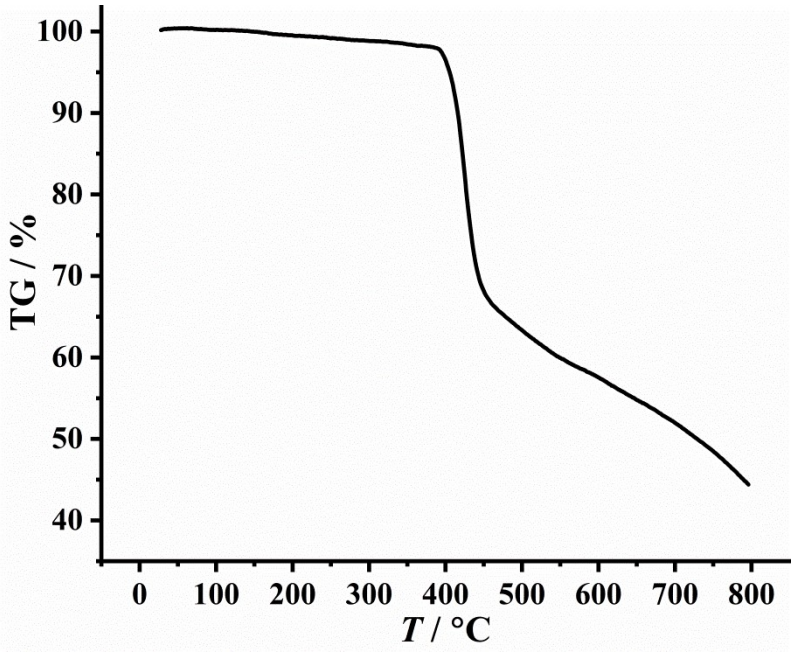


Fig. S3. The TGA curve of **JXUST-15** under N_2 atmosphere from room temperature to 800 °C.

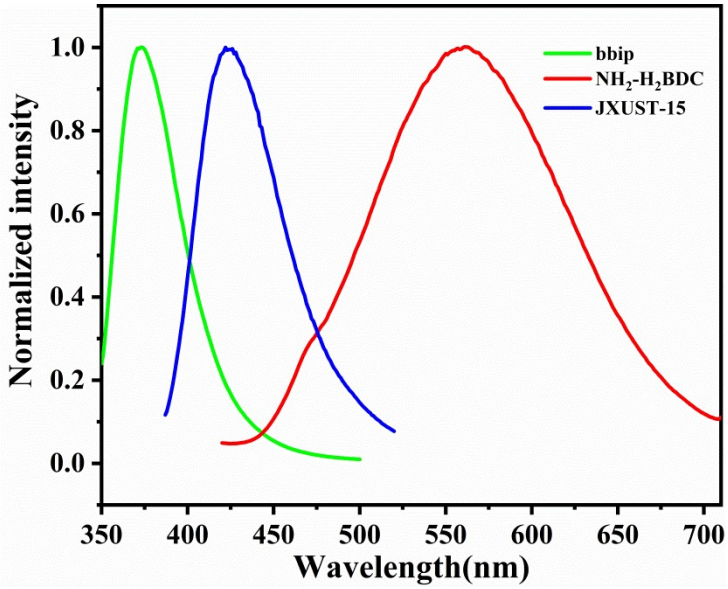
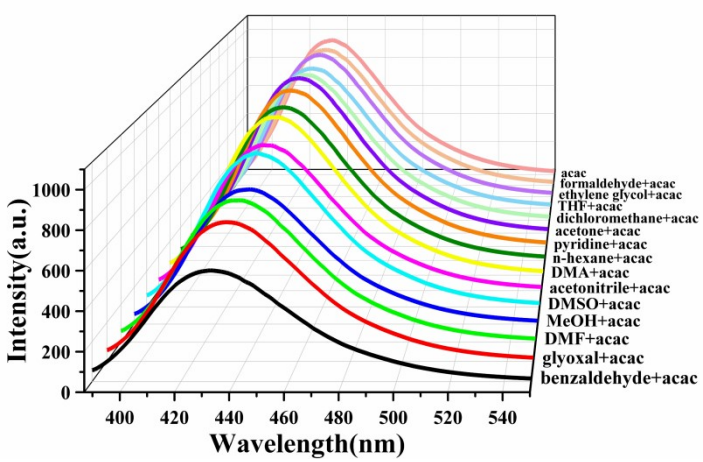
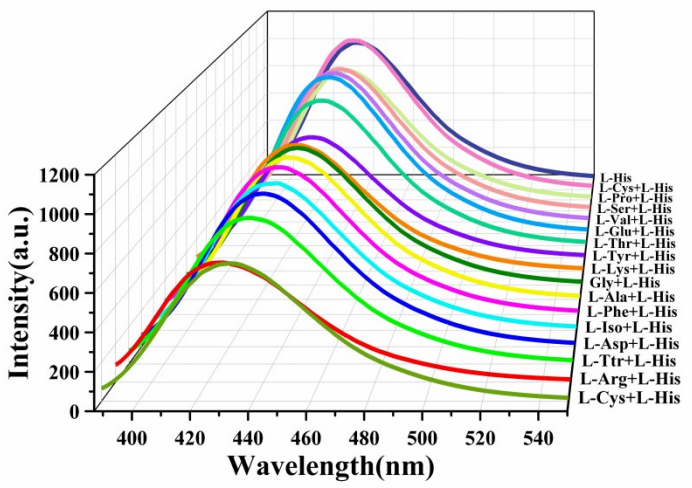


Fig. S4. The solid emission spectra of bbip, NH_2-H_2BDC and **JXUST-15**.

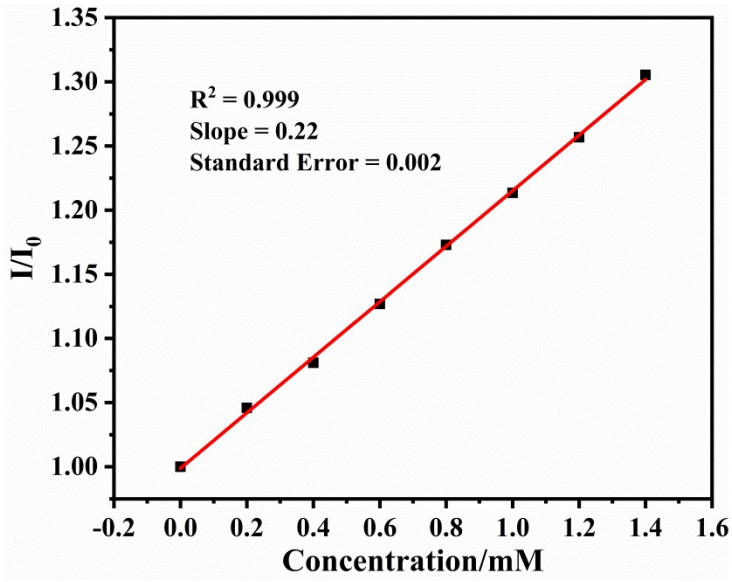


(a)

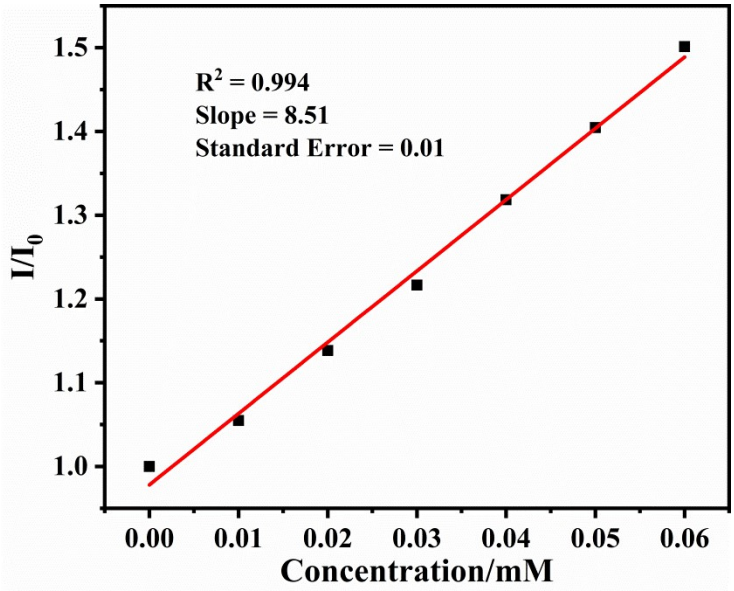


(b)

Fig. S5. The fluorescence response of **JXUST-15** dispersed in EtOH suspension with acac and other organic molecules (a) and with L-His and other amino acids (b).

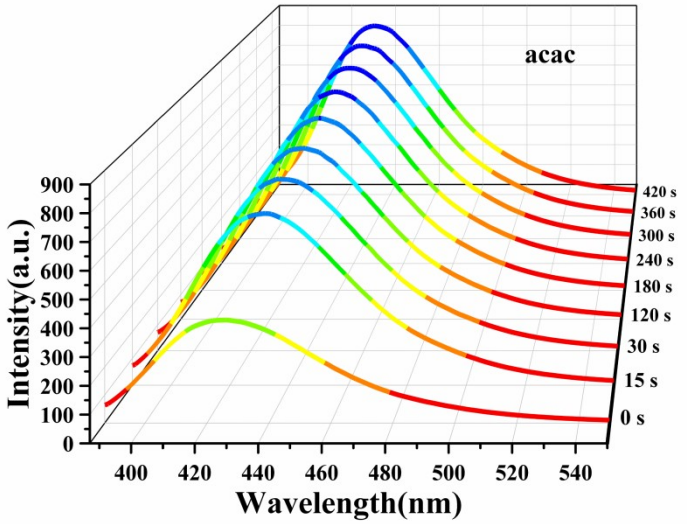


(a)

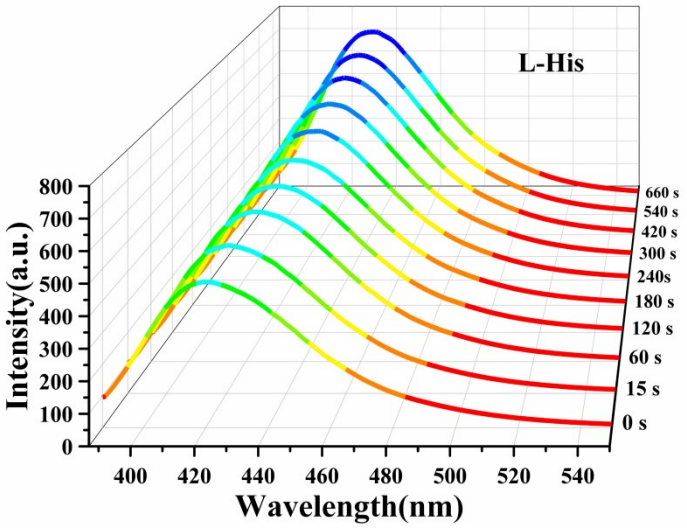


(b)

Fig. S6. The correlation between fluorescence intensity ratio I/I_0 and the concentration of acac (a) and L-His (b) of **JXUST-15**.

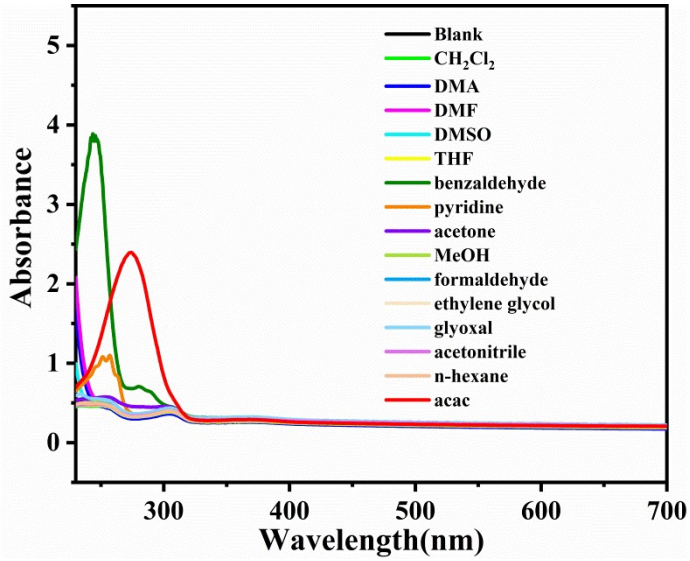


(a)

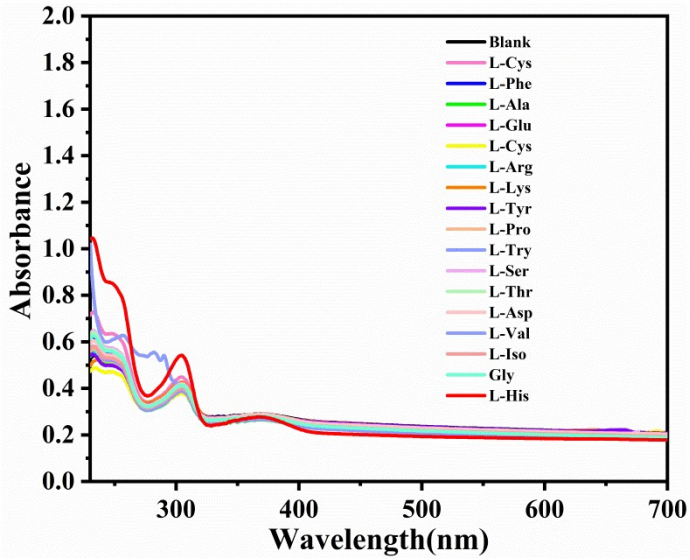


(b)

Fig. S7. Time-dependent fluorescence emission spectra of **JXUST-15** in EtOH suspension with 5 μL acac (a) and 5 μL L-His with the concentration of 0.1 M (b) (λ_{ex} = 367 nm).

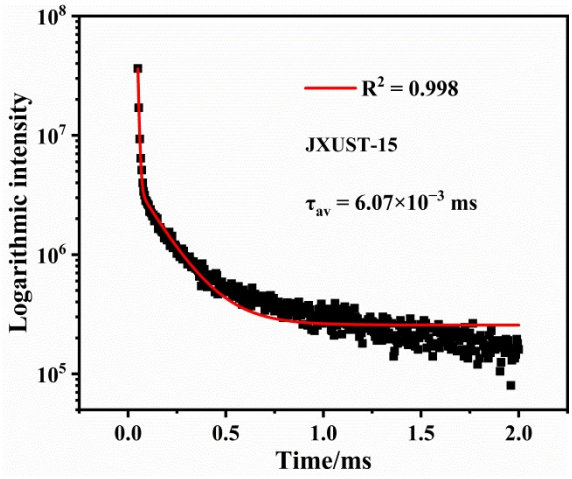


(a)

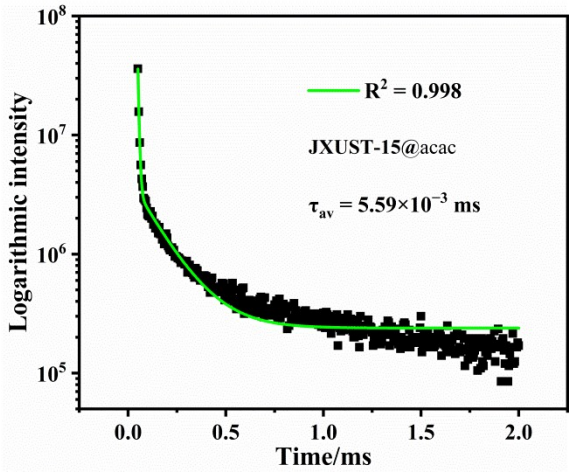


(b)

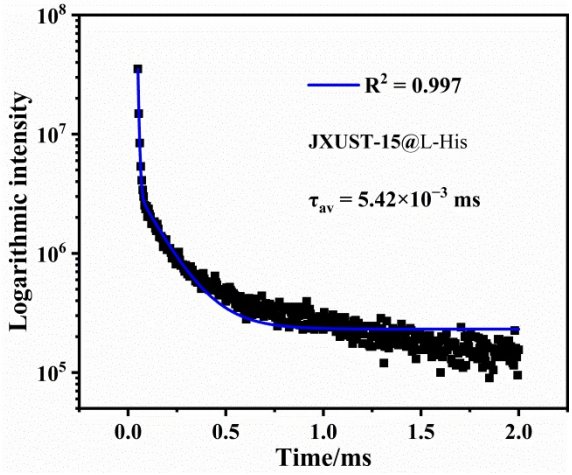
Fig. S8. The UV-Vis absorption spectra of **JXUST-15** and **JXUST-15** upon the addition of (a) different organic molecules and (b) amino-acid solutions.



(a)



(b)



(c)

Fig. S9. The luminescence decay curves of (a) **JXUST-15**, (b) **JXUST-15**@acac and (c) **JXUST-15**@L-His at room temperature (λ_{ex} = 367 nm and λ_{em} = 425 nm).