

Electronic Supplementary Information (ESI) for:

Simple and Sensitive Colorimetric Sensors for the Selective Detection of Cu(II)

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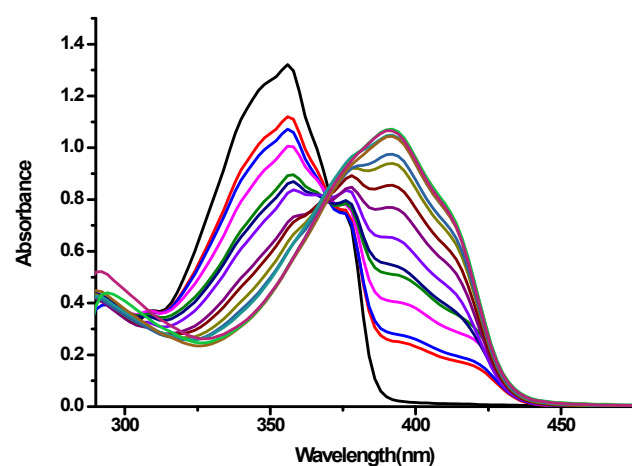


Figure S1. UV-vis absorption spectra of L (5.0×10^{-5} M) in EtOH/H₂O=4:1 solution upon addition Cu²⁺ ($0-7.5 \times 10^{-5}$ M) at room temperature.

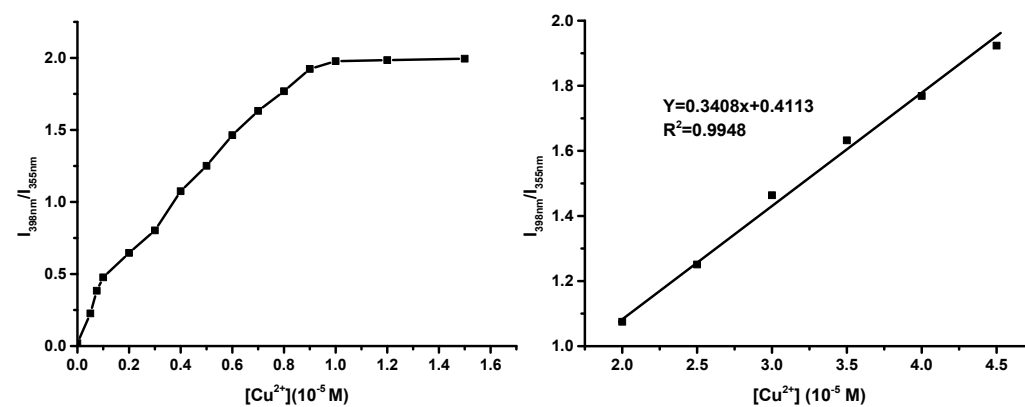
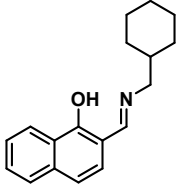
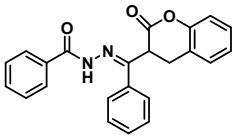
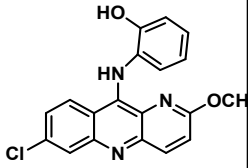
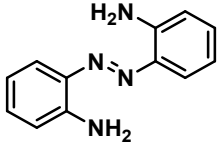
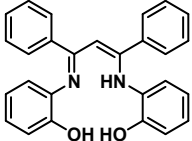
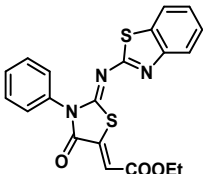
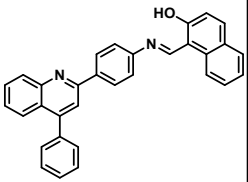
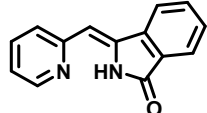


Figure S2. Plot of relative absorbance intensity $I_{398\text{nm}}/I_{355\text{nm}}$ versus Cu²⁺ ($0-7.5 \times 10^{-5}$ M).

Table S1. Comparison of the recently reported sensors for the determination of Cu²⁺

Cu ²⁺ -sensor	Detection limit (μM)	sensor	Operation mode	Working system	interference	Reference
	43.11	Fluorescent Sensor	Turn on	CH ₃ CN	Zn ²⁺	54
	8	Colorimetric /Fluorescent sensor	Turn on	CH ₃ CN/H ₂ O (9:1, v/v)	Al ³⁺	55
	0.16	Colorimetric Sensors	Turn on	CH ₃ CN/H ₂ O (V/V, 1:9)	Fe ³⁺ , Cr ³⁺ , Al ³⁺	56
	0.648	Colorimetric sensor	Turn on	EtOH	none	57
	none	Colorimetric Sensors	Turn on	MeOH	Al ³⁺ , Mn ²⁺	58
	0.36	fluorescent probes	Turn off	CH ₃ OH/H ₂ O (50 : 50 v/v)	Hg ²⁺	59
	0.044	fluorescent probes	Turn on	in PBS buffer	none	60

	2.82	Colorimetric Sensors	Turn on	EtOH/H ₂ O	none	This study
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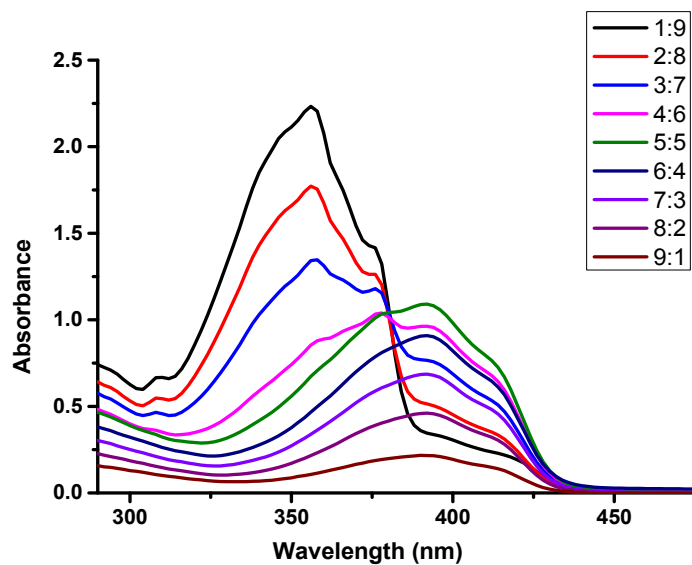


Figure S3. The molar ratio $[Cu^{2+}]/[L]$. The total concentration of Cu^{2+} with receptor L was 5.0×10^{-5} M.

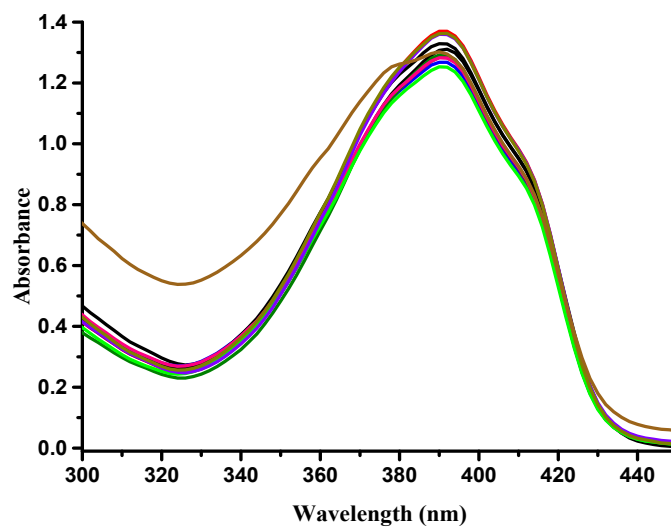


Figure S4. UV-vis selectivity-competition study of receptor L with added M(II) salts (5.0 equiv) followed by 1.0 equiv of added Cu(II) ($[L] = 5.0 \times 10^{-5}$ M).

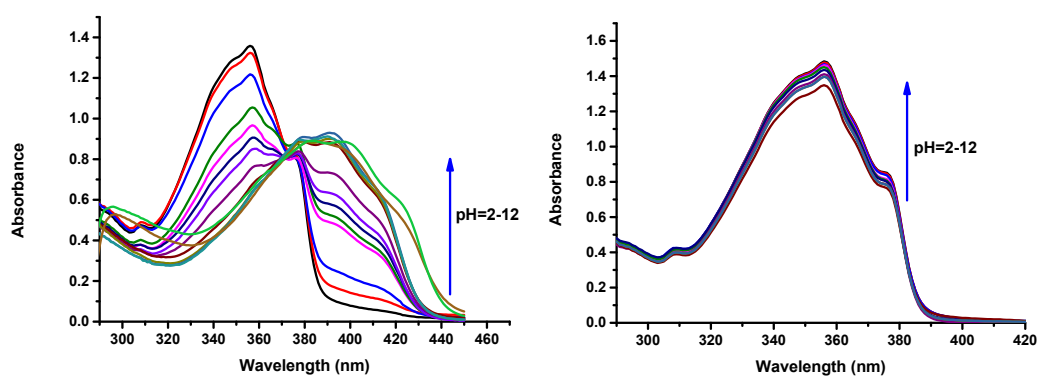


Figure S5. UV-vis absorption spectra of $L-Cu^{2+}$, L in $EtOH/H_2O=4:1$ solution over a range of $pH=2-12$ at room temperature.

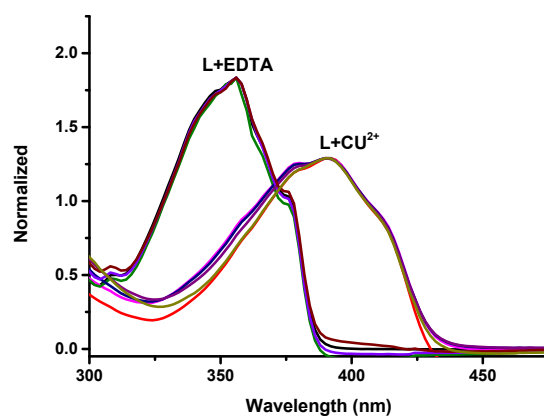


Figure S6. (a) (b) The cycle of $L-Cu^{2+}$ and $Cu^{2+}-EDTA$

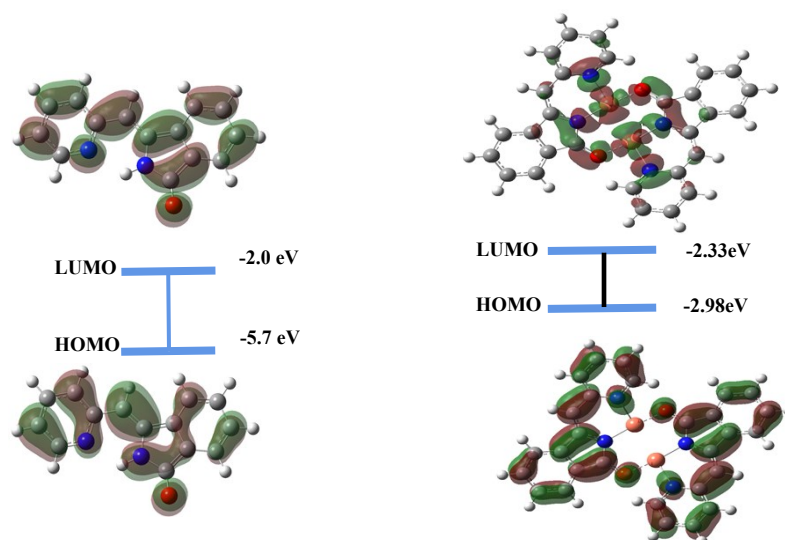


Figure S7. LUMO and HOMO orbitals for L and $L-Cu^{2+}$. The red and green lobes represent the

positive and negative signs of the coefficients of the molecular orbitals.

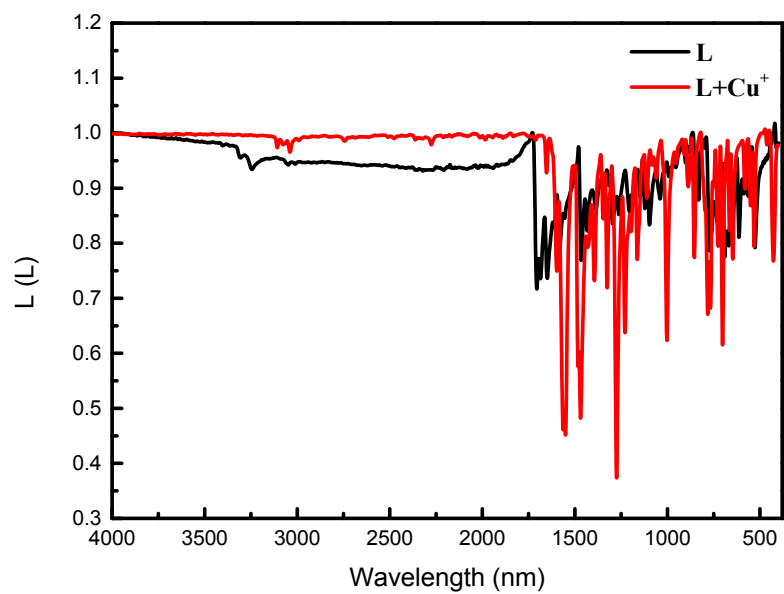


Figure S8. FT-IR spectrum of L and [L- Cu²⁺] complex.

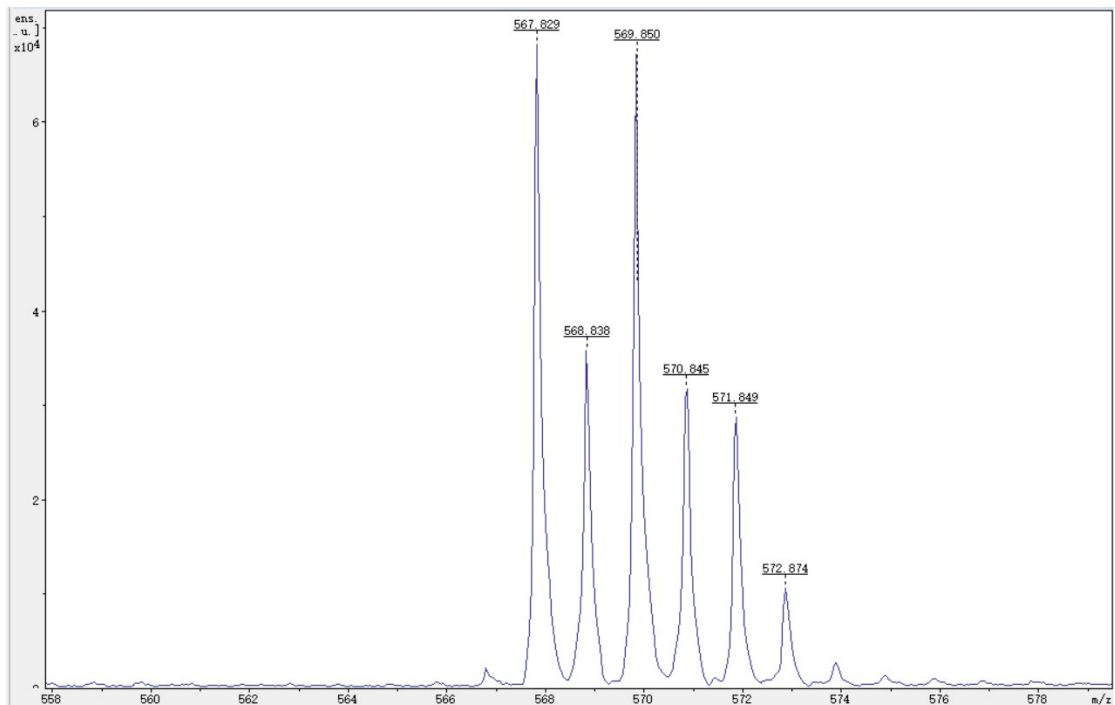


Figure S9. MALDI-TOF spectrum of [L+ Cu(II)] complex.
