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A highly selective ratiometric fluorescent chemosensor for Cu(II) based on dansyl-functionalized thiol stabilized silver nanoparticles

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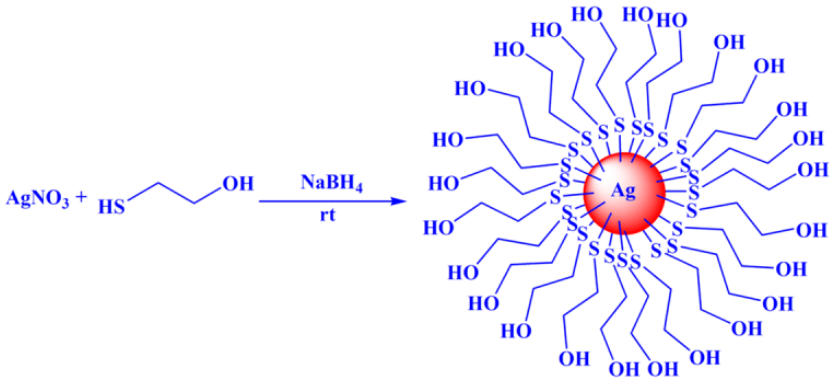

Scheme 1 Synthesis of thiol stabilized silver nanoparticle

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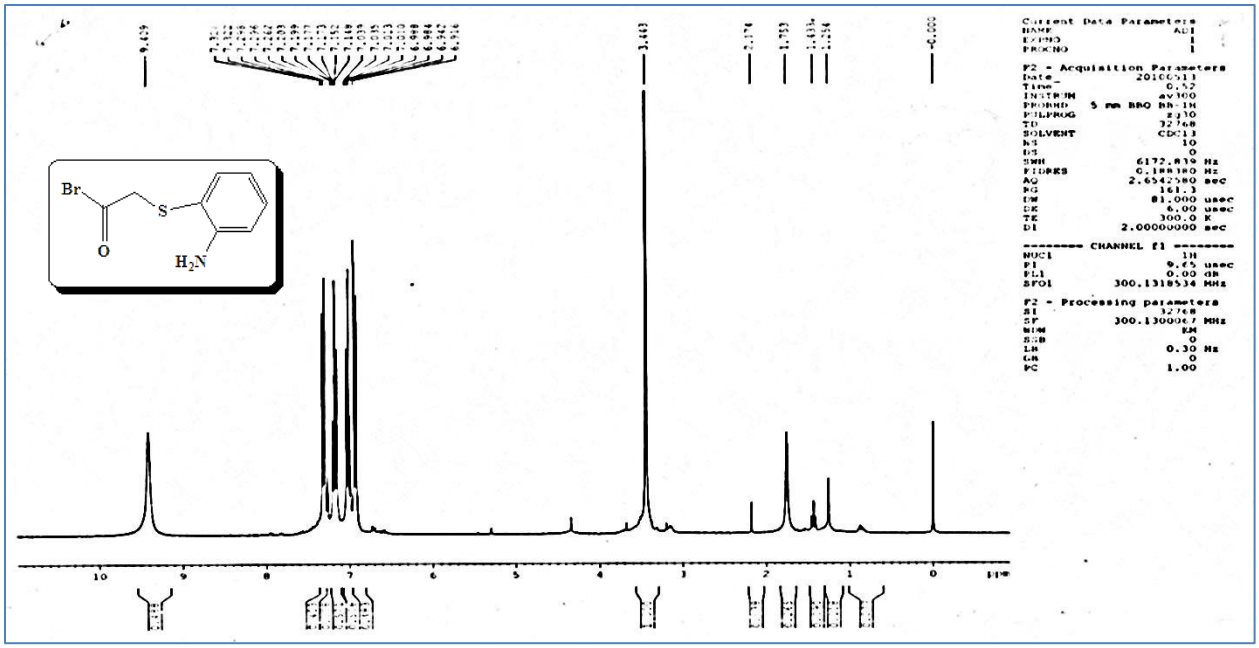

Fig S1. ^{1}H NMR spectrum of ligand [2-(2-aminophenylthio)acetyl bromide]

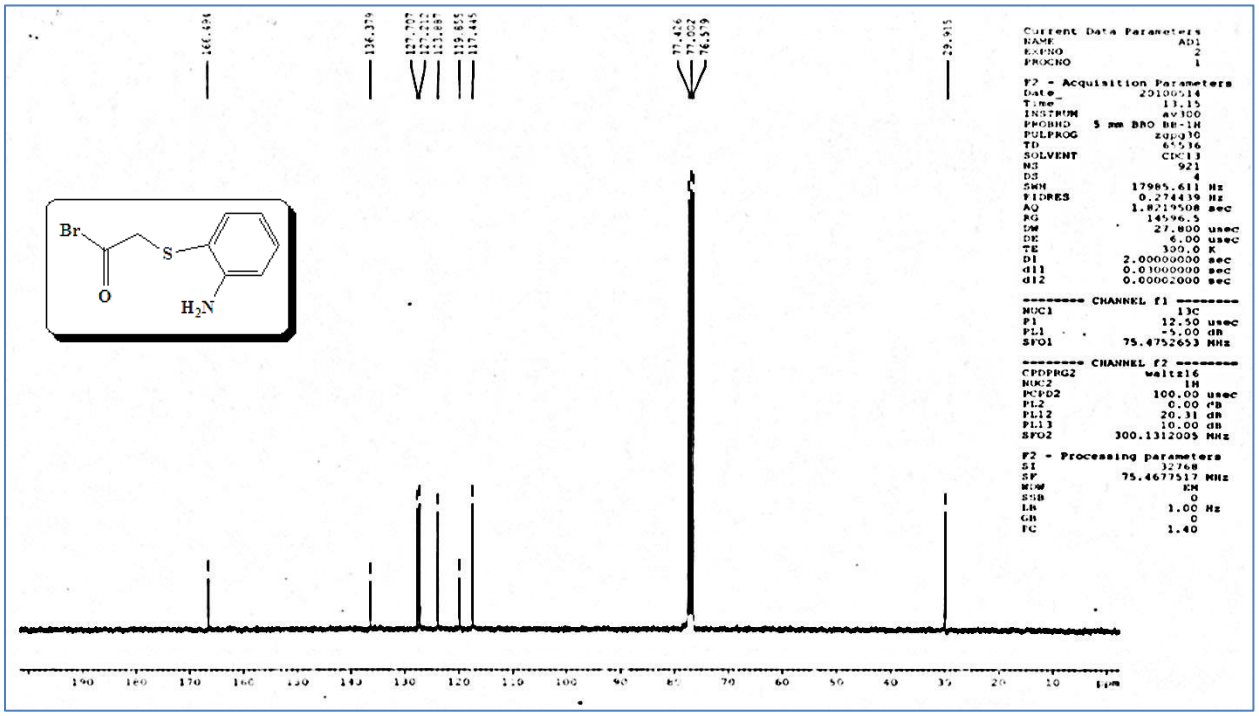

Fig S2. ^{13}C NMR spectrum of ligand [2-(2-aminophenylthio)acetyl bromide]

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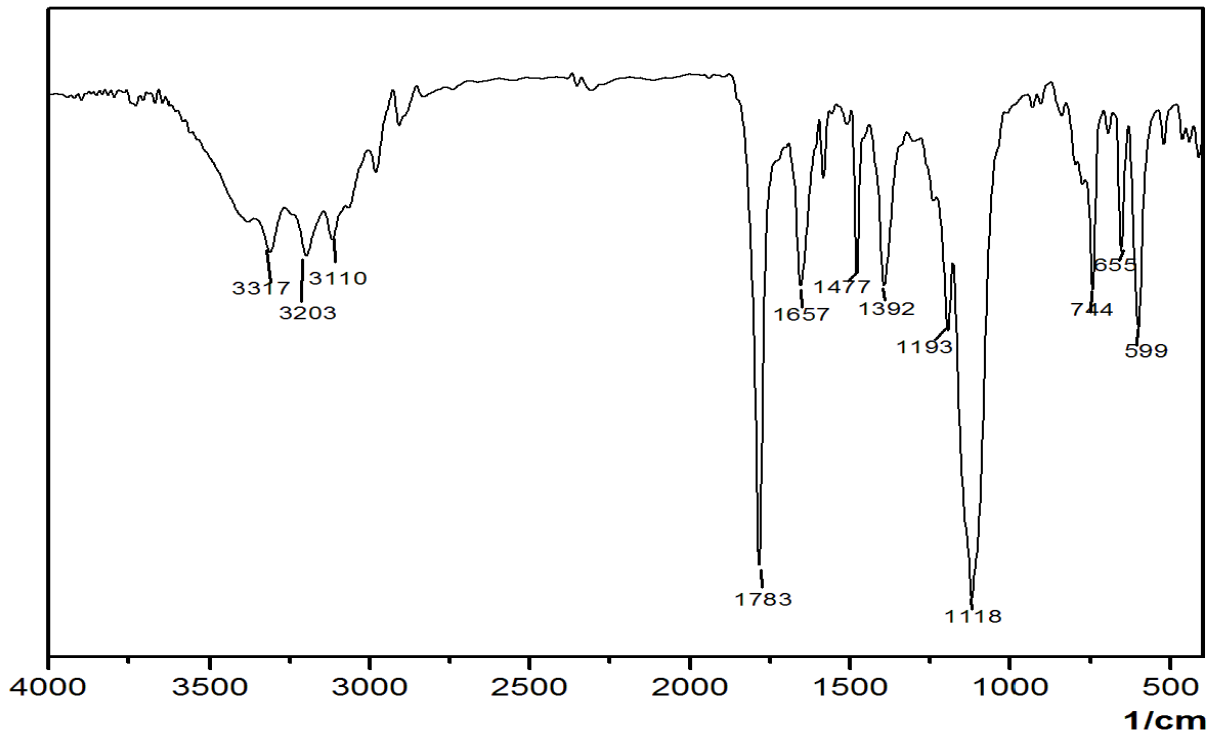

Fig. S3 IR spectrum of ligand [2-(2-aminophenylthio)acetyl bromide]

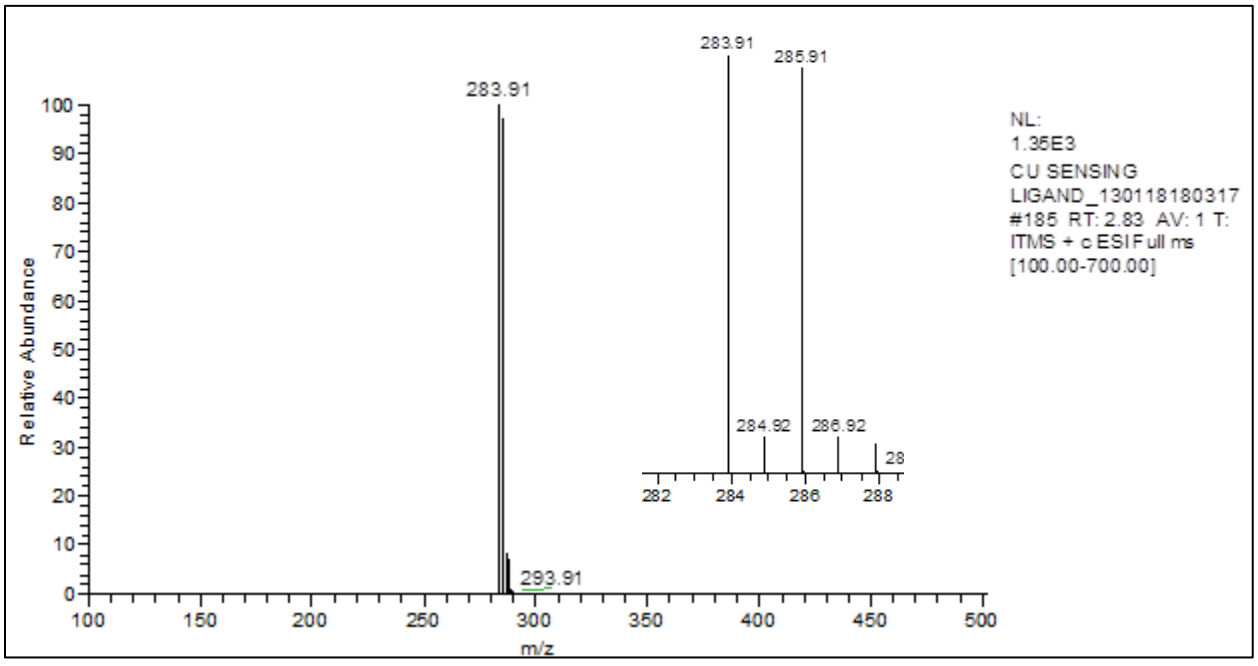

Fig. S4 ESI-MS spectrum of ligand [2-(2-aminophenylthio)acetyl bromide]

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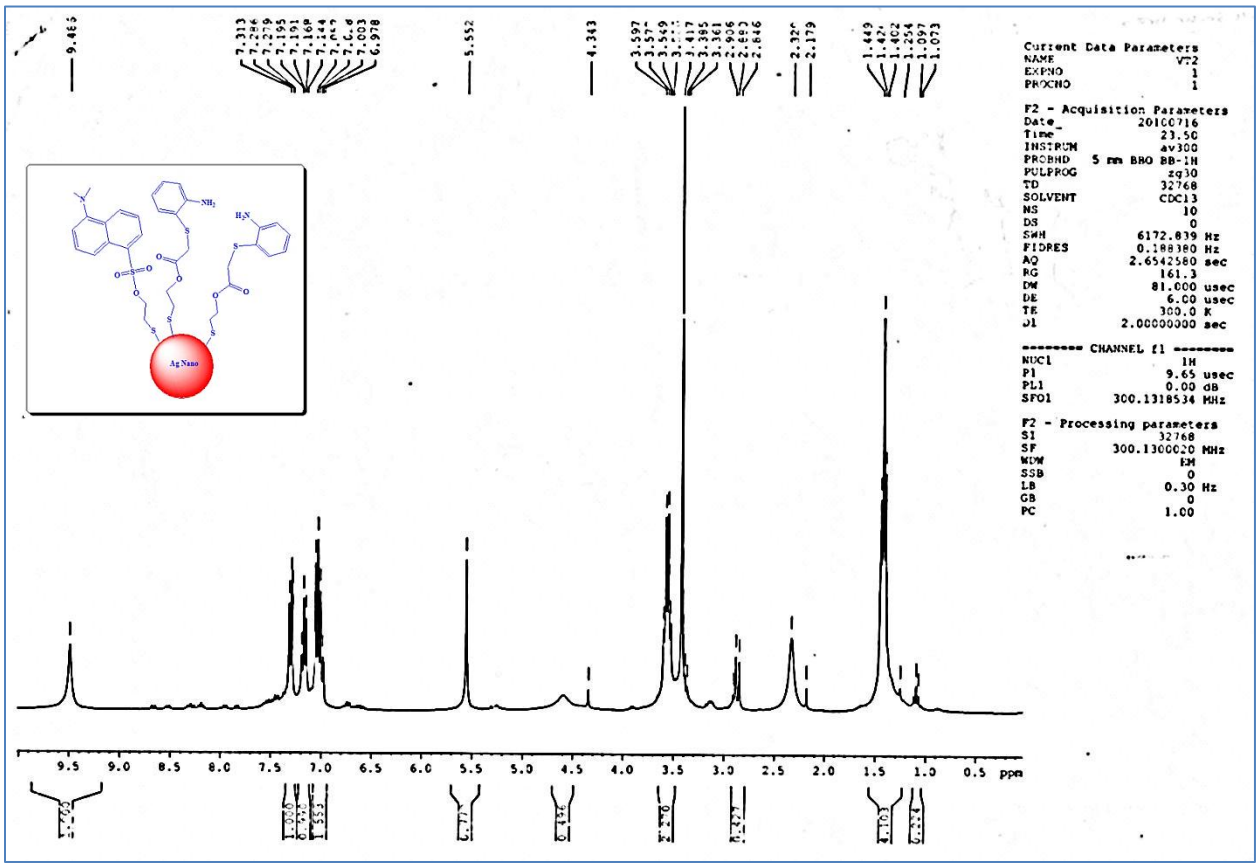

Fig S5. ^{1}H NMR spectrum of Compound **1**

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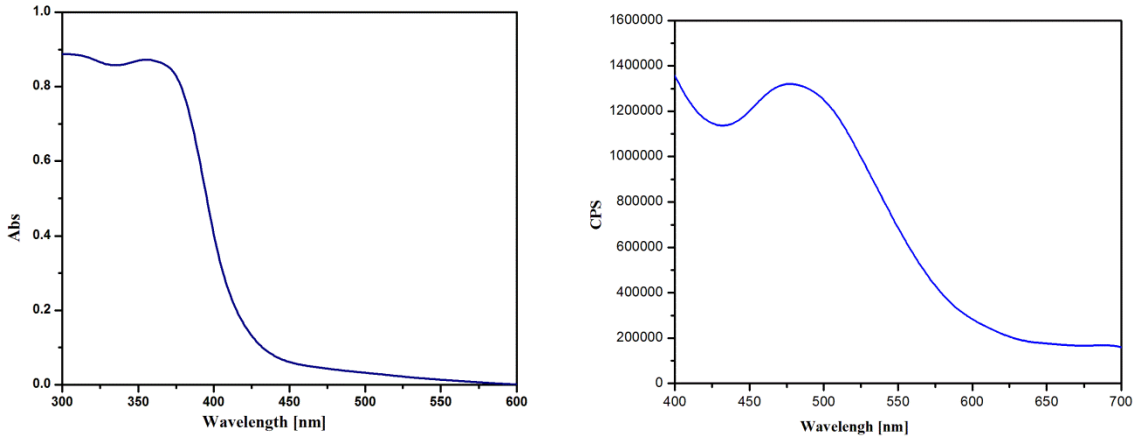

Fig. S6 a) UV-Visible spectra of silver nanoparticles b) Fluorescence emission spectra of silver nanoparticles

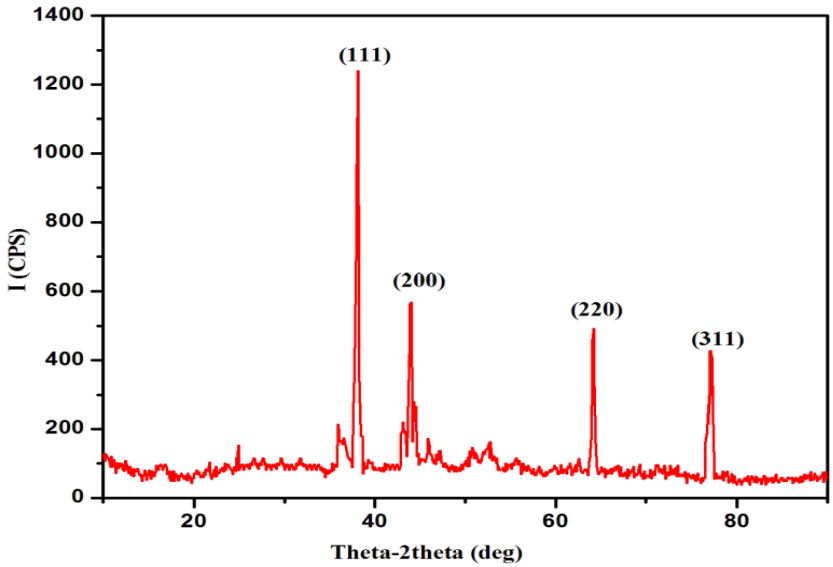

Fig. S7 Powder XRD pattern of thiol stabilized silver nanoparticles in corresponding planes.

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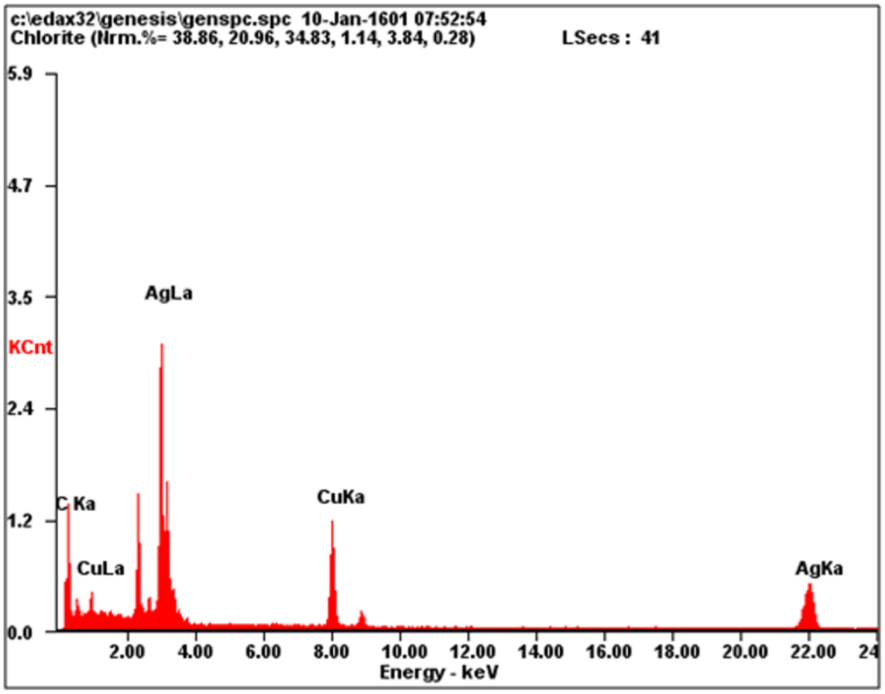

Elem	*Weight %*	*Atomic %*
C K	20.90	66.30
CuK	23.40	14.00
AgK	55.70	19.70

Fig S8. EDAX spectra of silver nanoparticles

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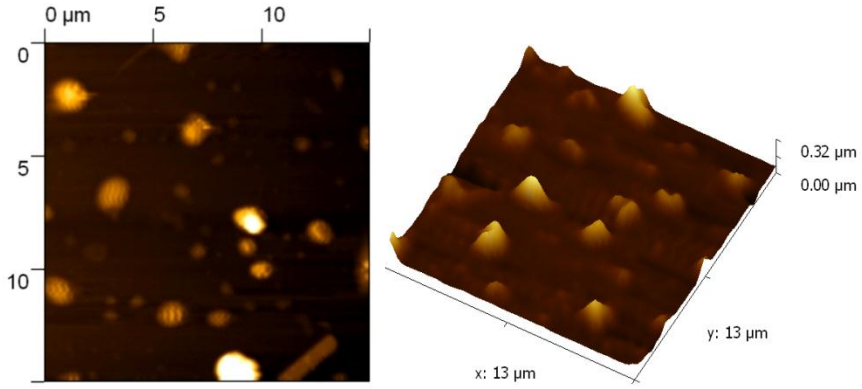

Fig. S9 (a) Two-dimensional (2D) AFM image of thiol stabilized silver NPs. (b) Three-dimensional (3D) AFM image of thiol stabilized silver NPs.

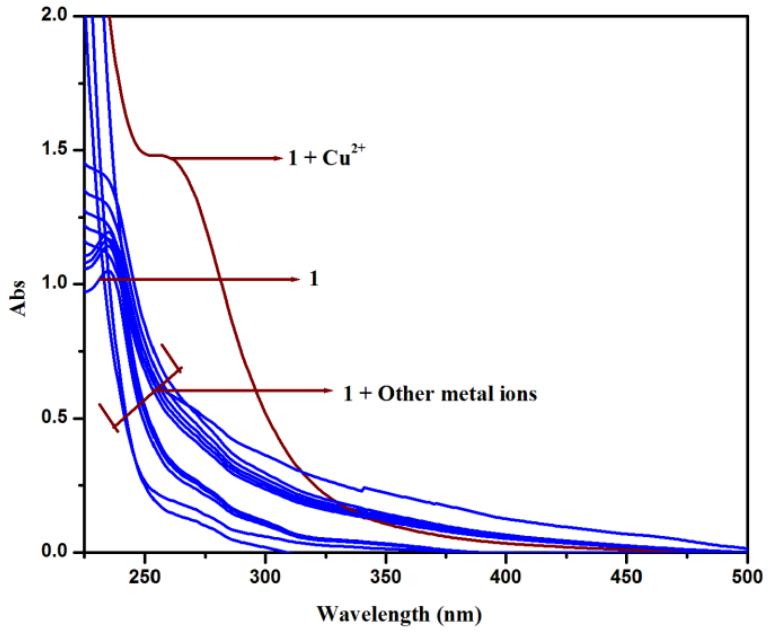

Fig. S10 UV-Vis. spectra of compound **1** in the presence of Cu^{2+} and various metal ions (5 x 10^{-6} mol L^{-1} Na^{+}, K^{+}, Li^{+}, Ag^{+}, Ba^{2+}, Cd^{2+}, Co^{2+}, Fe^{2+}, Hg^{2+}, Mn^{2+}, Ni^{2+}, Pb^{2+} and Zn^{2+} at pH 7.4 (phosphate buffer 10 mM) in CH_3CN:H_2O (1:1 v/v).

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Table S1. Binding constants of **1** with other metal ions recorded at room temperature in ACN–H_2O (1:1, v/v) mixture.

Metal ions	**Binding constant values (M^{-1})**
Na^+	1025
K^+	1207
Li^+	1401
Ag^+	3103
Cu^{2+}	8345
Ba^{2+}	2105
Cd^{2+}	2414
Co^{2+}	1928
Fe^{2+}	3255
Hg^{2+}	2751
Mn^{2+}	2361
Ni^{2+}	3976
Pb^{2+}	3625
Zn^{2+}	3832