Electronic Supplementary Information

A simple but highly sensitive and selective colorimetric and fluorescent probe for Cu^{2+} in aqueous media

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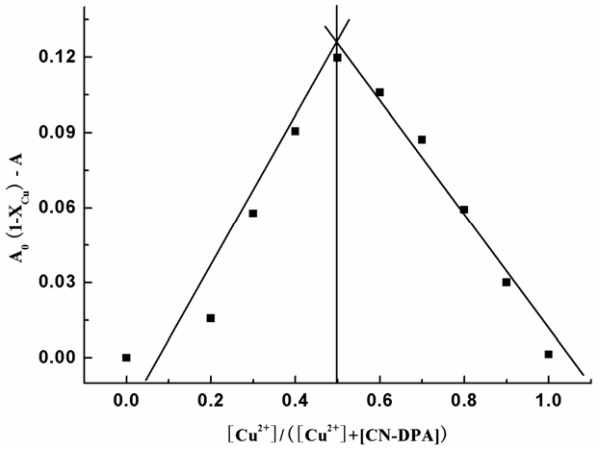

Fig. S1 Job's plot for determining the stoichiometry of **CN-DPA** and Cu^{2+}. The total concentration of **CN-DPA** and Cu^{2+} was 10 μM. Molar fraction was given by $[Cu^{2+}]/([Cu^{2+}] + [\mathbf{CN\text{-}DPA}])$.

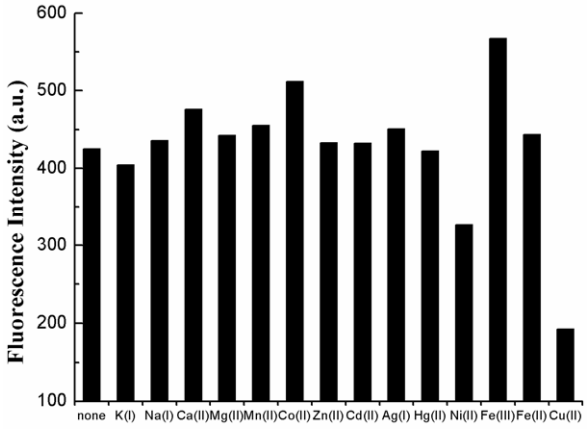

Fig. S2 Fluorescent responses of **CN-DPA** (5 μM) in HEPES (10 mM, pH 7.4) solution (ethanol/water = 1:9, v/v) after the addition of 5 μM of various metal ions with an excitation at 507 nm

Fig. S3 Fluorescent responses of **CN-DPA** (5 μM) to Cu^{2+} (5 μM) in the presence of other metal ions (5 μM) and common anions (10 μM) in HEPES (10 mM, pH 7.4) solution (ethanol/water = 1:9, v/v) with an excitation at 507 nm. A:+K^{+}; B:+Na^{+}; C:+Ca^{2+}; D:+Mg^{2+}; E:+Mn^{2+}; F:+Ag^{+}; G:+Co^{2+}; H:+Hg^{2+}; I:+Zn^{2+}; J:+Cd^{2+}; K:+Ni^{2+}; L:+Fe^{3+}; M:+Fe^{2+}; N:$CuSO_4$; O:$CuCl_2$; P:$Cu(NO_3)_2$; Q:+Br^{-}; R:+I^{-}; S:+HCO_3^{-}; T:+CO_3^{2-}; U:+HPO_4^{2-}; V:+$H_2PO_4^{-}$; W:+PO_4^{3-}; (The anions are all from sodium salts).

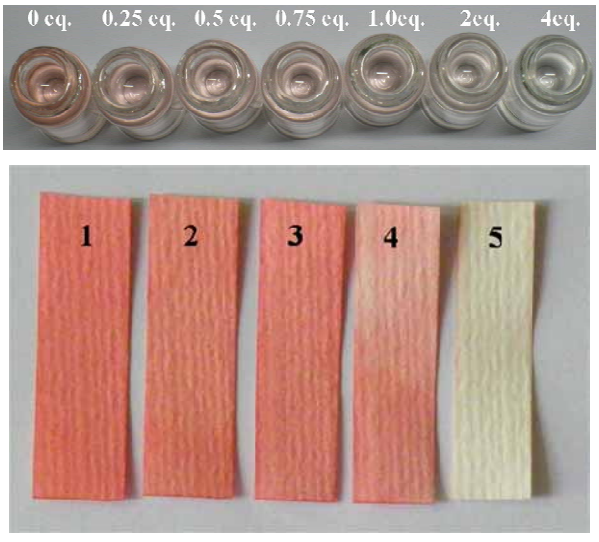

Fig. S4 (top) The color changes of CN-DPA (5 μM) upon adding various amount of Ni^{2+}. (bottom) Photographs of the test kits with CN-DPA for detecting Ni^{2+} in aqueous solution with different concentrations. 1: 0; 2: 1.0×10^{-4} M; 3: 5.0×10^{-4} M; 4: 5.0×10^{-3} M; 5: 5.0×10^{-2} M.

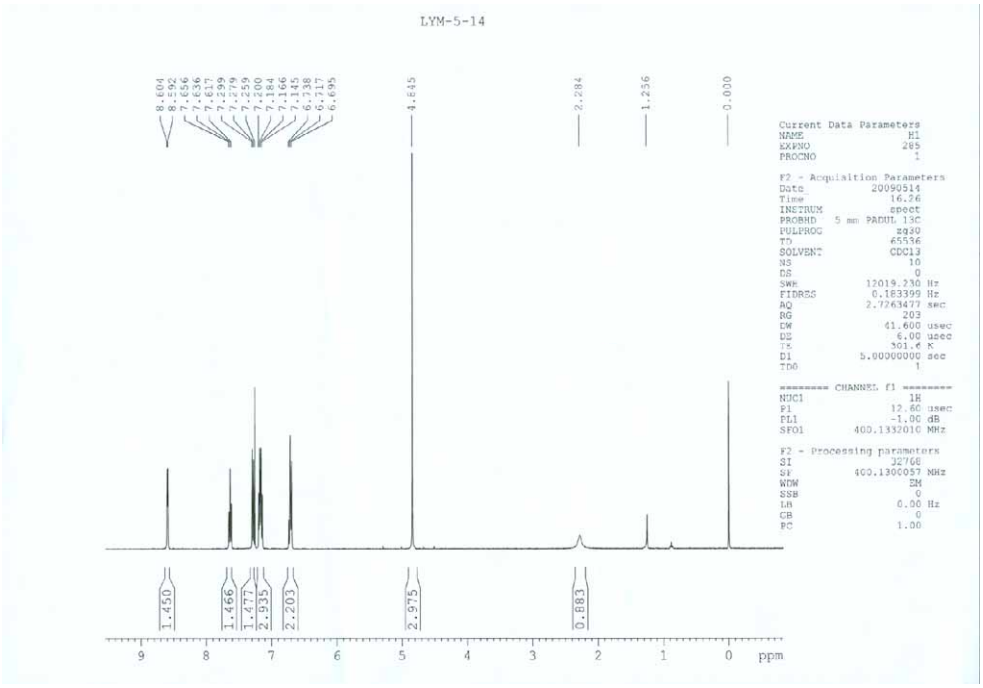

Fig. S5 [1]H-NMR spectra of **Ph-DPA**

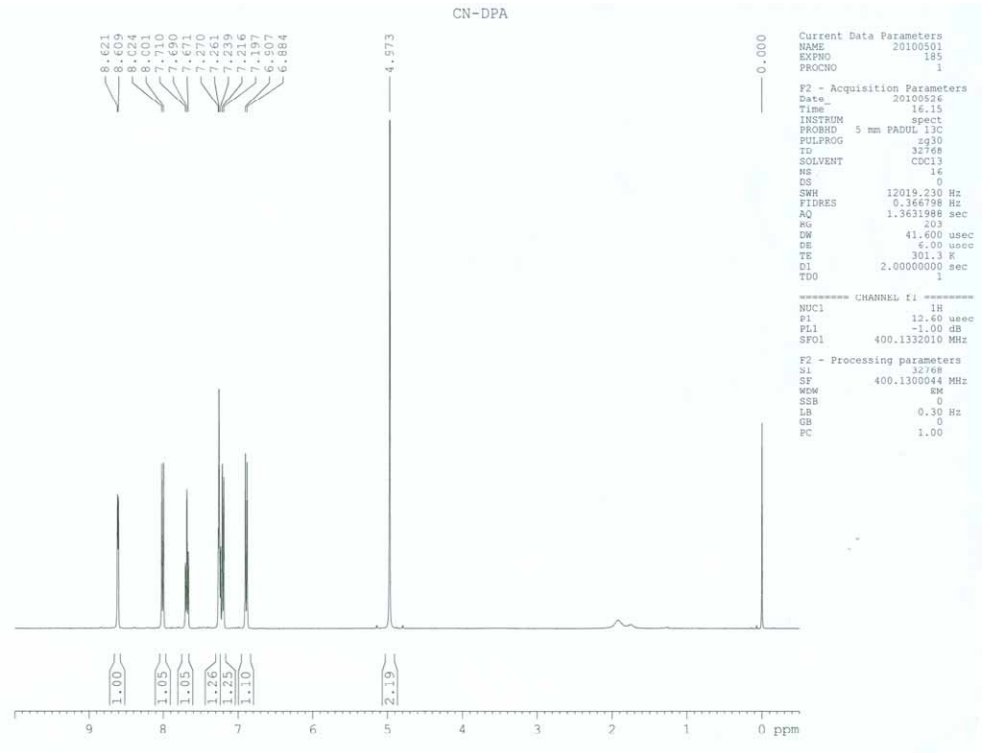

Fig. S6 [1]H-NMR spectra of **CN-DPA**

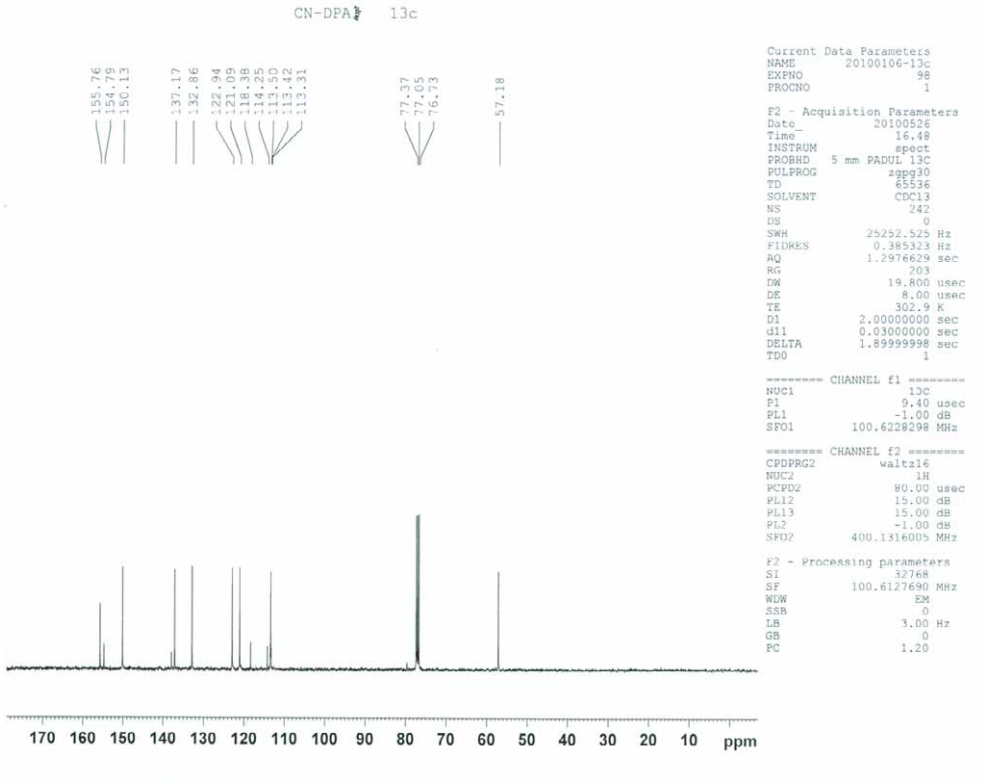

Fig. S7 ^{13}C-NMR spectra of **CN-DPA**

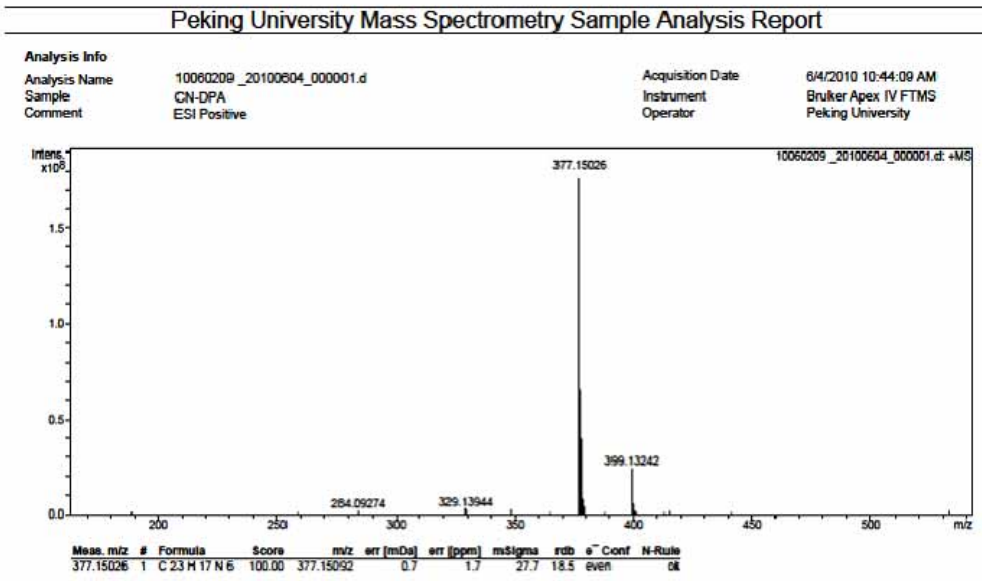

Fig. S8 High-resolution mass spectra of **CN-DPA**

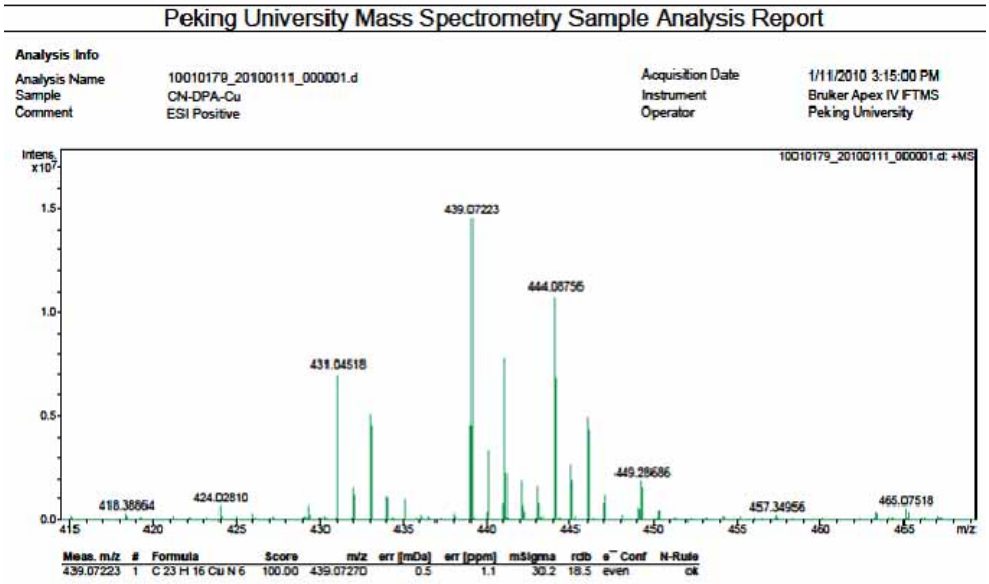

Fig. S9 High-resolution mass spectra of **CN-DPA-Cu**