



Supplementary material: A selective colorimetric chemosensor for detection of Cu(II) ions in aqueous samples

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Naked eye detection

A stock solution (10 mM) of sensor **S** was prepared in DMSO/Ethanol ($v/v = 2/8$). Stock solutions (10 mM) of cations Na⁺, K⁺, Li⁺, Cu⁺, Ca²⁺, Ba²⁺, Sn²⁺, Zn²⁺, Mg²⁺, Ni²⁺, Co²⁺, Cd²⁺, Fe²⁺, Cu²⁺, Pb²⁺, Al³⁺, Fe³⁺, Cr³⁺ in distilled water were prepared. For all the experiments, different dilutions of these solutions in distilled water were performed.

For the visual detection of cation, 0.5 mL of stock solutions (10 mM) of cations and 0.5 mL of the stock solution (10 mM) of sensor **S** were added together with 1 mL of distilled water. The control solution contained 0.5 mL of stock solution of sensor **S** and 1.5 mL of distilled water. After mixing for a few seconds, the naked eye response was tested.

To visually evaluate selectivity and sensitivity of sensor **S** towards different cations, a solution of **S**

was treated separately with a series of metal cations solutions. Cu²⁺ cation was quickly detected under visible light because the solution consisting of **S** and Cu²⁺ showed a visible color change from colorless to yellow. The solutions containing other cations and sensor **S** did not show any color change. Other tests were carried out to assay the color complex intensity between Cu²⁺ and **S**. The color intensity vary according to Cu²⁺ concentration in the solution, ranging from a relatively weaker or lighter color at low concentrations to an intense color at high concentrations. In contrast, no significant color changes were observed when the effect of the concentration of **S** was evaluated at a constant Cu²⁺ concentration. Thus, Cu²⁺ cation could be quickly and easily identified among all other cations by the naked eye due to the formation of a yellow complex.

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