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Highly selective colorimetric sensing of Cu^{2+} using Schiff base derivative immobilized on polyvinyl alcohol microspheres

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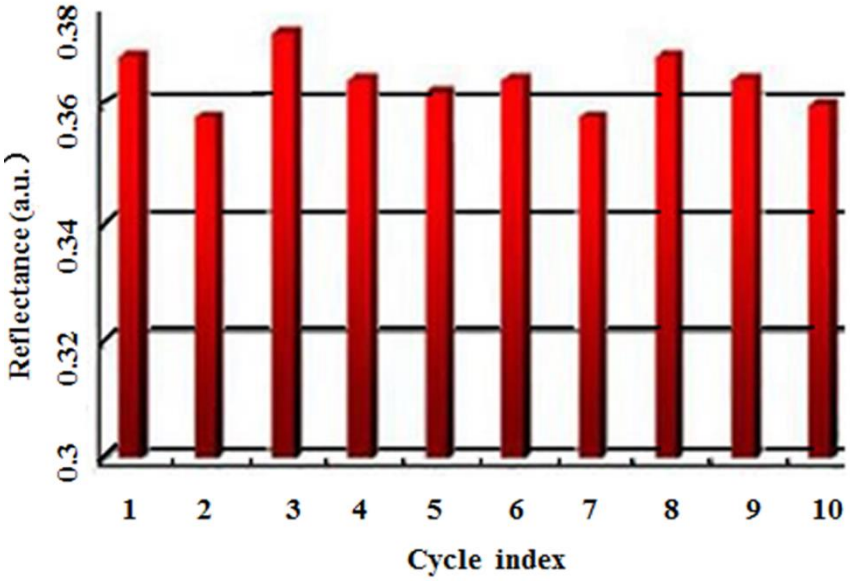

Fig. S1 Reflection spectra of PVA-SH microspheres after multiple elution.

Reusability is an important characterization of solid indicator in practical application. After detection, we measure the reusability and stability through the regeneration process of PVA-SH microspheres. The microspheres were recycled after detection by filtration, which adequately caused the color to yellow by applying ethylenediaminetetraacetic acid (EDTA) to analyze the reusability after drying. This process was repeated nine times, and the results confirmed that EDTA could effectively regenerate PVA-SH. The slight change in the reflection intensity (Fig. S1) also confirmed the reusability of the PVA-SH microspheres.

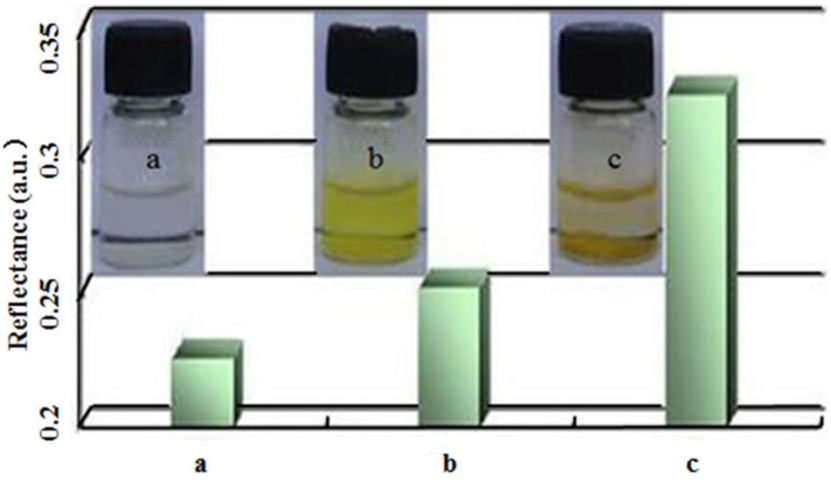

Fig. S2 Absorbance and color changes of PVA-SH in river water (a) pH 7 no addition of Cu^{2+}; (b) pH 7 addition of 10 μM Cu^{2+}; (c) pH 12 addition of 10 μM Cu^{2+}

An untreated water sample was collected from Qinhuai River in Nanjing, China to evaluate the efficiency of PVA-SH in practical applications. As shown in Fig. S2, the notable change of the solution color from white to yellow upon the addition of Cu^{2+} could be observed by the naked eye, after the pH level was adjusted to 7. By contrast, the color change became increasingly distinct when the pH level was adjusted to 12. The results illustrated that PVA-SH has potential to be an excellent practical sensor for Cu^{2+} detection.