Electronic Supplementary Material

Highly specific colorimetric detection based on aggregation of L-cysteine functionalized gold nanoparticles for cypermethrin in water samples

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Experiment

De-aggregation process

A 200 µL of fresh AuNPs@Cyst and 100 µL of 1 mM phosphate buffer (pH 7) were placed in a 1-mL Eppendorf tube and mixed by vortex. Then, 200 µL of hydrolyzed cypermethrin (HCy) were added to the tube and mixed by vortex again. The mixture solution was left for 1 min and heated at 90 °C for 10 min.[1] The control solution was prepared in a similar way without heating. Besides, the blank solution was prepared by replacing HCy with methanol and without heating. Finally, the color change of the resulting solutions was photographed using a mobile phone camera and FE-TEM images were recorded on a field emission transmission electron microscope (FE-TEM) (Talos F200i, Thermo Scientific, Czech Republic).

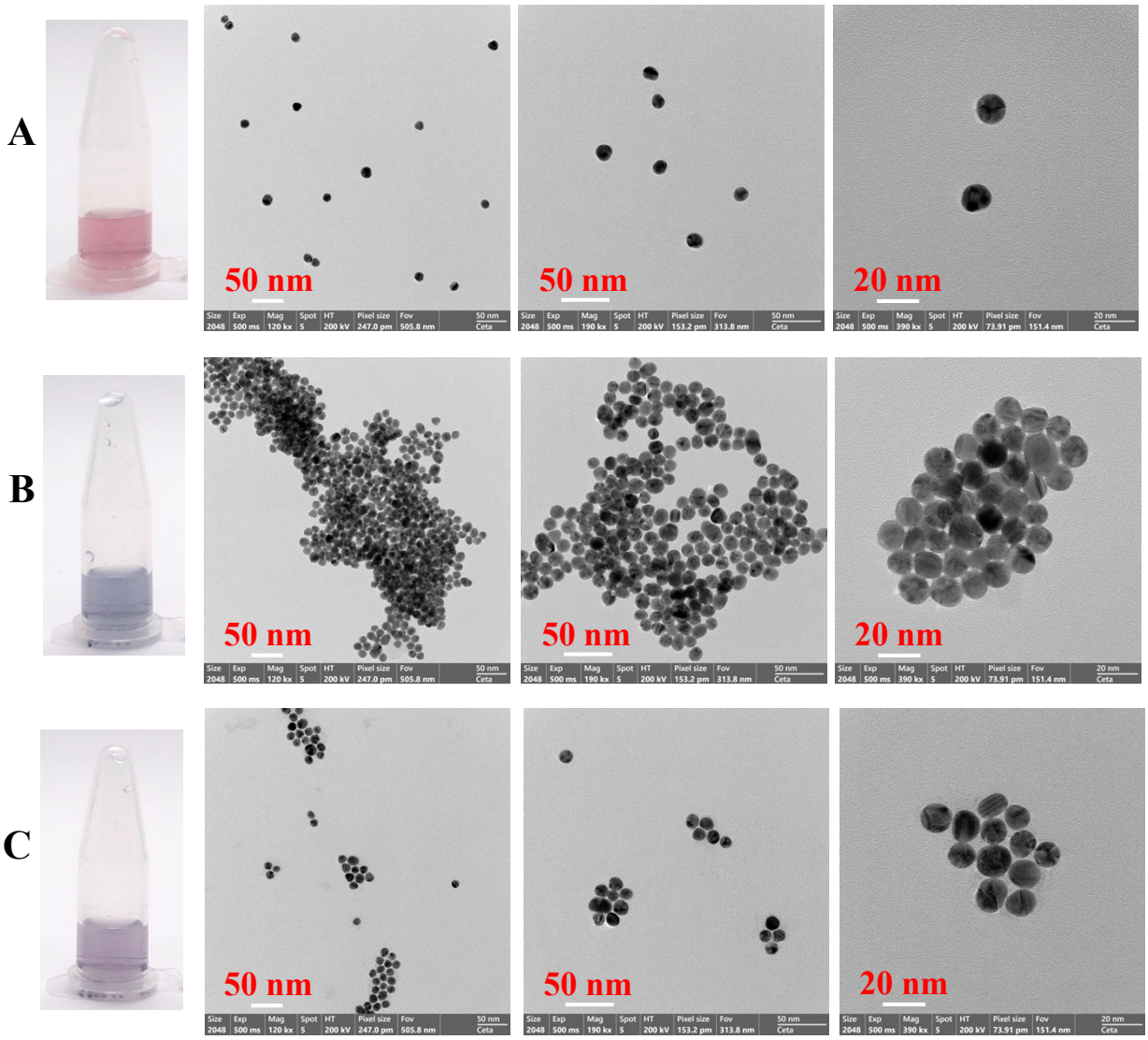

Fig. S1 Color and FE-TEM images of (A) AuNPs@Cyst without HCy (blank solution), (B) AuNPs@Cyst with HCy (aggregation) and (C) AuNPs@Cyst with HCy after heating at 90 °C for 10 min (de-aggregation). Magnitudes of FE-TEM were 120 kx, 190 kx and 390 kx, respectively.

Reference

1 S. Mandal, A. Gole, N. Lala, R. Gonnade, V. Ganvir and M. Sastry, *Langmuir*, 2001, **17**, 6262–6268.