Electronic Supplementary Information

An aggregation-induced emission-based fluorescence turn-on probe for Hg$^{2+}$ and its application to detect Hg$^{2+}$ in food samples

Lijun Tang, a,* Haili Yu, a Keli Zhong, a Xue Gao, b Jianrong Li b,*

a College of Chemistry and Chemical Engineering, Bohai University, Jinzhou, 121013, China. E-mail: ljtang@bhu.edu.cn (L. Tang)
b College of Food Science and Technology, Bohai University; National & Local Joint Engineering Research Center of Storage, Processing and Safety Control Technology for Fresh Agricultural and Aquatic Products; The Fresh Food Storage and Processing Technology Research Institute of Liaoning Provincial Universities, Jinzhou, 121013, China. E-mail: lijr6491@163.com (J. Li)

Sample pretreatment

1. Pretreatment of shrimp and crab meat samples

Shrimp and crab were purchased from the supermarket and the meat was firstly treated with a digestion procedure. Each sample (0.5 g) was soaked overnight in a beaker with HNO$_3$ (10 mL) at room temperature, then mixture was heated to boil until it was completely dissolved. After cooling, the solution was centrifuged, and the supernatant was adjusted to pH = 7.4 with 1M NaOH solution, and constant the volume to 50 mL a 50 mL volumetric flask.

2. Pretreatment of tea samples

0.500 g of mashed tea was placed in a 100 mL beaker, to which 20 mL of concentrated nitric acid was added separately. The beaker was sealed with a plastic wrap and placed overnight. Then it was put in a microwave oven and digested 6h under 400 W of power. It was then placed in a fume hood to cool, and the supernatant was adjusted to pH = 7.4 with 1 M NaOH solution. Then the solution was transferred to a 100 mL volumetric flask and brought up to volume.
Supplementary figures

**Fig. S1.** Photograph of Tyndall phenomena of a CH₃OH/PBS (20 mM, pH = 7.4) (3:7, v/v) solution with (A) and without (B) compound 4 via illuminating with a laser pointer.

**Fig. S2.** Particle size distributions of compound 4 in CH₃OH/PBS (20 mM, pH = 7.4) (3:7, v/v) solution.

**Fig. S3.** The linear relationship between absorbance and TPE-M concentration in CH₃OH/PBS (20 mM, pH = 7.4) (3:7, v/v) solution.
Fig. S4. Particle size distributions of TPE-M in CH₃OH/PBS (20 mM, pH = 7.4) (3:7, v/v) solution before (A) and after (B) addition of Hg²⁺.

Fig. S5. Standard calibration curve of emission intensity of probe TPE-M against Hg²⁺ concentrations (0 to 15 μM) in CH₃OH/PBS (20 mM, pH = 7.4) (3:7, v/v) solution.
Fig. S6. HRMS (ESI+) spectrum of TPE-M+Hg^{2+}.

Fig. S7. $^1$H NMR spectrum of Compound 3 in DMSO-$d_6$. 
Fig. S8. $^{13}$C NMR spectrum of compound 3 in DMSO-$d_6$.

Fig. S9. HRMS (ESI+) spectrum of compound 3.
Fig. S10. $^1$H NMR spectrum of compound 4 in DMSO-$d_6$.

Fig. S11. $^{13}$C NMR spectrum of compound 4 in DMSO-$d_6$. 
Fig. S12. HRMS (ESI-) spectrum of compound 4.

Fig. S13. $^1$H NMR spectrum of probe TPE-M in DMSO-$d_6$. 
Fig. S14. $^{13}$C NMR spectrum of probe TPE-M in DMSO-$d_6$.

Fig. S15. HRMS (ESI+) spectrum of probe TPE-M.