## **Supporting information**

## A highly selective and sensitive fluorescence assay for determination of copper (II) and cobalt (II) ions in environmental water and toner samples

Chia-Yi Tsai and Yang-Wei Lin\*

Department of Chemistry, National Changhua University of Education, Changhua, Taiwan

E-mail: linyejerry@cc.ncue.edu.tw (Y.W.L.)



Figure S1. Fluorescence intensity of AUR oxidation product in the Tris-acetate buffer at (A) different pH values, (B) buffer systems, and (C) different concentrations of Tris-acetate buffer in the presence of ( $\Box$ ) Cu<sup>2+</sup> and ( $\overset{\text{m}}{=}$ ) Co<sup>2+</sup> ions (10  $\mu$ M) (n = 3).



Figure S2. Hydrodynamic diameter distributions of the (A) AUR–hydrogen peroxide– Cu(II) and (B) AUR–hydrogen peroxide–Co(II) systems in different buffer systems: (a) Tris-acetate, (b) glycine–NaOH, (c) Na<sub>3</sub>PO<sub>4</sub>–Na<sub>2</sub>HPO<sub>4</sub>, and (d) without buffer. Conditions: AUR concentration: 25  $\mu$ M, hydrogen peroxide concentration: 400  $\mu$ M, Cu(II) concentration: 10  $\mu$ M, Co(II) concentration: 10  $\mu$ M.



Figure S3. Effects of concentrations of (A)  $H_2O_2$  and (B) AUR on fluorescence intensity of AUR oxidation product in the presence of ( $\Box$ )  $Cu^{2+}(10 \ \mu M)$  and ( $\blacksquare$ )  $Co^{2+}$  ions (1.0  $\mu M$ ) (n = 3).



Figure S4. Linear responses of the fluorescence intensity plotted with respect to the concentration of  $Cu^{2+}$  and  $Co^{2+}$  ions spiked in the (A) lake and (B) pond water samples (n = 3).