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**ESI**

# CoOOH-induced synthesis of fluorescent polydopamine nanoparticles for the detection of ascorbic acid

Yan-Yan Zhao, Li Li, Ru-Qin Yu, Ting-Ting Chen* and Xia Chu*

State Key Laboratory of Chemo/Bio-Sensing and Chemometrics, College of Chemistry and Chemical Engineering, Hunan University, Changsha 410082, P. R. China

*Corresponding author. Tel.: 86-731-88821916; Fax: 86-731-88821916; E-mail: xiachu@hnu.edu.cn; chenting1104@hnu.edu.cn.

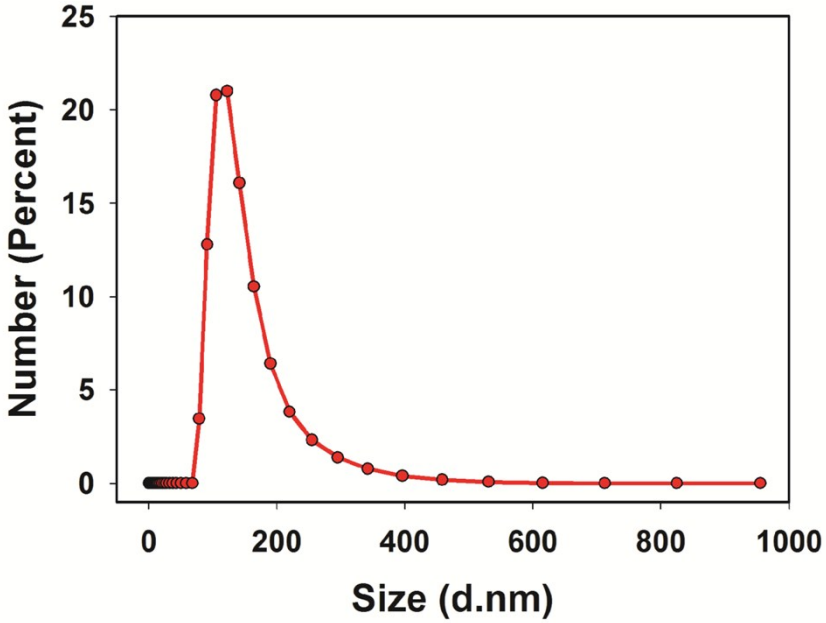


**Fig. S1** The Dynamic light scattering (DLS) of the prepared CoOOH nanosheets.

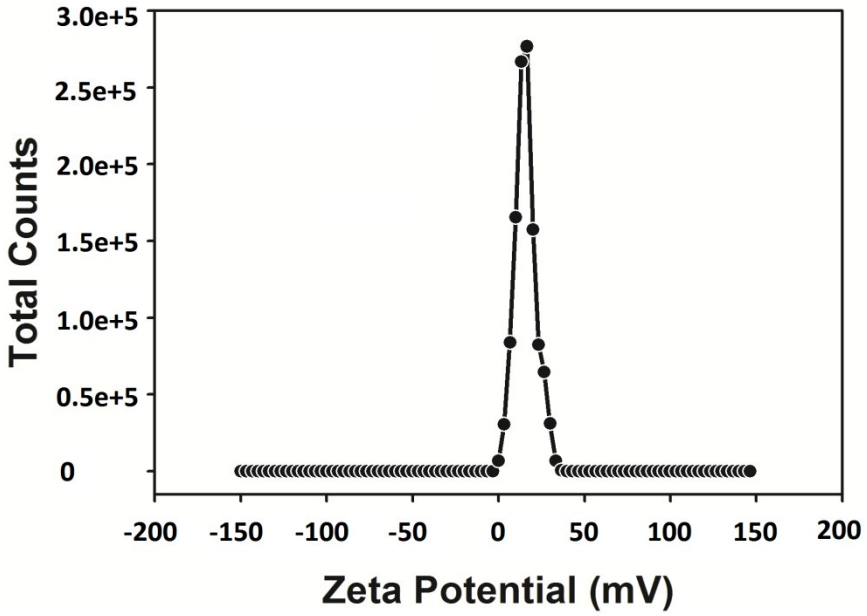


**Fig. S2** Values of the ζ potential for CoOOH nanosheets.

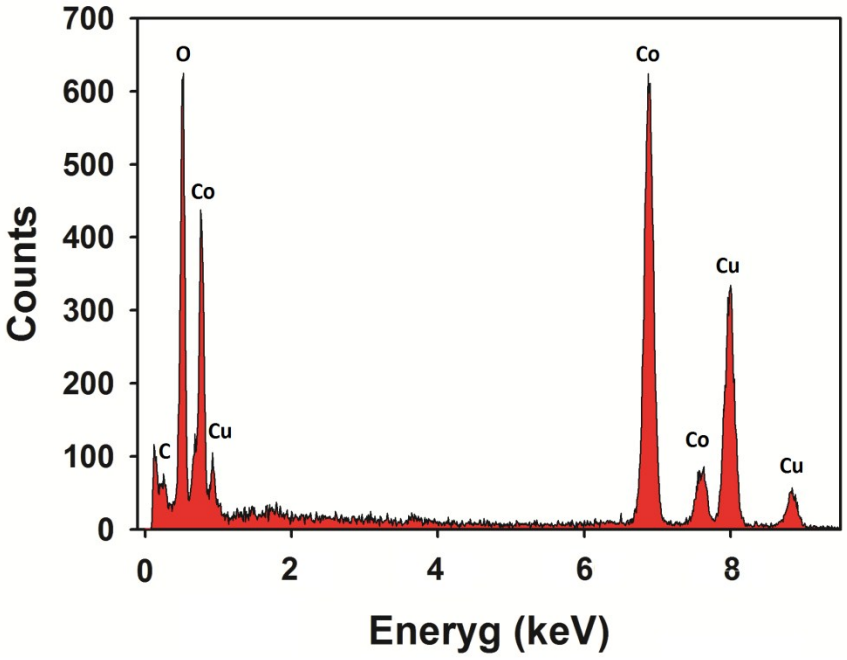


**Fig. S3** Compositional analysis of the CoOOH nanosheets by Energy dispersive X-ray spectroscope (EDS) spectra.

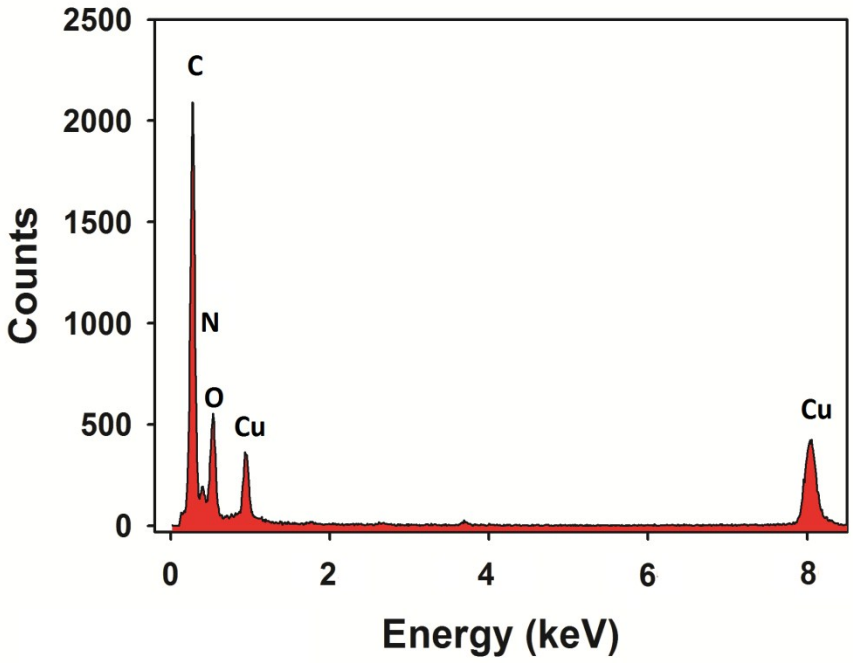


**Fig. S4** Compositional analysis of the fluorescent PDA nanoparticles by EDS.

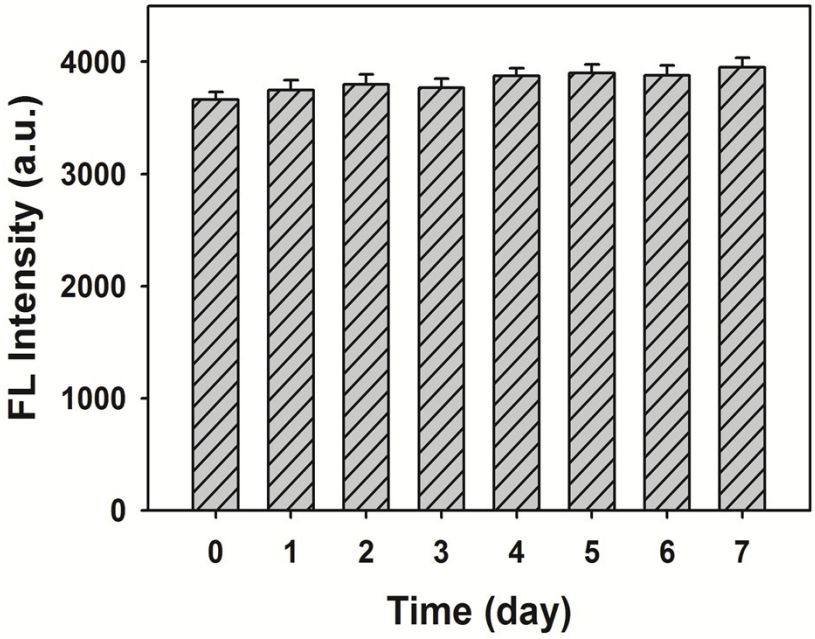


**Figure. S5** The PL intensity of the synthesized fluorescent PDA nanoparticles during seven days.

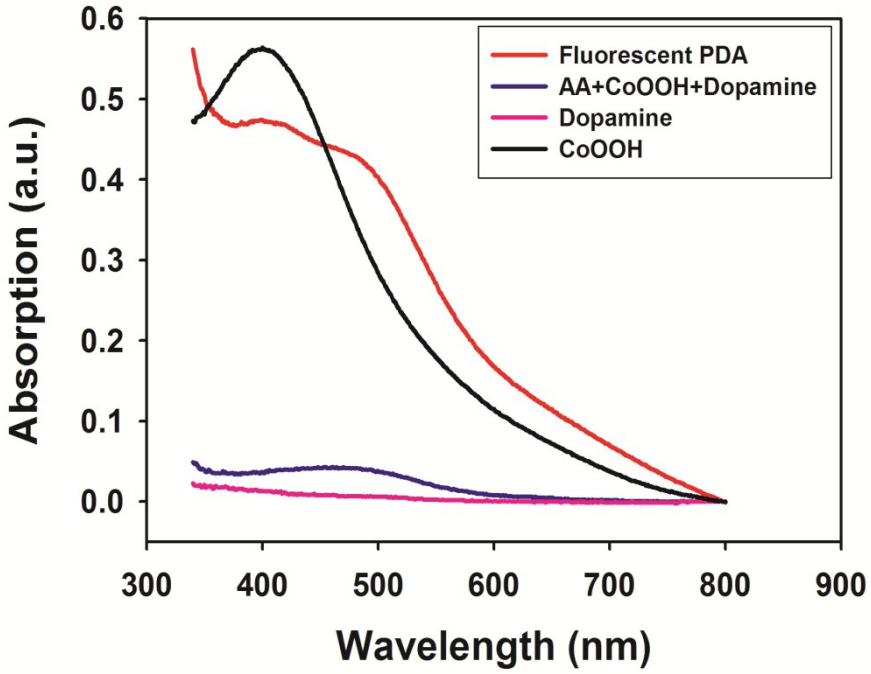


**Fig. S6** The UV-vis absorption spectrum of the sensing in the presence of various things. (Fluorescent PDA, red line; 600 μM AA + 90 μg $mL^{-1}$ CoOOH + 2.5 mM Dopamine, blue line; 90 μg $mL^{-1}$ CoOOH, black line; 2.5 mM Dopamine, pink line).

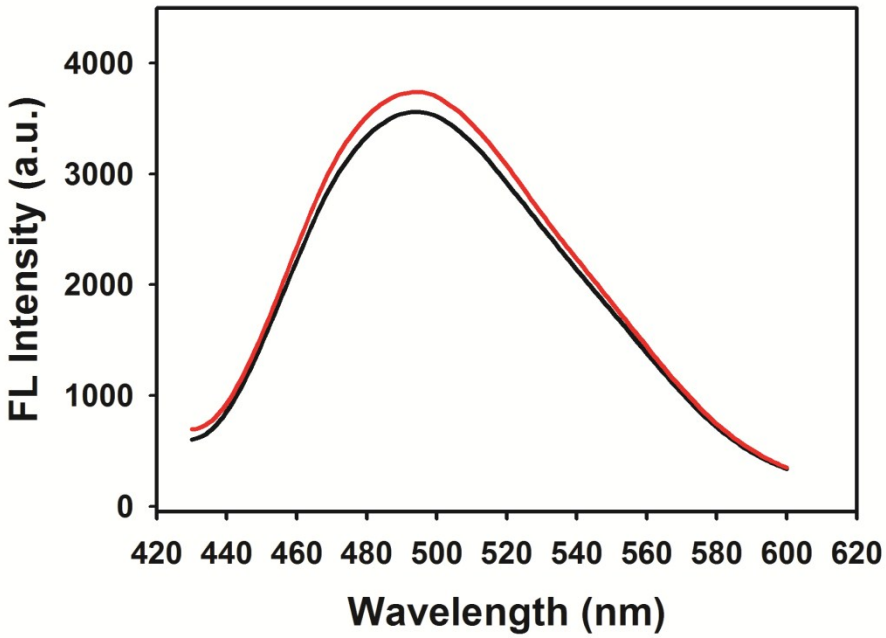


**Figure. S7** The PL intensity of the synthesized fluorescent PDA nanoparticles (black line), fluorescent PDA nanoparticles + AA (red line).

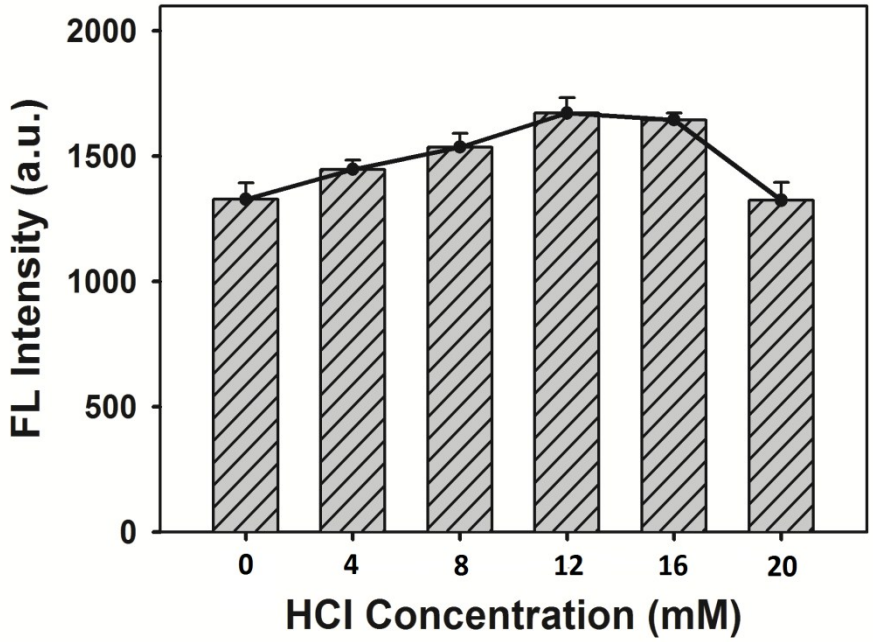


**Fig. S8** The PL intensity of the fluorescent PDA nanoparticles at 495 nm with various HCl concentration (0-20 mM). Conditions: 60 μg $mL^{-1}$ CoOOH; 2.5 mM Dopamine; reaction time: 30 min. Error bars were calculated from three repetitive experiments.

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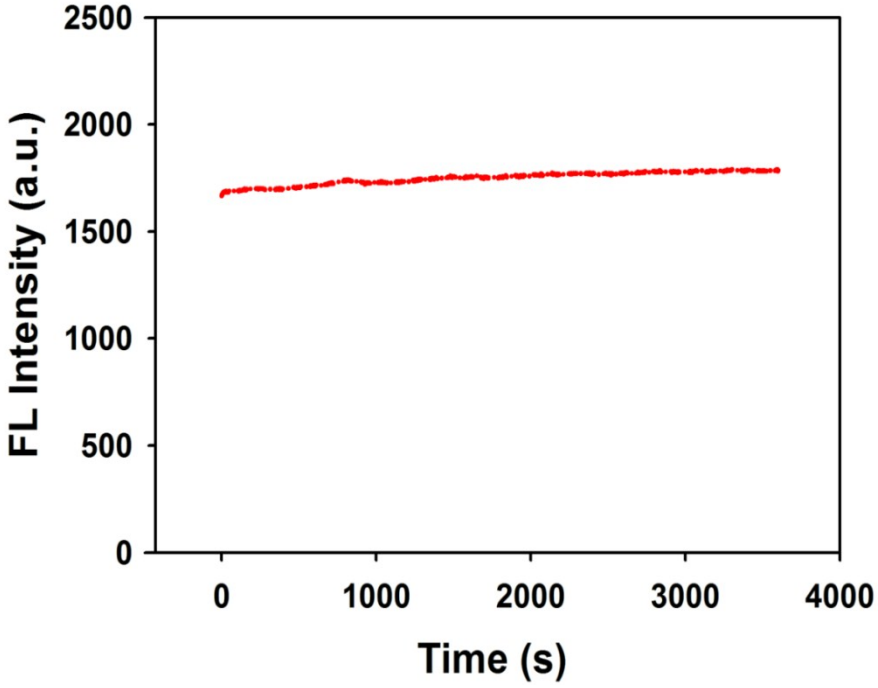


**Fig. S9** Time-dependent PL intensity of the fluorescent PDA nanoparticles after adding HCl.

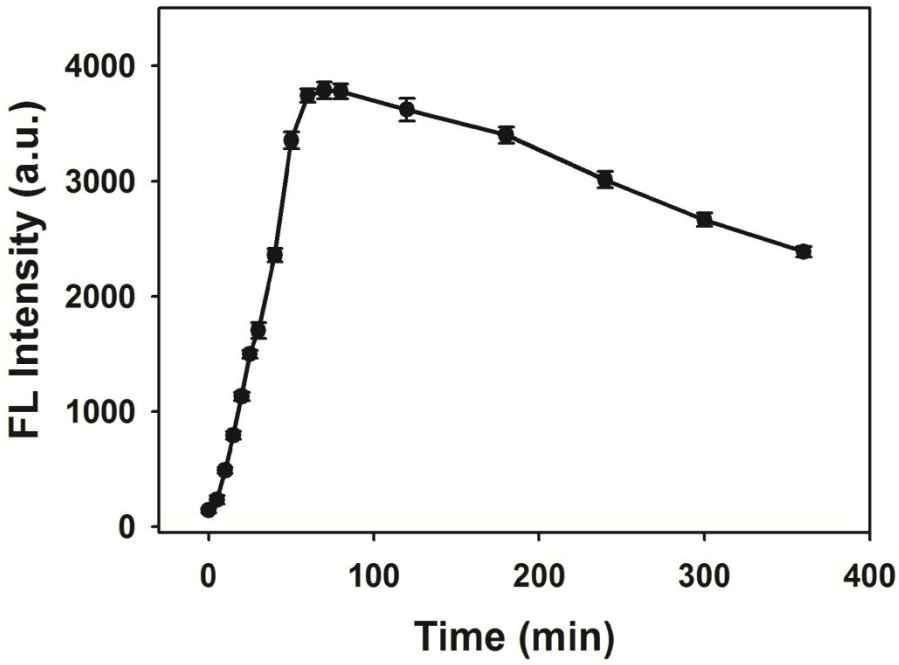


**Fig. S10** The fluorescence intensity of the fluorescent PDA nanoparticles with different synthesis time. Conditions: 90 μg $mL^{-1}$ CoOOH; 2.5 mM Dopamine; 12 mM HCl.

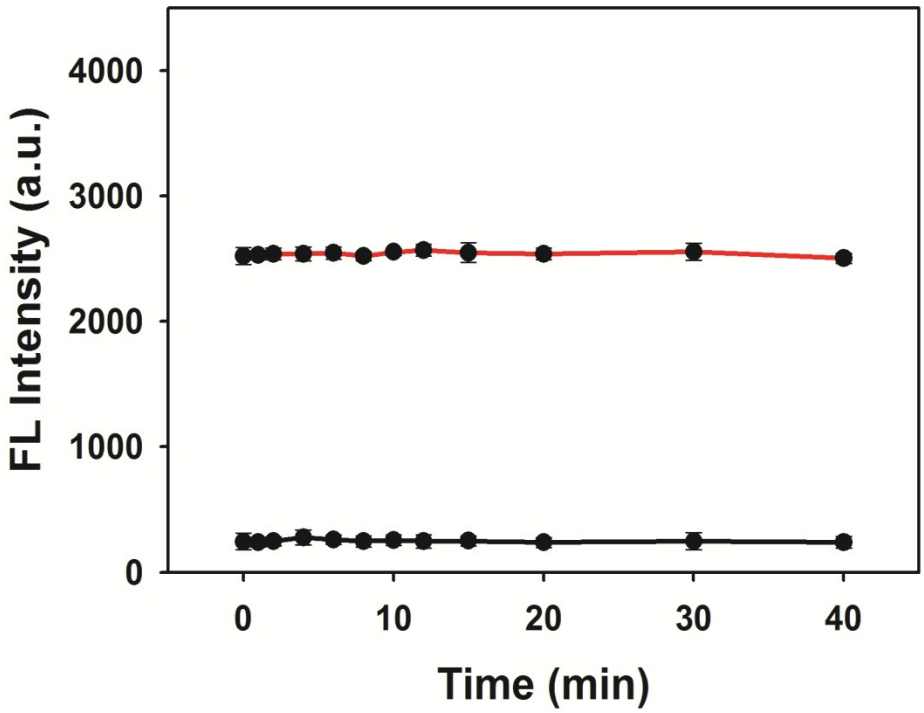


**Fig. S11** Time dependence of fluorescence intensity at 495 nm for the fluorescent PDA nanoparticles in the presence of AA (600 μM, black line; 200 μM, red line). Error bars are standard deviation of three repetitive experiments.

**Table S1** An overview on recently reported methods for the detection of AA.

| Meterials used | Method applied | Detection range | Limit of detection | Reference |
|---|---|---|---|---|
| g-$C_3N_4$ nanosheets | Fluorescence | 0.5-200 μM | 0.13 μM | S1 |
| Au nanoclusters | Fluorescence | 5-100 μM | 5 μM | 6 |
| GQDs | Fluorescence | 1-30 μM | 270 nM | S2 |
| silver nanoclusters | colorimetric | 2-50 μM | 0.16 μM | S3 |
| GSH-AuNCs | Fluorescence | 5-100 μM | 5 μM | S4 |
| MCM-41/GCE | Electrochemical | 40-4000 μM | 10 μM | S5 |
| PANI modified SPCE | Electrochemical | 30–270 μM | 30 μM | S6 |
| Fluorescent PDA | Fluorescence | 20-500 μM | 4.8 μM | This work |

**Table S2** Determination of the concentration of AA in human serum without adding NEM.

| Sample | Added (μM) | Found (μM) | Recovery(%) | RSD (n=3) |
|---|---|---|---|---|
| 1 | 20.0 μM | 26.9μM | 134.5 | 6.3% |
| 2 | 80.0 μM | 87.6 μM | 109.5 | 4.5% |
| 3 | 100.0 μM | 107.1 μM | 107.1 | 3.9% |

## References

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