

## Supplementary information

### Turning waste into treasure: chicken eggshell membrane derived fluorescent carbon nanodots for rapid and sensitive detection of Hg<sup>2+</sup> and glutathione

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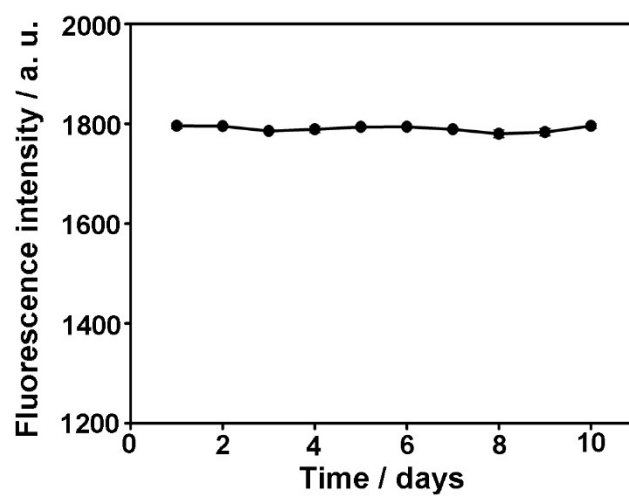
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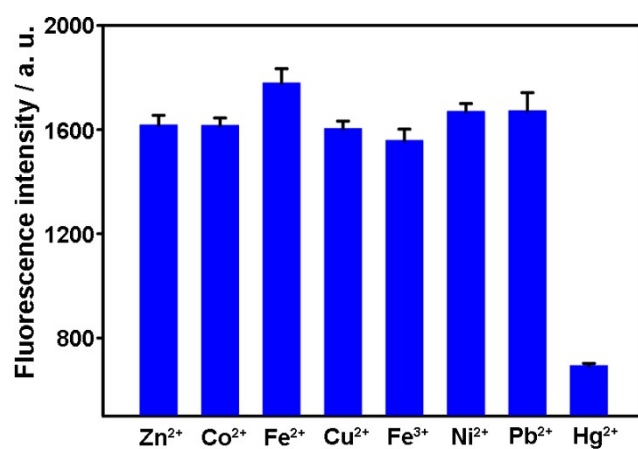
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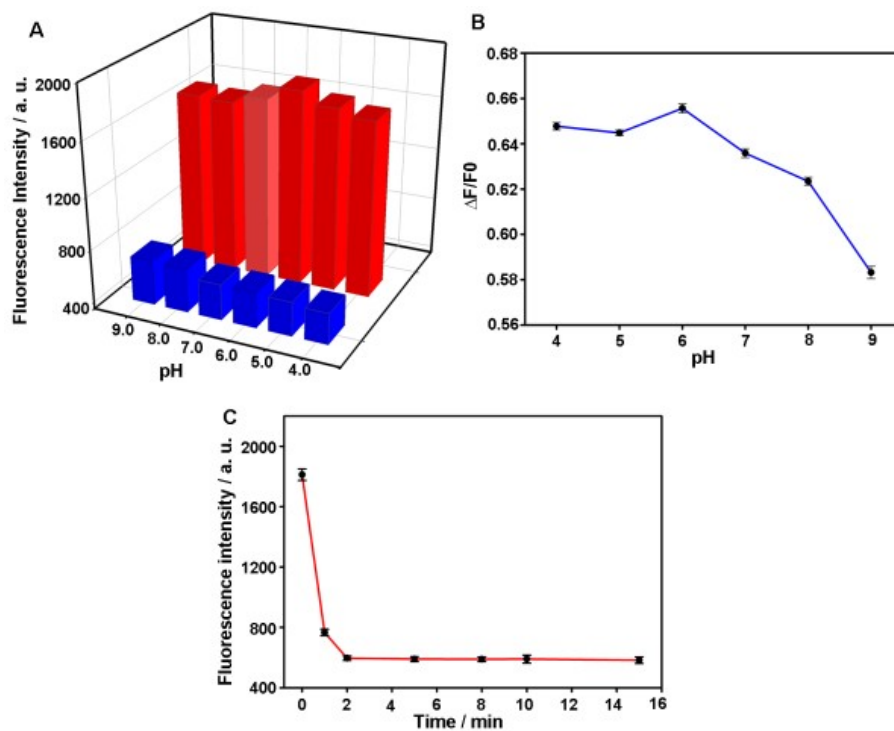
Supporting Figures S1-4, TableS1.



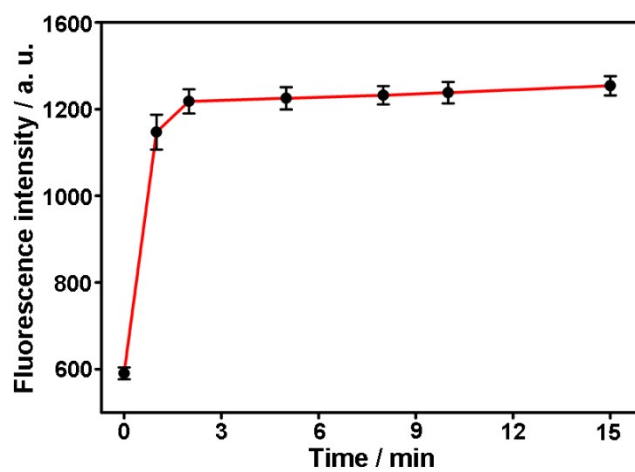
**Fig. S1** The stability of the as-prepared C-Dots.



**Fig. S2** Fluorescence intensities of C-Dots in the presence of 20 μM of Zn<sup>2+</sup>, Co<sup>2+</sup>, Fe<sup>2+</sup>, Fe<sup>3+</sup>, Ni<sup>2+</sup>, Pb<sup>2+</sup>, Hg<sup>2+</sup>. The error bars stand for the standard deviation of three repetitive experiments.



**Fig. S3** (A) Fluorescence intensities of C-Dots and C-Dots-Hg system under various pH values; (B)  $\Delta F/F_0$  of the C-Dots-Hg system under various pH values. (C) Fluorescence intensities of C-Dots-Hg system with different incubation times. The concentration of  $\text{Hg}^{2+}$  is  $50 \mu\text{M}$ . The error bars stand for the standard deviation of three repetitive experiments.



**Fig. S4** Fluorescence intensities of C-Dots-Hg system in the presence of 20  $\mu\text{M}$  GSH with different incubation times. The concentration of  $\text{Hg}^{2+}$  is 50  $\mu\text{M}$ . The error bars stand for the standard deviation of three repetitive experiments.

**Table S1** Comparison of various GSH assays based on C-Dots that are derived from other carbon sources.

Different carbon sources	Detection range ( $\mu\text{M}$ )	LOD (M)	Reference
Ascorbic acid derived C-Dots		$1.5 \times 10^{-5}$	1
Soluble starch derived C-Dots	0.5-100	$3.5 \times 10^{-7}$	2
<i>Tamarindus indica</i> leaves derived C-Dots	0-20	$1.7 \times 10^{-6}$	3
4,7,10-trioxa-1,13-tridecanediamine derived C-Dots	30-400	$4.6 \times 10^{-7}$	4
Sodium citrate derived C-Dots	0-10	$2 \times 10^{-8}$	5
Eggshell derived C-Dots	0.05-10	$9.8 \times 10^{-9}$	This work

**Reference:**

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