Electronic Supplementary Information

One-pot synthesis of active copper-containing carbon dots with laccase-like activities

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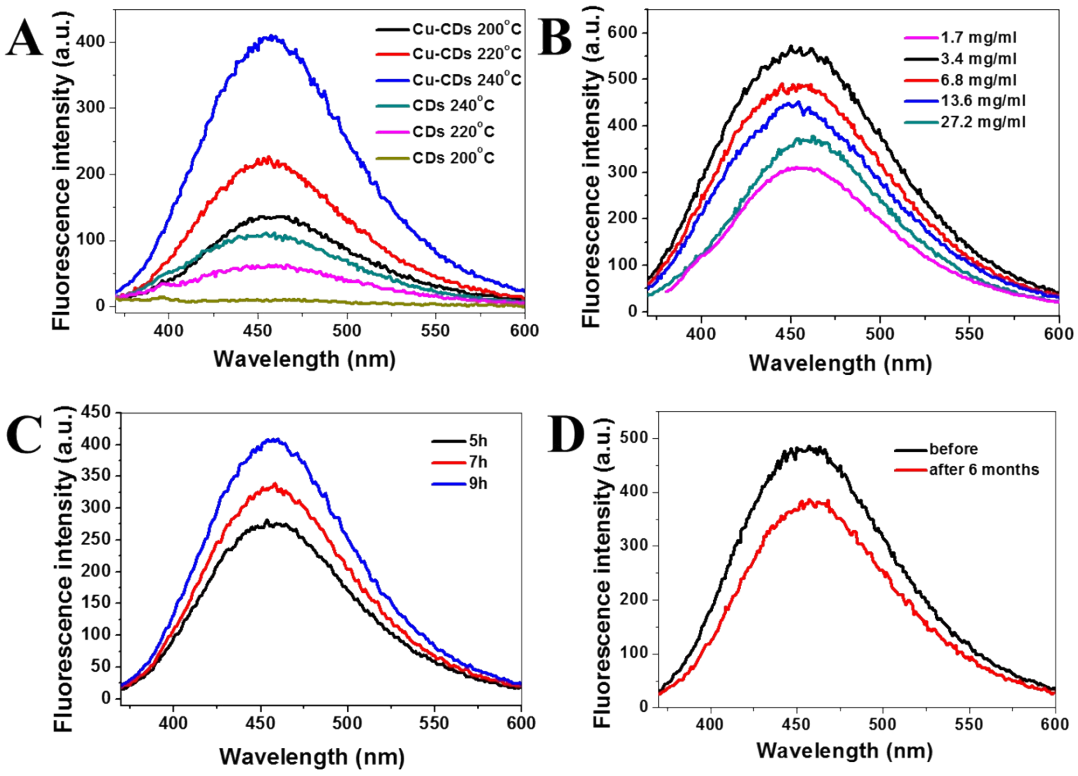

Figure S1. (A) Fluorescence emission spectra of Cu-CDs and CDs with different temperature. (B) Fluorescence emission spectra of Cu-CDs with different amount of copper ions. (C) Fluorescence emission spectra of Cu-CDs with different reaction time. (D) Fluorescence emission spectra of Cu-CDs kept in room temperature for 6 months.

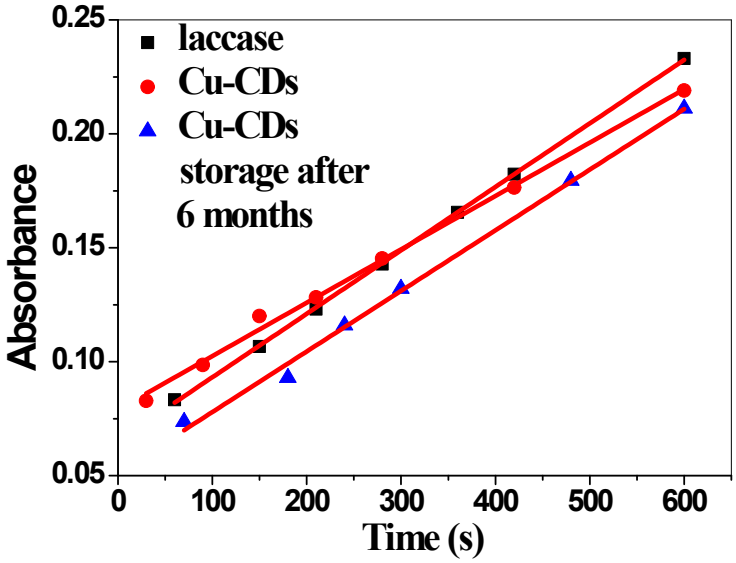

Figure S2. Time-dependent absorbance changes at 495 nm of 10mM PPD in laccase (0.3U) solution, Cu-CDs (100 μL) solution and Cu-CDs (100 μL) solution storage in room temperature for 6 months.

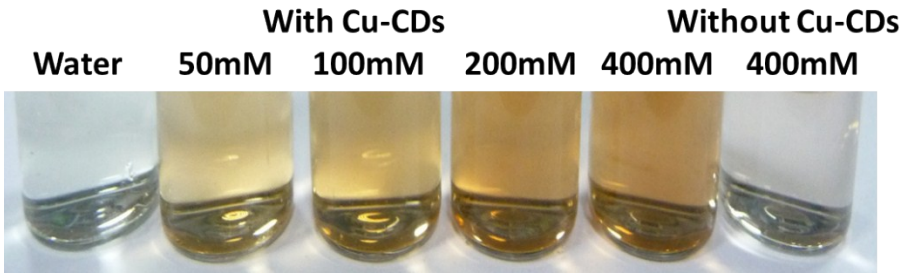

Figure S3. Photographs of the Cu-CDs solutions in the presence of varying concentrations of HQ.

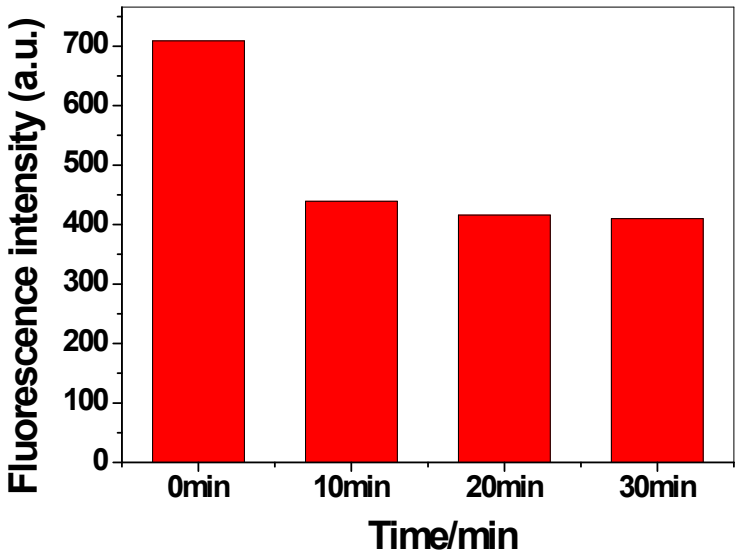

Figure S4. Time-dependent fluorescence changes of Cu-CDs in the presence of 20 mM HQ.

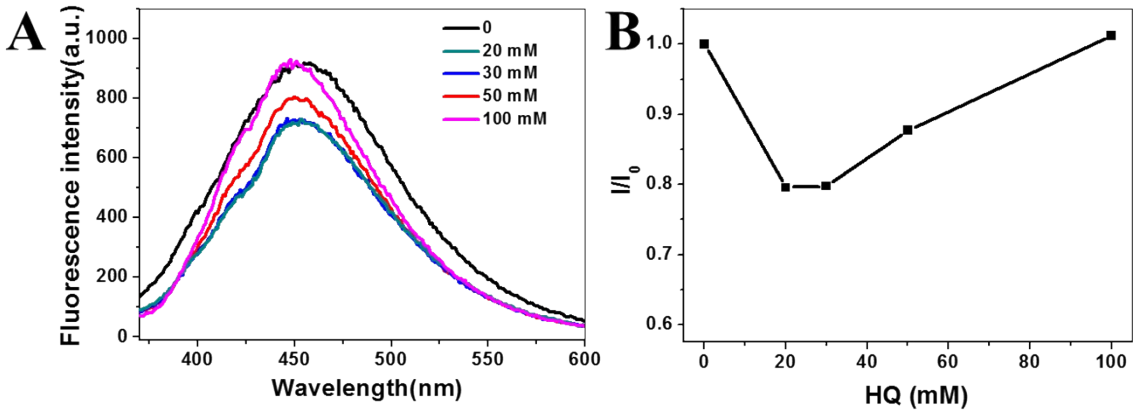

Figure S5. (A) Fluorescence changes of CDs in the presence of different concentrations of HQ in phosphate buffer (pH=7.0). (B) Relative fluorescence intensity of CDs versus the concentration of HQ in phosphate buffer (pH=7.0).

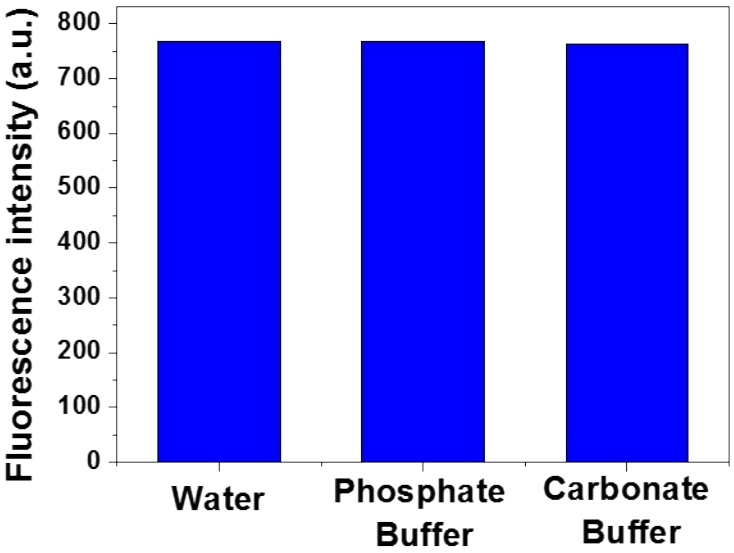

Figure S6. Fluorescence changes of Cu-CDs in water, phosphate buffer (pH=7.0) and carbonate buffer (pH=9.2).

Table S1. The different methods for the determination of HQ.

Materials	Methods	Linear range	LOD	Reference
---	**HPLC**	**0.046 mM-1.85mM**	**2.59 μM**	**S. P. Wang et al. [1]**
---	**MEKC [a]**	**0.046 mM-5.55mM**	**2.96 μM**	
LDHf [b]	**Electrochemistry**	**3.2 μM -2.4 mM**	**1 μM**	**M. G. Li et al. [2]**
SiO_2/C/Nb_2O_5	**Electrochemistry**	**0.16 mM-1.3 mM**	**1.6 μM**	**T. C. Canevari et al. [3]**
TiO_2/MWCNTs [c]	**Electrochemistry**	**2.5 μM -0.2 mM 0.4 mM-2.0 mM**	**0.8 μM**	**Z. C. Meng et al. [4]**
Poly(3-aminophenylboronic acid)/MWCNTs [c]	**Electrochemistry**	**0.5 μM -0.04 mM**	**0.2 μM**	**M. Zhong et al. [5]**
Cu-CDs	**Fluorescence**	**0.05 mM-2 mM 1 mM-30 mM**	**1 μM**	**This paper**

[a] Micellar electrokinetic chromatography;
[b] Zn/Al layered double hydroxide film;
c Multi-wall carbon nanotubes;

[1] S. P. Wang and T. H. Huang, *Anal. Chim. Acta.,* 2005, **534**, 207-214.

[2] M. G. Li, F. Ni, Y. L. Wang, S. D. Xu, D. D. Zhang, S. H. Chen and L. Wang, *Electroanalysis,* 2009, **21**, 1521-1526.

[3] T. C. Canevari, L. T. Arenas, R. Landers, R. Custodio and Y. Gushikem, *Analyst,* 2013, **138,** 315-324.

[4] Z. C. Meng, H. F. Zhang and J. B. Zheng, *Res. Chem. Intermed.*, 2015, **41**, 3135-3146.

[5] M. Zhong, Y. L. Dai, L. M. Fan, X. J. Lu and X. W. Kan, *Analyst*, 2015, **140**, 6047-6053.