Electronic Supplementary Information

For

Carbon dots derived from tobacco for visually distinguishing and detecting three kinds of tetracyclines

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Figures:

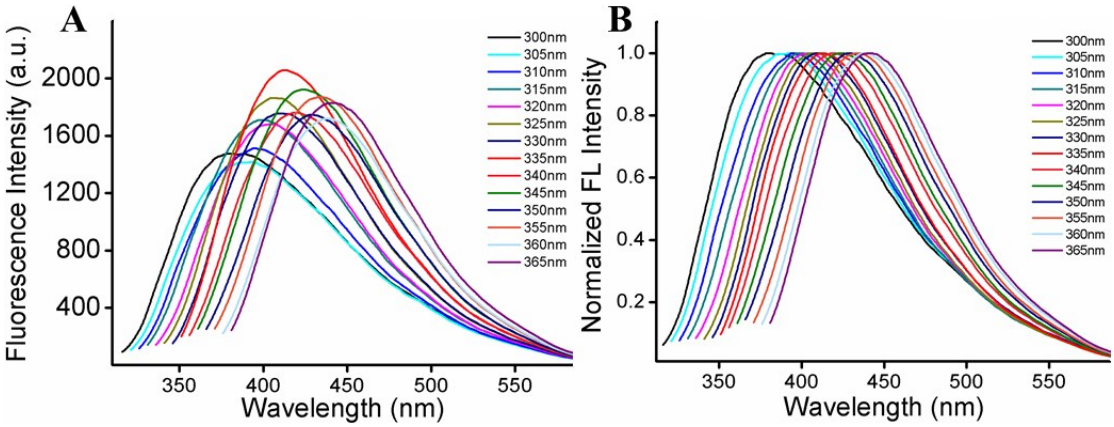

Figure S1. (A) Emission spectra of CDs by varying excitation wavelengths; (B) Normalized emission spectra of CDs by varying excitation wavelengths from 300 to 365 nm.

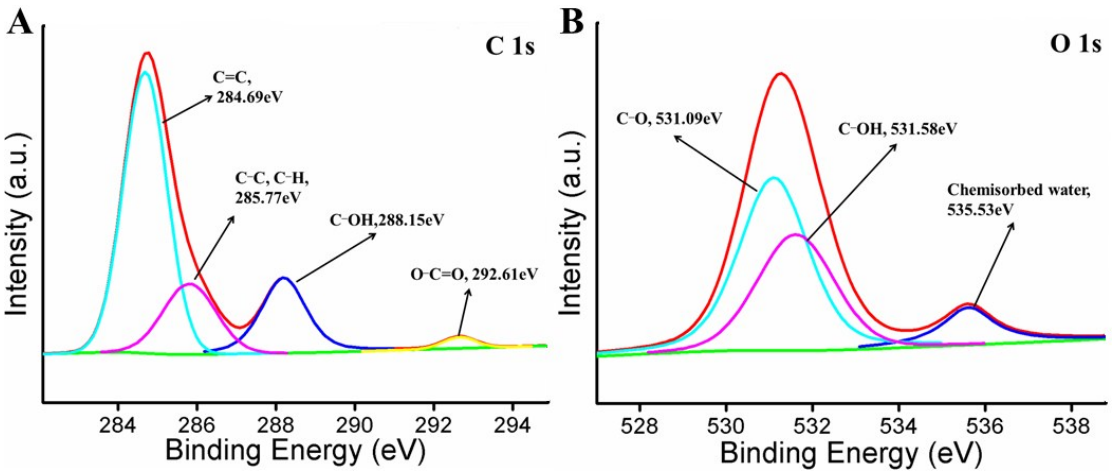

Figure S2. (A) C 1s of XPS spectra of the as-synthesized CDs; (B) O 1s of XPS spectra of the as-synthesized CDs.

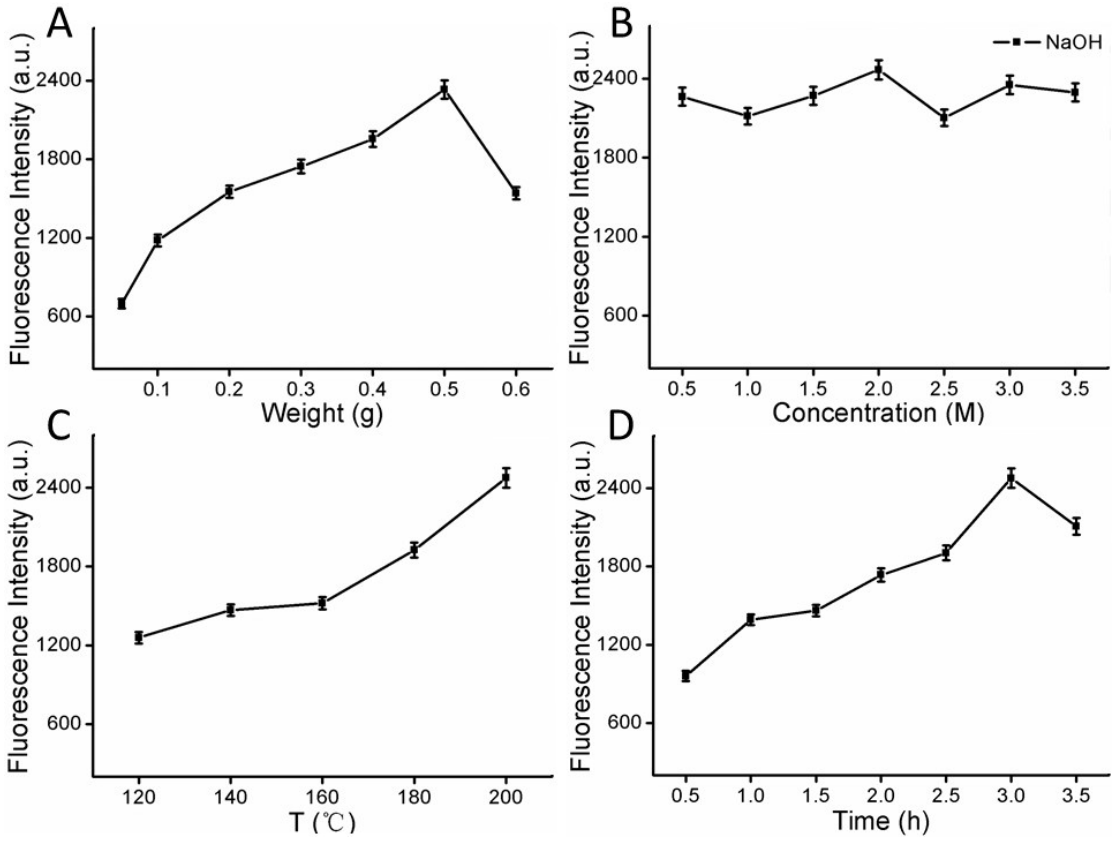

Figure S3. (A) Varying weight of tobacco, (B) concentrations of NaOH, (C) different reaction temperature and (D) time for synthesizing CDs.

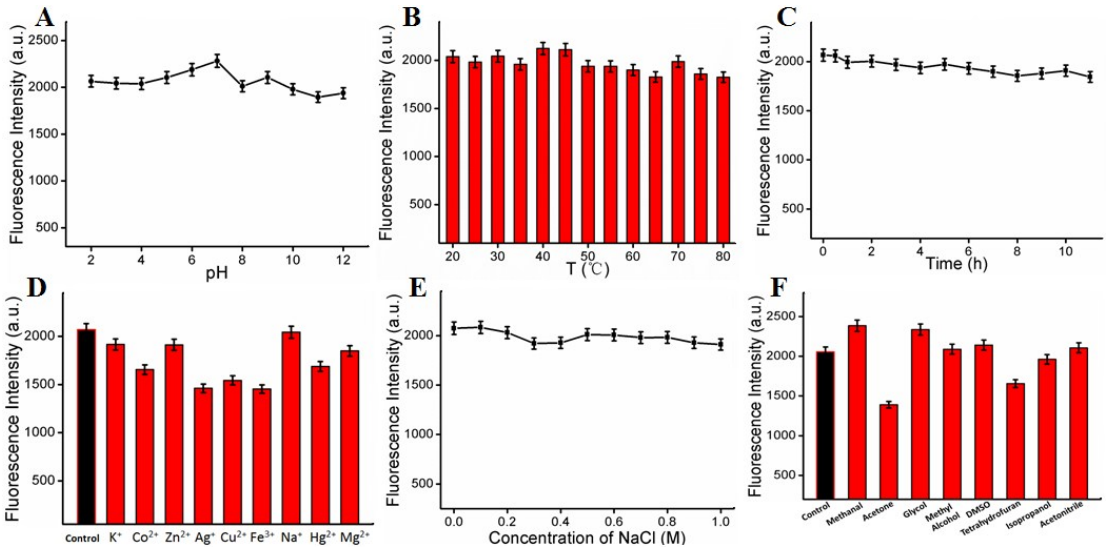

Figure S4. (A) Stability of CDs with different pH (varying from 2 - 12); (B) Stability effected by different temperature (varying from 20 ℃ to 80 ℃); (C) The fluorescence intensity with time lapse; (D) Fluorescence intensities of CDs by adding kinds of metal ions; (E) Effect of different concentrations of NaCl on the fluorescence of CDs (range from 0.1 M to 1.0 M); (F) Fluorescence intensities of CDs in various organic solvents.

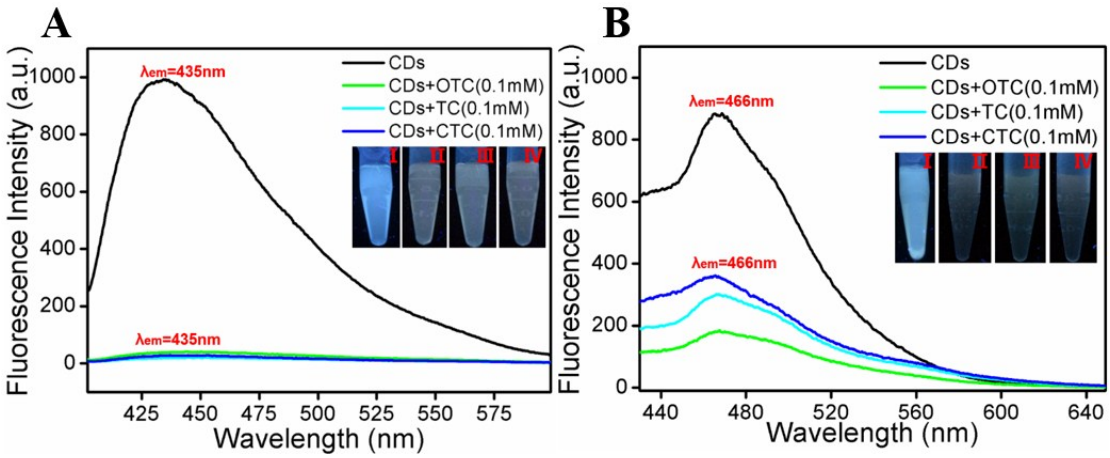

Figure S5. Response of the CDs derived from the rose (A) flowers and cysteine (B) on three TCs.

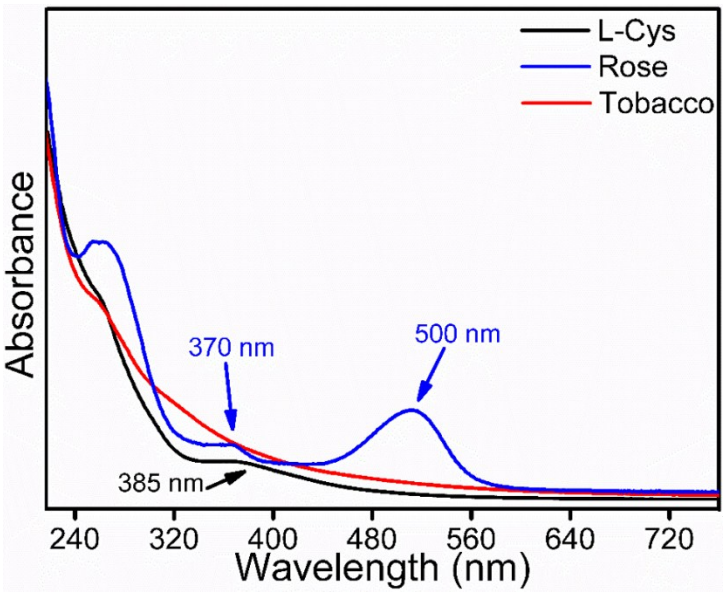

Figure S6. UV-vis spectra of CDs originated from L-Cys, Rose flowers and tobacco.

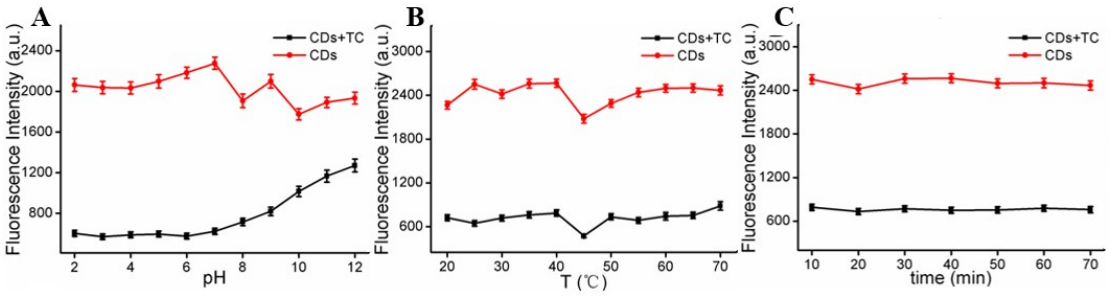

Figure S7. Effect of varying pH (A), temperature (B) and time (C) on the fluorescence quenching of the as-prepared CDs by TC.

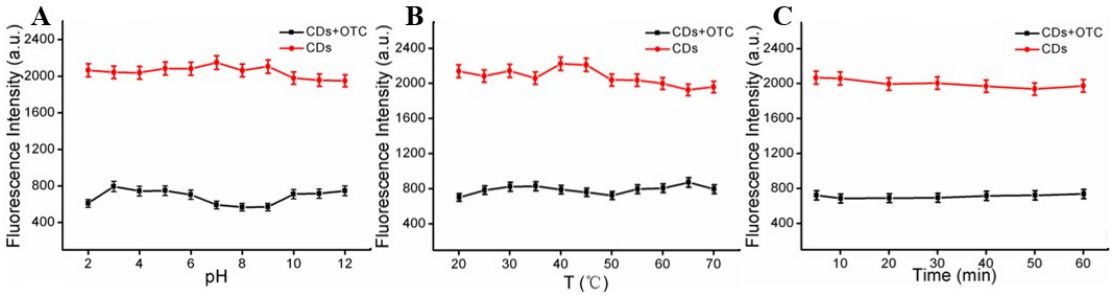

Figure S8. Effect of varying pH (A), temperature (B) and time (C) on the fluorescence of the as-prepared CDs for assaying OTC.

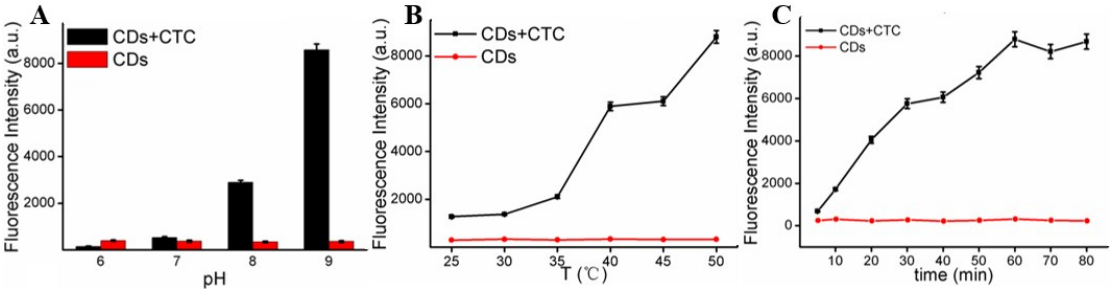

Figure S9. Effect of varying pH (A), temperature (B) and time (C) on the fluorescence of the as-prepared CDs for assaying CTC.

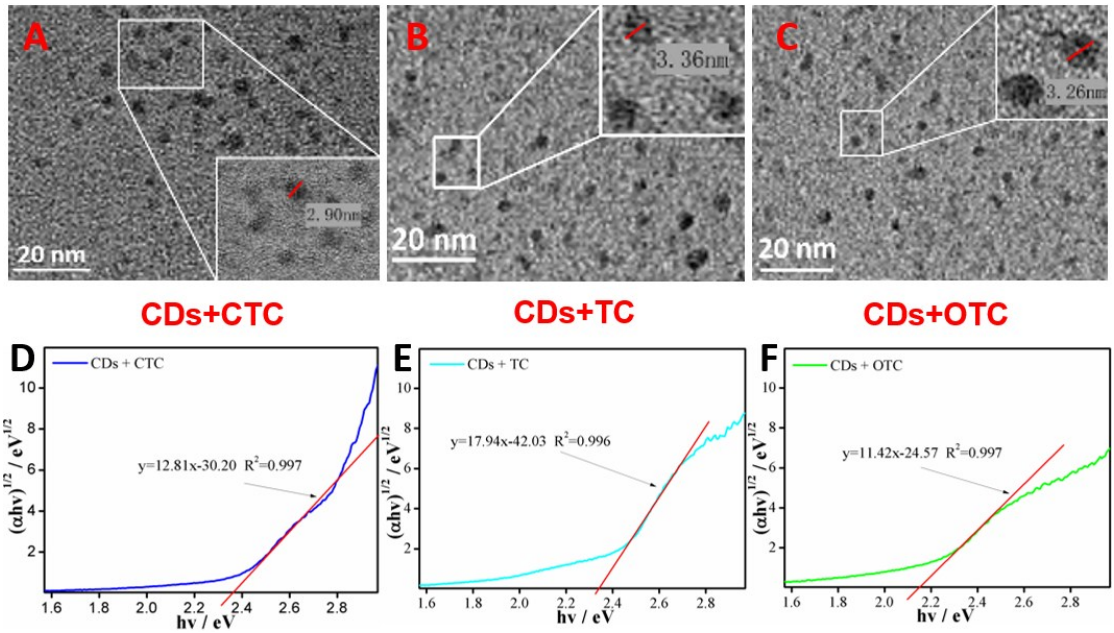

Figure S10. HR-TEM images of CDs with CTC (A), CDs with TC (B) and CDs with OTC (C); Plot of $(\alpha hv)^{1/2}$ versus hv of the CDs with CTC (D), CDs with TC (E) and CDs with OTC (F).

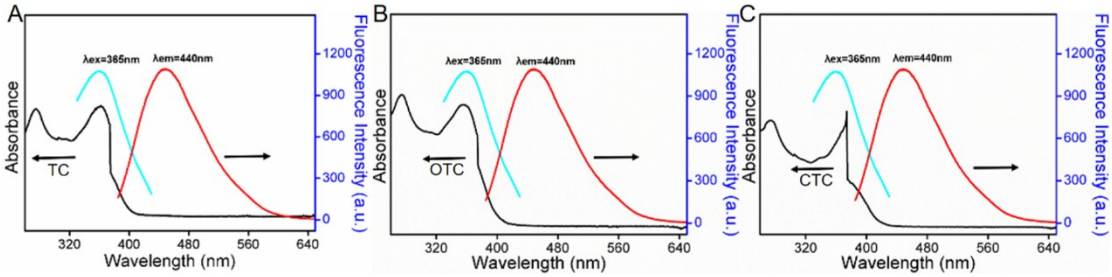

Figure S11. The UV-vis absorption spectra of TCs and the fluorescence of CDs.

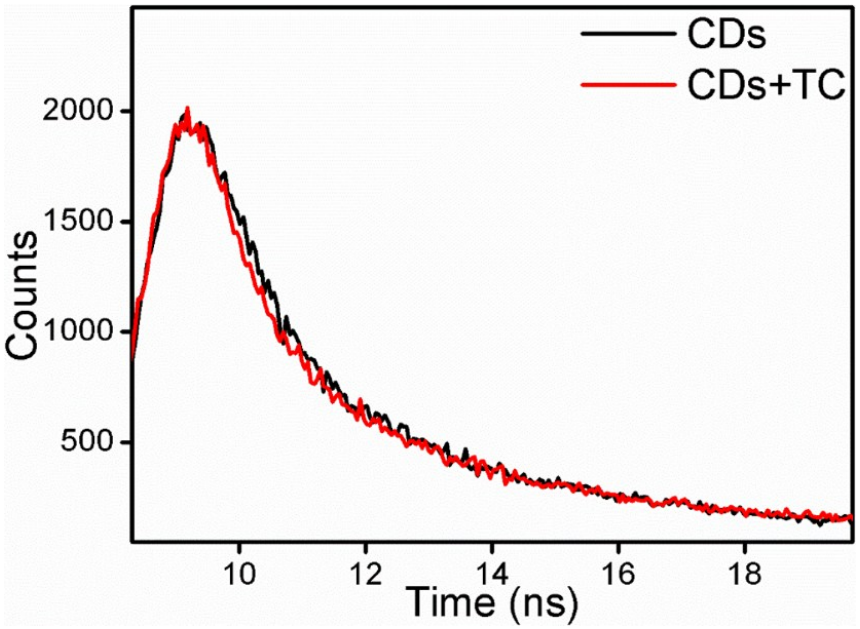

Figure S12. The fluorescence decay curves of CDs in the absence and presence of TC under excitation of 330 nm.

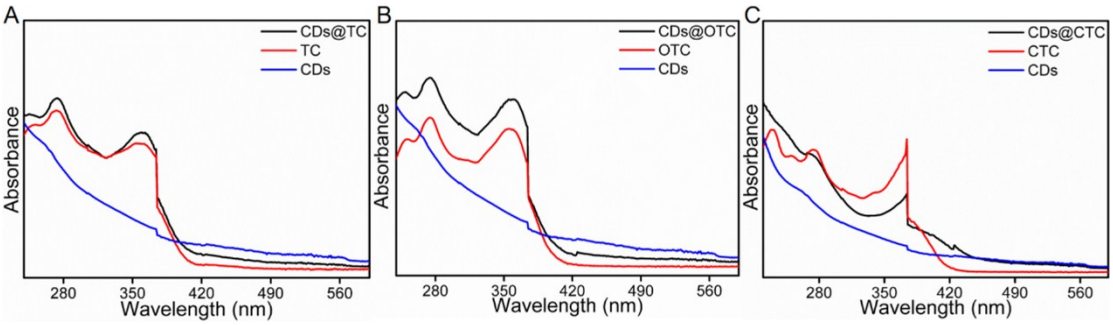

Figure S13. The UV-vis absorption spectra of CDs, CDs, CDs@TC(A), CDs@OTC(B), CDs@CTC(C).

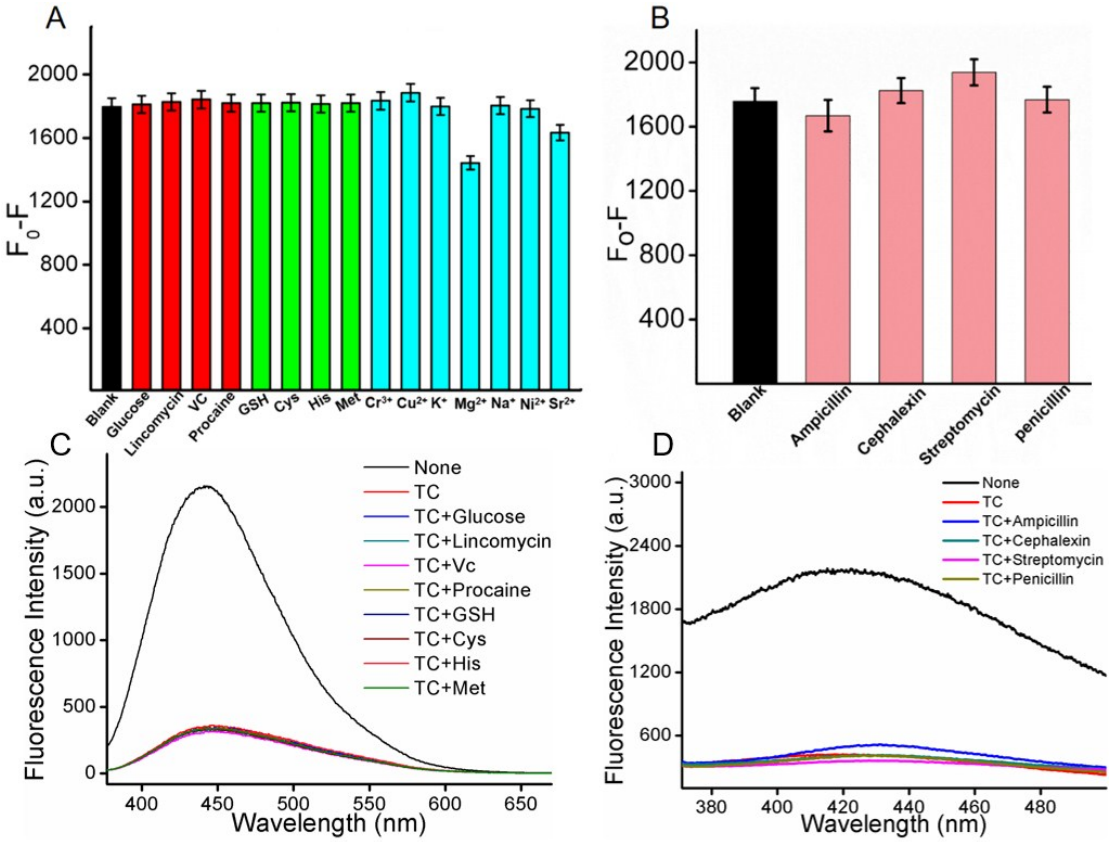

Figure S14. Influence by various interferences (Glucose, Lincomycin, Vc, Procaine, GSH, Cys, His, Met (5 mg/mL for each), Cr^{3+}, Cu^{2+}, K^+, Mg^{2+}, Na^+, Ni^{2+}, Sr^{2+}, each for 10^{-4} M) and the similar species (Ampicillin, Cephalexin, Streptomycin and Penicillin 5 mg/mL for each) on the fluorescence intensity (A and B) and fluorescence spectra variation (C and D) of CDs with Tetracycline.

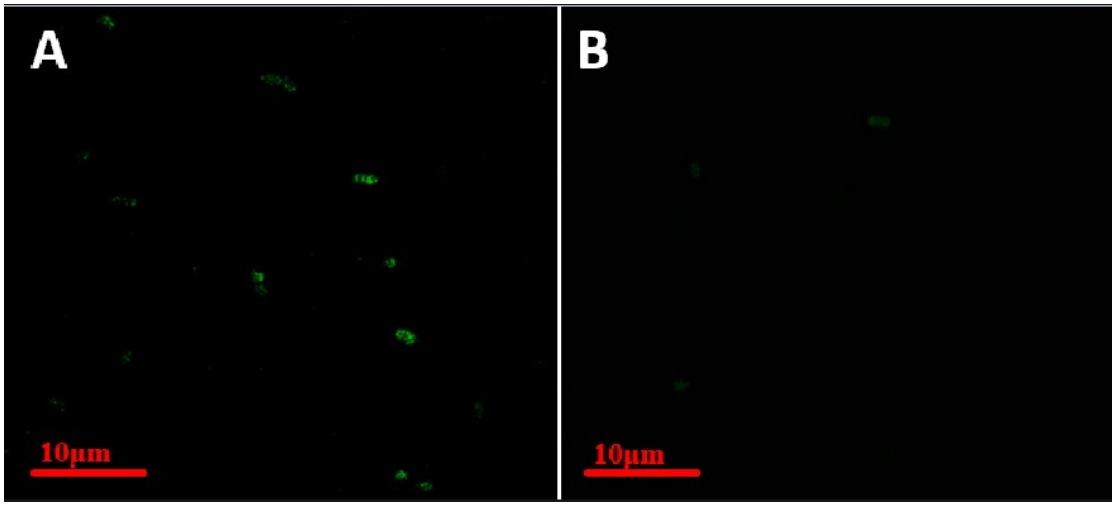

Figure S15. Confocal fluorescence images of bacterial cells incubated with CDs (A) or CDs@TC (B) for 2 hours. All images were obtained with excitation of 448 nm, and the fluorescence was collected in the green region.