Electronic Supplementary Material (ESI) for Journal of Materials Chemistry C.

Supplementary Information

Yellow-Emitting Carbon Dots Impregnated Carboxy Methyl Cellulose/Poly-vinyl-alcohol and Chitosan: Stable, Free-Standing, Enhanced Quenching for Cu^{2+} ions Sensor

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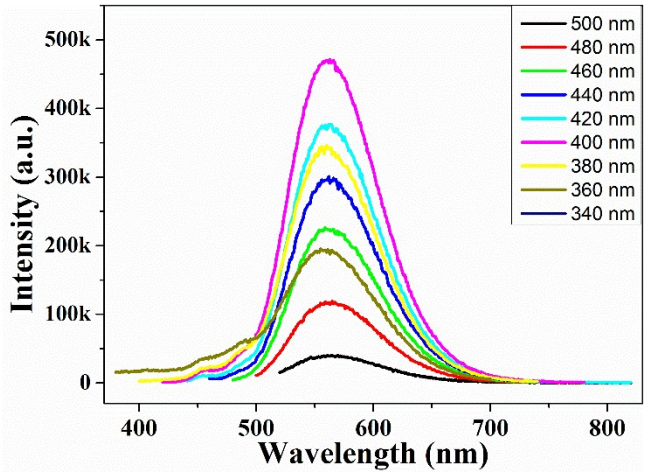

Figure S1. Excitation-independence spectra of y-CDs in aqueous solution.

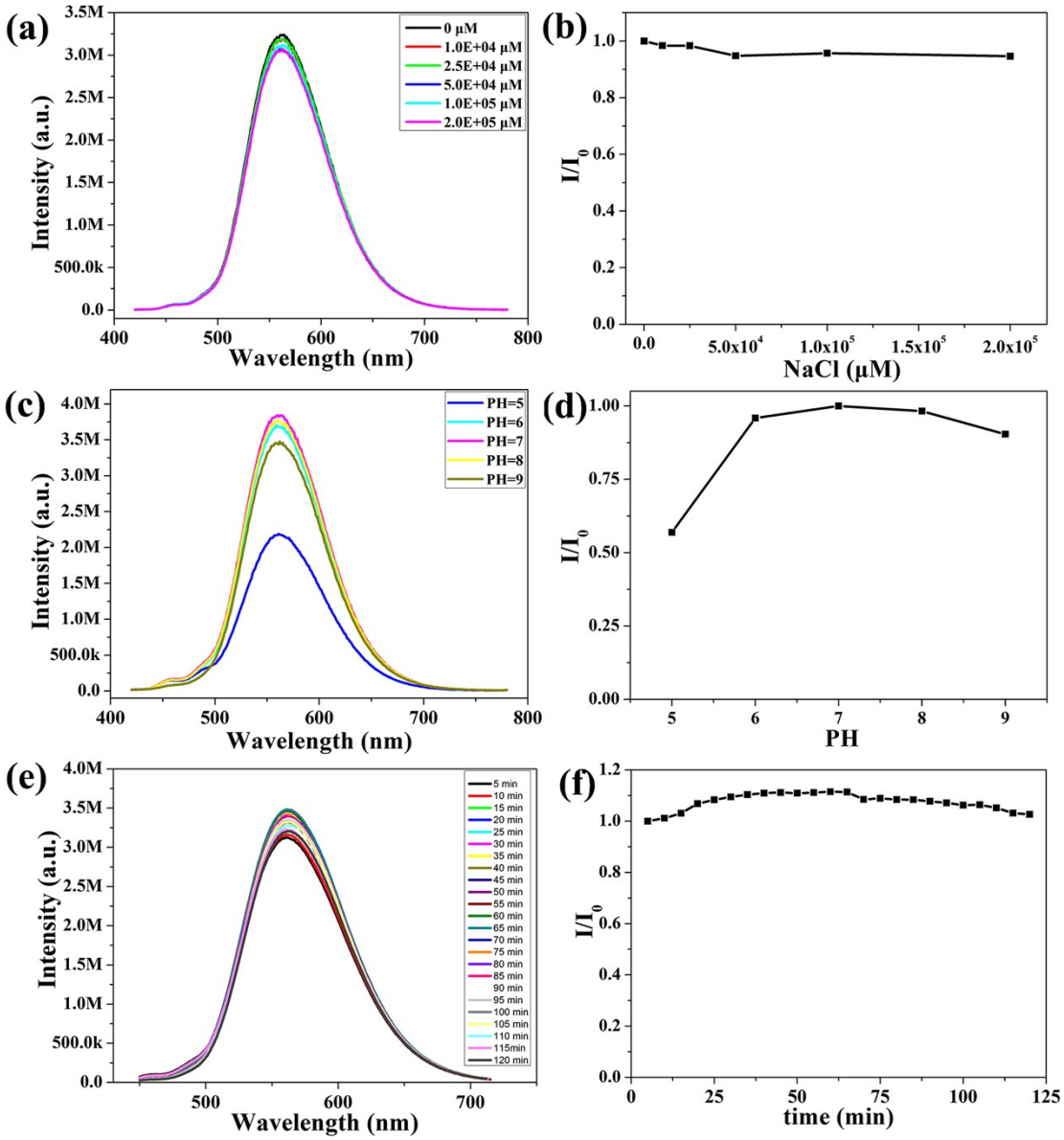

Figure S2. (a, c, e) PL (λ_{ex} = 400 nm) emissions and (b, d, f) PL intensity of the y-CDs aqueous solution (6 mg/mL): (a, b) under different ionic strengths (NaCl aqueous solution); (c, d) under different pH values; (e, f) under a 450 W xenon lamp at various time.

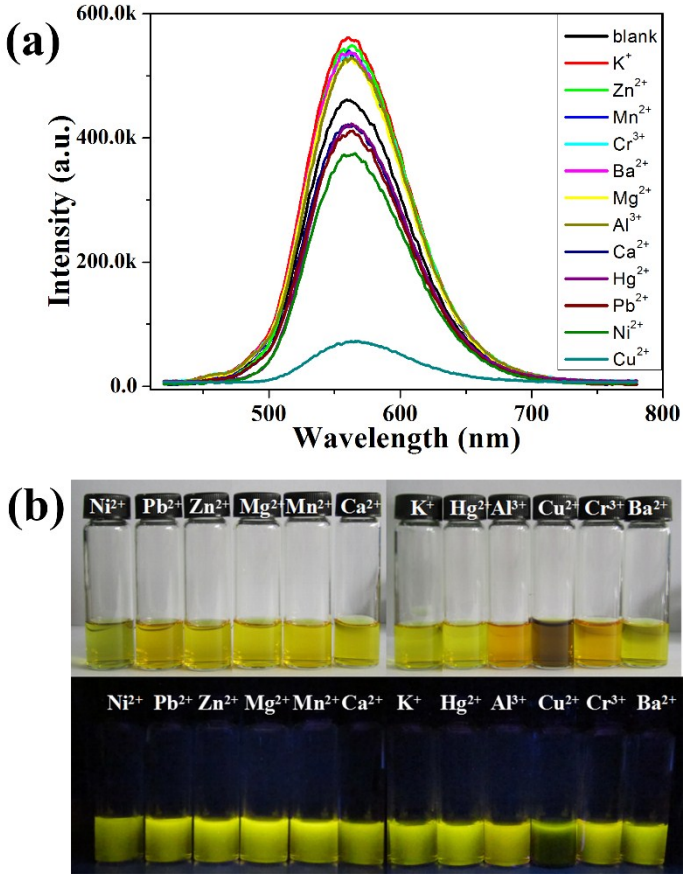

Figure S3. (a) PL emission (λ_{ex} = 400 nm) spectra of selectivity of y-CDs toward Cu^{2+} ions; (b) Photograph of the y-CDs aqueous solution (6 mg/mL) with the addition of different metal ions (0.5 mM).

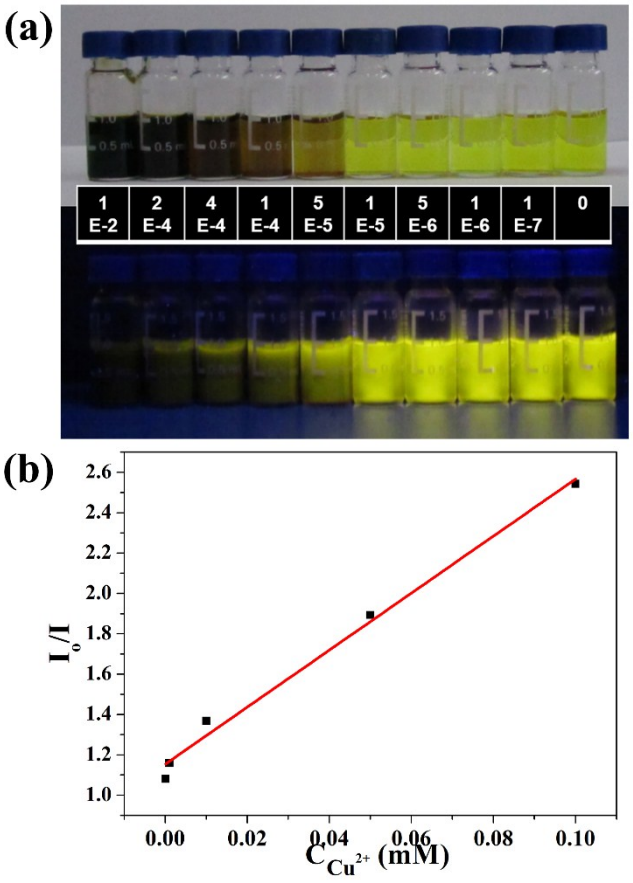

Figure S4. (a) Optical photographs of y-CDs aqueous solution (6 mg/mL) with different concentrations of Cu^{2+} ions from 0 to 1.0×10^{-2} M; (b) Linear plot of PL intensity of y-CDs aqueous solution versus Cu^{2+} ions with a certain concentration gradient.

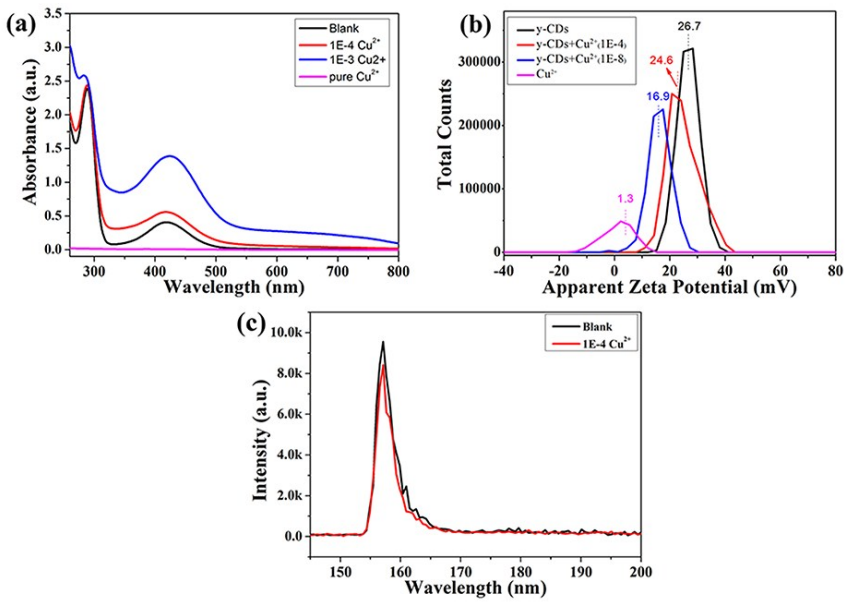

Figure S5. Effects of Cu^{2+} ions on the (a) absorption; (b) ζ-positial value of the y-CDs in aqueous solution (c) lifetime of the y-CDs aqueous solution. Cu^{2+} ions:1E-4 (1×10^{-4} M), 1E-3 (1×10^{-3} M).

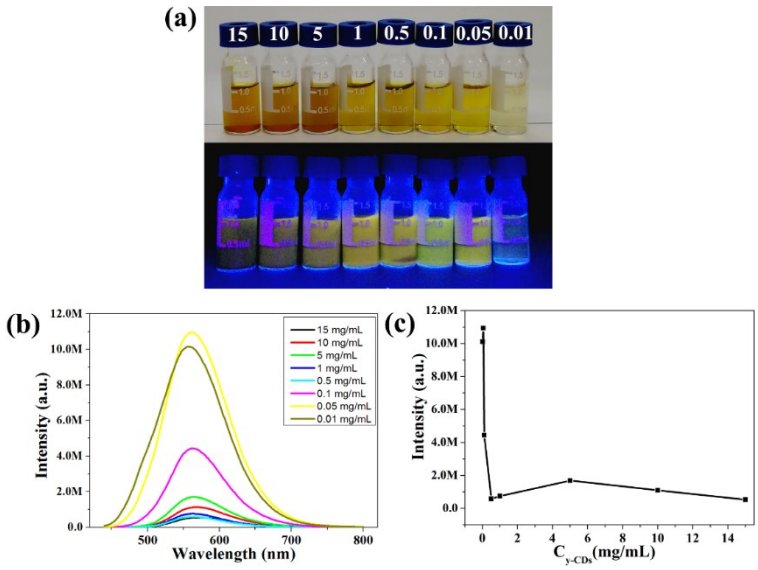

Figure S6. (a) Optical photographs of virions concentration of y-CDs aqueous solution; 15 mg/mL; 10 mg/mL; 5 mg/mL; 1 mg/mL; 0.5 mg/mL; 0.1 mg/mL; 0.05 mg/mL with adding Cu^{2+} ions (0.1 mM); (b) PL emission and (c) PL intensity of the corresponding solution emission.

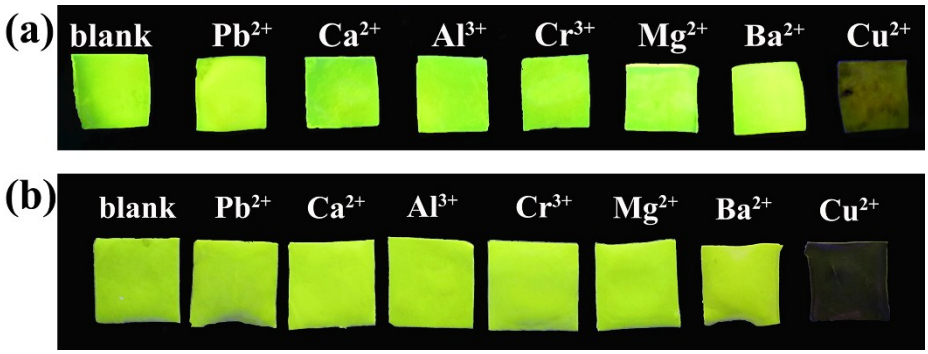

Figure S7. Selectivity of (a) y-CDs/PVA/CMC films and (b) y-CDs/chitosan films towards Cu^{2+} ions.

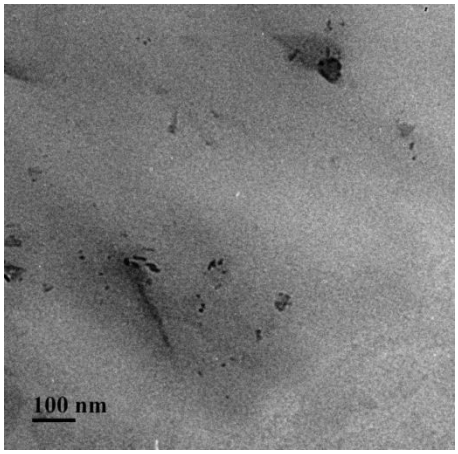

Figure S8. TEM images of y-CDs/PVA film with adding 1.0×10^{-2} M Cu^{2+} ions.

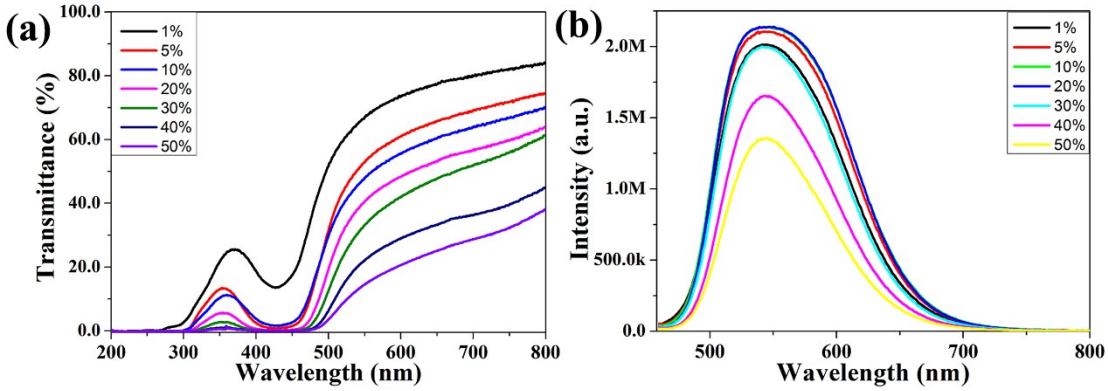

Figure S9. (a) Transmission spectra and (b) PL emission ((λ_{ex} =430 nm) spectra of y-CDs/chitosan films with different ratios (weight of y-CDs/weight of chitosan)