

Supporting information

Interaction of Carbon Quantum Dots from Roasted Fish with Digestive Protease and Dopamine

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Table S1. Thermodynamic parameters for interaction of pepsin and trypsin with CQDs

Parameter	Pepsin-CQDs	Trypsin-CQDs
$K_a (\times 10^5 \text{ M}^{-1})$	1.96±0.29	3.91±0.43
n	0.18±0.01	1.86±0.02
$\Delta G (\text{kJ mol}^{-1})$	-19.47±1.28	-26.21±2.04
$\Delta H (\text{kJ mol}^{-1})$	-100.36±5.78	-4.43±0.62
$\Delta S (\text{J mol}^{-1} \text{ K}^{-1})$	-271.44±6.82	73.08±4.19

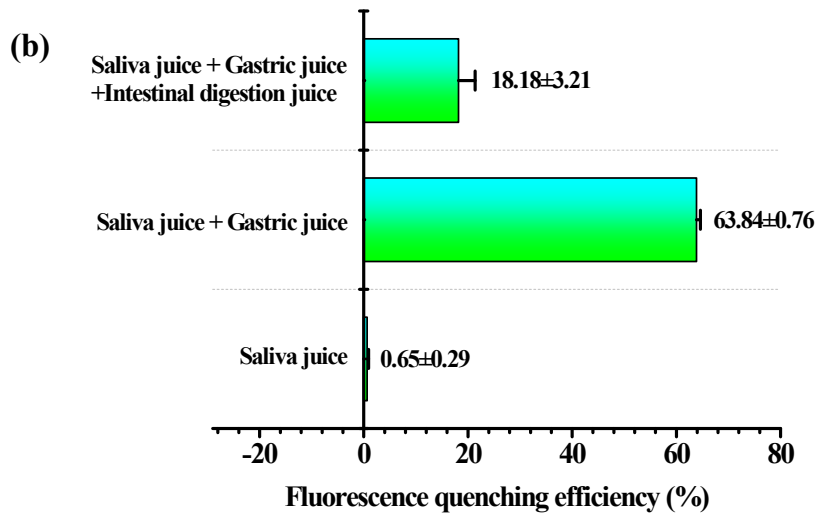
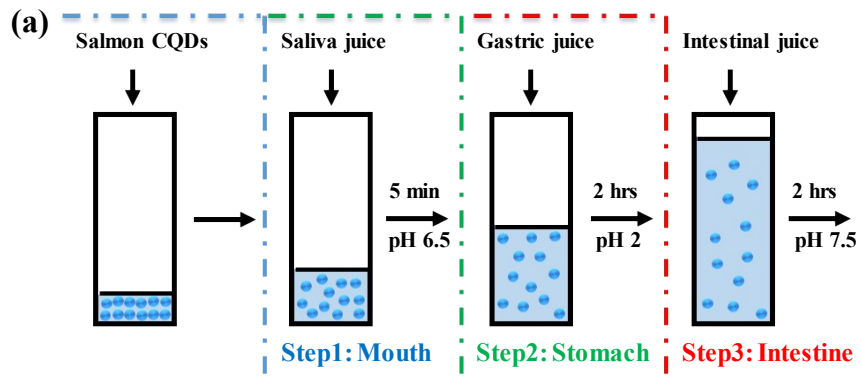


Figure S1. (a) Schematic presentation of in vitro digestion procedure of the salmon CQDs, (b) Fluorescence quenching efficiency of the salmon CQDs when they were added into saliva juice, gastric juice and intestine juice to simulate the mouth, stomach and intestine digestion.

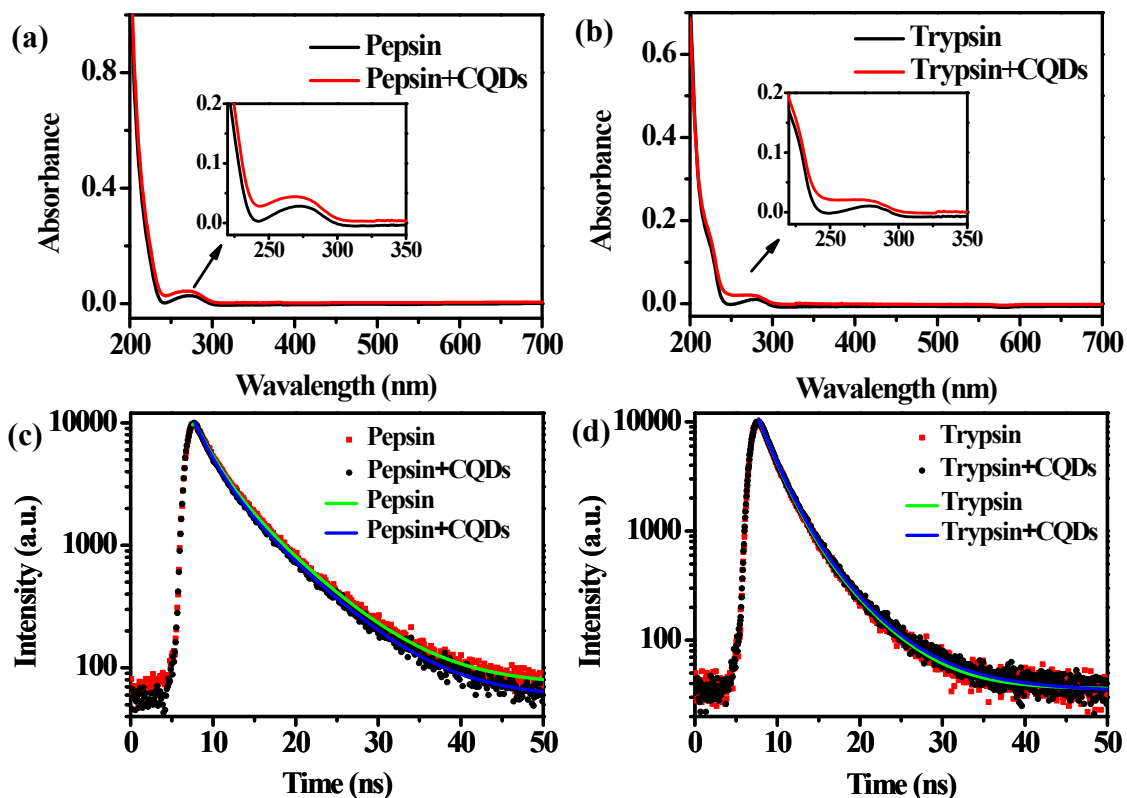


Figure S2. UV-Vis absorption spectra of pepsin and pepsin with CQDs (a), trypsin and trypsin with CQDs (b). Fluorescence decay traces of pepsin and pepsin with CQDs (c), trypsin and trypsin with CQDs (d). Concentration_(pepsin/trypsin) = 1.0×10^{-5} mol L⁻¹, Concentration_(CQDs) = 12.0×10^{-8} mol L⁻¹, T = 298 K.

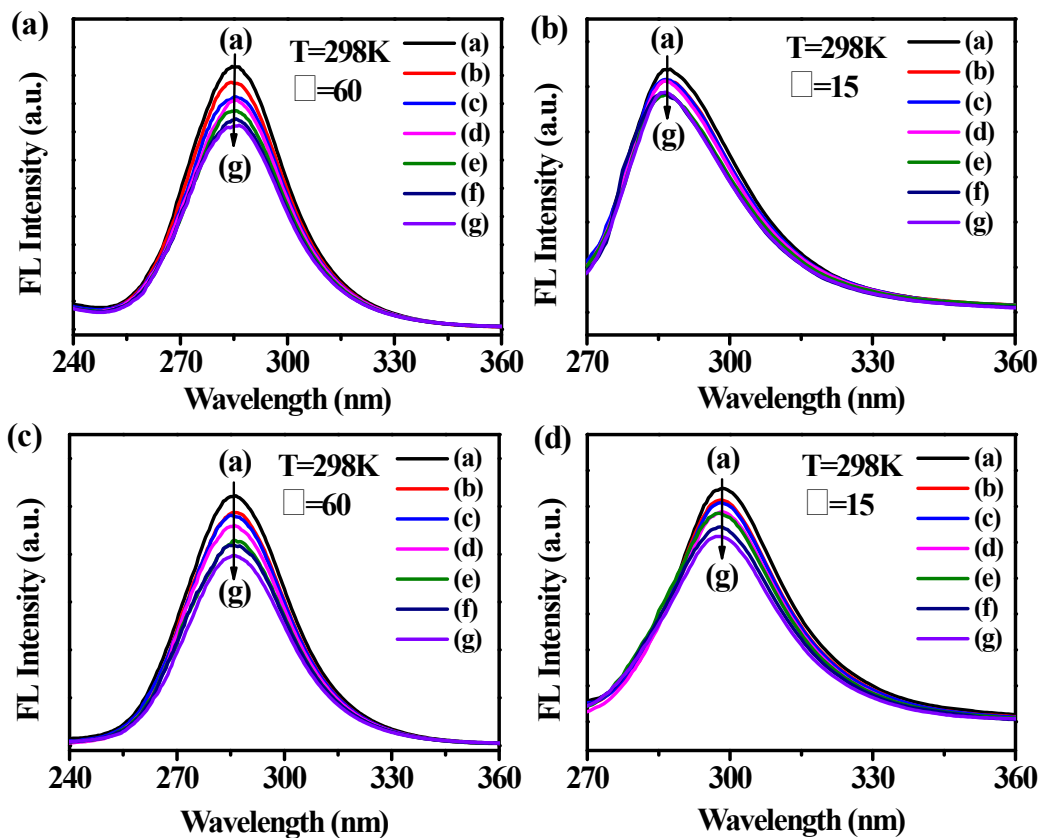


Figure S3. Effect of CQDs on the synchronous fluorescence spectra of pepsin at $\Delta\lambda = 60$ nm (a) and $\Delta\lambda = 15$ nm (b). Effect of CQDs on the synchronous fluorescence spectra of trypsin at $\Delta\lambda = 60$ nm (c) and $\Delta\lambda = 15$ nm (d), $\text{Concentration}_{(\text{trypsin})} = \text{Concentration}_{(\text{pepsin})} = 1.0 \times 10^{-5} \text{ mol}\cdot\text{L}^{-1}$. $\text{Concentration}_{(\text{CQDs})}$ of a-g: 0, 2.0, 4.0, 6.0, 8.0, 10.0, and $12.0 \times 10^{-8} \text{ mol L}^{-1}$, respectively, 298K.