Electronic Supplementary Material (ESI) for RSC Advances.

Simple fluorescence assay for trypsin through protamine-induced carbon quantum dots quenching aggregation platform

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# Yiping Chen and Zuan Lin contributed equally to this work.

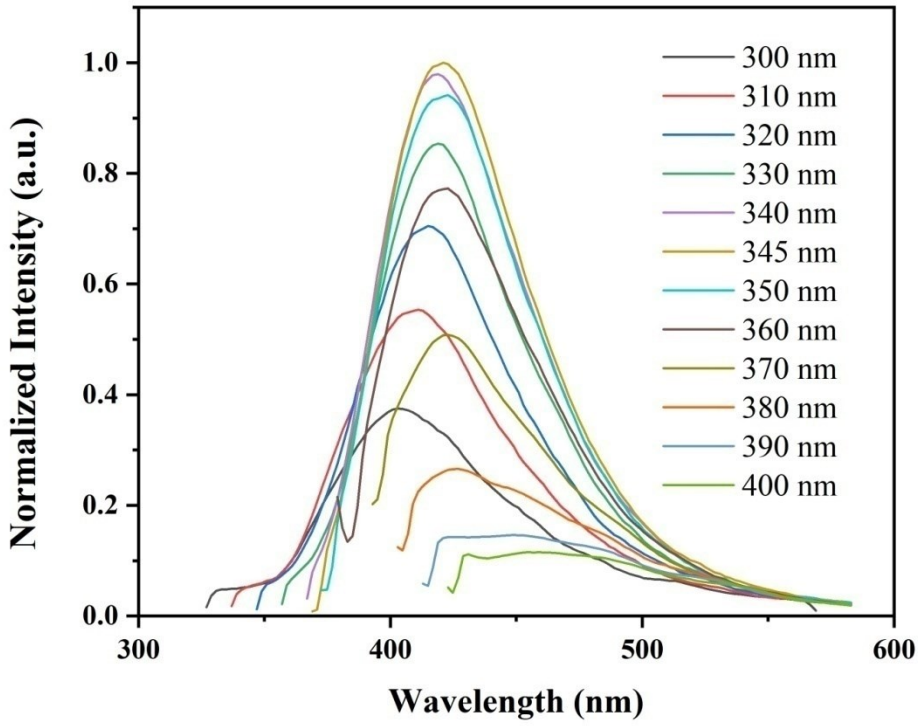

Fig. S1. Fluorescence spectra of CQDs under different exciting wavelengths

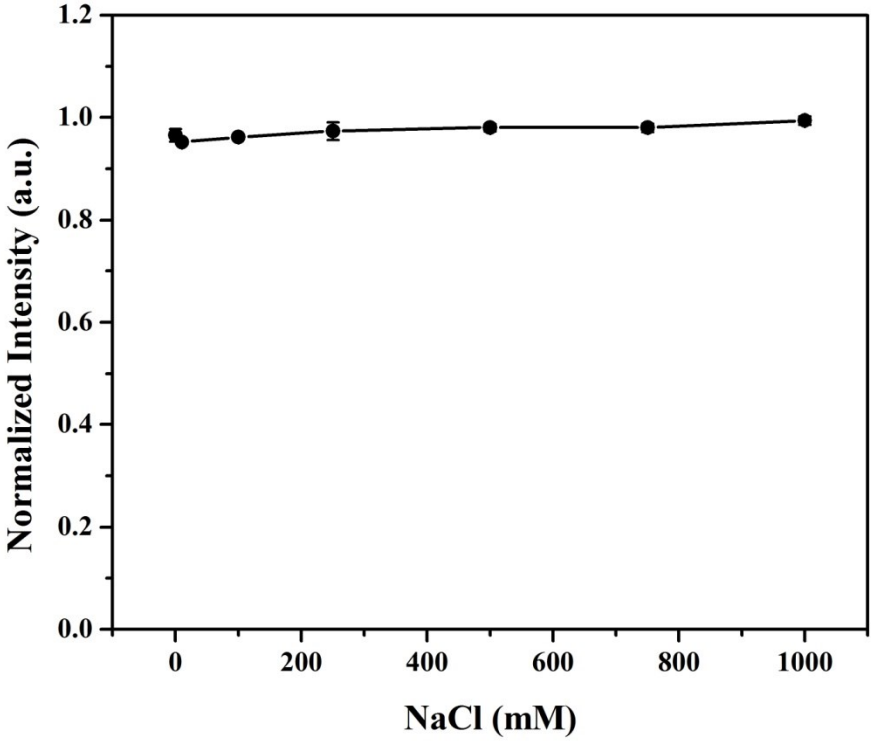

Fig. S2. Variable fluorescence intensities of CQDs in NaCl with different concentrations. Error bars represents the SD of three parallel determinations.

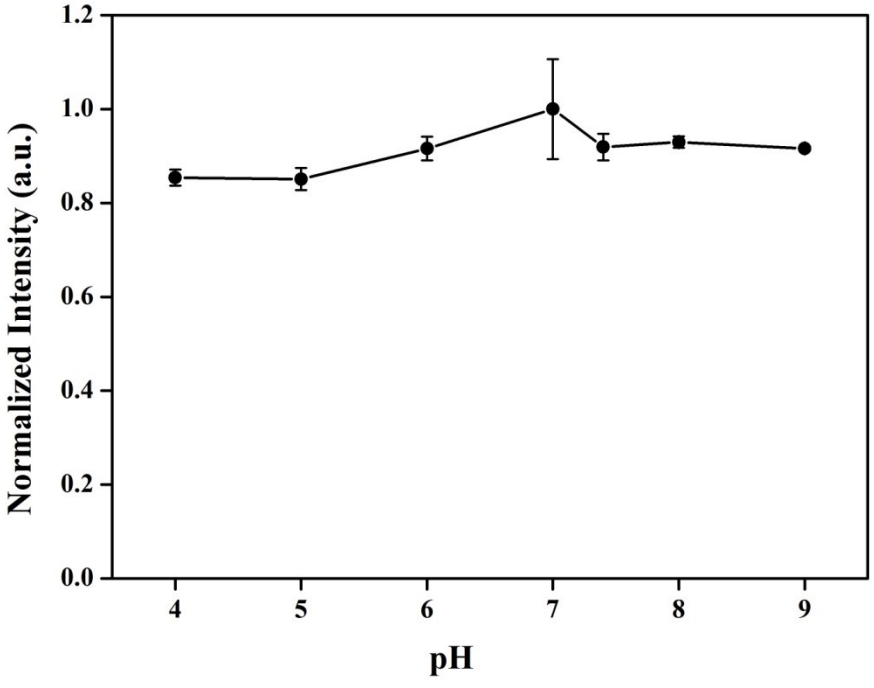

Fig. S3. Variable fluorescence intensities of CQDs in different pH conditions. Error bars represents the SD of three parallel determinations.

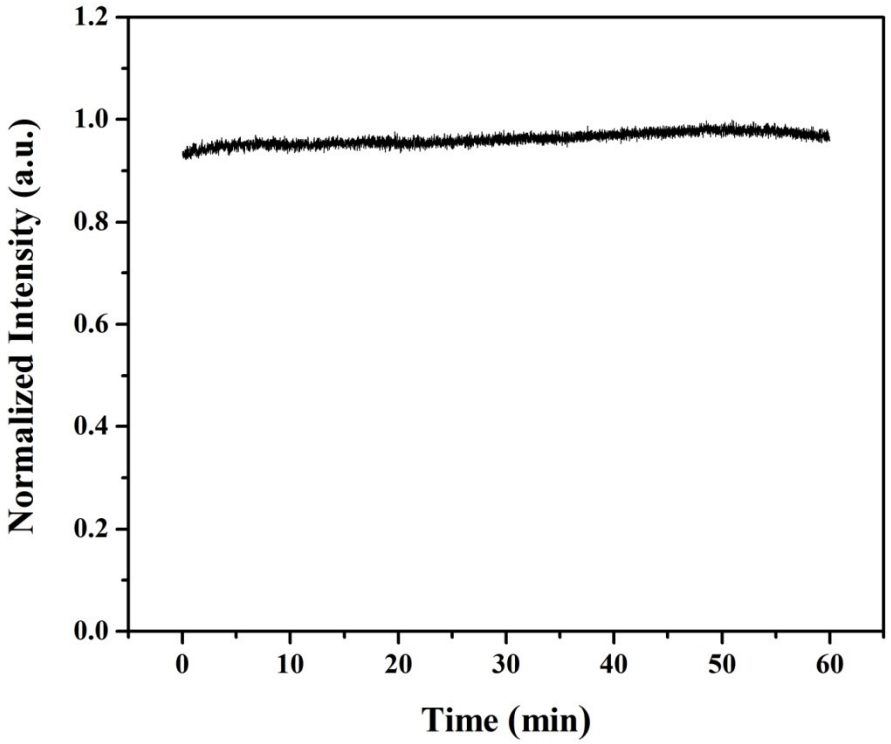

Fig. S4. Variable fluorescence intensities of CQDs under the excitation of 345 nm at continuous 1 hour

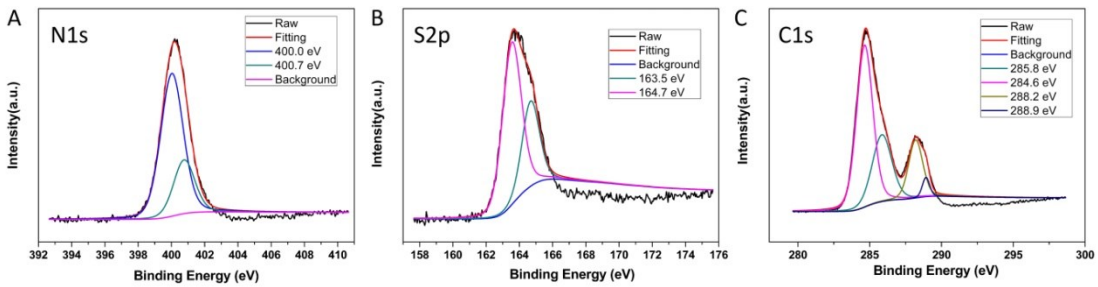

Fig. S5. High-resolution XPS spectra of N1s (A), S2p (B), and C1s (C).

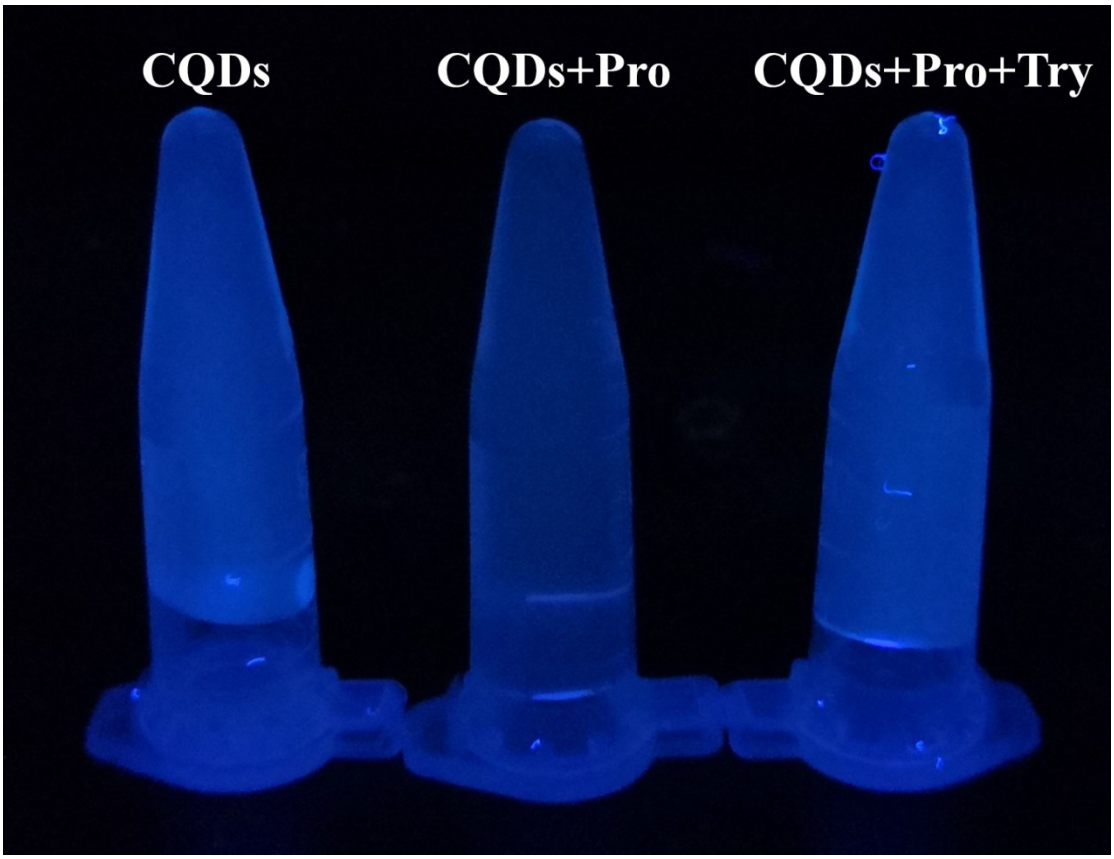

Fig. S6. Fluorescence image of CQDs, CQDs/Pro and the addition of Try into CQDs/Pro under a 365 nm UV lamp.

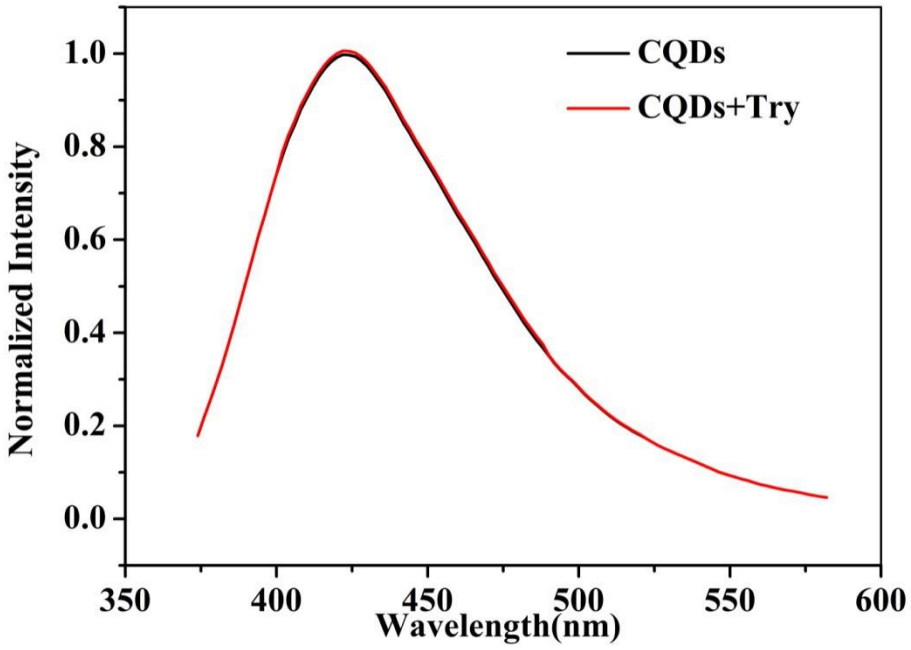

Fig. S7. Fluorescence spectra of CQDs without and with the presence of Try.

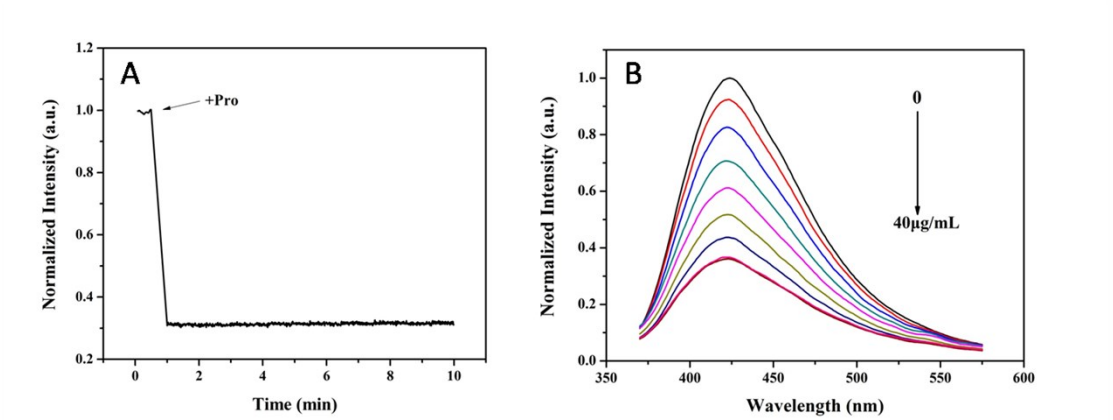

Fig. S8. The variable fluorescence intensities (A) or fluorescence spectra (B) of CQDs with the addition of 40 μg/mL Pro in different period (A) and different contents (B).

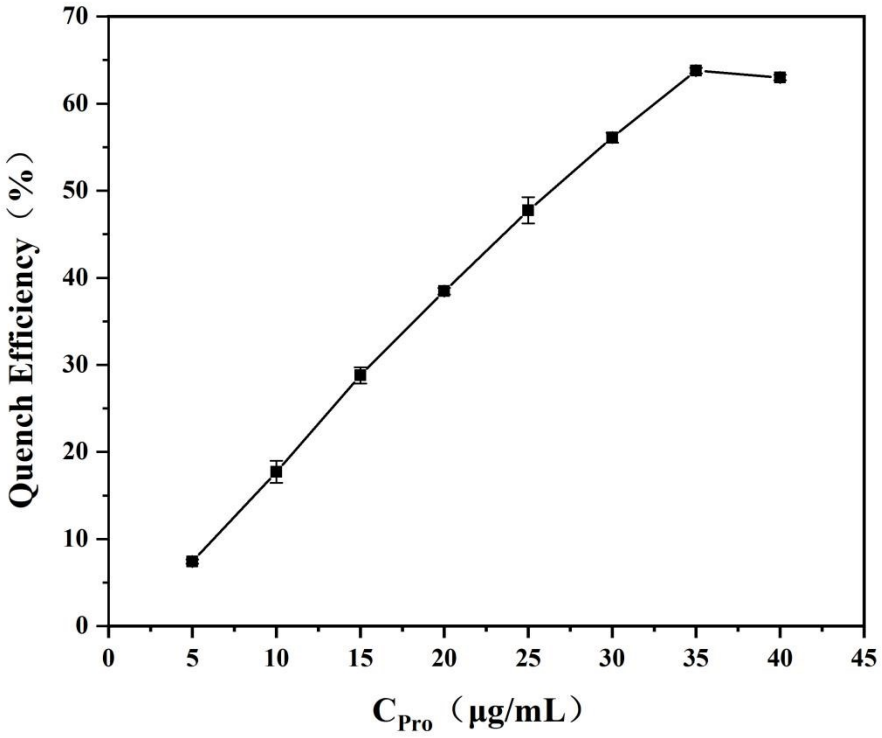

Fig. S9. Curve of fluorescence quenching efficiency with different Pro concentration to 20 μg/mL CQDs. Error bars represents the SD of three parallel determinations.

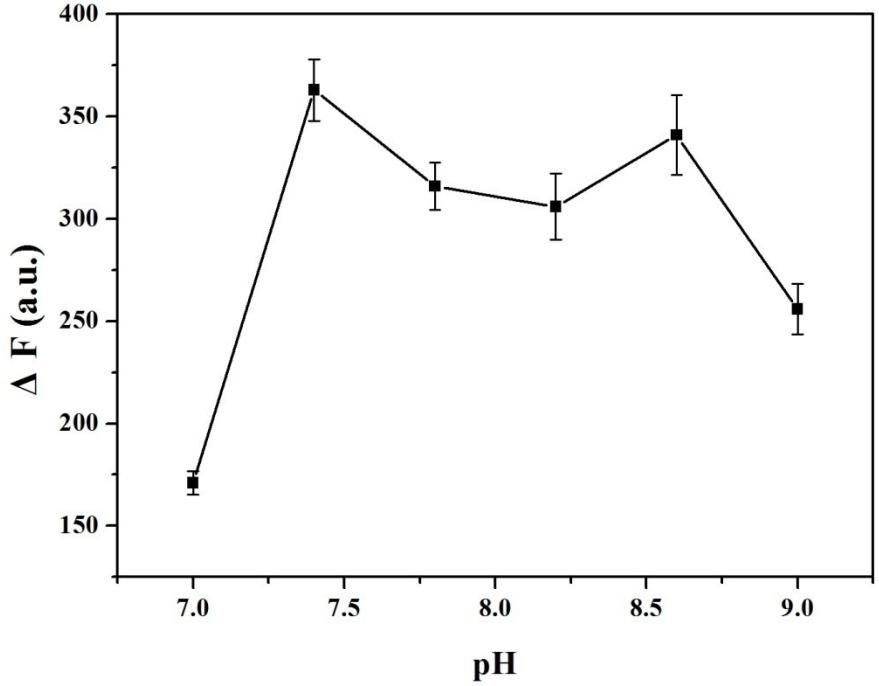

Fig. S10. The fluorescence recovery ($\Delta F=F-F_0$) of CQDs/Pro towards 500 ng/mL Try at different pH. Error bars represents the SD of three parallel determinations.

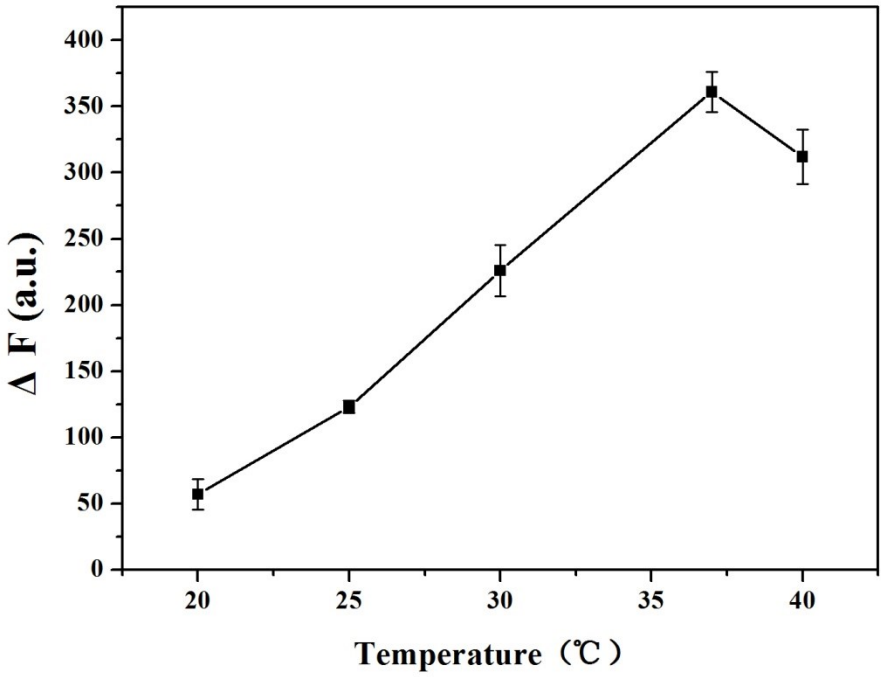

Fig. S11. The fluorescence recovery ($\Delta F=F-F_0$) of CQDs/Pro towards 500 ng/mL Try at different temperatures. Error bars represents the SD of three parallel determinations.

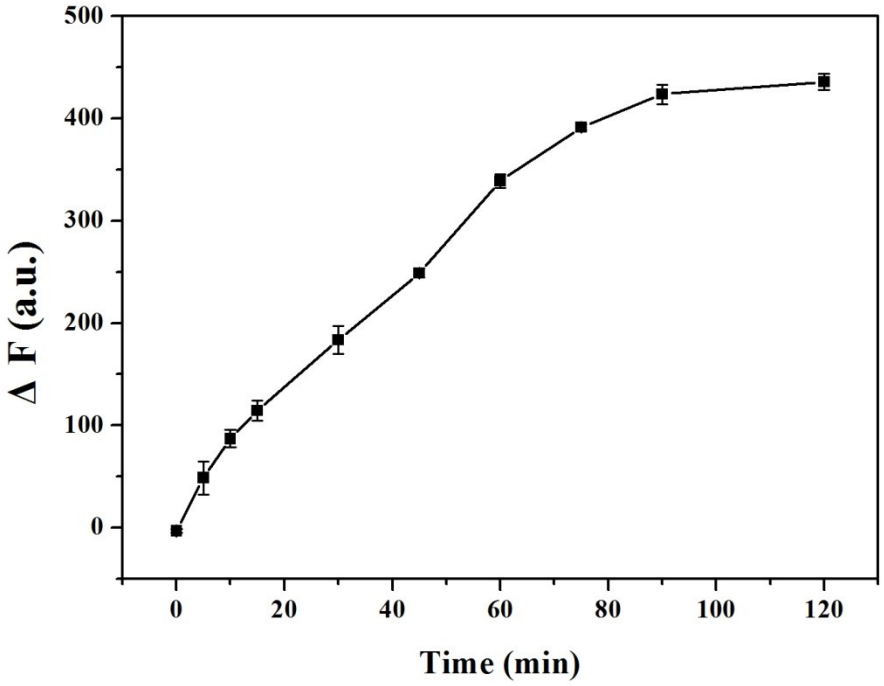

Fig. S12. The fluorescence recovery ($\Delta F=F-F_0$) of CQDs/Pro towards 500 ng/mL Try at different reacting time. Error bars represents the SD of three parallel determinations.

Table S1：Comparison of different methods for determination of Try

Detection method or Material	LOD (ng/mL)	Linear range (ng/mL)	reference
Mn-doped ZnSe quantum dots	40	100-12000	[S1]
Surface imprinting strategies	100	Not mentioned	[S2]
Gold nanoclusters	9	10-50000	[S3]
Redox cycling in the presence of L-ascorbic acid	100	100-1000	[S4]
Self-Powered Sensor for Naked-Eye	500	Not mentioned	[S5]
Silver nanoparticles	2	2.5-200	[S6]
DNA hosted Cu nanoclusters	0.0048	0.1-1000	[S7]
BSA-stabilized gold nanoclusters	2	10-10000	[S8]
Silver triangular nanoplates	1.8	5-80	[S9]
CQDs/pro	8.08	25-500	this work

Table S2：Detection of spiked Try in serum samples

Samples	Added (ng/mL)	Found (ng/mL)	Recovery (%)	RSD (n=3, %)
1	25.00	27.25	109.04	2.90
2	50.00	50.01	100.02	2.39
3	250.00	247.68	99.07	1.55
4	500.00	517.39	103.47	1.42

Reference

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