

Supporting Information

Sustainable Deep Eutectic Solvent-Engineered Clove-Derived Carbon Dots as a Single Sensing Platform for the Detection of Multiple Antioxidants

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Figure S1

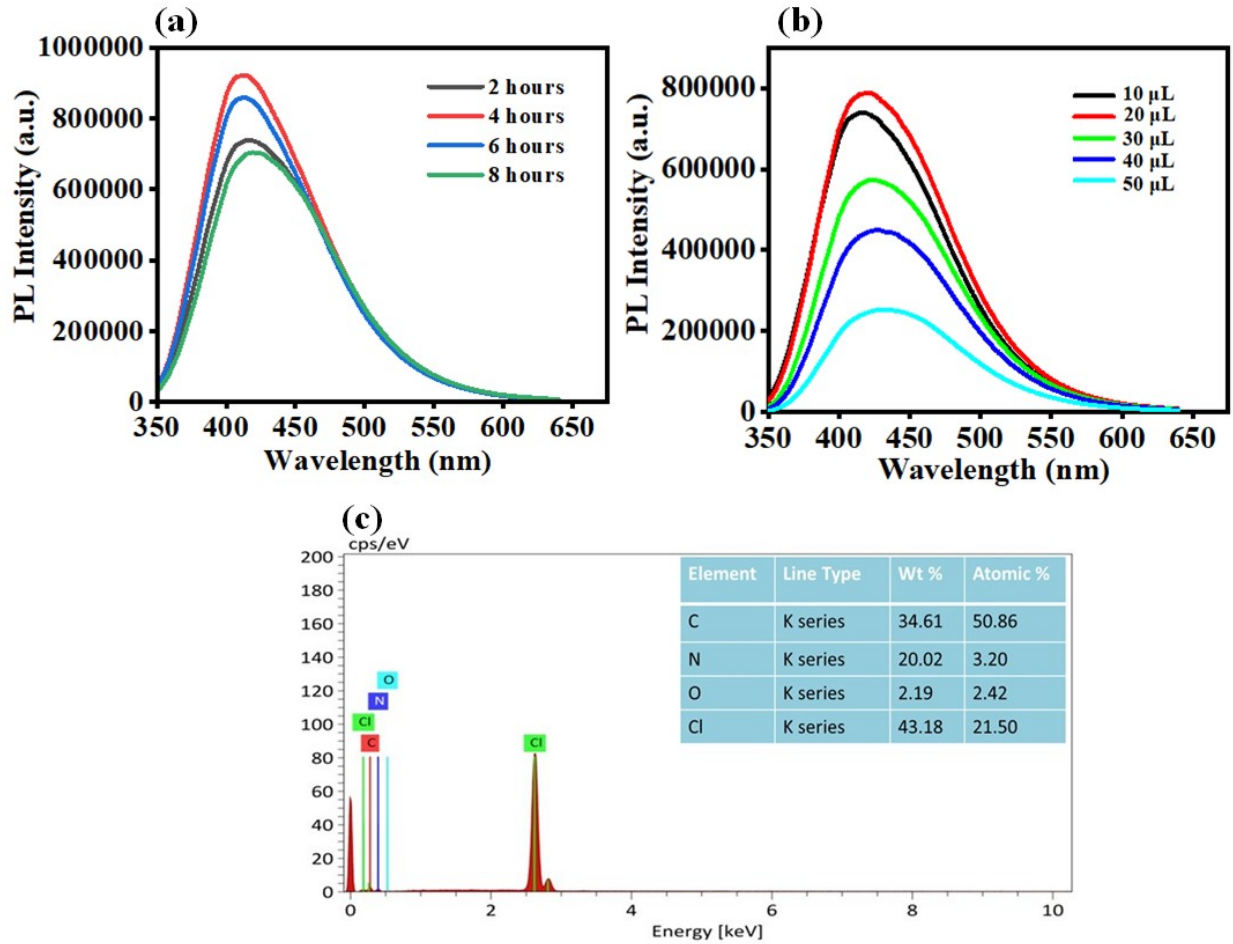


Figure S1. (a) Optimization of CDs concentration, (b) Reaction time-dependent optimization of CDs synthesis, (c) EDS spectrum of the as-prepared CDs.

Figure S2

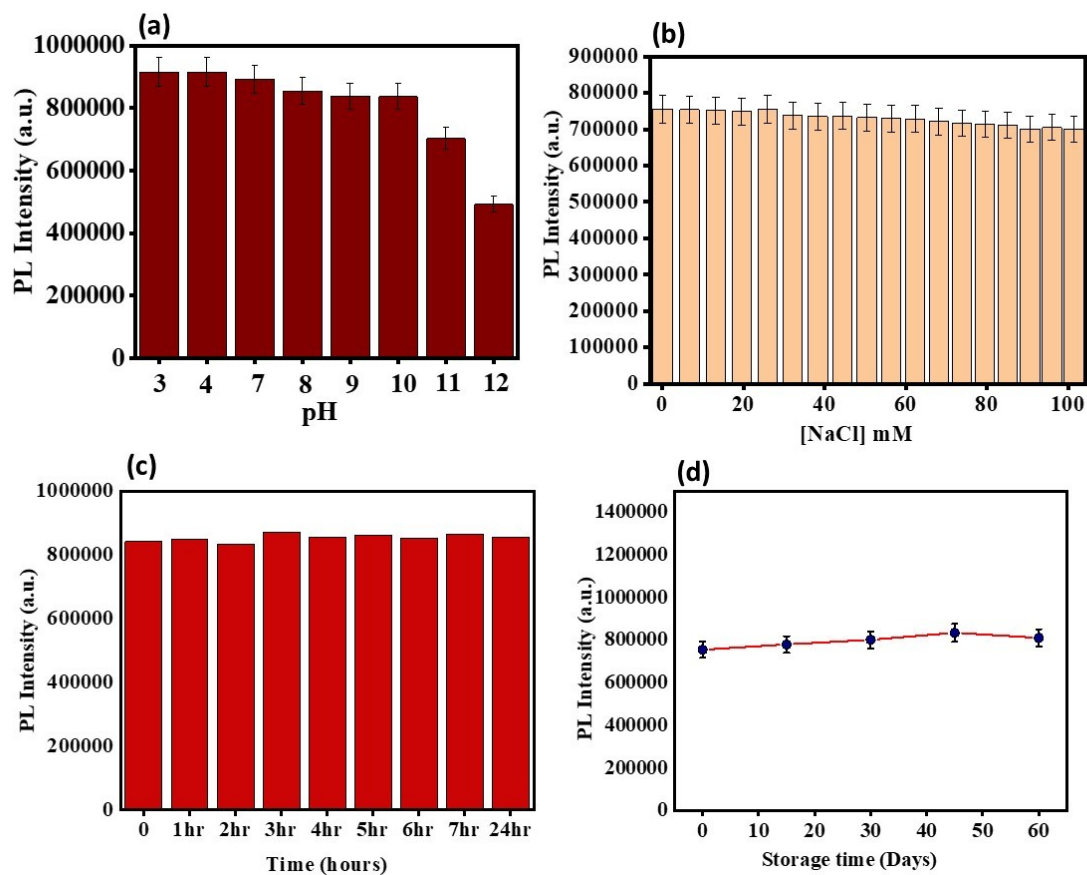


Fig S2. (a) Effect of pH (b) Effect of ionic strength (c) Photo irradiation studies (d) Storage studies on prepared CDs.

Figure S3

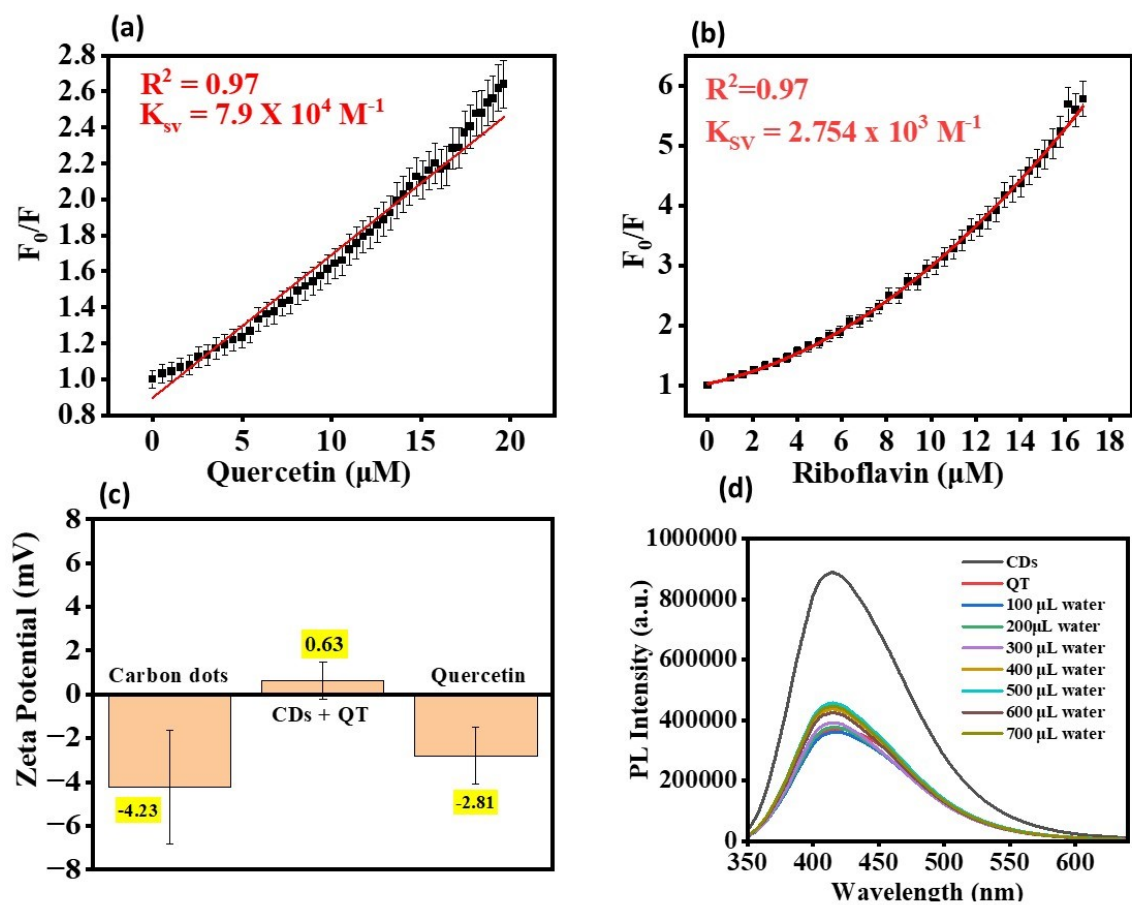


Fig S3. Stern-Volmer plot between F_0/F and different concentration of (a) QT, (b)RF, (c) Zeta Potential of CDs, QT and CDs+QT and (d) Effect of dilution on QT.

Figure S4

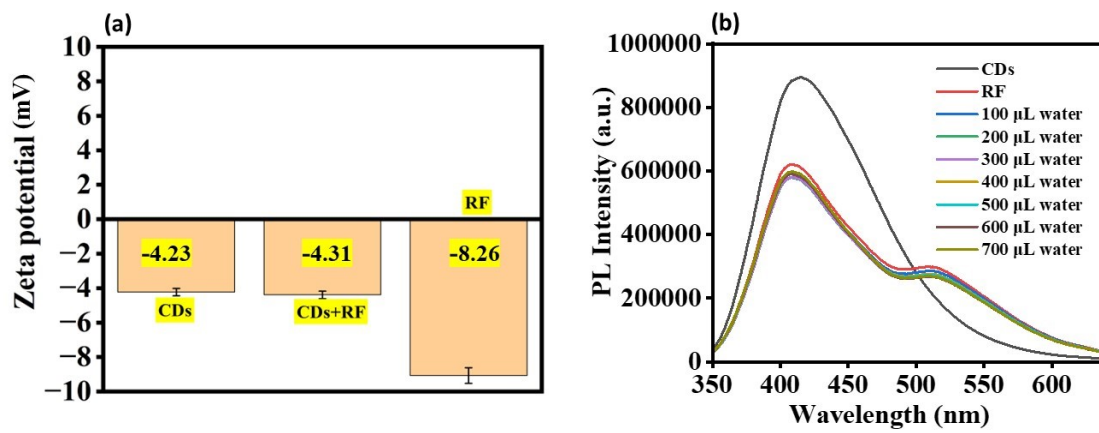


Fig S4. (a) Zeta Potential of CDs, RF and CDs+RF and (b) Effect of dilution on RF.

Figure S5

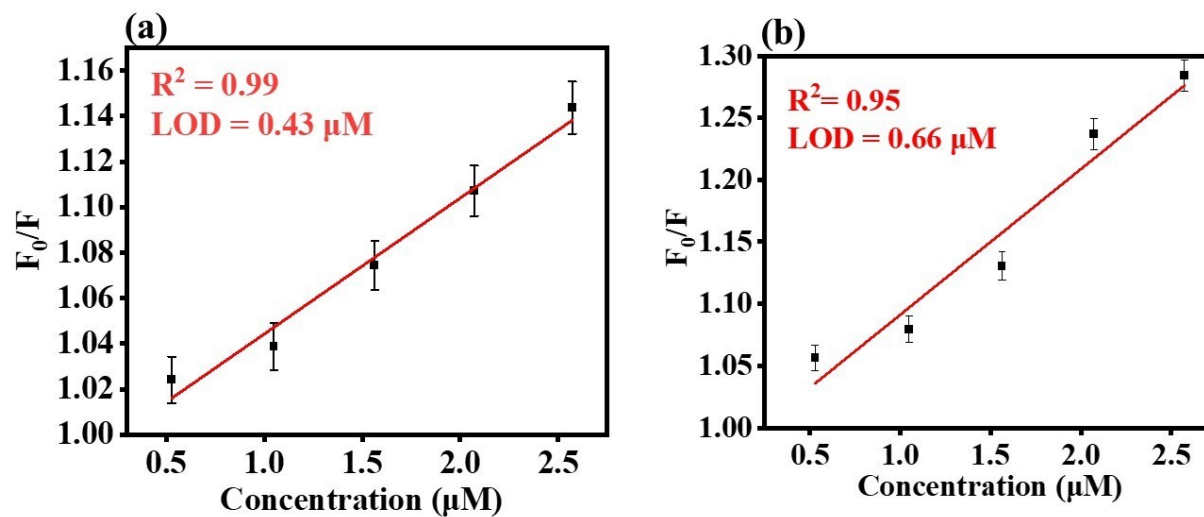


Figure S5. (a) Linear relationship of F_0/F of carbon dots with different concentration QT in real sample of apple juice. (b) Linear correlation of F_0/F with different concentration of RF in real sample of vitamin B₂ Tablet.

Table S1**(a)**

Sample	$\Phi_f(\%)$	τm (ns)	χ^2
CDs	22.5	2.93	1.11
CDs + QT	3.2	2.85	1.12
CDs + RF	5.6	2.10	1.06

(b)

Sample	R_0 (nm)	$k_{ET}(ns^{-1})$	$k_r(ns^{-1})$	$k_{nr}(ns^{-1})$	E(%)	r(nm)
CDs + RF	3.51	0.13	0.0267	0.449	21.4	4.36

Table S1. (a) photophysical parameters of CDs in presence of analytes (b) FRET parameters of CDs in presence of RF.

Table S2

Conc added (μM)	Conc found (μM)	Recovery (%)	Relative standard deviation (RSD)
0.5 μM	0.49 μM	98 %	1.4 %
1.04 μM	1.03 μM	99 %	0.6 %
2.57 μM	2.31 μM	89.8 %	7.5 %

Table S2. Real estimation of QT in apple juice.

Table S3

Conc added	Conc found	Recovery %	Relative standard deviation (RSD)
0.528 μM	0.57 μM	109.6 %	5.4 %
1.049 μM	1.08 μM	103.8 %	2.0 %
1.563 μM	1.60 μM	106.6 %	1.6 %
2.07 μM	2.30 μM	111.1 %	7.4 %
2.572 μM	2.7 μM	108 %	3.4 %

Table S3. Real estimation of RF in vitamin B₂ tablets.