Supplementary material

Pithecellobium Dulce Leaves Derived Carbon Dots for 4-Nitrophenol and Cr (VI) Detection

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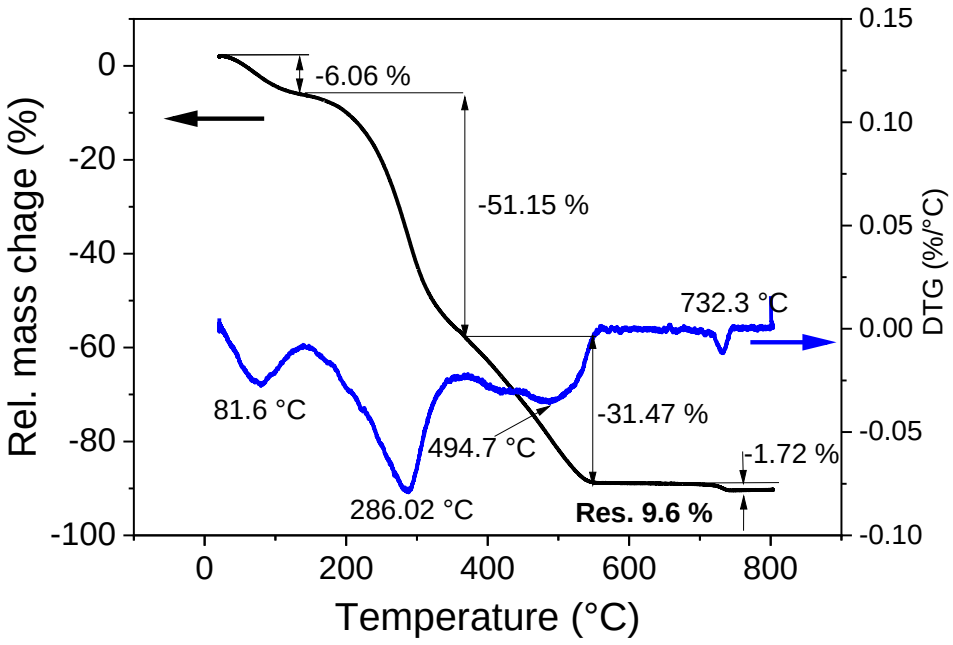

Figure S1. TGA of raw carbon precursor analysis.

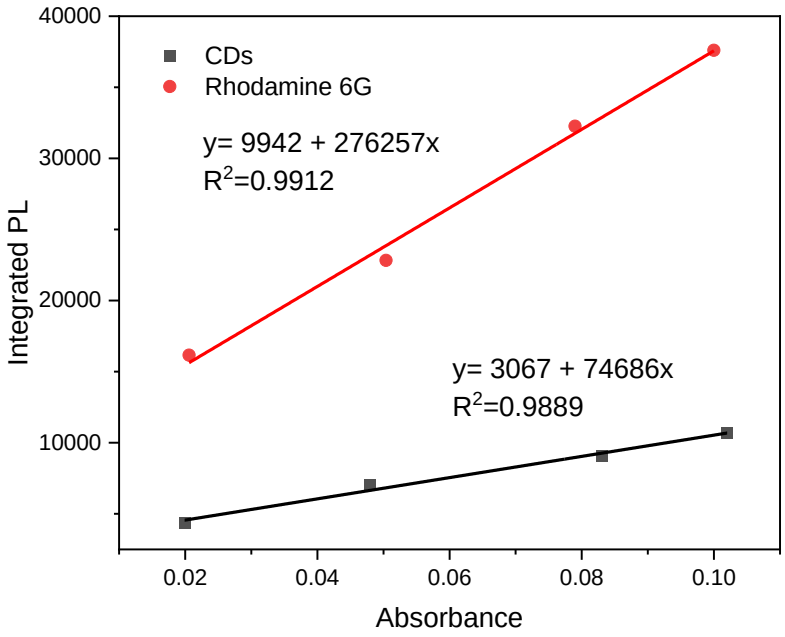

Figure S2. Fluorescence integral intensity vs absorbance for the quantum yield calculation. Rhodamine 6G was used as reference.

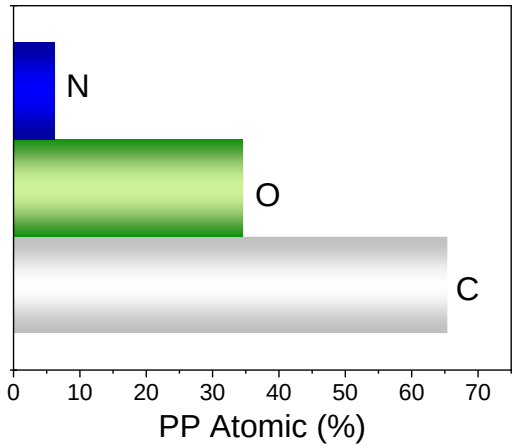

Figure S3. Elemental percentage calculated from XPS.

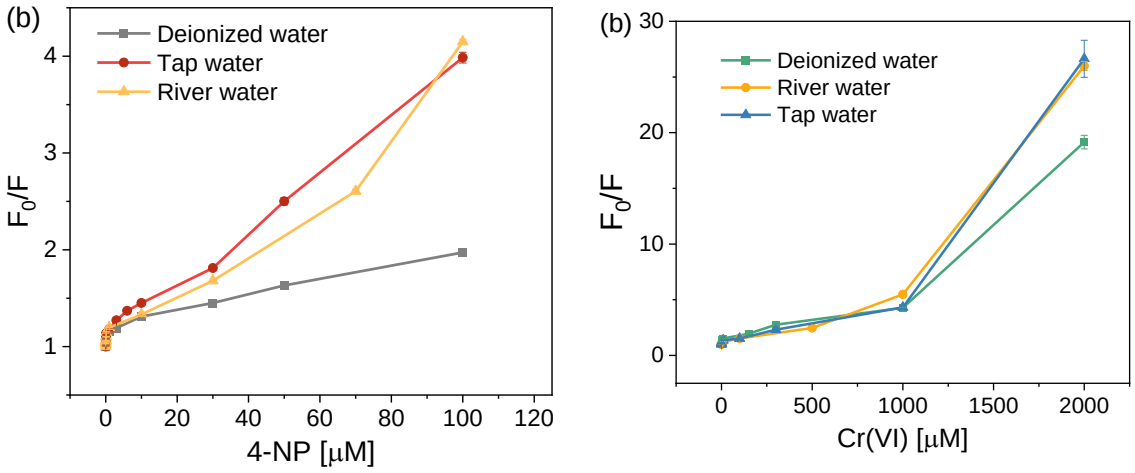

Figure S4. Comparison of F_0/F vs different concentration of (a) 4-NP (b) Cr (VI) in deionized, river and tap water.

Table S1. Detection of 4-NP using CDs derived from leaves

Precursors for synthesizing CDs	Quantum yield (%)	Synthesis technique	Limit of Detection	Linear Concentration range	Reference
Cornus walteri leaves, maleic anhydride, H_2O_2	18.3	Hydrothermal	0.0175 μM (17.5 nM)	0-50 μM	[40]
Celery leaves and glutathione	53	Hydrothermal	26 nM	30−300 nM	[5]
P. Dulce leaves	**24**	**Direct carbonization**	**14 nM**	**20-80 nM**	**Present work**

Table S2. Detection of Cr(VI) using CDs derived from leaves

Precursors for synthesizing CDs	Quantum yield (%)	Synthesis technique	Limit of Detection	Linear Concentration range	Reference
Tulsi leaves	3.06	Hydrothermal	4.5 ppb	1.6 to 50 μM	[7]
Bael leaves extract/ ethanol/water	56	Microwave	900 nM	0.00198–0.25 mM	[41]
Ruta graveolens leaves	54	Hydrothermal	300 nM	0-15 μM	[42]
P. Dulce leaves	**24**	**Direct carbonization**	**0.05 ppb (0.9 nM)**	**10-160 nM**	**Present work**

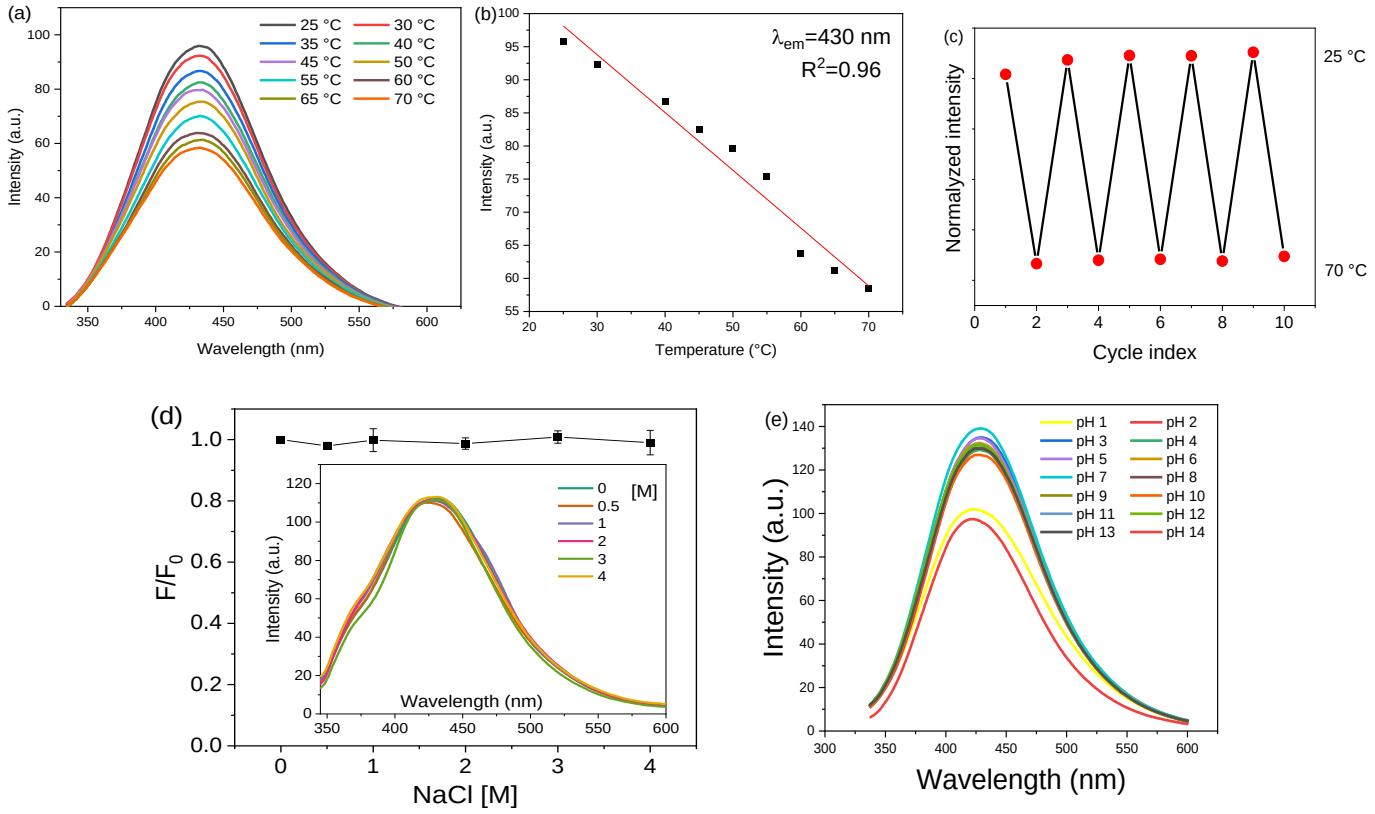

Figure S5. Stability studies. PL emission of CDs as a function of (a)-(c) temperature (d) different concentrations of saline solution and (e) pH.

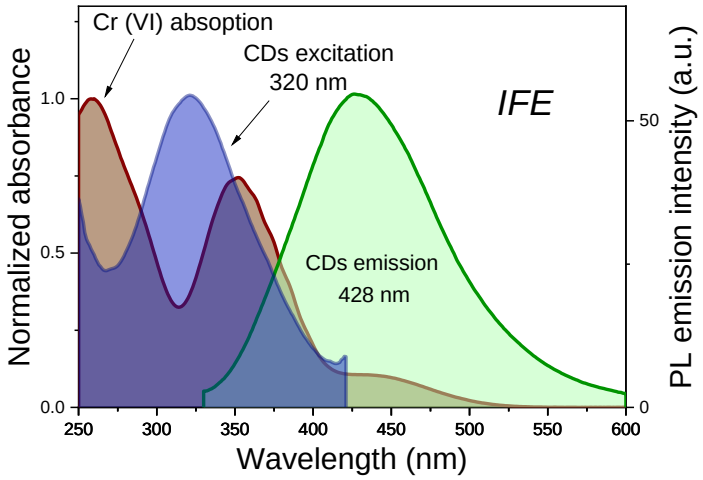

Figure S6. Cr (VI) absorbance bands; PL emission and PL excitation spectra of CDs.

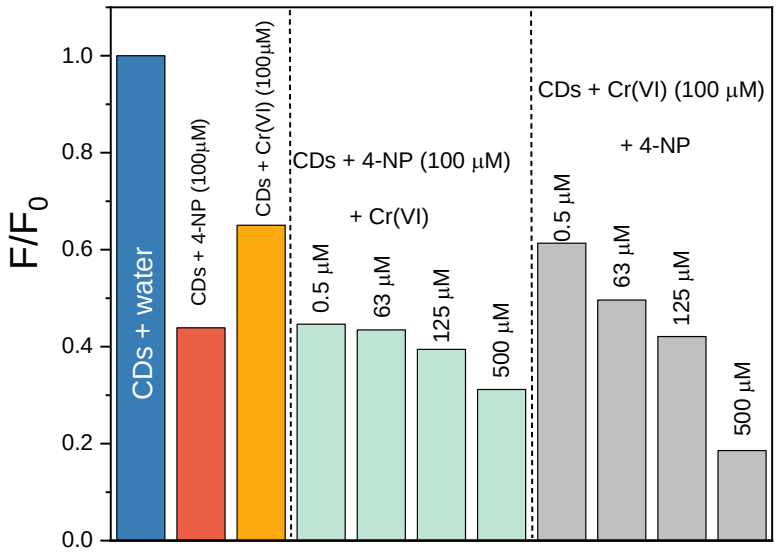

Figure S7. Interference between fixed concentration of 4-NP (100 μM) with different concentration of Cr(VI) and fixed concentration of Cr (VI) (100 μM) with different concentrations of 4-NP.

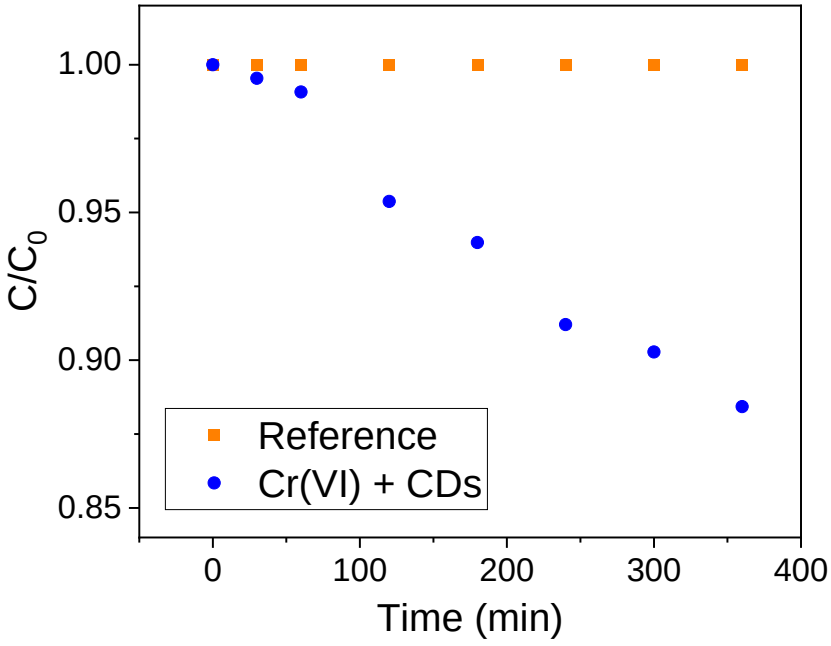

Figure S8. Absorbance relationship C/C_0 for determination of residual Cr (VI) at 540 nm wavelength by indirect colorimetric method with diphenyl carbazide (DPC) assay.