Carbon Nanodots from Orange Peel Waste as Fluorescent Probe for Detecting Nitrobenzene

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SUPPLEMENTARY MATERIALS

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Table S1. Dimensions obtained from the fitting of the D-band and G-band

Model	Lorentz	
Equation	y= y0 + (2*A/pi)*(w/(4*x-xc)^2 + w^2))	
Plot	Fit Peak 1	Fit Peak 2
y0	-0.2231 ± 0.014	-0.2231 ± 0.014
xc	1307.49052 ± 1,26291	1571.7513 ± 0.41097
w	154.17527 ± 6.11219	126.75996 ± 2.30487
A	106.27216 ± 5.88645	239.85245 ± 5.74237
Reduced Chi-Sqr	0.00144	
R-Square (COD)	0.98338	
Adj. R-Square	0.98304	

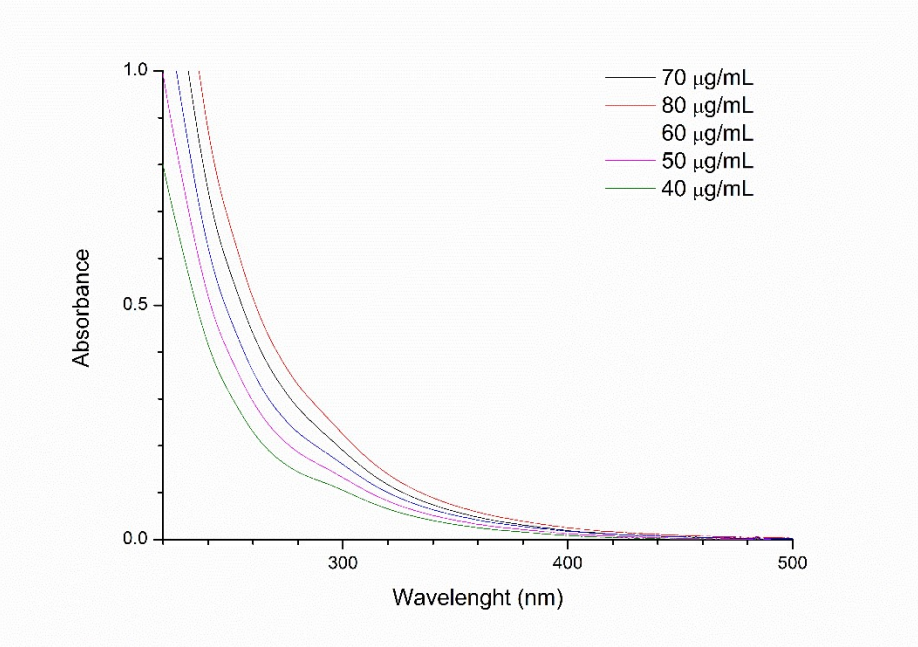


Figure S1. UV and Vis absorption.

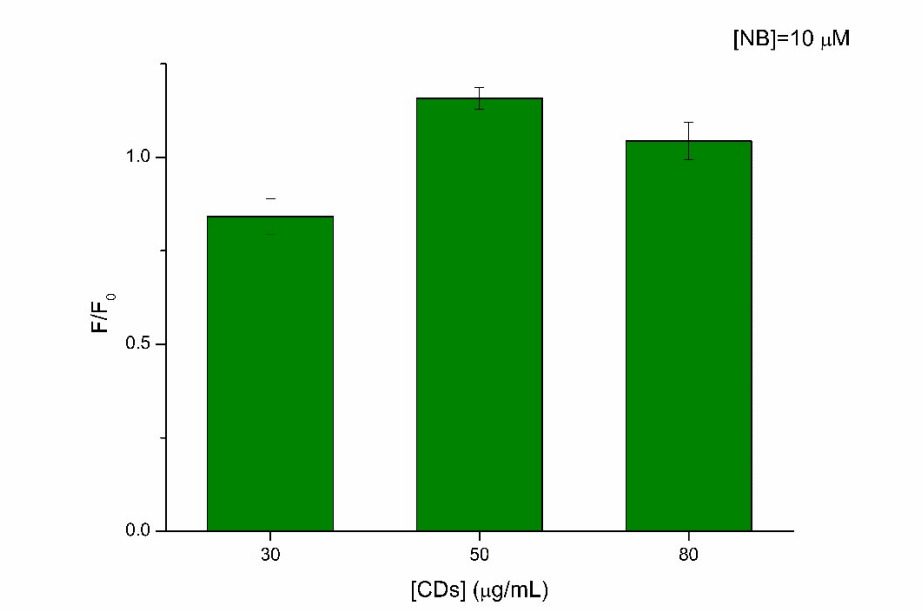
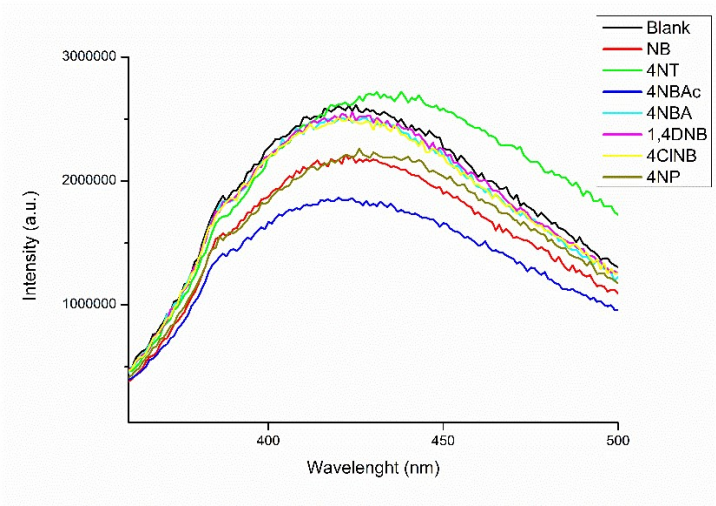
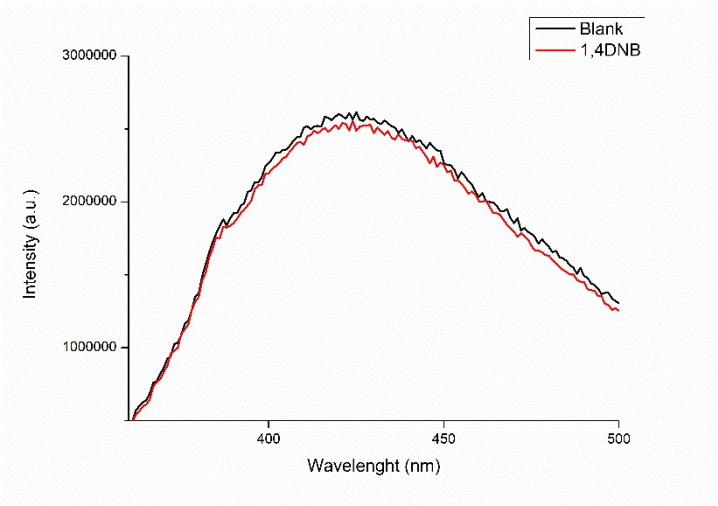
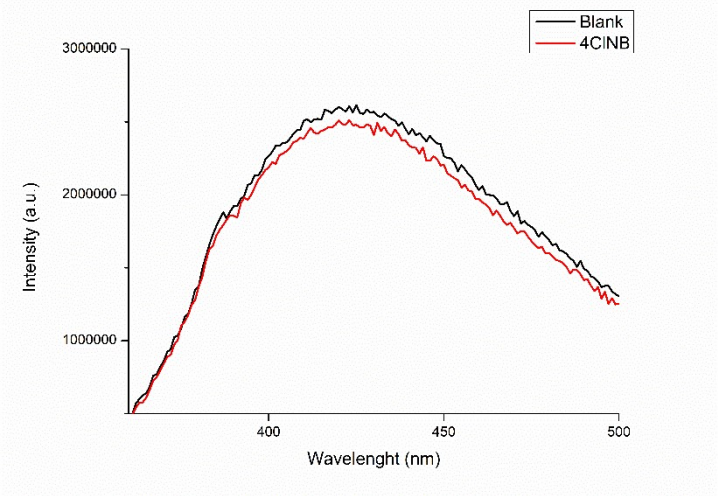


Figure S2. Fluorescence values versus CDs concentration


Blank
NB
4NT
4NBAc
4NBA
1,4DNB
4ClNB
4NP
3000000
2000000
1000000
Intensity (a.u.)
400
450
500
Wavelenght (nm)


Blank
1,4DNB
3000000
2000000
1000000
Intensity (a.u.)
400
450
500
Wavelenght (nm)


Blank
4ClNB
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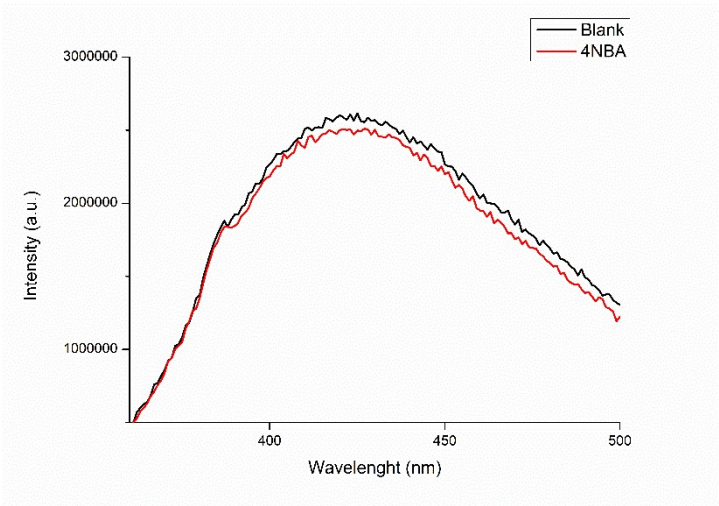
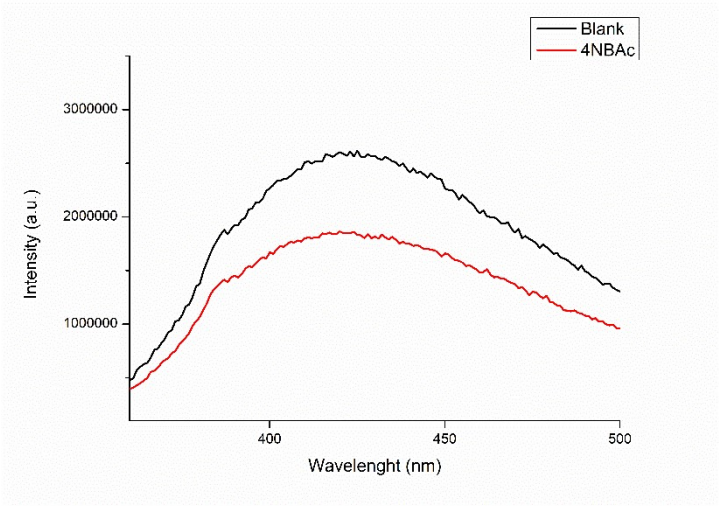
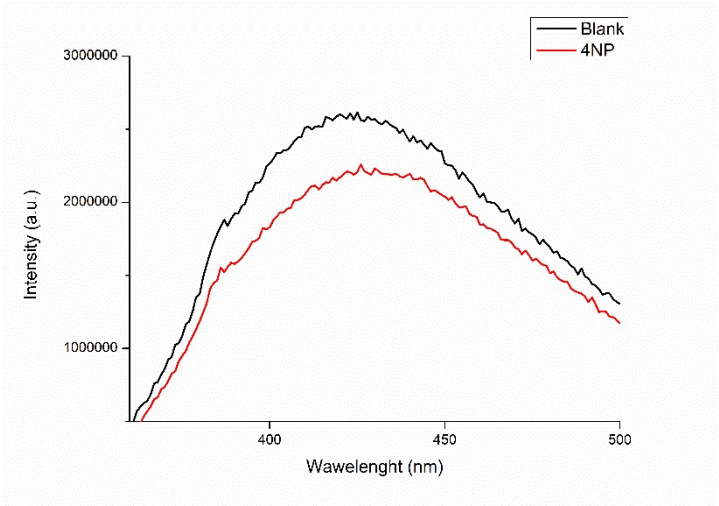
2000000
1000000
Intensity (a.u.)
400
450
500
Wavelenght (nm)


Blank
4NBA
3000000
2000000
1000000
Intensity (a.u.)
400
450
500
Wavelenght (nm)


Blank
4NBAc
3000000
2000000
1000000
Intensity (a.u.)
400
450
500
Wavelenght (nm)


Blank
4NP
3000000
2000000
1000000
Intensity (a.u.)
400
450
500
Wavelenght (nm)

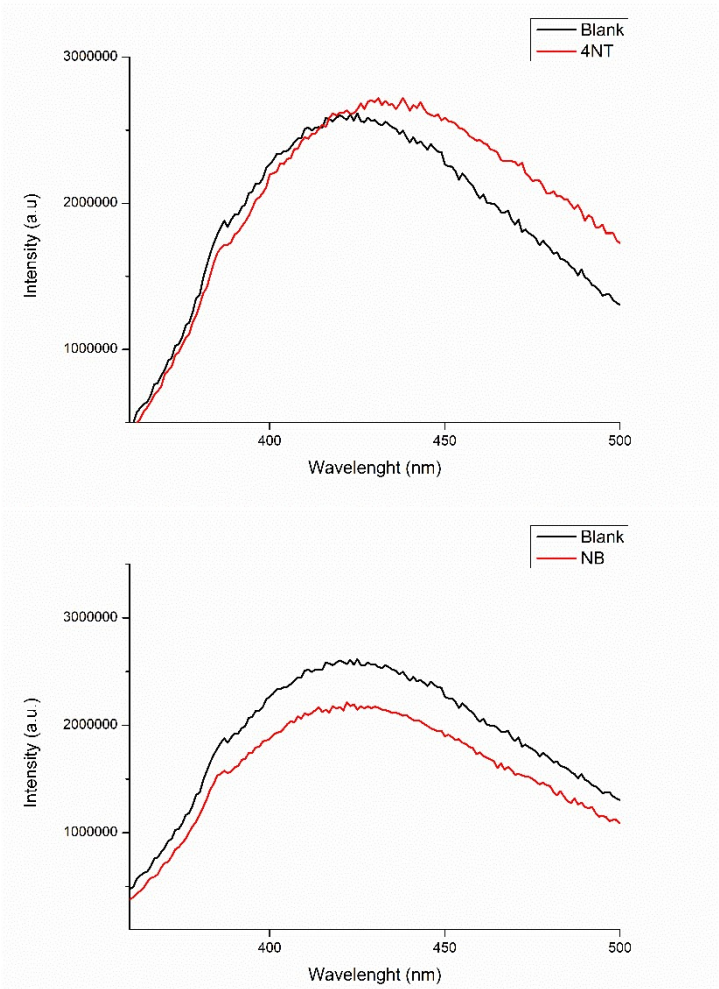


Figure S3. Fluorescence emission spectra of different NACs (10 µM) and CDs (30 µg/mL).

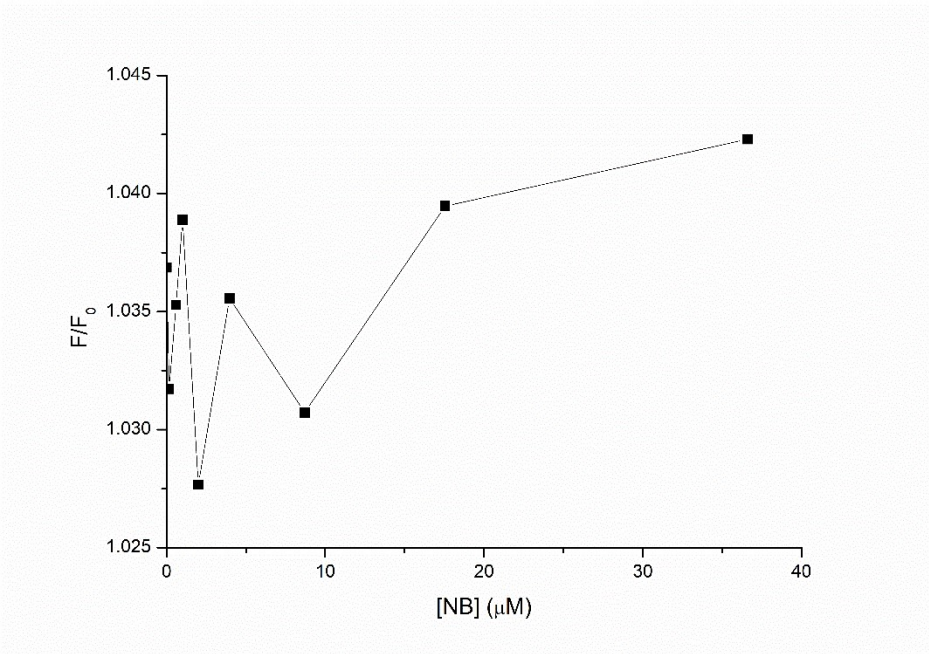


Figure S4. Influence of the PL emission intensity of aqueous CDs solutions (80.0 µg/mL) at different concentrations of NB.

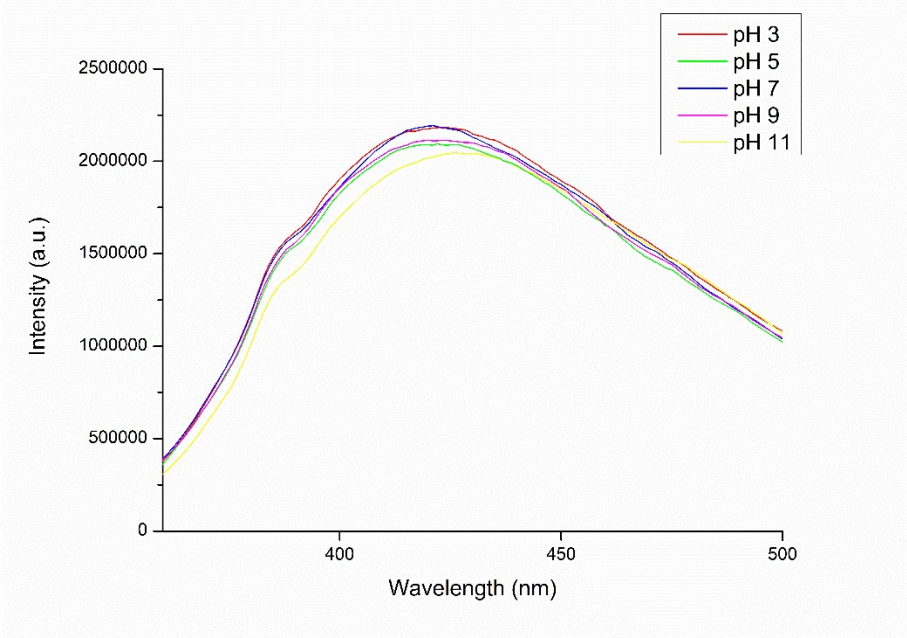


Figure S5. Influence of pH on CDs stability.

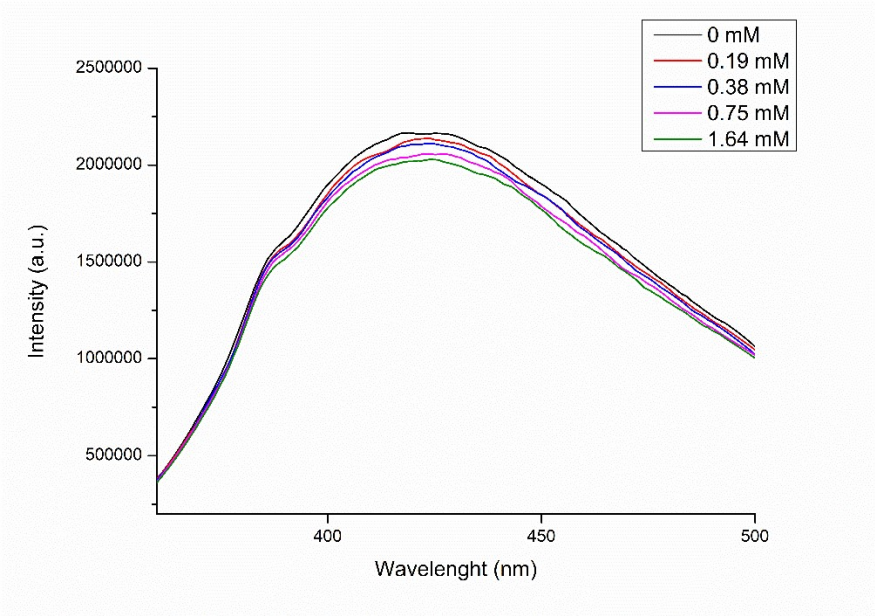


Figure S6. Fluorescence of NB at different NaCl concentrations.

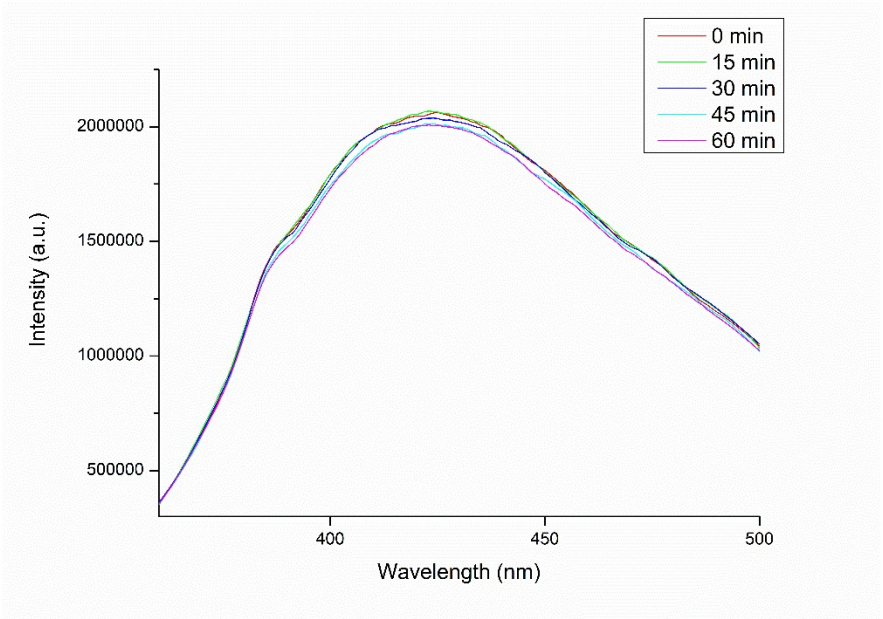


Figure S7. The interaction time stability at different incubation time: fluorescence intensity of CDs in the presence of NB.

$$MI = \frac{\Sigma_m(Input\ Materials)}{m\ (Product)} = \frac{0.303 + 0.75}{0.113} = 9 \quad \text{(S1)}$$

$$MP = \frac{m(Product) * 100}{\Sigma_m(Input\ Materials)} = \frac{0.113 * 0.100}{0.303 + 0.75} = 11\% \quad \text{(S2)}$$

$$RME = \frac{m(Product) * 100}{\Sigma_m(Raw\ Materials)} = \frac{0.113 * 0.100}{0.303} = 37\% \quad \text{(S3)}$$

$$E - Factor = \frac{\Sigma_m(Input\ Materials) - m\ (Product)}{m\ (Product)} = \frac{(0.303 + 0.75) - 0.113}{0.113} = 8 \quad \text{(S4)}$$

Equations S1-S4. Process Efficient Metrics: All the complete equations (1-4) with the relative calculation.