

**Electronic Supplementary Information (ESI)**

**for**

**Yellow emitting carbon dots with superior colloidal, thermal, and  
photochemical stability**

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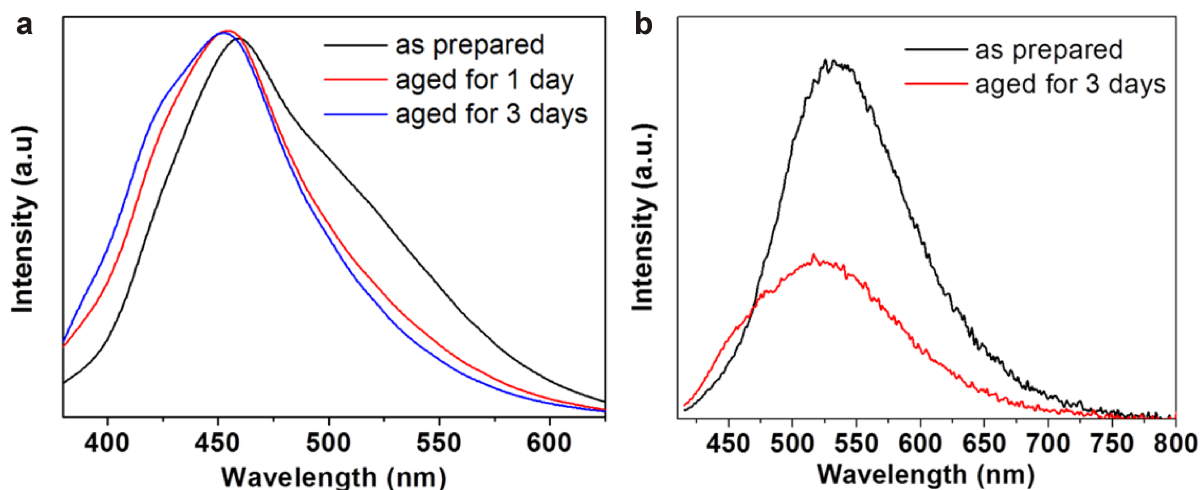
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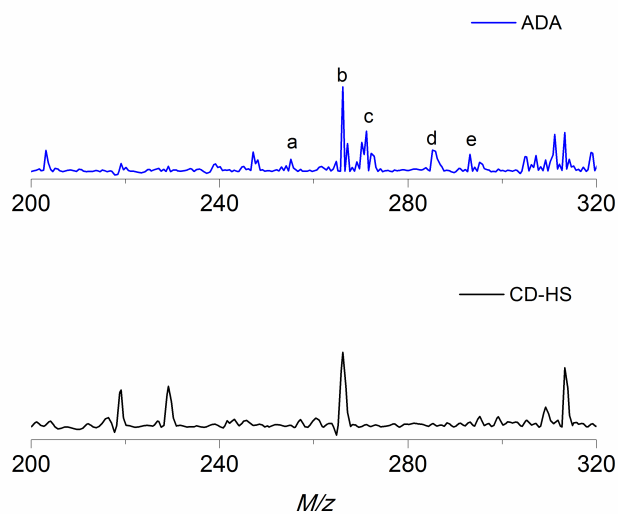
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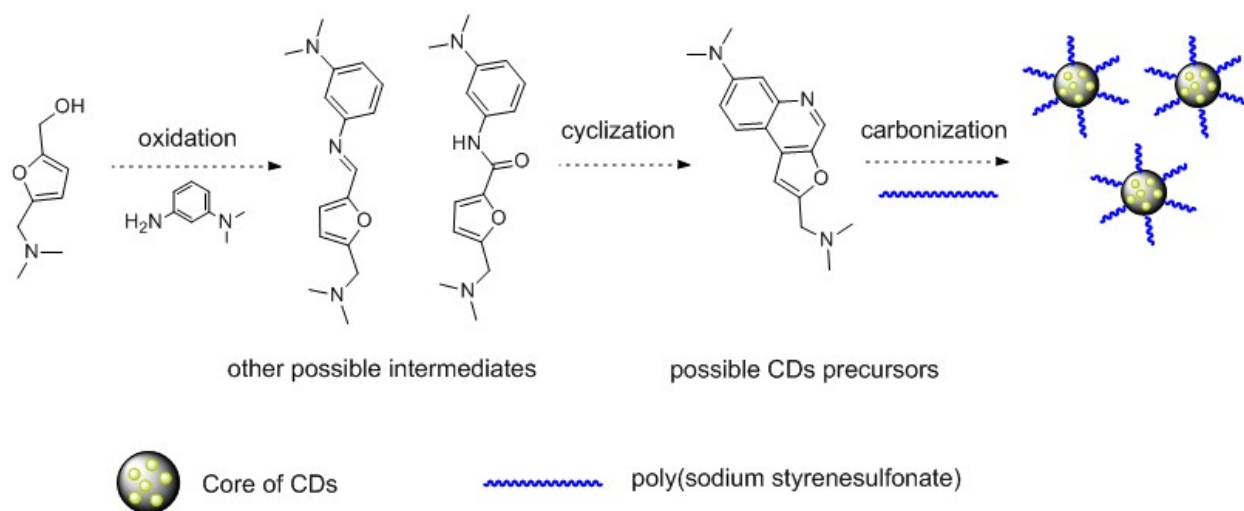
Number of pages: 5



**Figure S1.** (a) PL spectra of CD-cy obtained from citric acid and cyanamide dispersed in distilled water and heated at 100 °C for 3 days. The excitation wavelength is 410 nm. (b) PL spectra of CD-cu obtained from citric acid and urea dispersed in distilled water and heated at 100 °C for 3 days. The excitation wavelength is 410 nm.



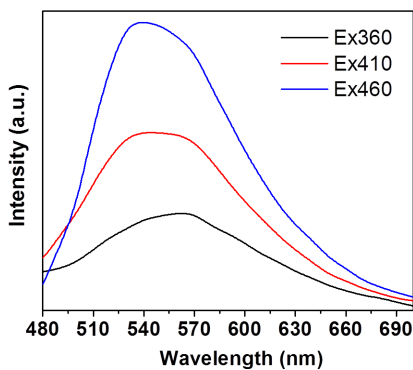
**Figure S2.** Mass spectra comparison of ADA and CD-HS.



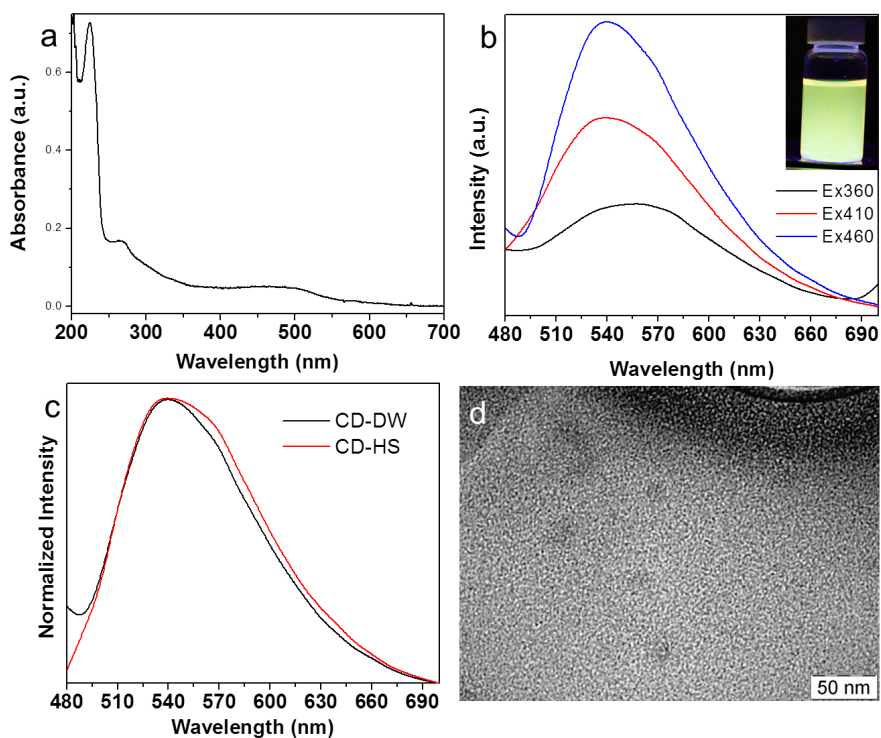
**Figure S3.** Possible reaction mechanism of yellow emitting CDs.

**Table S1.** Assignment of mass spectra peaks in Figure S2.

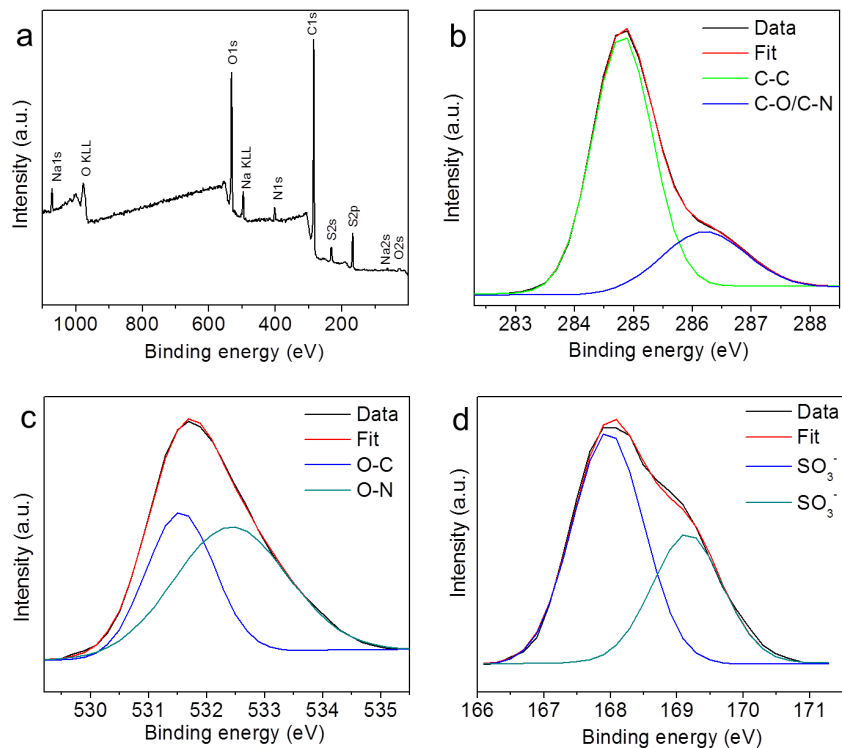
Mass spectrum peaks	<i>M/z</i>	Possible species
a	255	
b	266	
c	271	
d	285	
e	293	



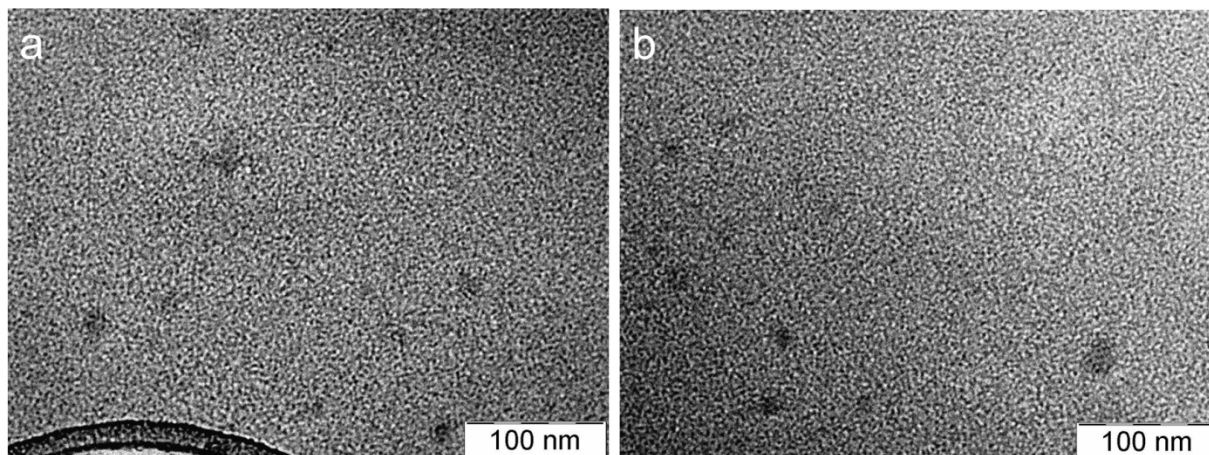
**Figure S4.** PL spectra of CD-HS excited at 360, 410 and 460 nm wavelengths, respectively.



**Figure S5.** (a) UV-Vis absorption and (b) PL spectra of CD-DW excited at 360, 410 and 460 nm wavelengths respectively, inset showing photograph of aqueous dispersion of CDs taken under UV light (excited at 365 nm) showing yellow-green emission. (c) PL spectra showing the comparison between CD-HS and CD-DW excited at 460 nm. (d) TEM image of CD-DW.



**Figure S6.** XPS spectra of CD-DW. (a) Full survey scan and the high resolution scans of (b) C1s, (c) O1s, and (d) S2p, respectively. The survey XPS spectrum indicates the existence of elements C, O, S, and N respectively for CD-DW with atomic percentages of 69, 21, 4, and 3.5 respectively.



**Figure S7.** TEM of the CD-HS stored in distilled water and heated at 100 °C for (a) 3 and (b) 6 days, respectively.