Electronic Supplementary Information

The Synthesis of Green Fluorescent Carbon Dots for Warm White LEDs

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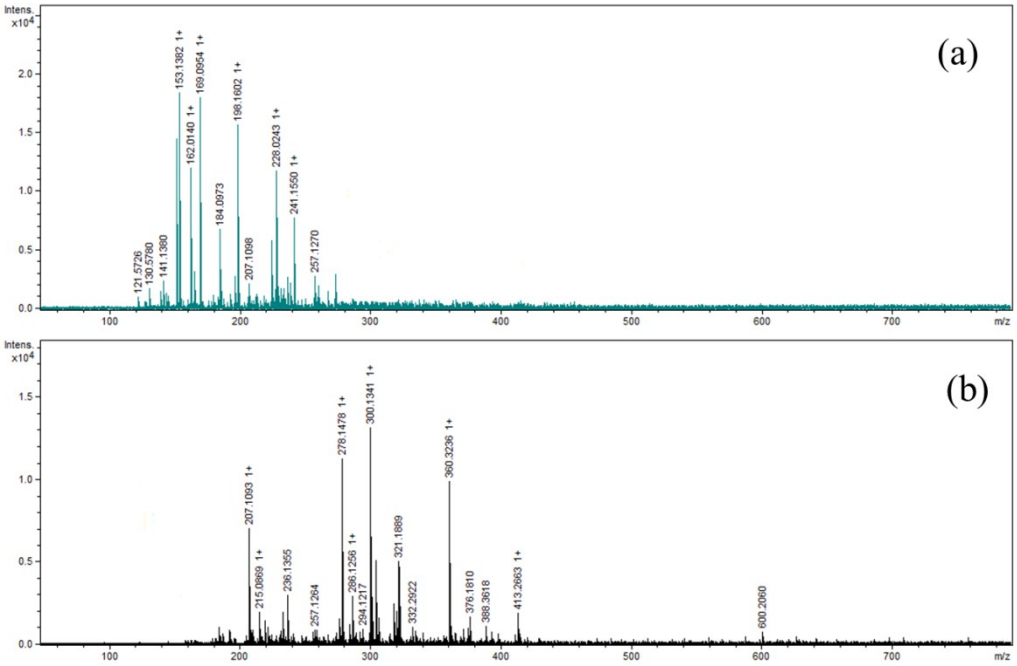

Figure S1 ESI-MS spectra of CDs-b (a) and CDs-s (b) in the region of 0–800 m/z.

Table S1 Elemental composition of CDs-o, CDs-s, CDs-b, CDs-w and CDs-e

	C (wt%)	H (wt%)	N (wt%)	O* (wt%)
CDs-o	52.80	5.44	7.76	34.00
CDs-s	55.00	5.60	6.67	32.73
CDs-b	53.24	5.63	7.08	34.05
CDs-w	55.51	4.97	0	39.52
CDs-e	56.52	5.08	0	38.40

*By difference.

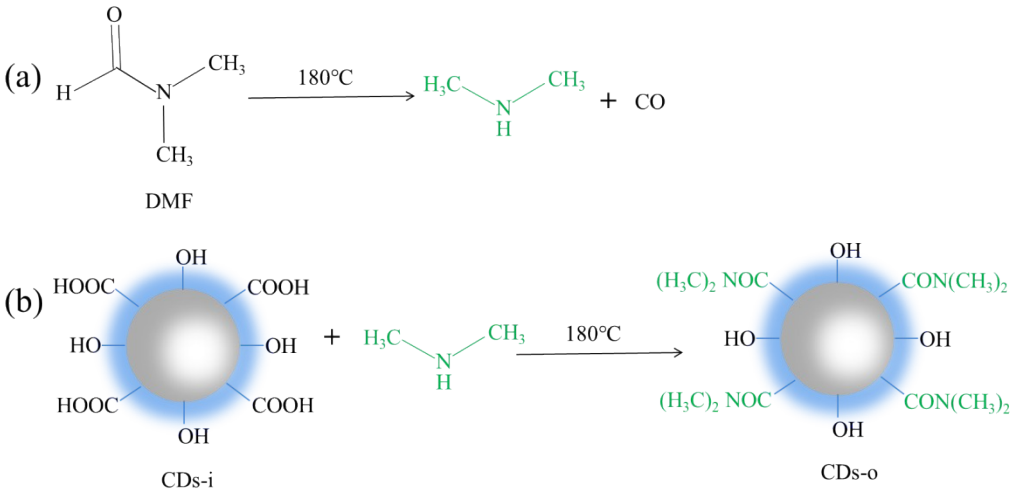

Figure S2 (a) Decomposition of DMF at high temperature. (b) Schematic illustration of the strategy for preparation of CDs-o.

Table S2 The QY of blue emissive CDs prepared by our group

materials	solvent	emission peak (nm)	approach	QY	references
citric acid, KH-792	water	448	Hydrothermal method	57.3%	[1]
citric acid, ethylenediamine	water	444	Hydrothermal method	67.06%	[2]
citric acid, ammonia solution	water	440	Hydrothermal method	35.4%	[3]
citric acid, L-cysteine	water	420	Hydrothermal method	67.41%	[4]
ammonium citrate, phosphates	water	450	Hydrothermal method	62%	[5]

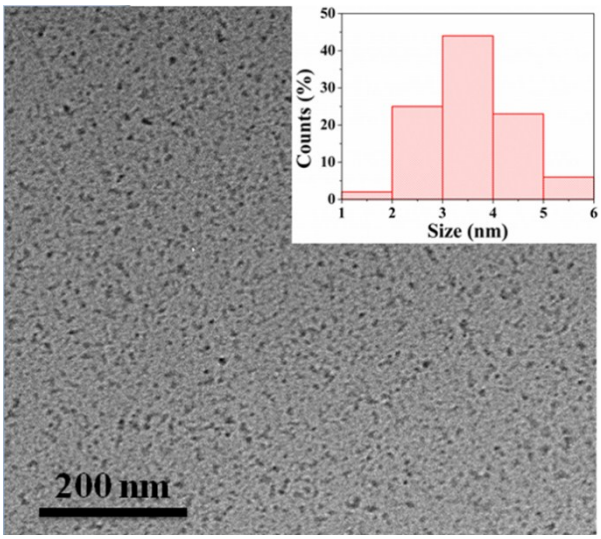

Figure S3 TEM images of CDs-w (inset is the size distribution).

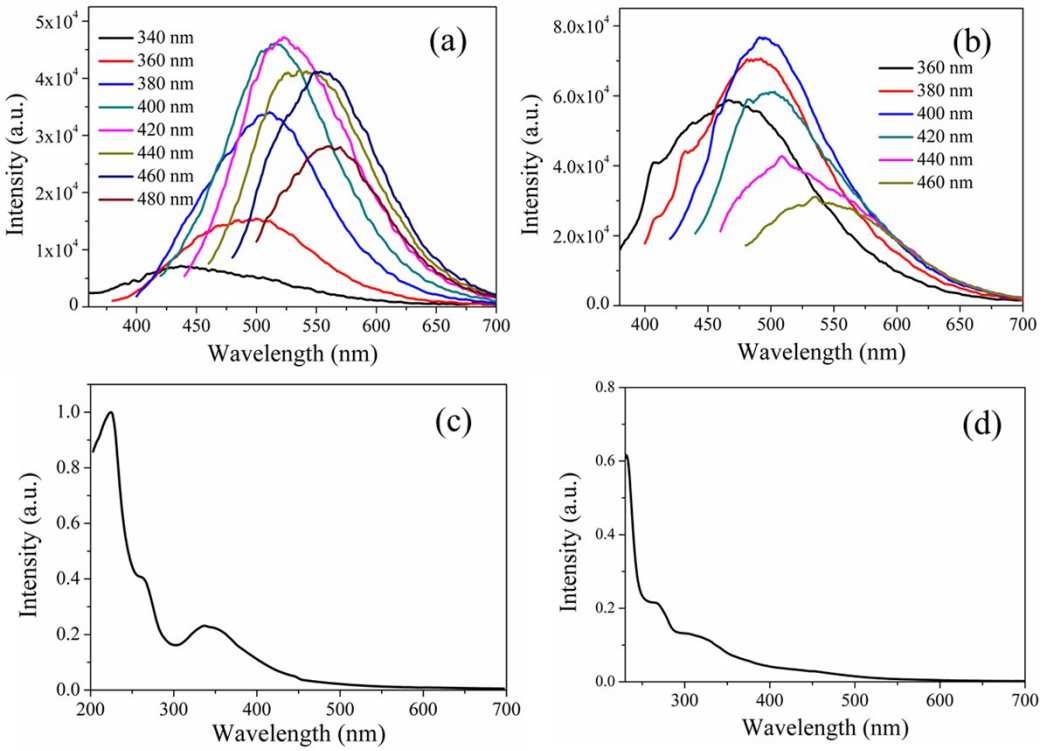

Figure S4 UV-vis absorption spectra, PL spectra at different excitation wavelengths of CDs-we (a, c) and CDs-ee (b, d).

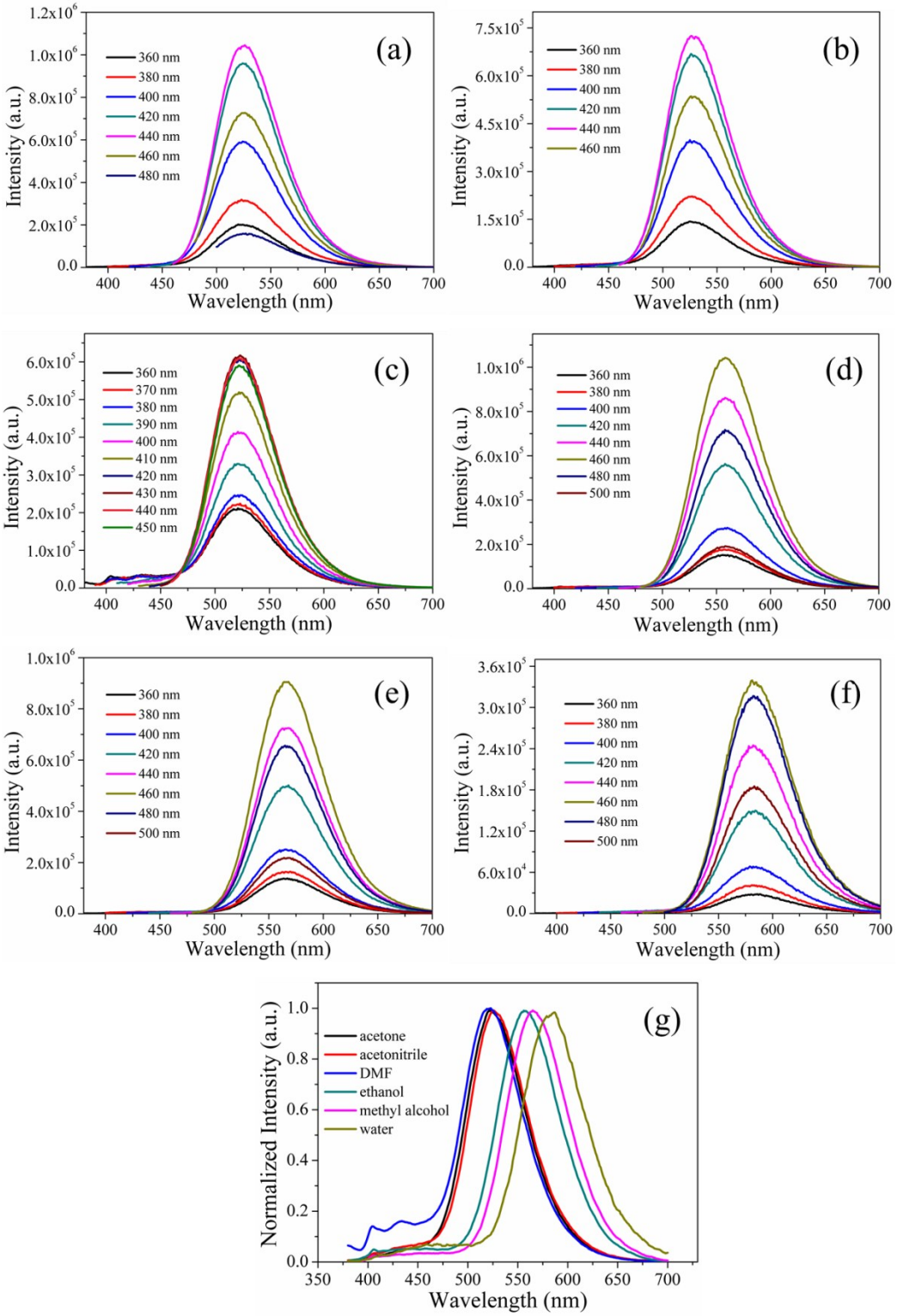

Figure S5 The photoluminescence spectra of CDs-o excited by different excitation wavelengths in solvents of acetone (a), acetonitrile (b), DMF (c), ethanol (d), methyl alcohol (e), water (f), and the photoluminescence spectra of the same CDs in 6 solvents excited by 360 nm light (g).

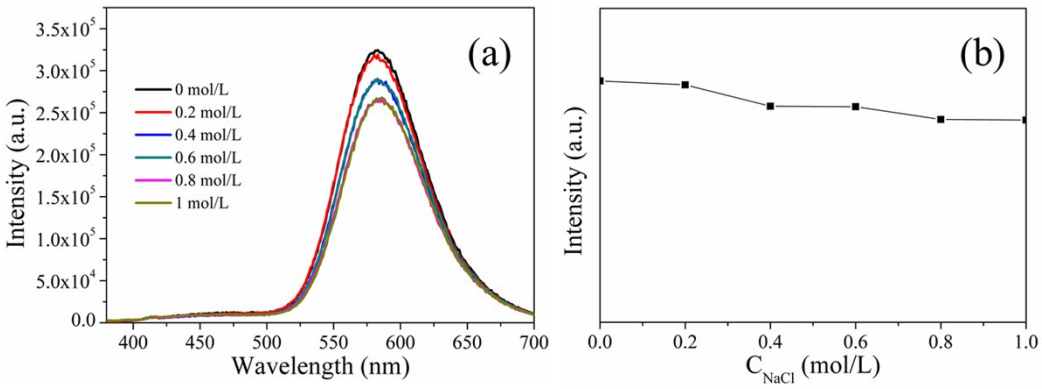

Figure S6 The photoluminescence spectra of CDs-o aqueous solutions (a) and PL intensity (b) (regulated by concentrations of NaCl from 0 to 1 mol/L).

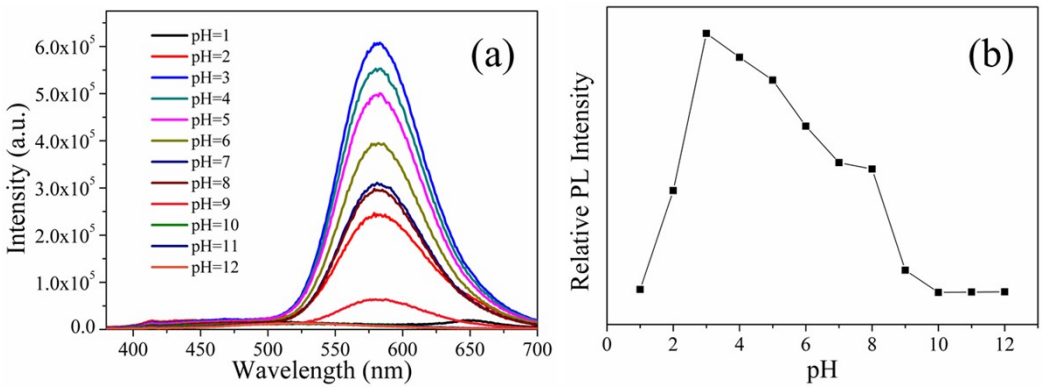

Figure S7 The photoluminescence spectra (a) and relative PL intensity of CDs-o aqueous solution with the increase of pH from 1 to 12.

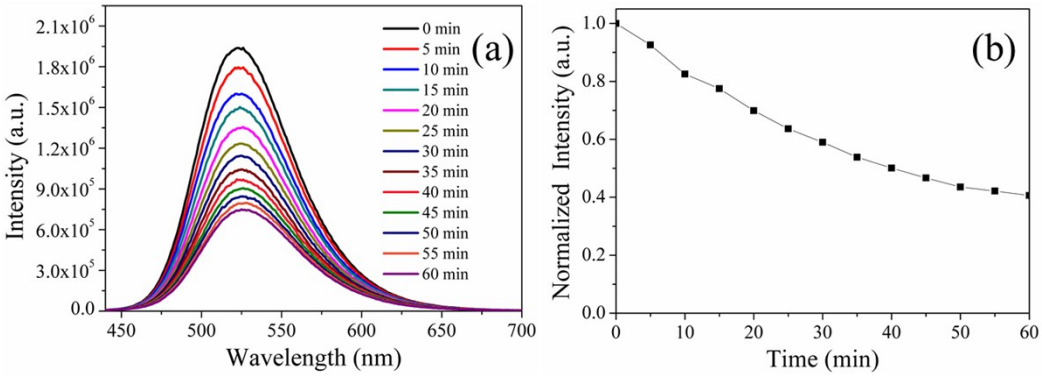

Figure S8 Photoluminescence spectra (a) and variation of PL intensity (b) of CDs-o under UV light during different irradiation time.

References

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