Supporting Information

Sodium-Doped Carbon Dots as Fluorescent Sensor for Highly Selective Detection of TNP Explosives in the Environment

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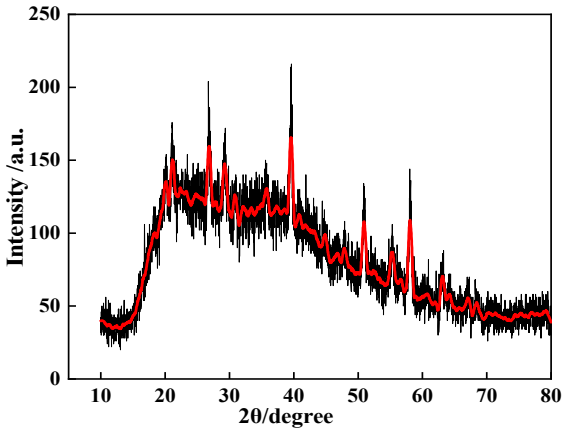

Figure S1. The XRD spectrum of Na-CDs.

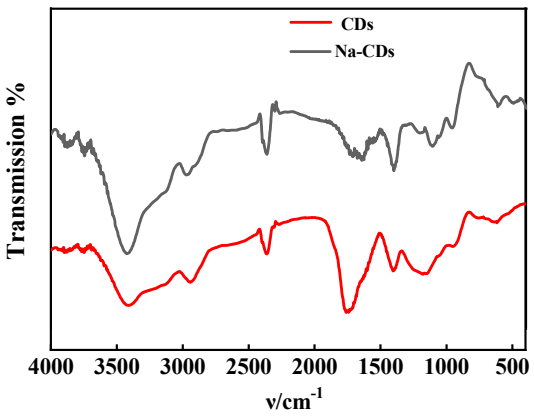

Figure S2. FTIR spectra of Na-CDs and CDs.

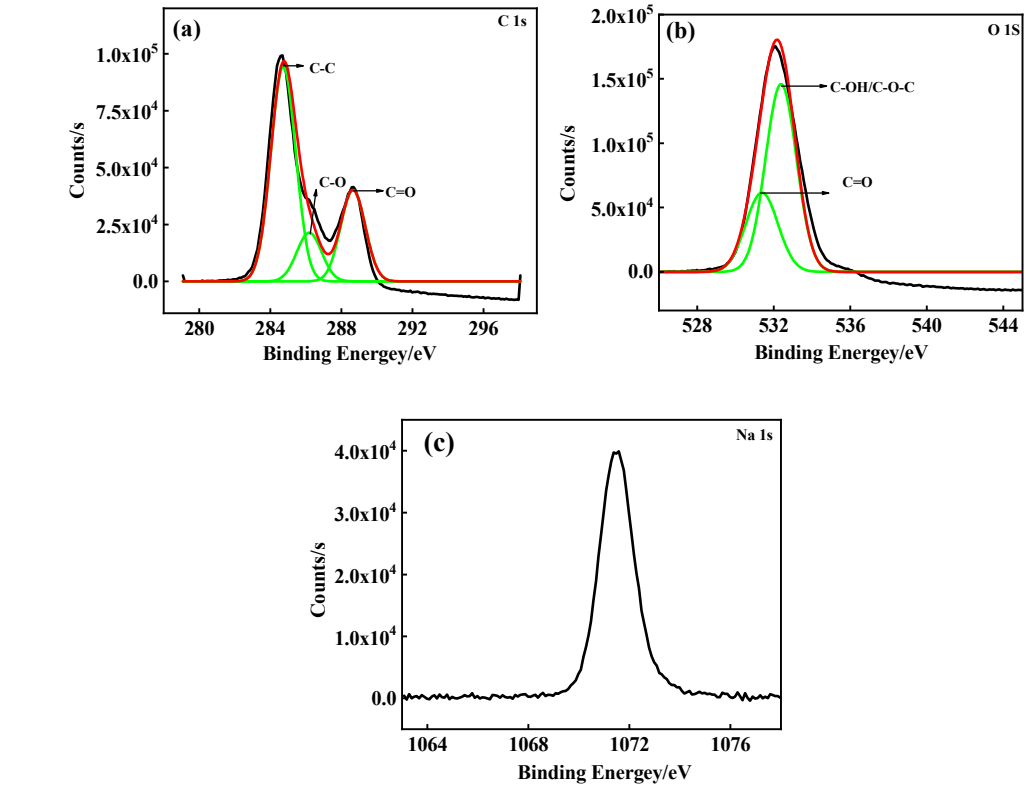

Figure S3. (a) The C1s spectrum of the XPS spectrum of Na-CDs, (b) the O1s spectrum of the XPS spectrum of Na-CDs, (c) and the Na 1s spectrum of the XPS spectrum of Na-CDs.

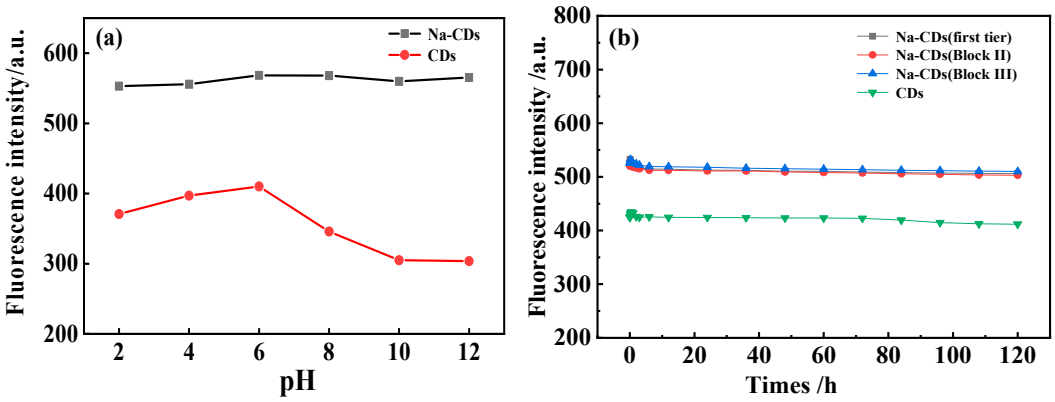

Figure S4. pH and photostability of Na-CDs and CDs.

Table S1. Fluorescence quantum yield of Na-CDs.

designation	λex/nm	λem/nm	A	I	Y
Na-CDs	350	425	0.030	3159.80	0.020
CDs	350	425	0.030	1548.83	0.0098
Quinine sulfate	350	440	0.037	107717.29	0.55

Table S2. Data analysis of fluorescence lifetime.

Sample	τ_1/ns	τ_2/ns	τ/ns	X^2
Na-CDs	1.37（69.79%）	3.66（30.21%）	2.06	1.0173
Na-CDs+TNP	1.13（54.11%）	3.12（45.89%）	2.04	0.8498

Table S3. The results of the Stern–Volmer equation at different temperatures.

T/℃	**Equation of linear regression**	Ksv(10^{-4})	R^2
20	F_0/F=48058.01[Q]+ 0.83	4.80	0.9987
30	F_0/F=50655.70[Q] + 0.85	5.07	0.9986
40	F_0/F=50880.60[Q] +0.78	5.09	0.9960

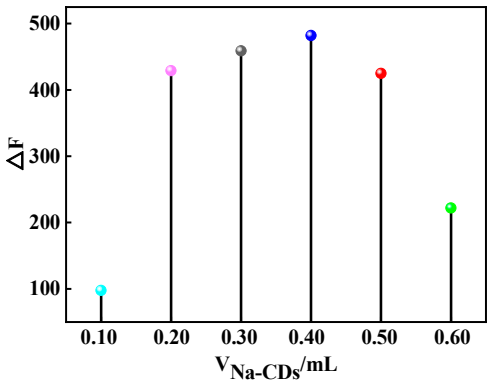

Figure S5. Effect of the Na-CD dosage.

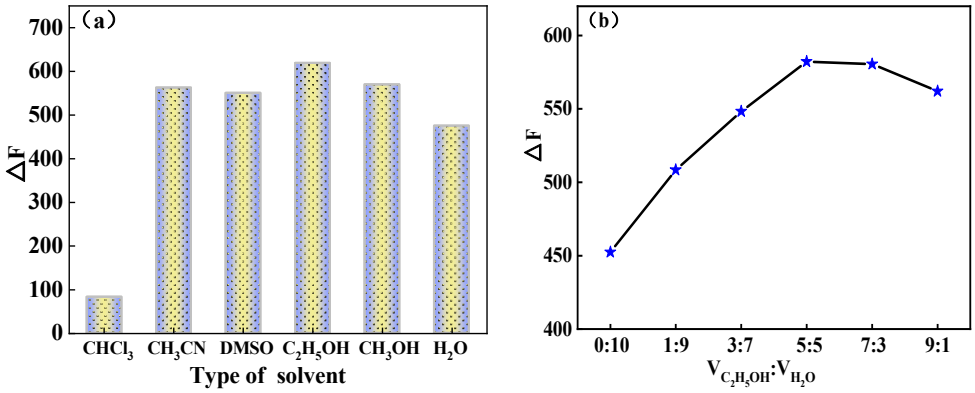

Figure S6. The influence of solvent selection on the fluorescence intensity of the system.