

# Phosphate-Mediated Fluorescence Switching in a UiO-66-NH<sub>2</sub>/Red Carbon Dot Hybrid for Ratiometric and Smartphone-Assisted Visual Detection of Ethephon

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Figure S1

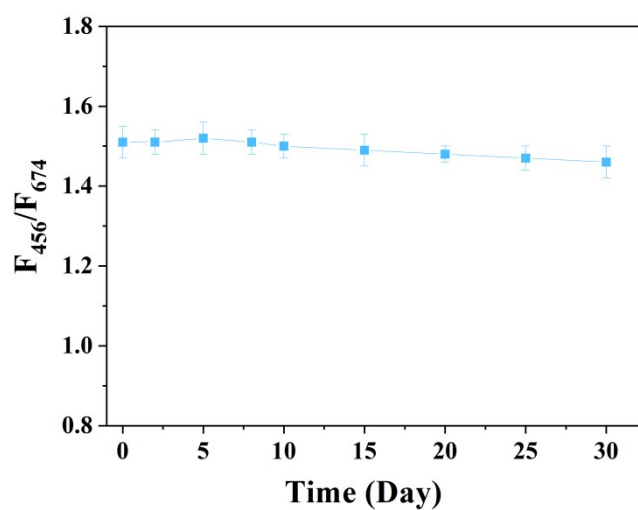


Figure S1 The stability of R-CDs/UiO-66-NH<sub>2</sub>

Figure S2

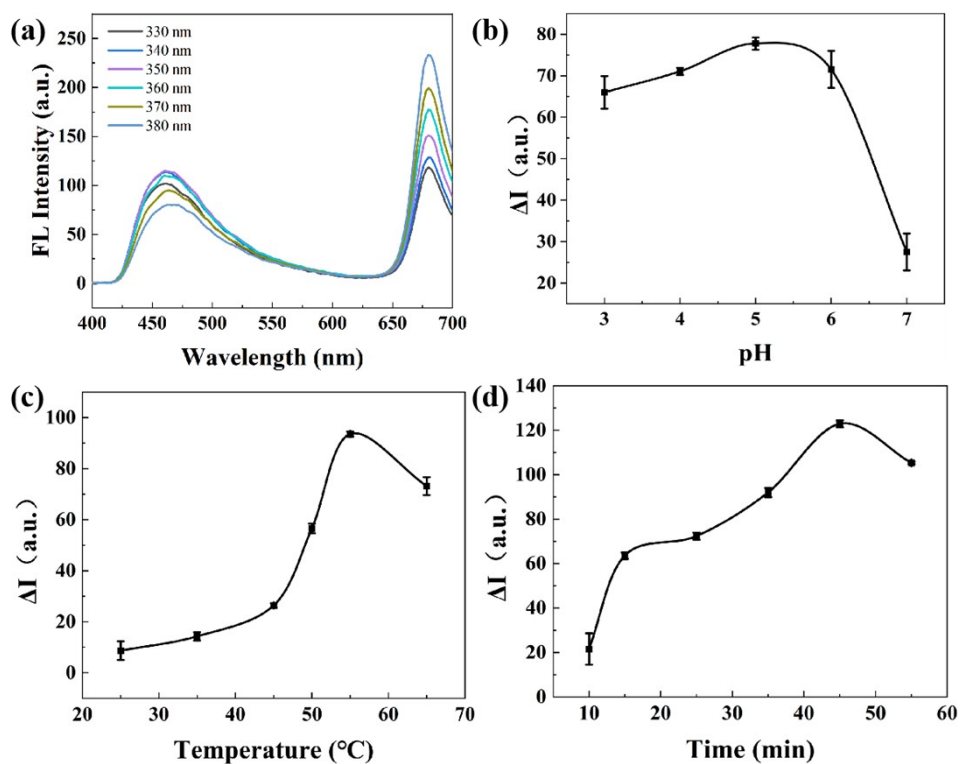


Figure S2 Optimization of the reaction conditions for the interaction between R-CDs/UiO-66-NH<sub>2</sub> and ETH. (a) Excitation wavelength, (b) pH, (c) Temperature, (d) Time. (n=3)

**Table S1** Individual linear calibration equations and intra-device reproducibility for different smartphones

Smartphones	Linear Equation	LOD ( $\mu\text{M}$ )	RSD (%)
Xiaomi 14	$-1.442x + 0.978$	23.1	1.2- 4.4
Rongyao X60	$y = -1.650 x + 0.952$	18.0	1.07-5.06

**Table S2** Intra-day and inter-day variability of R-CDs/UiO-66-NH<sub>2</sub> in detecting ETH

	Concentration ( $\mu\text{M}$ )	$F_{456}/F_{674}$			RSD (%)
		1	2	3	
Intra-daily Variability	0	0.42	0.39	0.42	3.97
	12.5	0.54	0.53	0.55	1.37
	37.5	0.72	0.61	0.63	8.56
Inter-daily Variability	0	0.42	0.47	0.42	5.98
	12.5	0.54	0.50	0.50	4.40
	37.5	0.61	0.60	0.60	1.19