Electronic Supplementary Material (ESI) for RSC Applied Interfaces.

Supporting Information

Bile-Salts Templated Green Fluorescent Copper Nanoclusters: Detection of 4-Nitrophenol in Nanomolar Range

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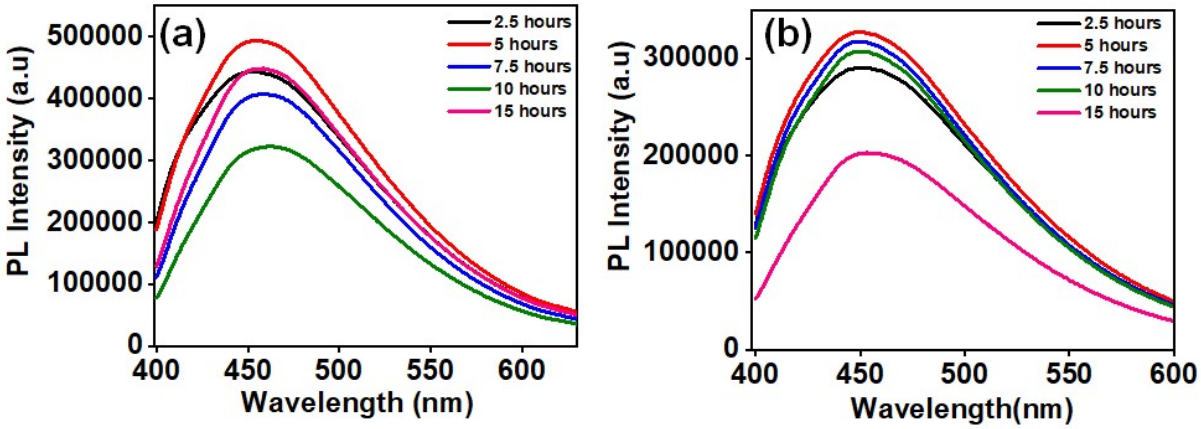

Figure S1: PL emission on varying the reaction time of (a) NaC@CuNCs and (b) NaTC@CuNCs.

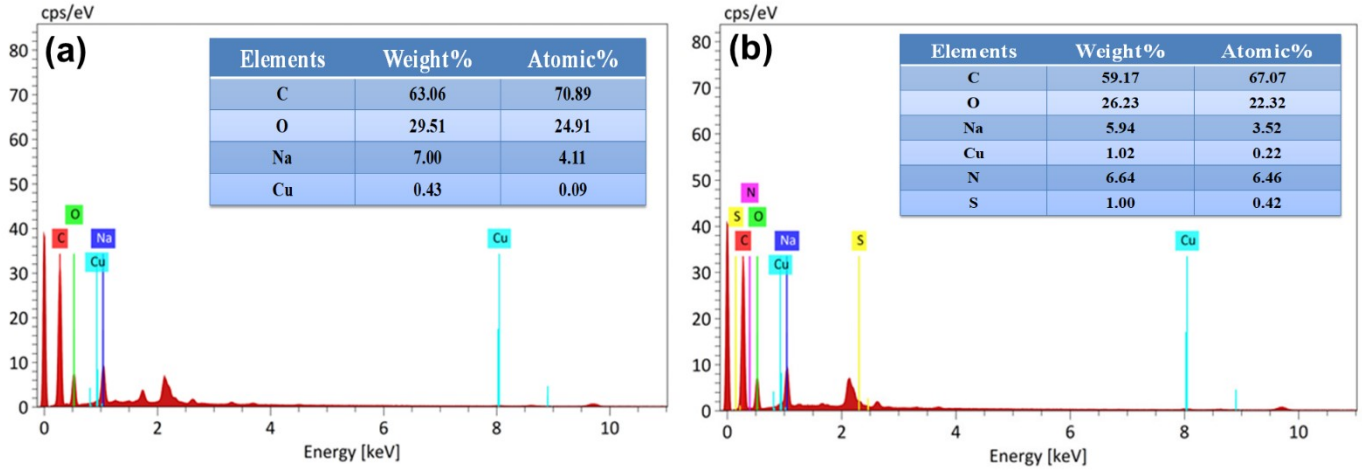

Figure S2: EDS spectra of (a) NaC@CuNCs and (b) NaTC@CuNCs.

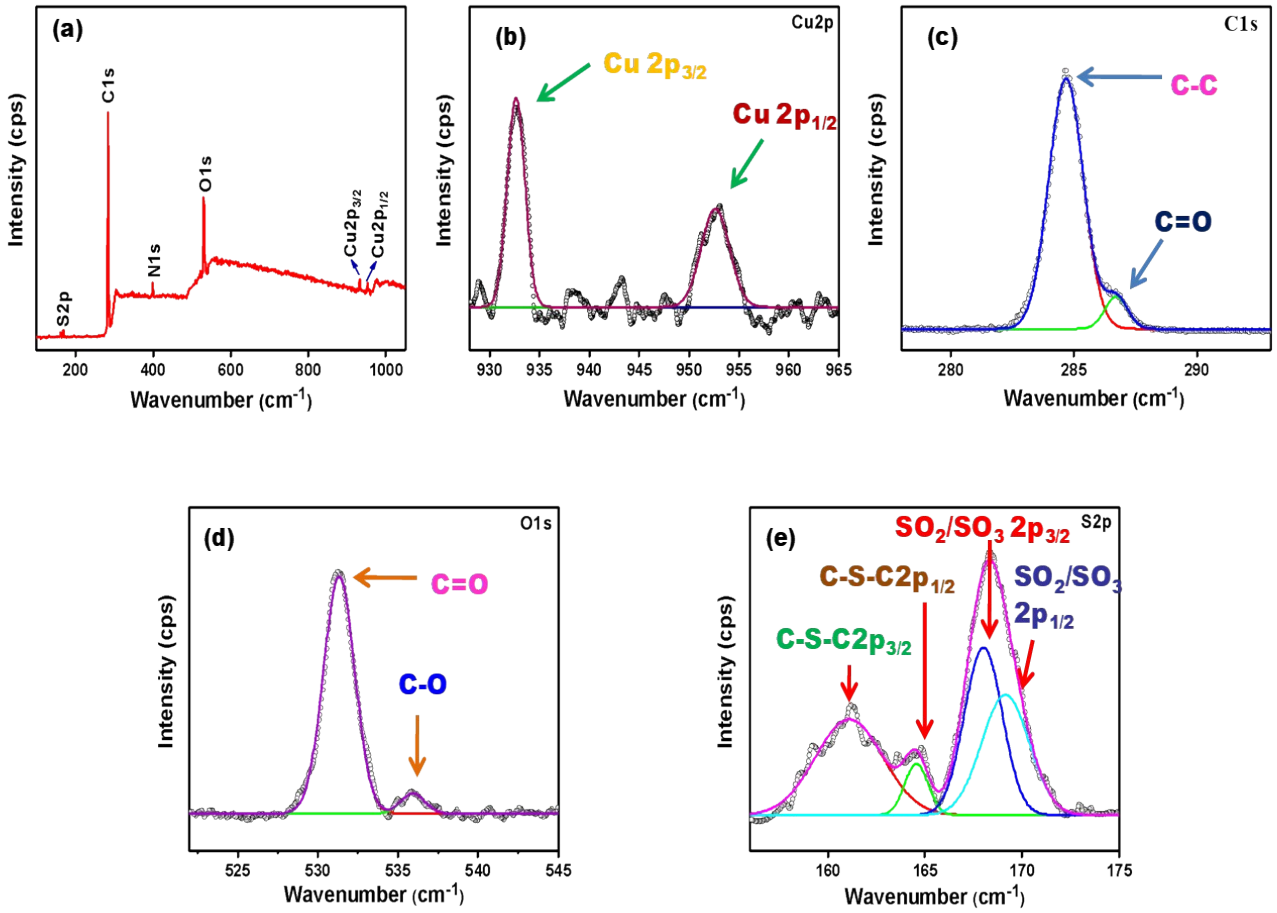

Figure S3: (a) XPS survey spectra of NaTC@CuNCs; (b) deconvoluted XPS spectra of Cu2p; (c) deconvoluted XPS spectra of C1s; (d) deconvoluted XPS spectra of O1s; (e) deconvoluted spectra of S2p.

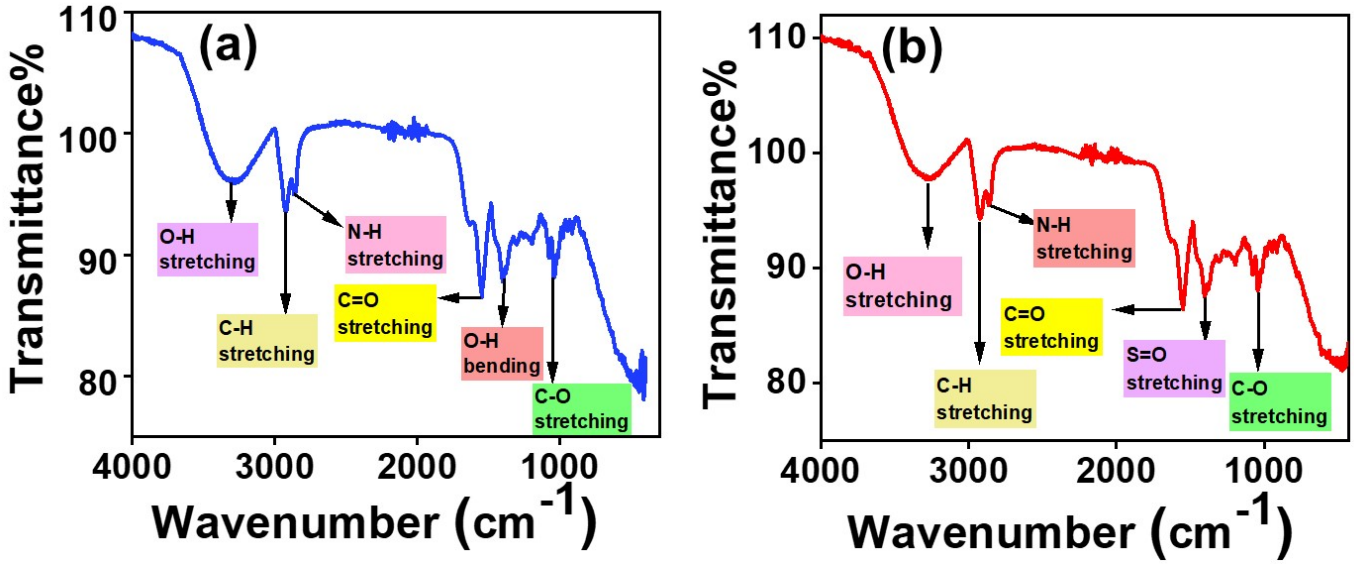

Figure S4: FTIR spectra of (a) NaC@CuNCs and (b) NaTC@CuNC

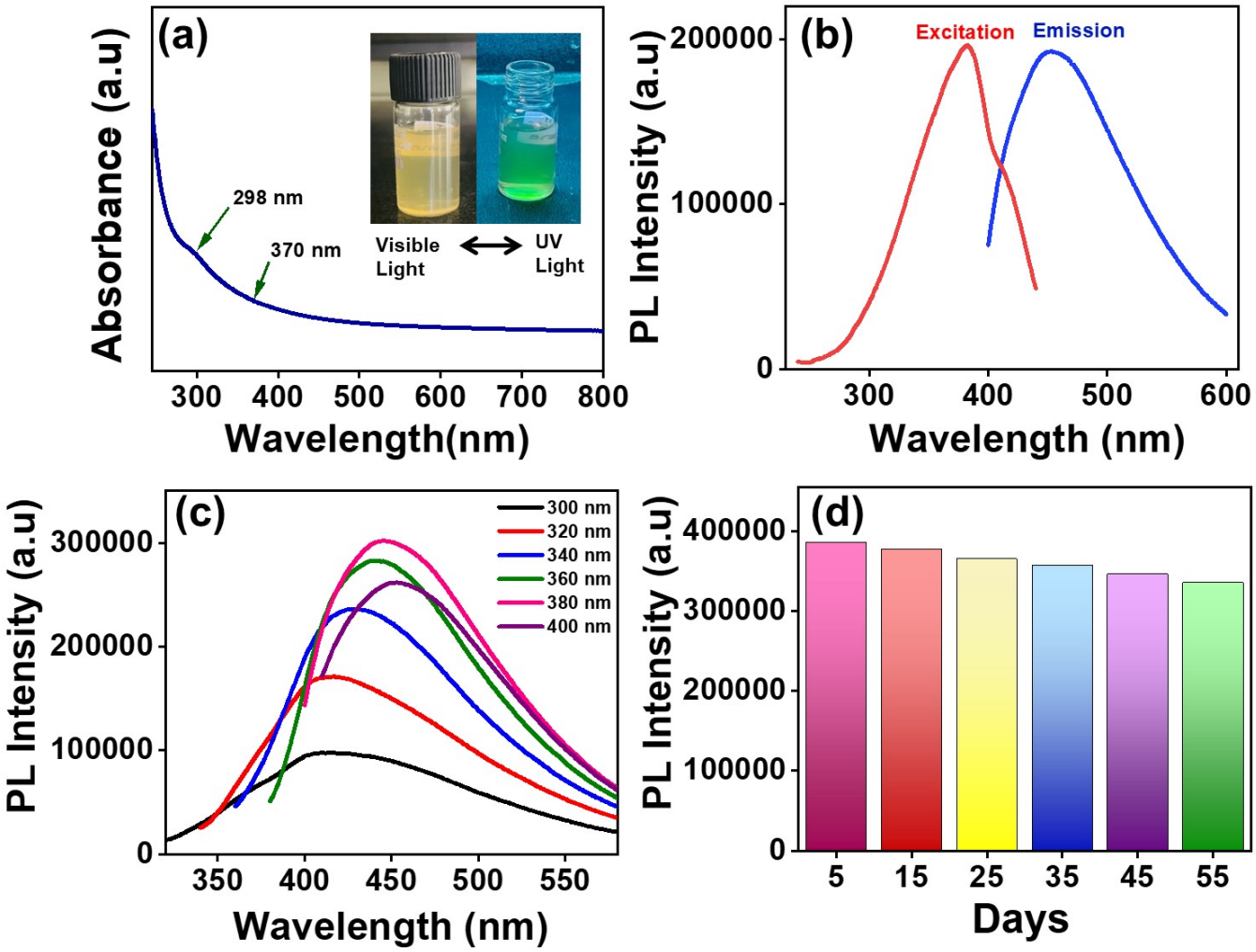

Figure S5: (a) UV-Visible spectra of NaC@CuNCs with inset of NaC@CuNCs under visible and UV radiations; (b) excitation and emission wavelength spectra of NaC@CuNCs; (c) excitation wavelength dependent behavior of NaC@CuNCs; (d) effect of storage duration (days) on PL stability of NaC@CuNCs.

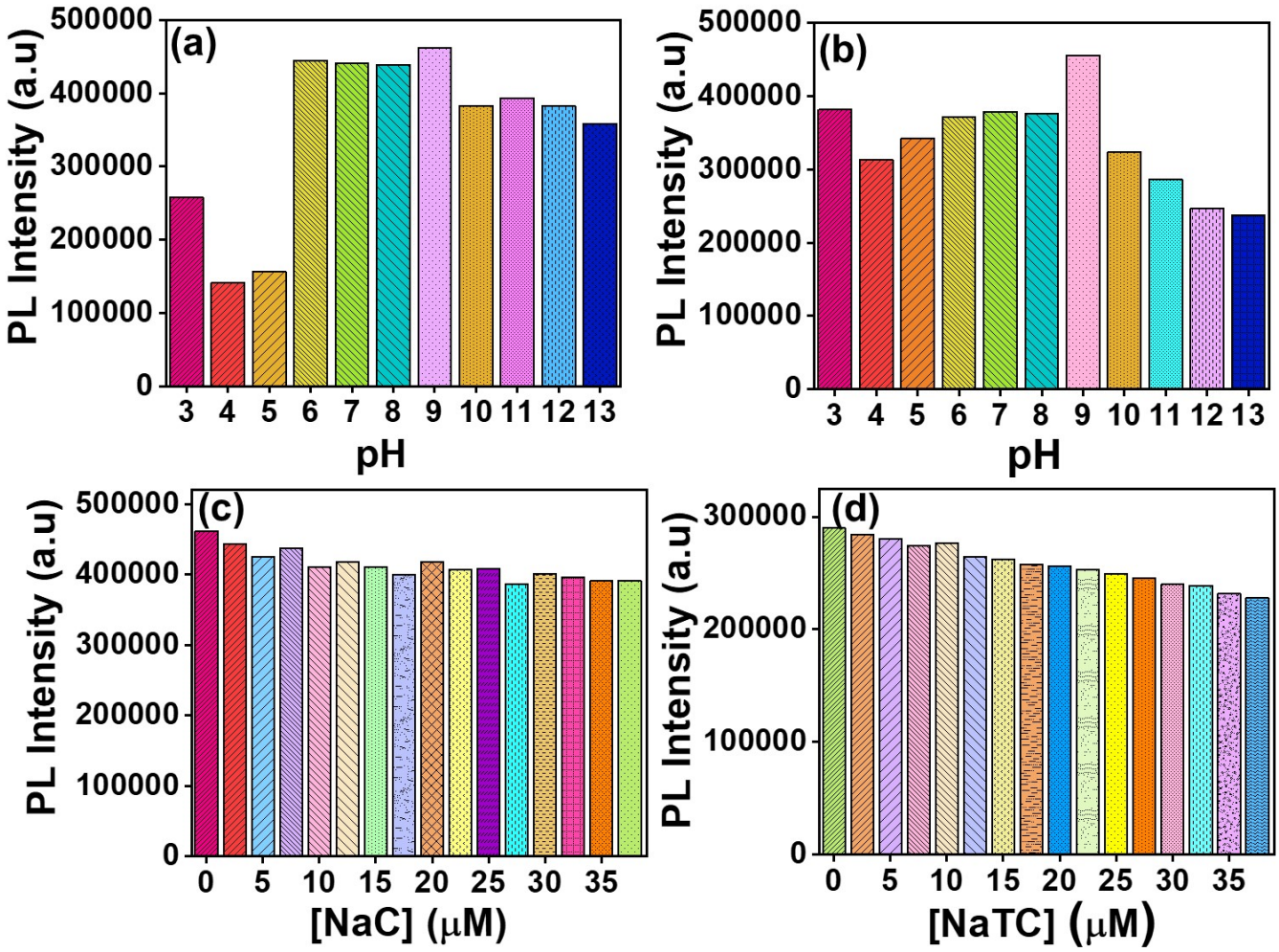

Figure S6: (a) Effect of pH variations on PL intensity of NaC@CuNCs; (b) Effect of pH variations on PL intensity of NaTC@CuNCs ;(c) Effect of ionic variations on PL intensity of NaC@CuNCs; (d) Effect of ionic variations on PL intensity of NaTC@CuNCs.

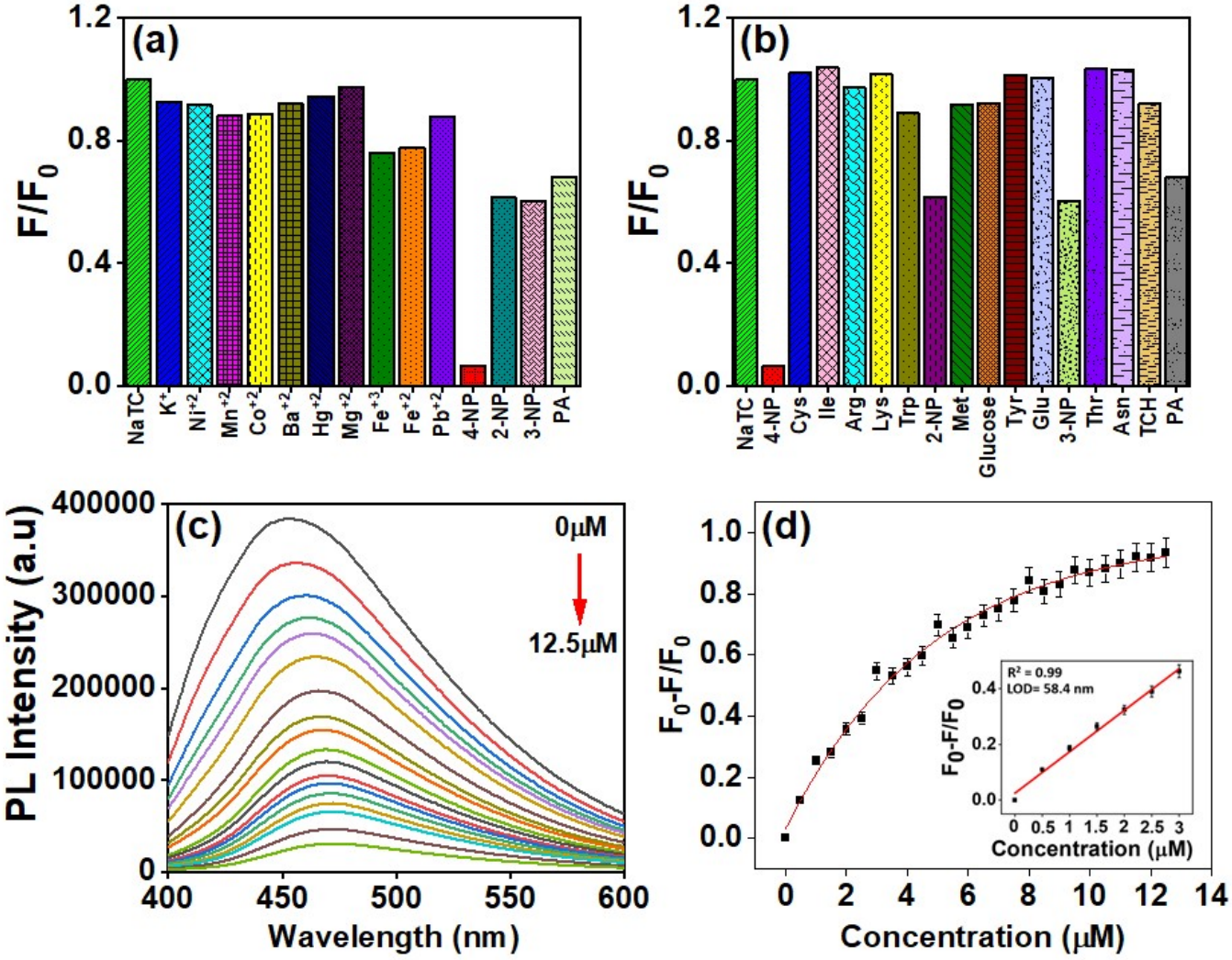

Figure S7: (a) Selectivity study of NaTC@CuNCs with various metal ion solutions; (b) Selectivity study of NaTC@CuNCs with various biomolecule solutions; (c) effect of varying concentrations of 4-NP on the PL intensity of NaTC@CuNCs and (d) relationship between F_0-F/F_0 and varying concentration of 4-NP from 0-0.30 μM (inset by varying the concentration of 4-NP from 0-1.0 μM).

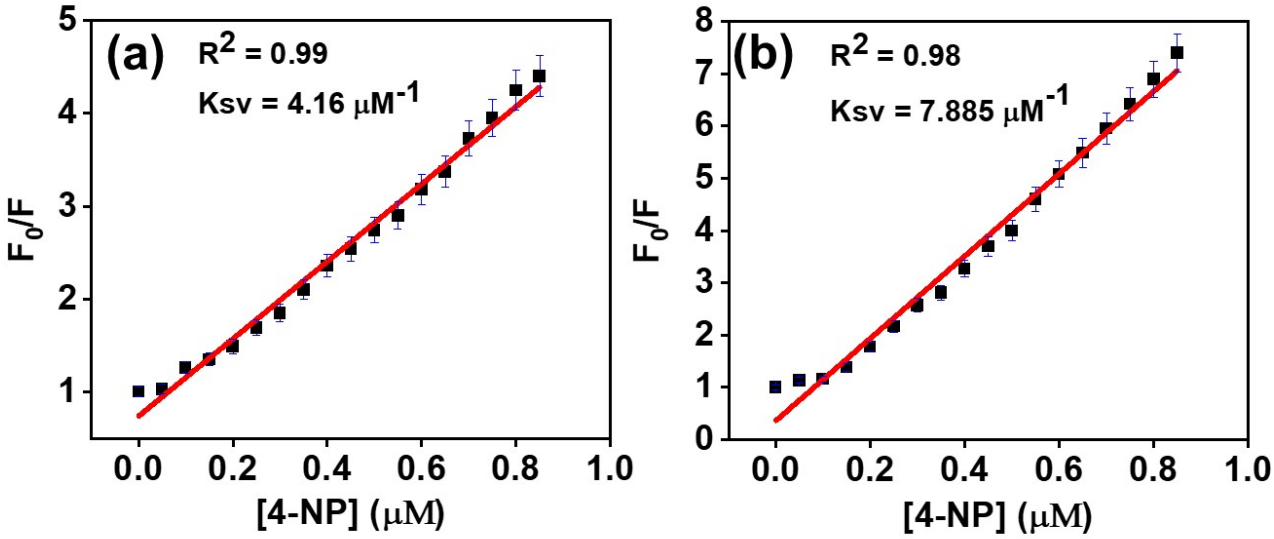

Figure S8: Stern-Volmer Plot of (a) NaC@CuNCs and (b) NaTC@CuNCs.

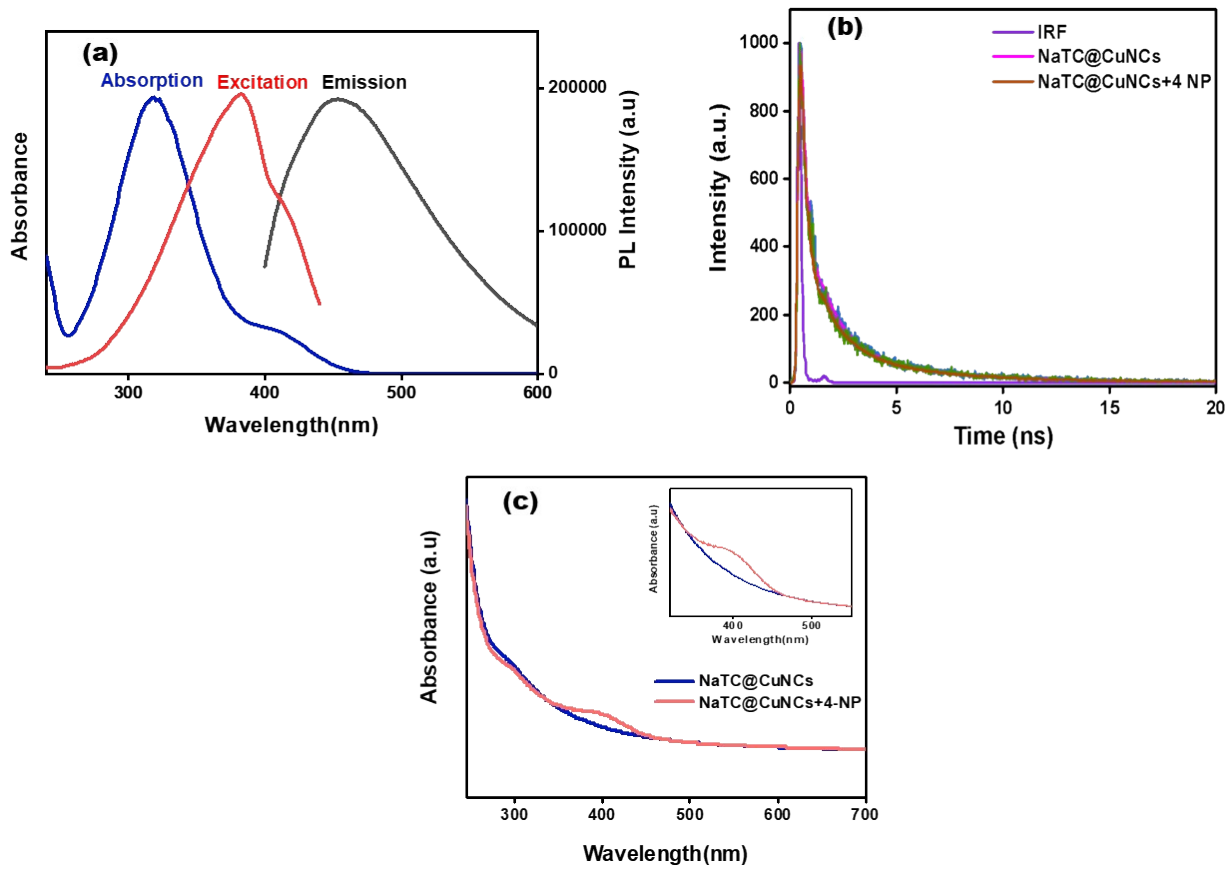

Figure S9: (a) Fluorescence excitation, emission peak of NaTC@CuNCs and the UV-Vis absorption peak of 4-NP; (b) Lifetime spectra of NaTC@CuNCs and (c) UV-Vis spectra of NaTC@CuNCs, NaTC@CuNCs + 4-NP (inset magnified image of same graph).

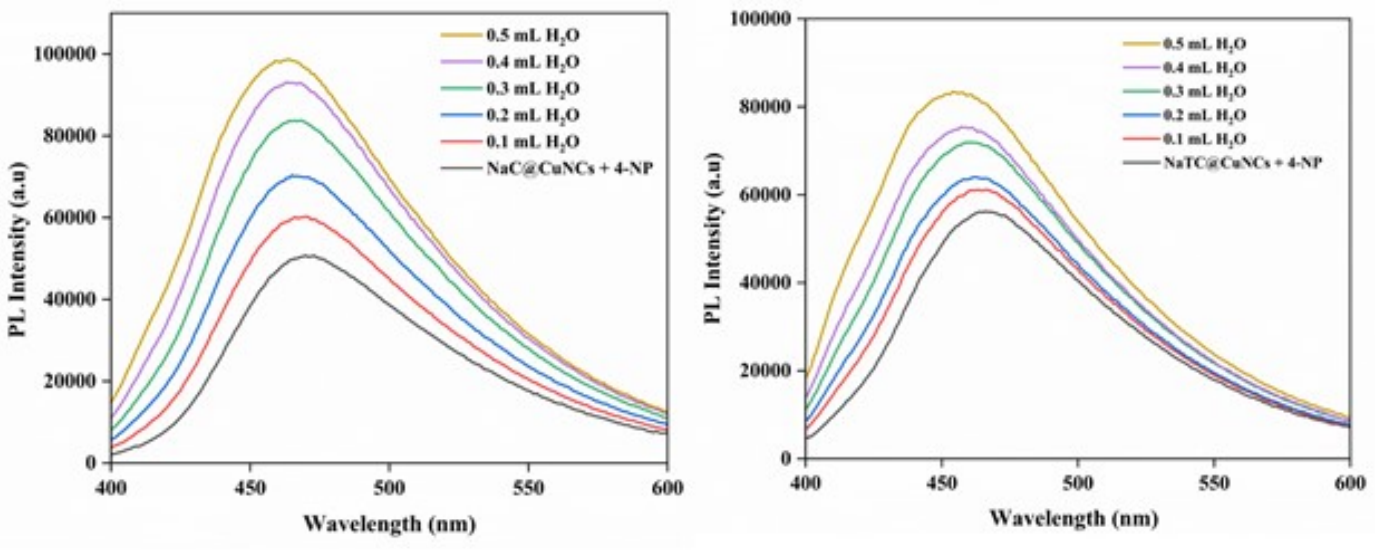

Figure S10: Dilution effect on [NaC@CuNCs + 4-NP] and [NaTc@CuNCs + 4-NP] .

Table S1: Time-resolved emission parameters.

System	Fluorescence lifetime in ns(amplitude)			Mean lifetime in ns	
	$\tau_1(\alpha_1)$	$\tau_2(\alpha_2)$	$\tau_3(\alpha_3)$	τ_m	χ^2
NaC@CuNCs	1.70 (0.25)	6.03 (0.06)	0.21 (0.69)	0.93	1.05
NaC@CuNCs+4-NP	1.64 (0.2)	5.64 (0.07)	0.20 (0.73)	0.87	1.05
NaTC@CuNCs	1.27 (0.23)	4.82 (0.06)	0.17 (0.72)	0.70	1.09
NaTC@CuNCs+4-NP	1.34 (0.2)	4.86 (0.06)	0.21 (0.74)	0.71	1.07

$\tau_m=\tau_1(\alpha_1)+\tau_2(\alpha_2)+\tau_3(\alpha_3)/((\alpha_1)+(\alpha_2)+(\alpha_3))$