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Electronic Supplementary Information

One-step spontaneous synthesis of fluorescent carbon nanoparticles with thermosensitivity from polyethylene glycol†

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Table S1. The quantum yields of FCNPs

Substance	Energy supply form	Integrated emission intensity (I)	Abs. at 360 nm	Refractive index	Quantum yield of solvent (η)
Quinine sulfate		51329.313	0.029	1.33	0.54 (known)
FCNPs-1	P_2O_5 dehydration	28865.439	0.048	1.33	0.184
FCNPs-2	Microwave	28644.789	0.048	1.33	0.182
FCNPs-3	Hydrothermal	18064.668	0.037	1.33	0.149
FCNPs-4	Ultrasonic	12165.569	0.048	1.33	0.077

Table S2. Comparison of fluorescent carbon nanoparticles with different methods

Method	Source	Color of products	Excitation and emission wavelength	Composition	Quantum yield	Morphology	Thermosensitivity	Reference
Microwave	Graphite oxide	Dark brown	470nm, 520nm	C,O	1-2.5%	spherical dots	-	[21]
Hydrothermal	Folic acid	Brown-yellow	395nm, 470nm	C,N,O	15.7%	spherical dots	-	[22]
Ultrasonic	Glucose	Dark brown	360nm, 425nm	C,O	7.0%	spherical dots	-	[8]
Combustion	Soot of natural gas	Brownish yellow	310nm, 420nm	C,O	0.4%	spherical dots	-	[11]
P_2O_5 dehydration	PEG-400	Dark brown	360nm, 410nm	C,O	18.4%	sperical shape	+	this method

"+" denotes that the nanoparticle has thermosensitivity, "-" denotes the thermosensitivities of other nanomaterials are unknown on account that this property is not investigated in articles.

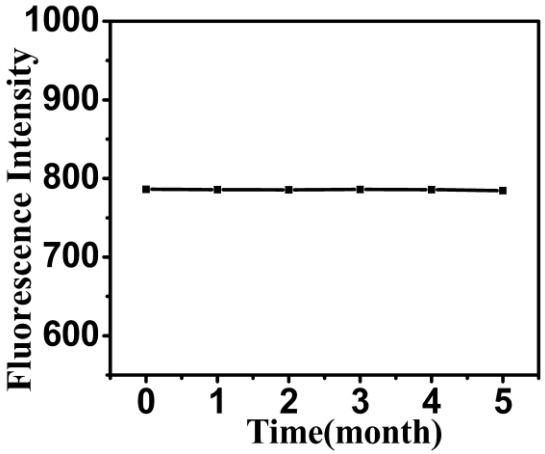

Fig S1. Stability of FCNPs obtained.

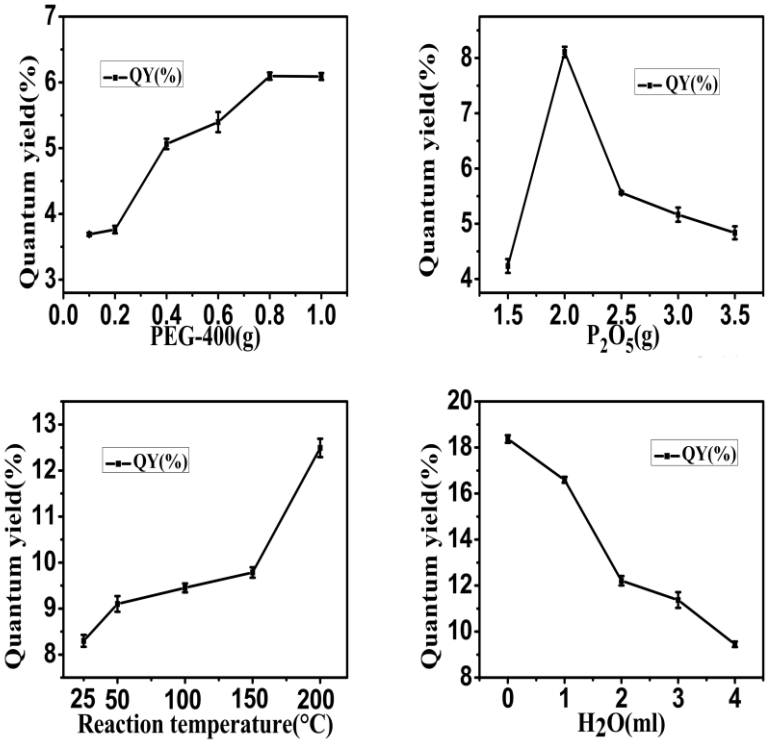

Fig S2. Optimization of experimental conditions (varying amounts of PEG-400, P_2O_5, H_2O and reaction temperature).

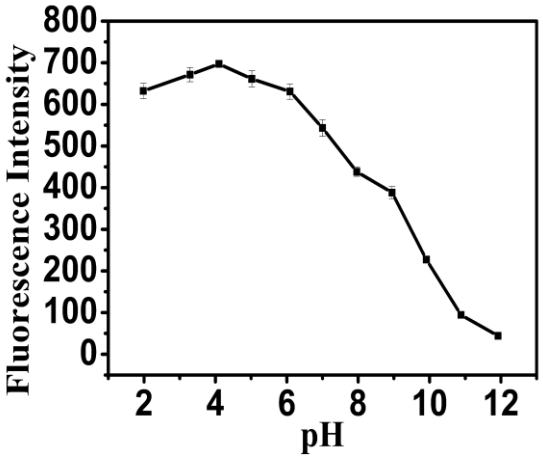

Fig S3. The influence of pH (2-12, respectively) on the fluorescence intensity of FCNPs.

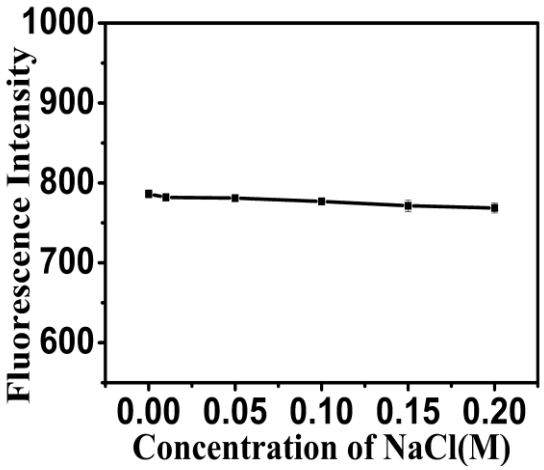

Fig S4. The influence of ionic strength (0.01 M,0.05 M,0.10 M,0.15 M,0.20 M NaCl solution) on the fluorescence intensity of FCNPs.

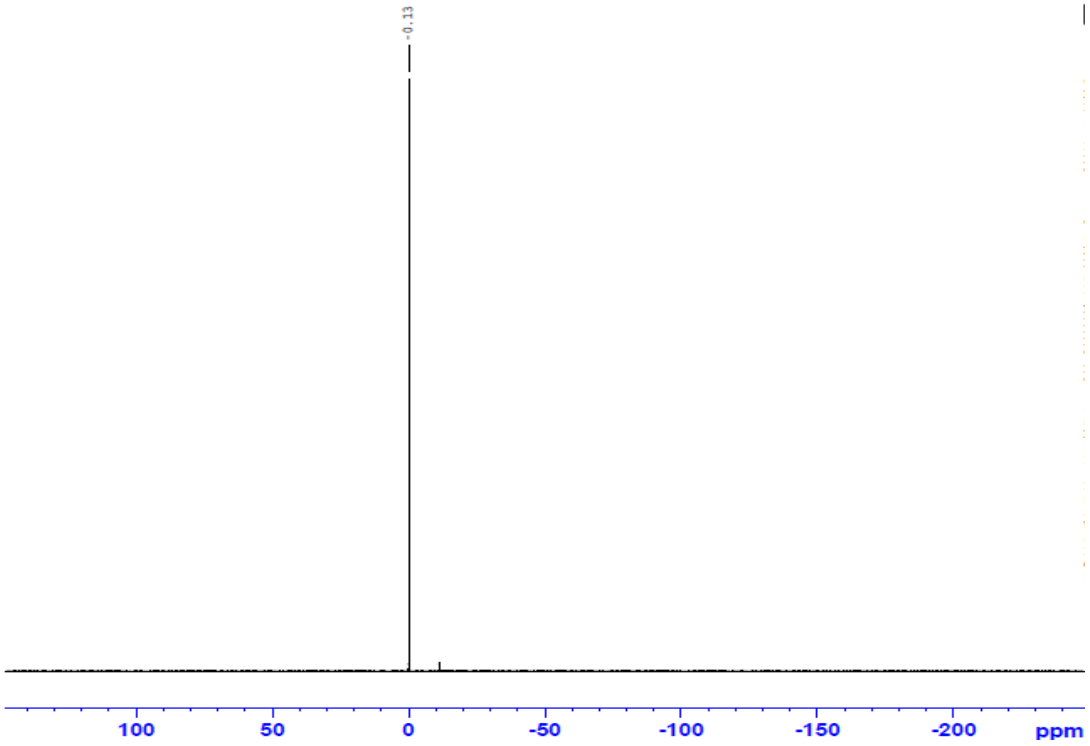

Fig S5. ^{31}P NMR spectrum of FCNPs.