Green and Facile Synthesis of Nitrogen and Phosphorus Co-doped Carbon Quantum Dots towards Fluorescent Ink and Sensing Applications

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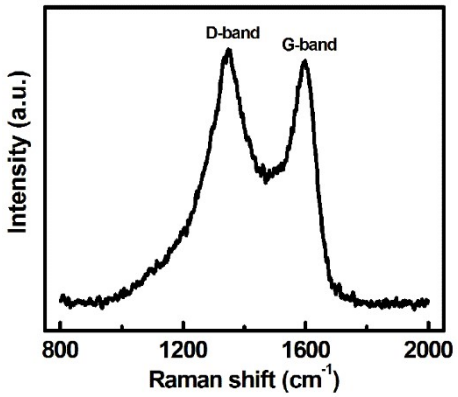

Figure S1 Raman spectrum of the CQDs-120

Table S1 Elemental compositions of the CQDs-120.

Sample	C/at.%	O/at.%	N/at.%	P/at.%
CQDs-120	72.5	23.6	3.6	0.3

Table S2 The quantum yield (QY) of different the N/P co-doped CQDs.

Sample	CQDs-90	CQDs-120	CQDs-150
QY/%	3.3	11.2	8.6

Table S3 Comparisons in the detection of the Fe^{3+} between the CQDs-120 and other CQDs prepared by using different synthetic methods

Method of Synthesis	Material	Linear Range (μM)	LOD (μM)	Ref.
Hydrothermal method	N-doped CQDs	0-2	70	[1]
Hydrothermal method	N-doped CQDs	0-200	0.61	[2]
hydrothermal method	N-doped CQDs	0-50	10.98	[3]
hydrothermal method	N-doped CQDs	0-20	0.32	[4]
hydrothermal method	N-doped CQDs	50-300	10.8	[5]
hydrothermal method	N-doped CQDs	0-50	4.67	[6]
Electrochemical method	graphene CQDs	0-100	7.22	[7]
hydrothermal method	S-doped CQDs	25-250	0.96	[8]
Hydrothermal method	N/S co-doped CQDs	0.002-3	0.22	[9]
Hydrothermal method	N/P co-doped CQDs	1-150	0.33	[10]
Hydrothermal method	N-doped CQDs	2-25	0.9	[11]
Electrochemical method	N-doped CQDs	5-600	1.2	[12]
Hydrothermal method	N/O/P-co-functionalized CQDs	5-350	0.56	Our work

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