

## **Supplementary material**

### **A Novel Room-Temperature CQD Fluorescent Nanosensor for the First Derivatization-Free Spectrofluorimetric Determination of Dalfampridine: Application to Biological Fluids and Content Uniformity Testing**

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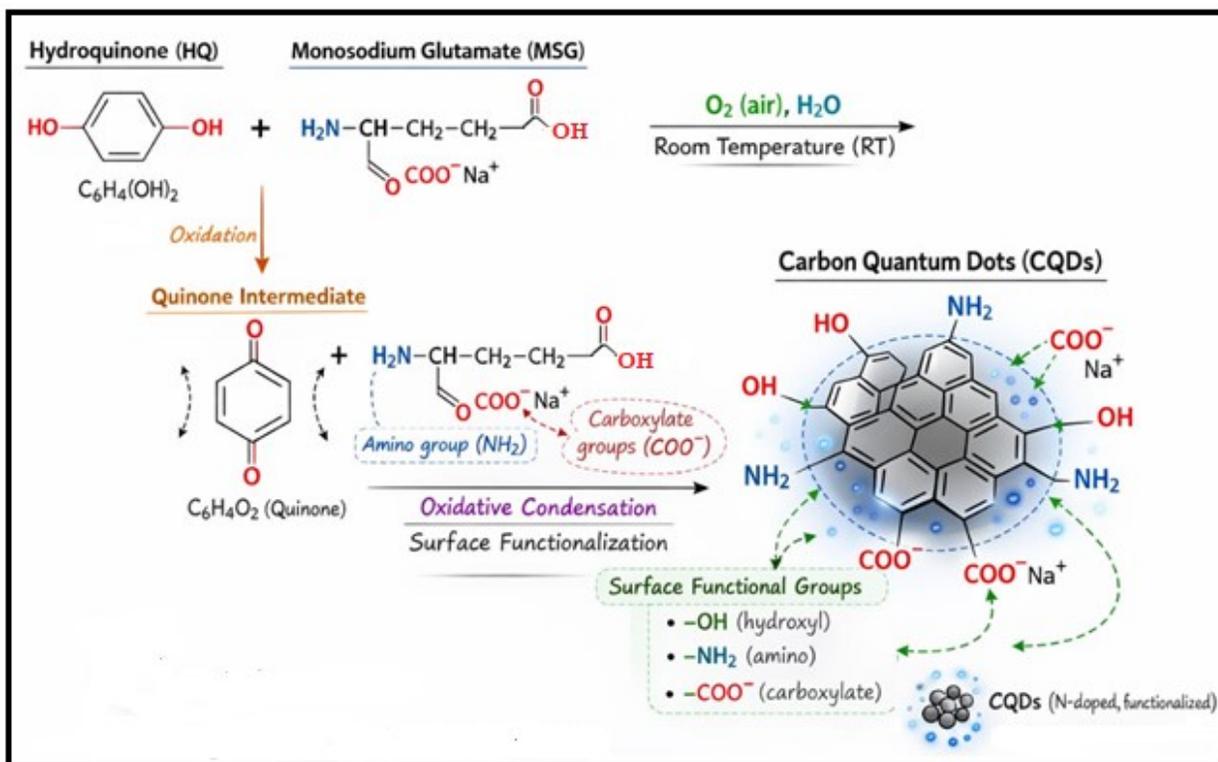
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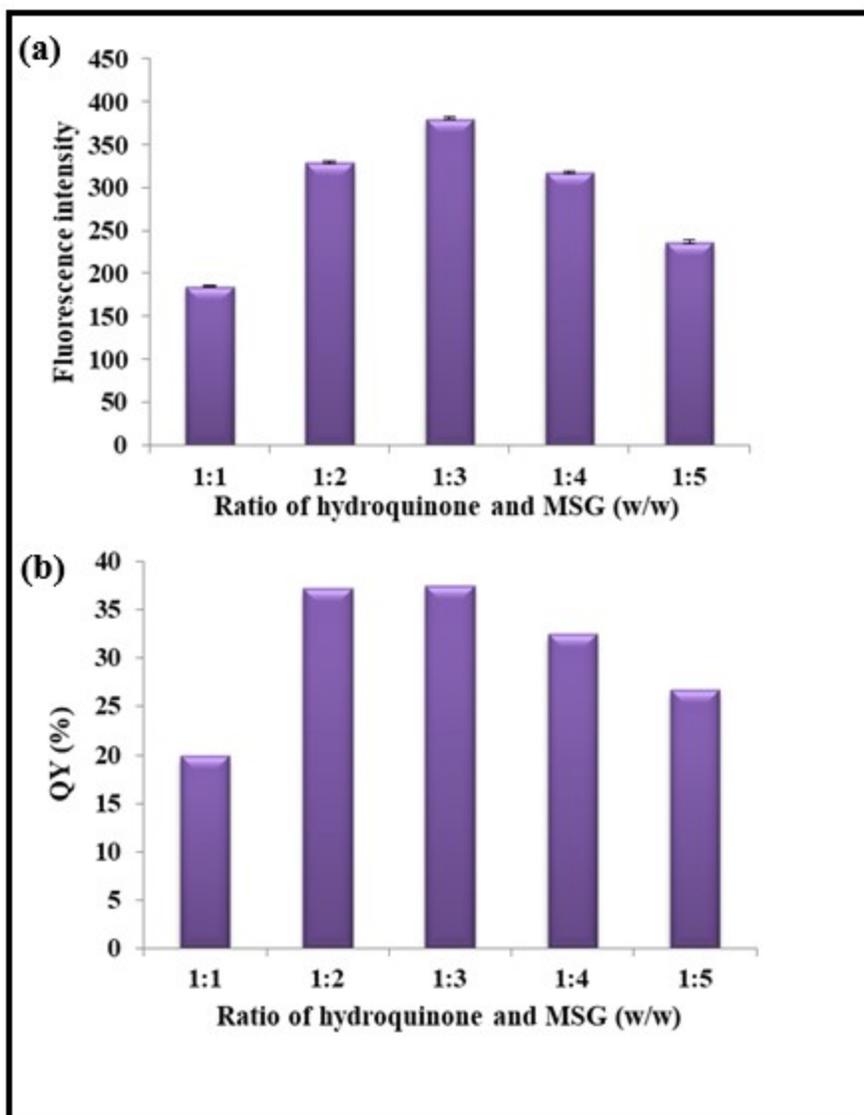
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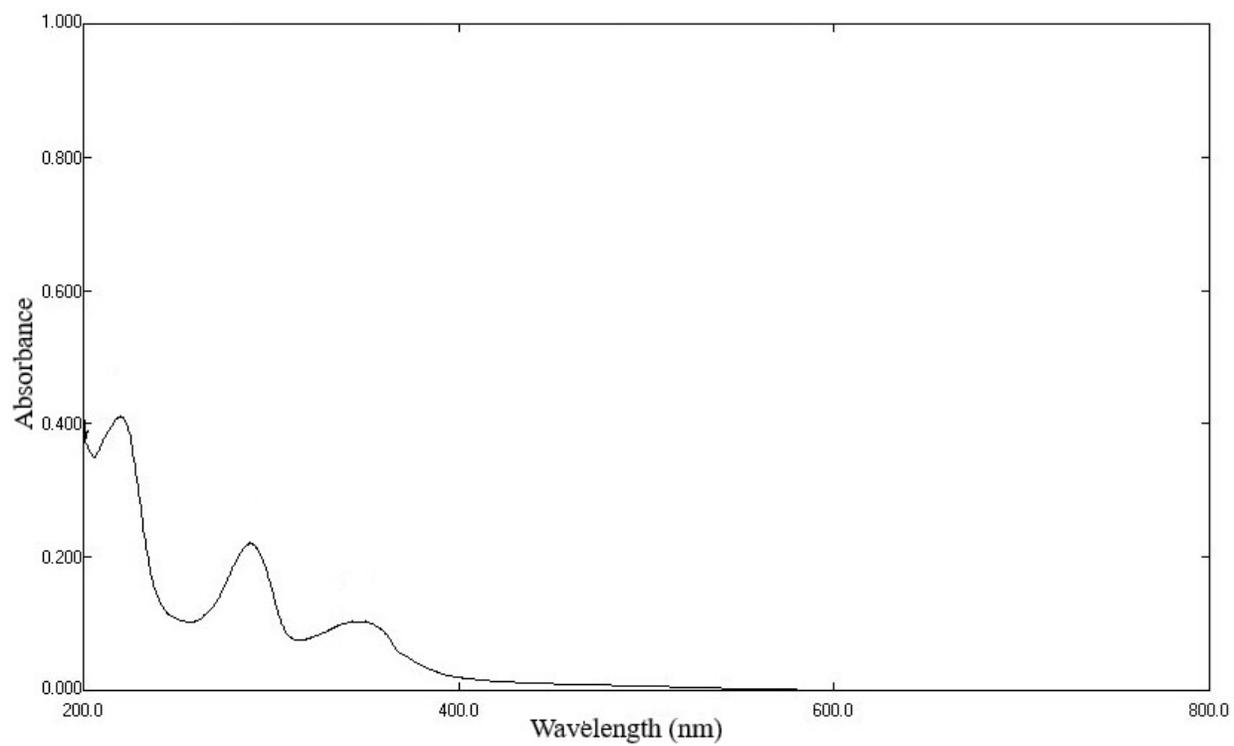
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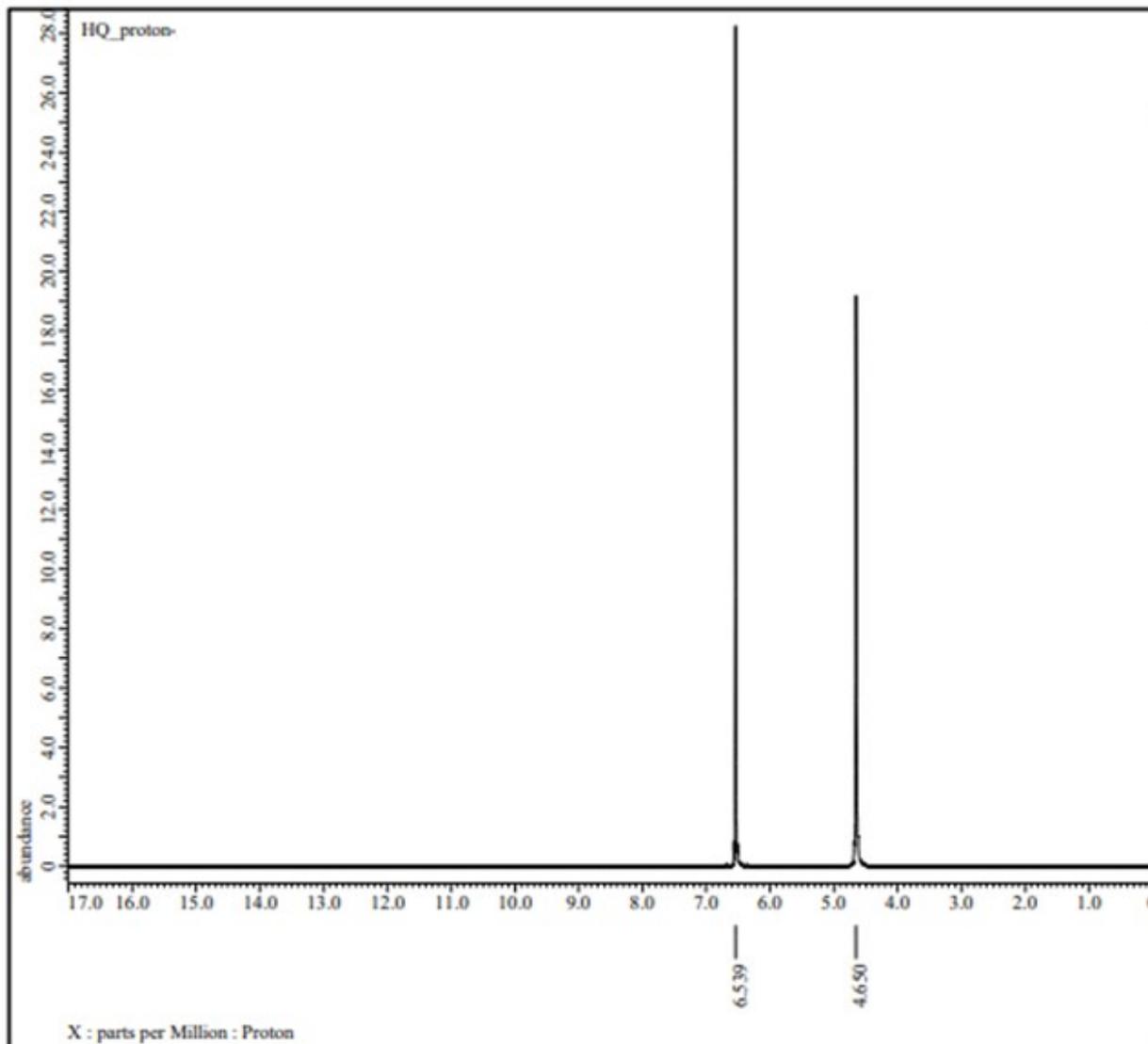
**Fig. S1** Schematic representation of the proposed reaction mechanism between HQ and MSG to form RT-CQDs.



**Fig. S2** Effect of different ratios (w/w) of hydroquinone and MSG on the fluorescence intensity (a) and quantum yield of RT-CQDs (b).



**Fig. S3** UV spectrum of the RT-CQDs.



**Fig. S4** NMR spectrum of HQ.

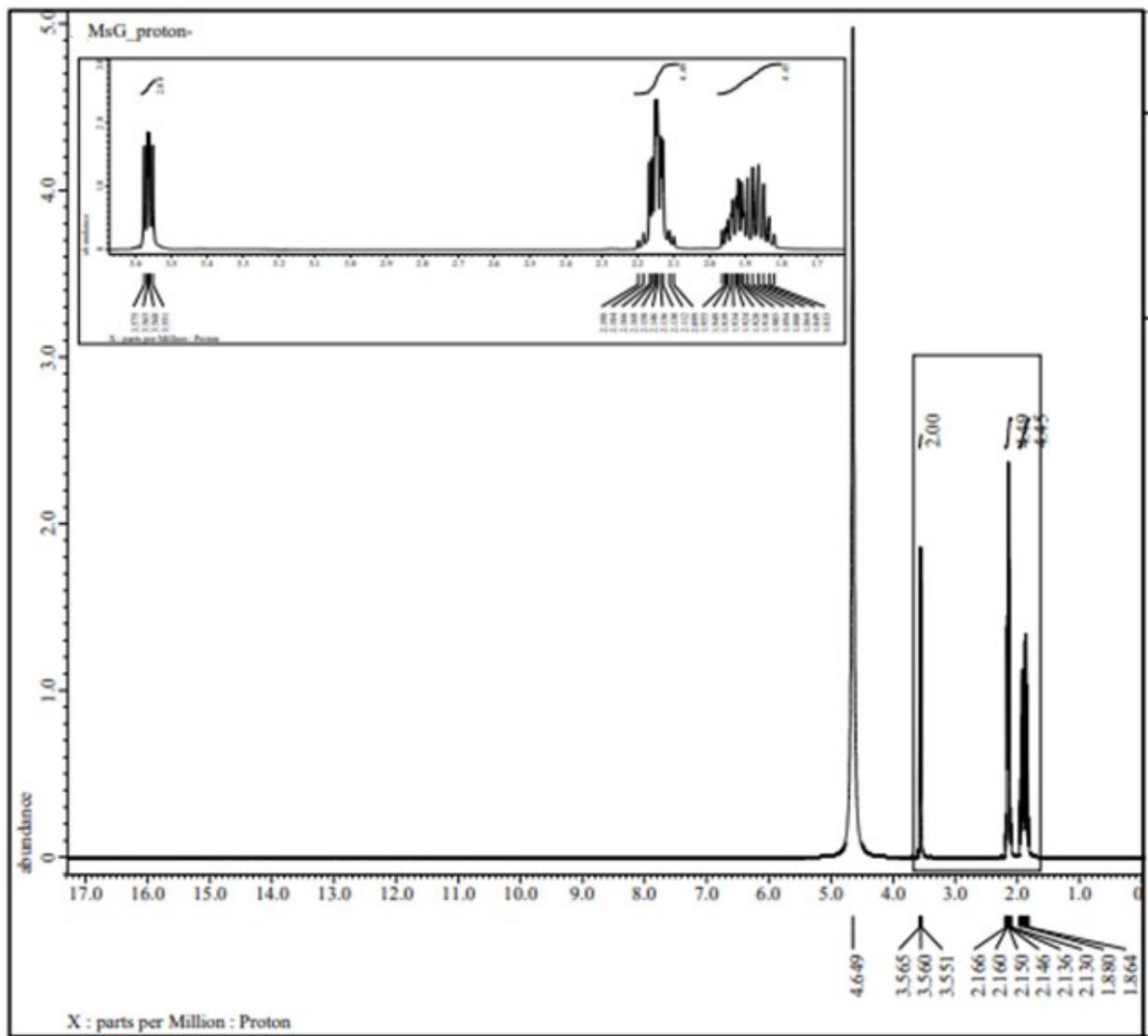
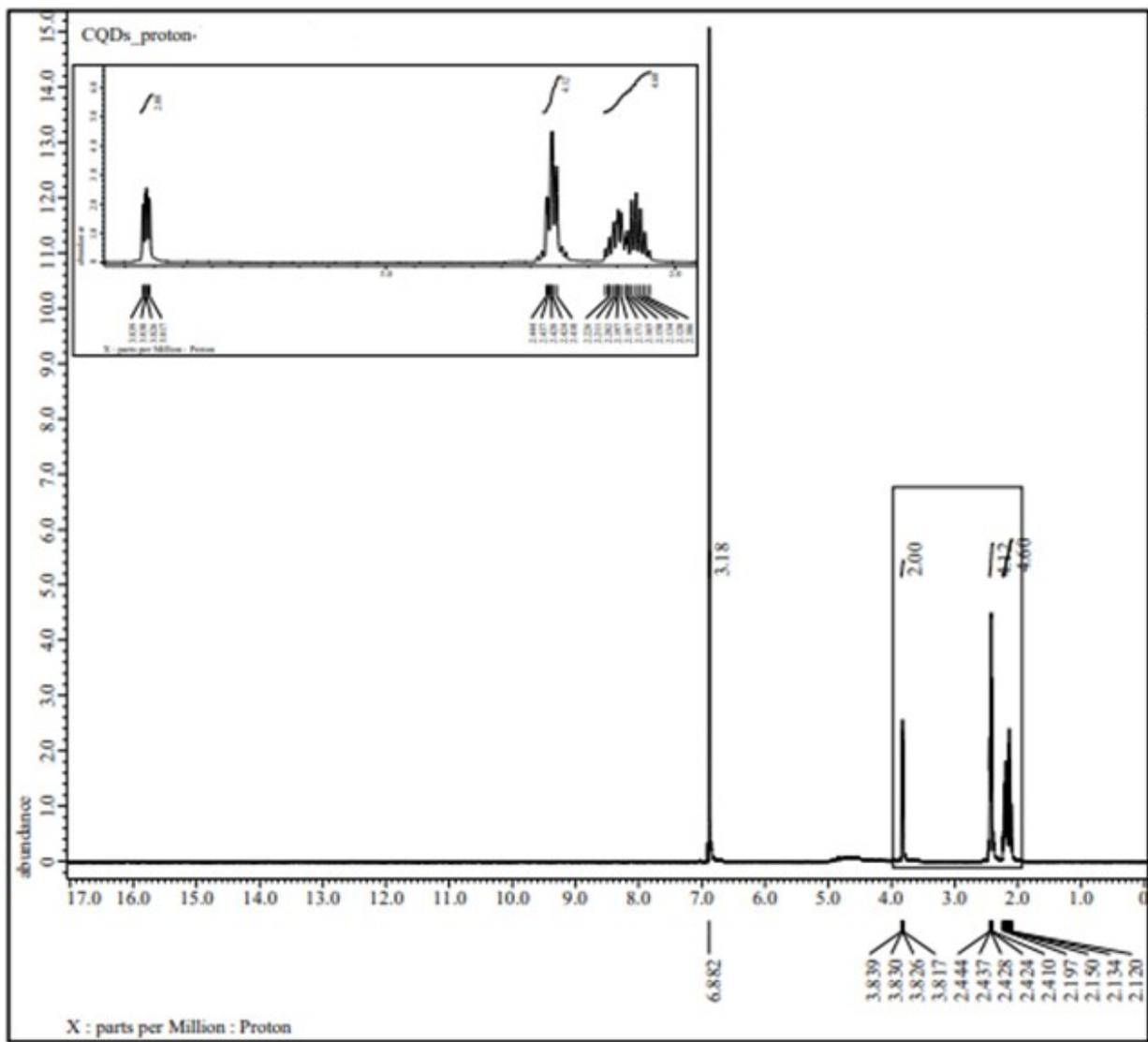
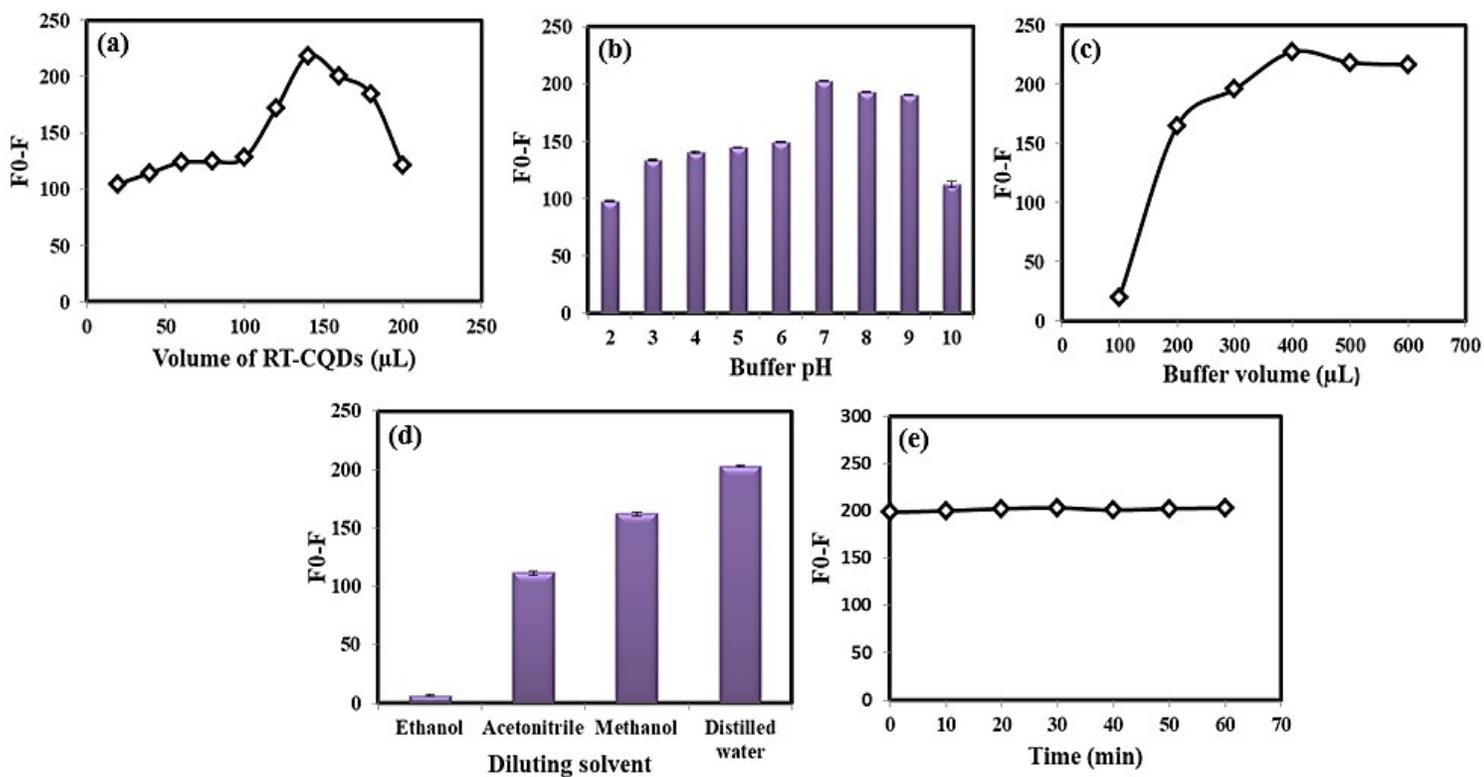


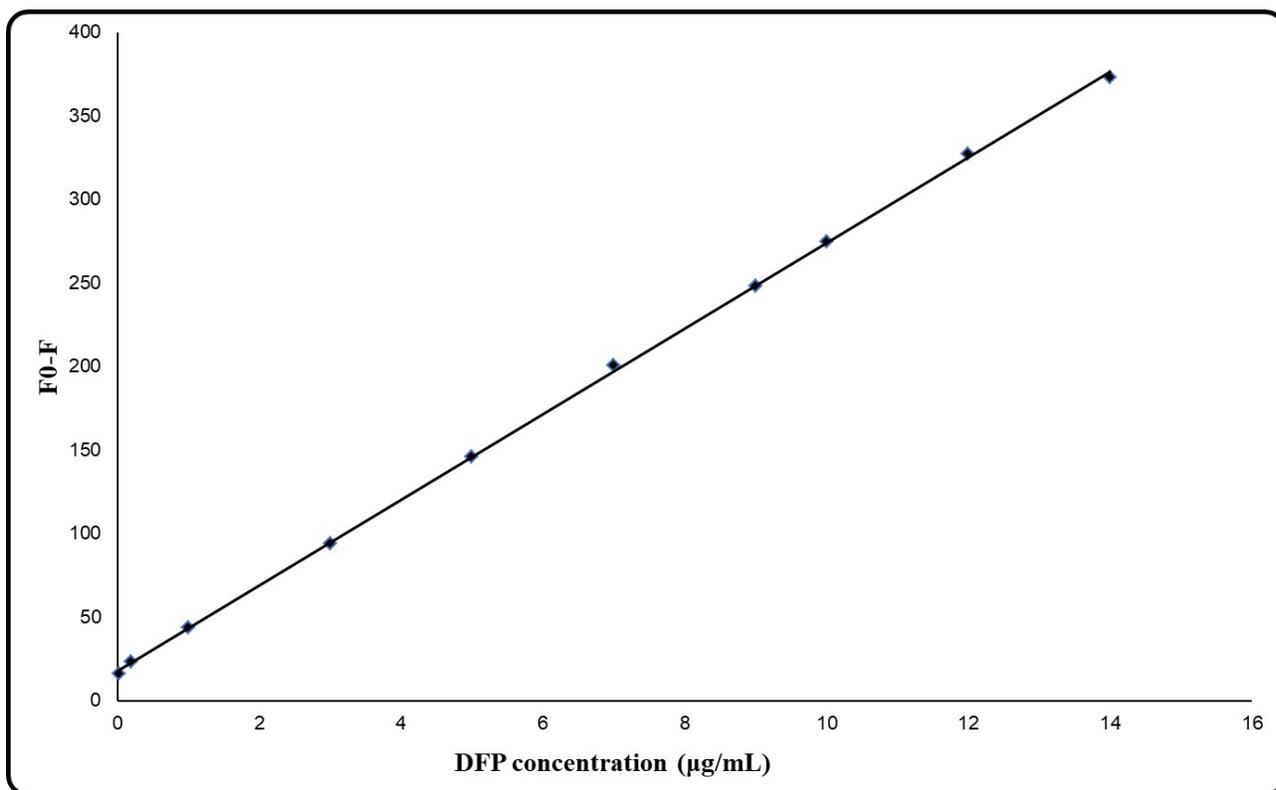
Fig. S5 NMR spectrum of MSG.



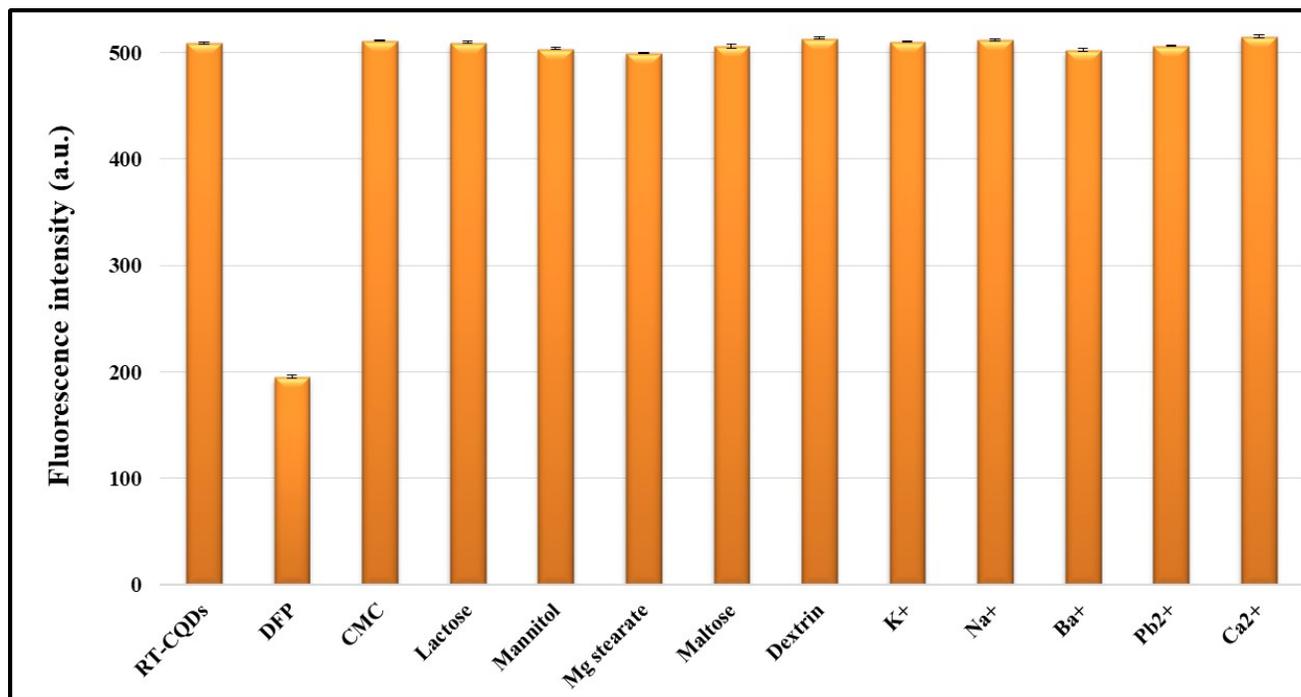
**Fig. S6** NMR spectrum of RT-CQDs.



**Fig. S7.** Effect of the RT-CQDs' volume (a), buffer pH (b), the buffer volume (c), Type of diluting solvent (d), and the incubation time (e) on the fluorescence quenching (F0-F) determined at 327 nm.



**Fig. S8.** Calibration curve for DFP.



**Fig. S9.** Selectivity of RT-CQDs' nanosensor towards DFP (14.0 µg/mL) in the presence of interfering substances.

**Table S1: Accuracy data of the proposed approach**

Conc. taken ( $\mu\text{g/mL}$ )	Conc. found ( $\mu\text{g/mL}$ )	Mean Conc. found ( $\mu\text{g/mL}$ )	%Recovery*	Mean %Recovery SD	$\pm$
3.0	2.97	2.99	99.84	100.51	$\pm 0.62$
	3.03				
	2.99				
7.0	7.13	7.07	101.06	100.51	$\pm 0.62$
	7.05				
	7.05				
10.0	10.03	10.06	100.62	100.51	$\pm 0.62$
	10.09				
	10.07				

\* Each result is the average of three different measurements.

**Table S2: Precision data of the proposed approach**

Intra-day precision				Inter-day precision			
Conc. taken ( $\mu\text{g/mL}$ )	Mean Conc. Found* ( $\mu\text{g/mL}$ )	SD	%RSD	Conc. taken ( $\mu\text{g/mL}$ )	Mean Conc. found* ( $\mu\text{g/mL}$ )	SD	%RSD
3.0	2.98	1.28	1.29	3.0	2.99	0.62	0.61
7.0	8.08	0.17	0.17	7.0	7.09	0.90	0.89
10.0	10.12	0.13	0.13	10.0	10.13	1.23	1.21

\* Each result is the average of three different concentrations.

**Table S3: Robustness results of the proposed method**

<b>Variable</b>	<b>DFP</b>	
<b>1. Buffer pH (<math>7 \pm 0.5</math>)</b>	<b>%Recovery*</b>	<b>%RSD</b>
6.5	99.09	0.48
7.0	100.31	0.13
7.5	99.16	0.93
<b>2. Volume of buffer (<math>400.0 \pm 5.0</math> <math>\mu</math>L)</b>	<b>% Recovery*</b>	<b>%RSD</b>
395.0	101.11	0.73
400.0	100.31	0.13
405.0	101.76	0.63
<b>3. Volume of RT-CQDs (<math>140.0 \pm 5.0</math> <math>\mu</math>L)</b>	<b>% Recovery*</b>	<b>%RSD</b>
135.0 $\mu$ L	101.47	0.62
140.0 $\mu$ L	100.49	0.13
145.0 $\mu$ L	100.49	0.11

\* Each result is the average of three replicates