

Supplementary Information

The Role that Electrolytes Play in the Synthesis of Water-Soluble CdTe Quantum Dots Prepared at Ambient Temperature

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Table S1. Mean lifetimes of the MPA-CdTe QDs synthesized in the presence of N₂H₄.H₂O at 5.0 and 10.0 mol L⁻¹

Synthesis time / h	Average lifetime N ₂ H ₄ at 5.0 mol L ⁻¹ / ns	Average lifetime N ₂ H ₄ at 10.0 mol L ⁻¹ / ns
1.0	9.17	33.39
2.0	19.09	60.06
24.0	43.33	74.43
48.0	39.53	50.68
72.0	36.93	61.96
96.0	35.26	64.65
120.0	32.89	68.17
144.0	28.67	63.31

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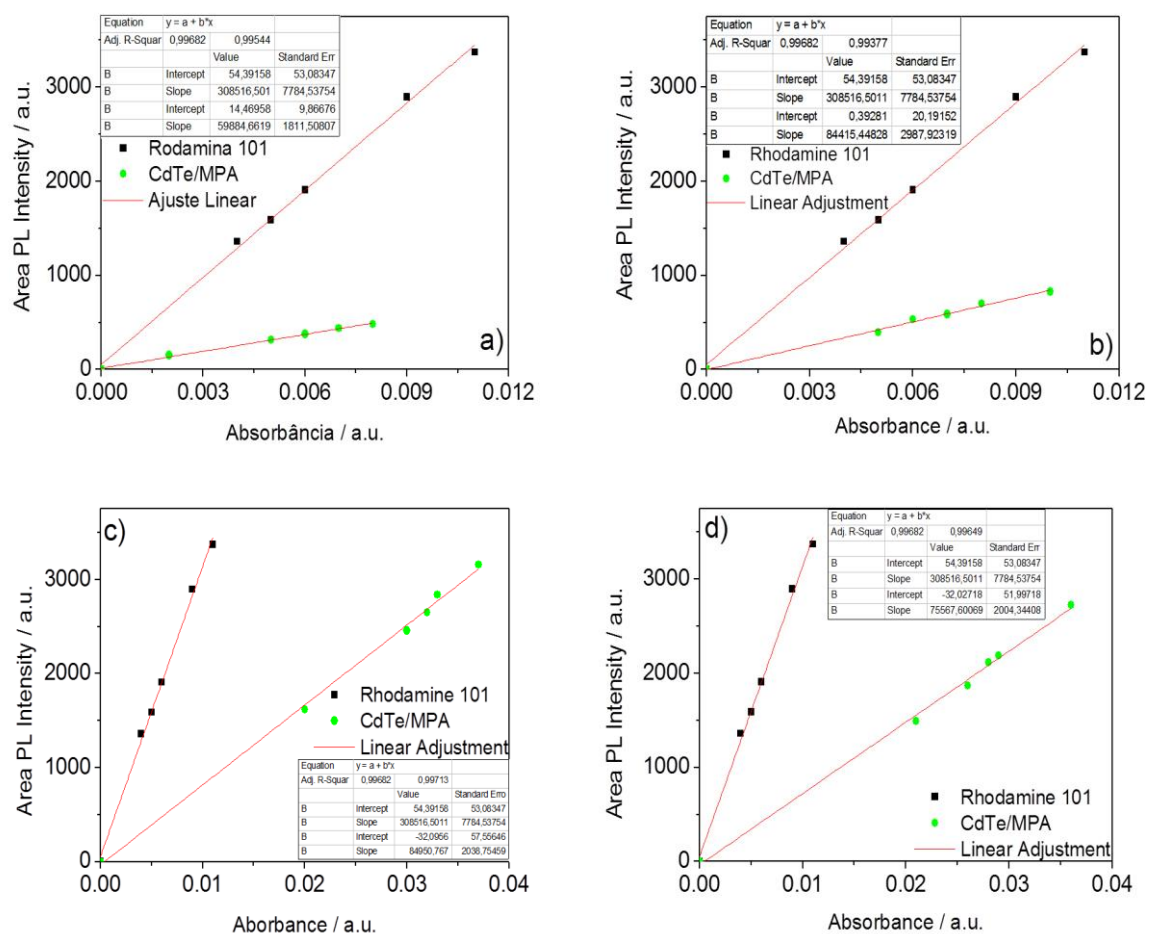


Figure S1. Relationship between the absorbance and integrated fluorescence intensity for rhodamine 101 and the MPA-CdTe QDs prepared in the presence of $\text{N}_2\text{H}_4 \cdot \text{H}_2\text{O}$ at 5.0 mol L^{-1} at (a) 1 h; (b) 2 h; (c) 24 h; (d) 48 h; (e) 72 h; (f) 96 h; (g) 120 h; and (h) 144 h of synthesis.

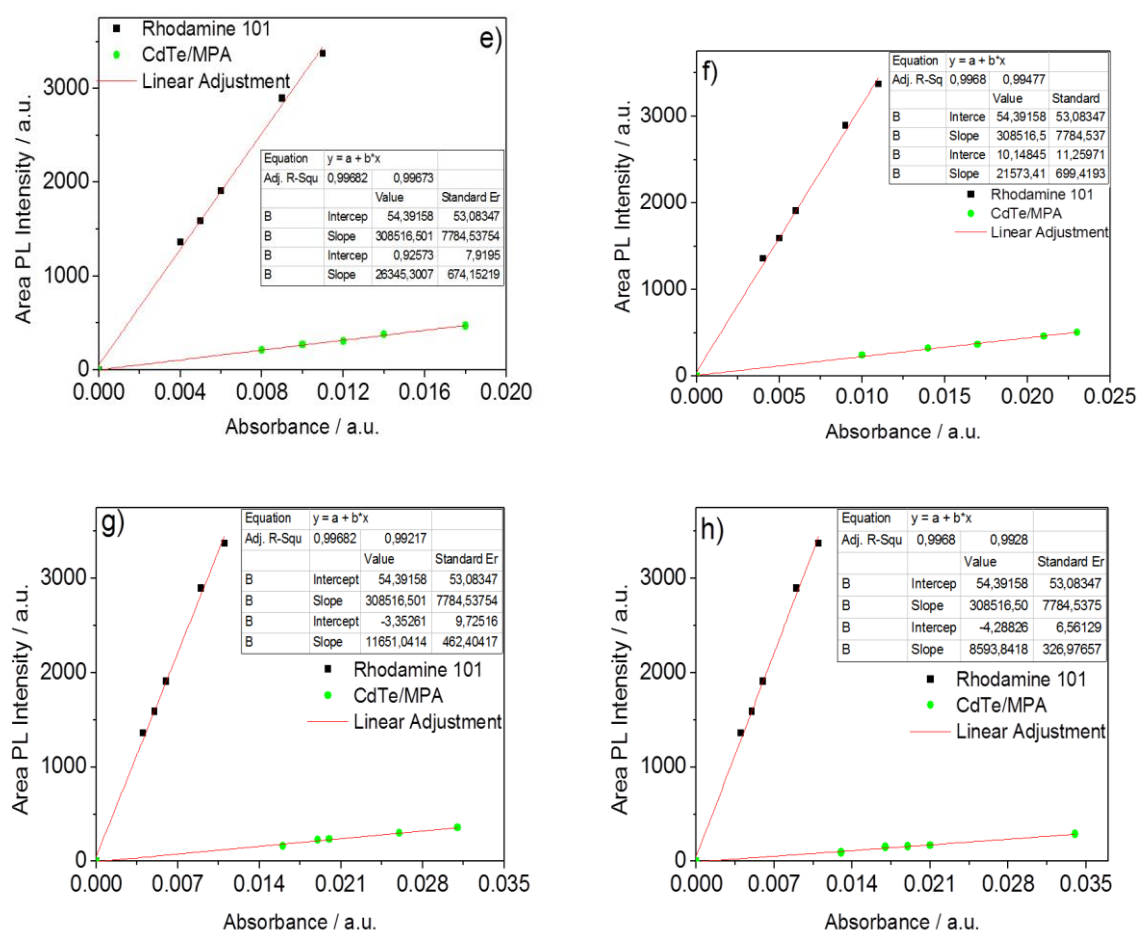


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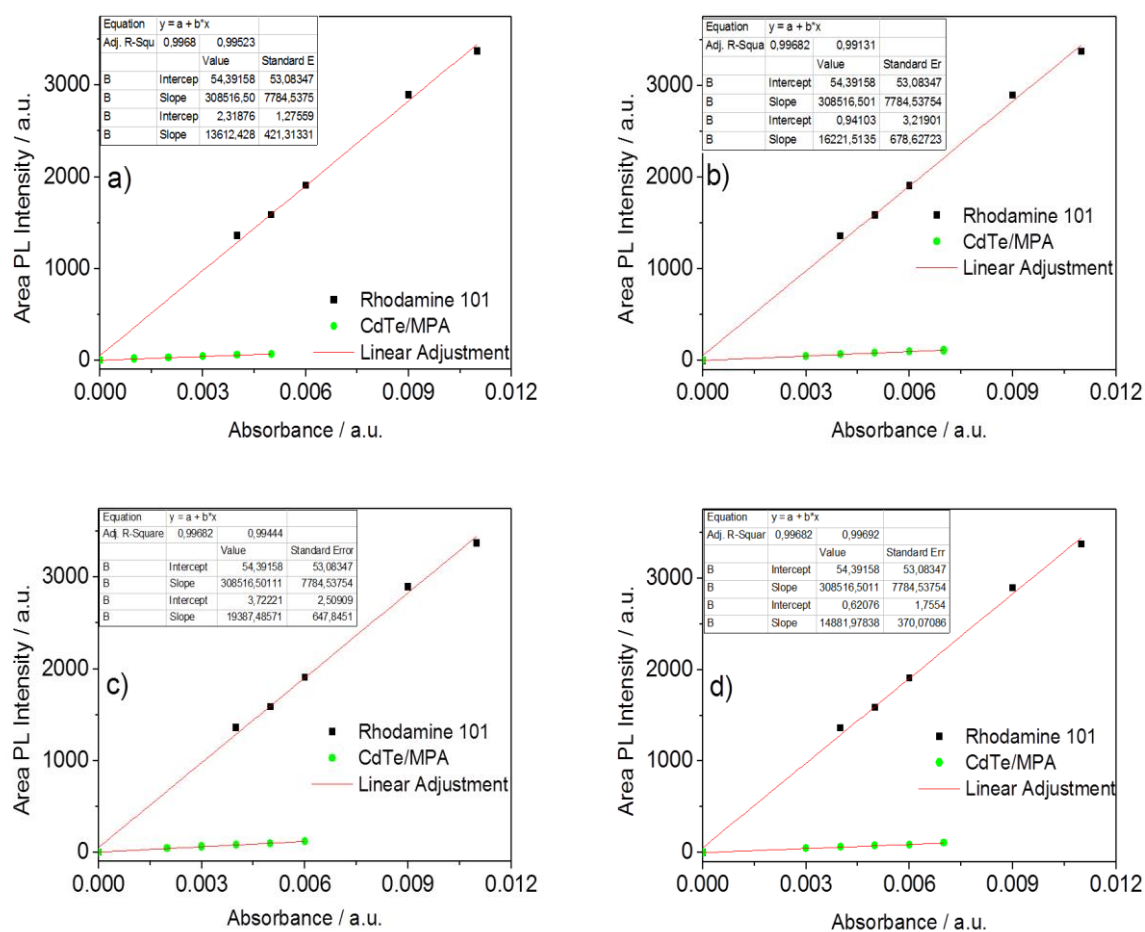


Figure S2. Relationship between the absorbance and integrated fluorescence intensity for rhodamine 101 and the MPA-CdTe QDs prepared in the presence of $\text{N}_2\text{H}_4 \cdot \text{H}_2\text{O}$ at 10.0 mol L^{-1} at (a) 1 h; (b) 2 h; (c) 24 h; (d) 48 h; (e) 72 h; (f) 96 h; (g) 120 h; and (h) 144 h of synthesis.

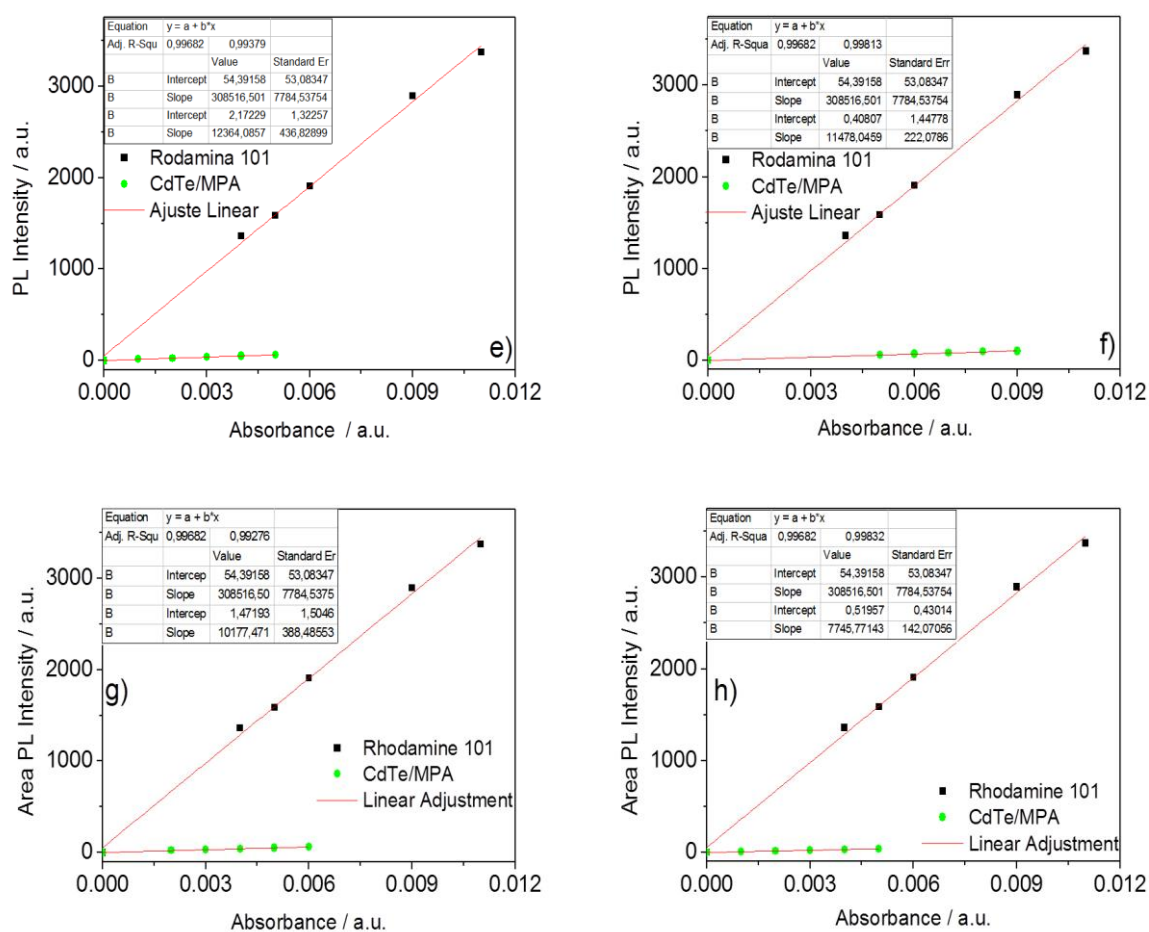


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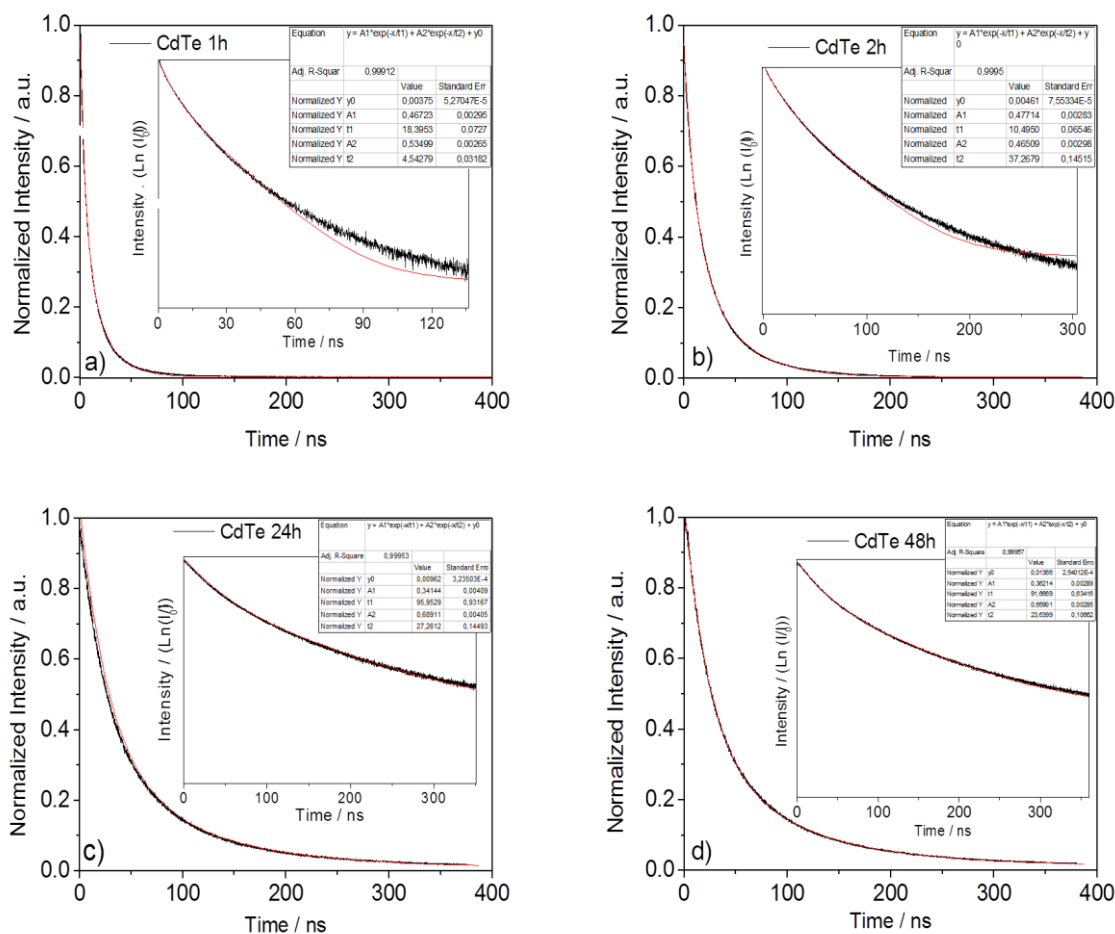


Figure S3. Luminescence decay curves for the MPA-CdTe QDs prepared in the presence of $N_2H_4 \cdot H_2O$ at 5.0 mol L^{-1} at (a) 1 h; (b) 2 h; (c) 24 h; (d) 48 h; (e) 72 h; (f) 96 h; (g) 120 h; and (h) 144 h of synthesis.

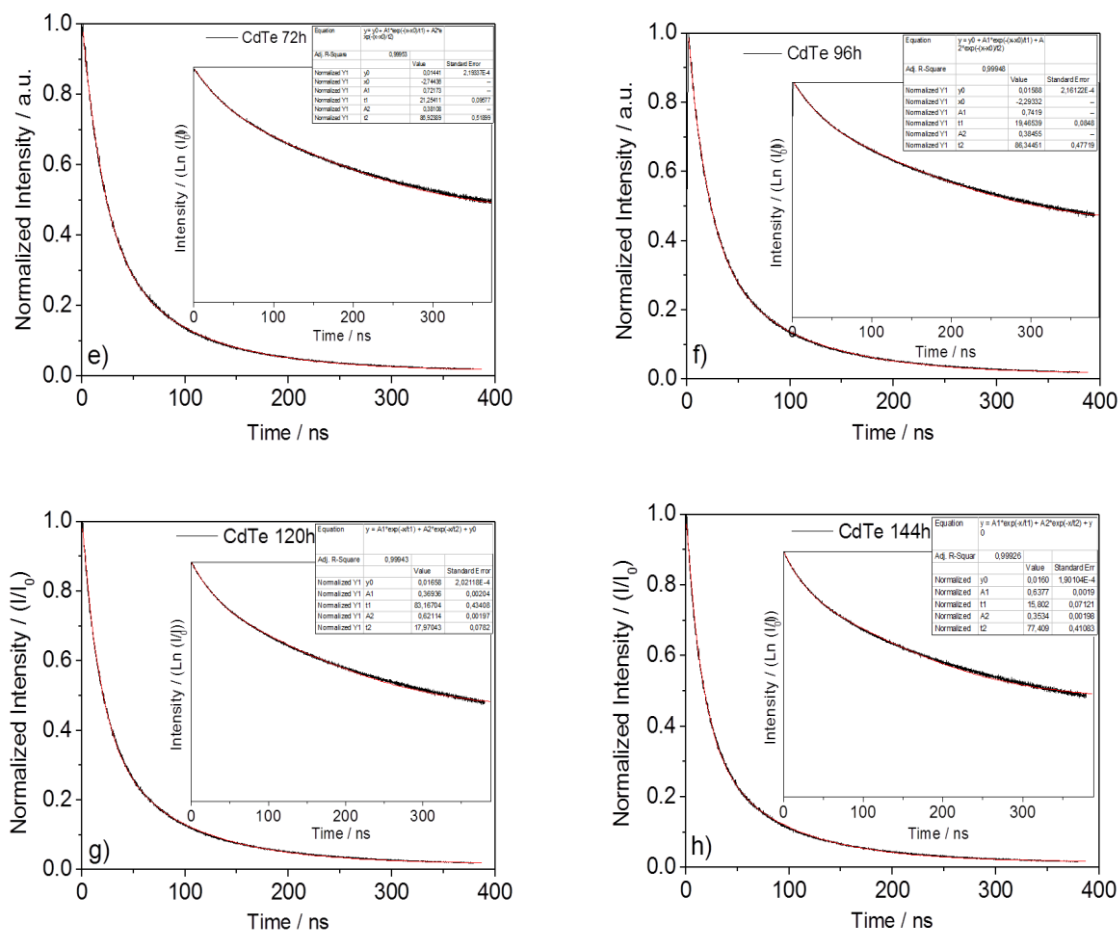


Figure S3. Luminescence decay curves for the MPA-CdTe QDs prepared in the presence of $N_2H_4 \cdot H_2O$ at 5.0 mol L^{-1} at (a) 1 h; (b) 2 h; (c) 24 h; (d) 48 h; (e) 72 h; (f) 96 h; (g) 120 h; and (h) 144 h of synthesis (cont.).

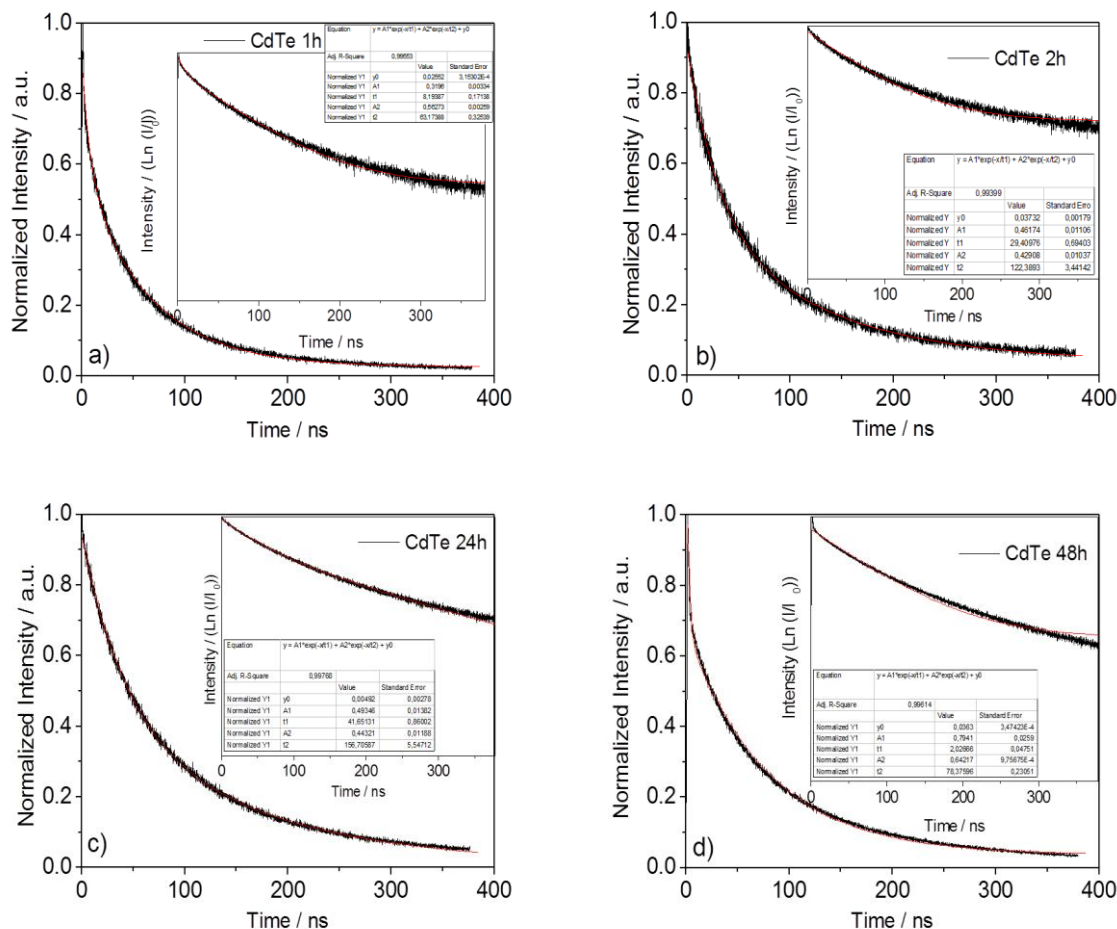


Figure S4. Luminescence decay curves for the MPA-CdTe QDs prepared in the presence of $\text{N}_2\text{H}_4 \cdot \text{H}_2\text{O}$ at 10.0 mol L^{-1} at (a) 1 h; (b) 2 h; (c) 24 h; (d) 48 h; (e) 72 h; (f) 96 h; (g) 120 h; and (h) 144 h of synthesis.

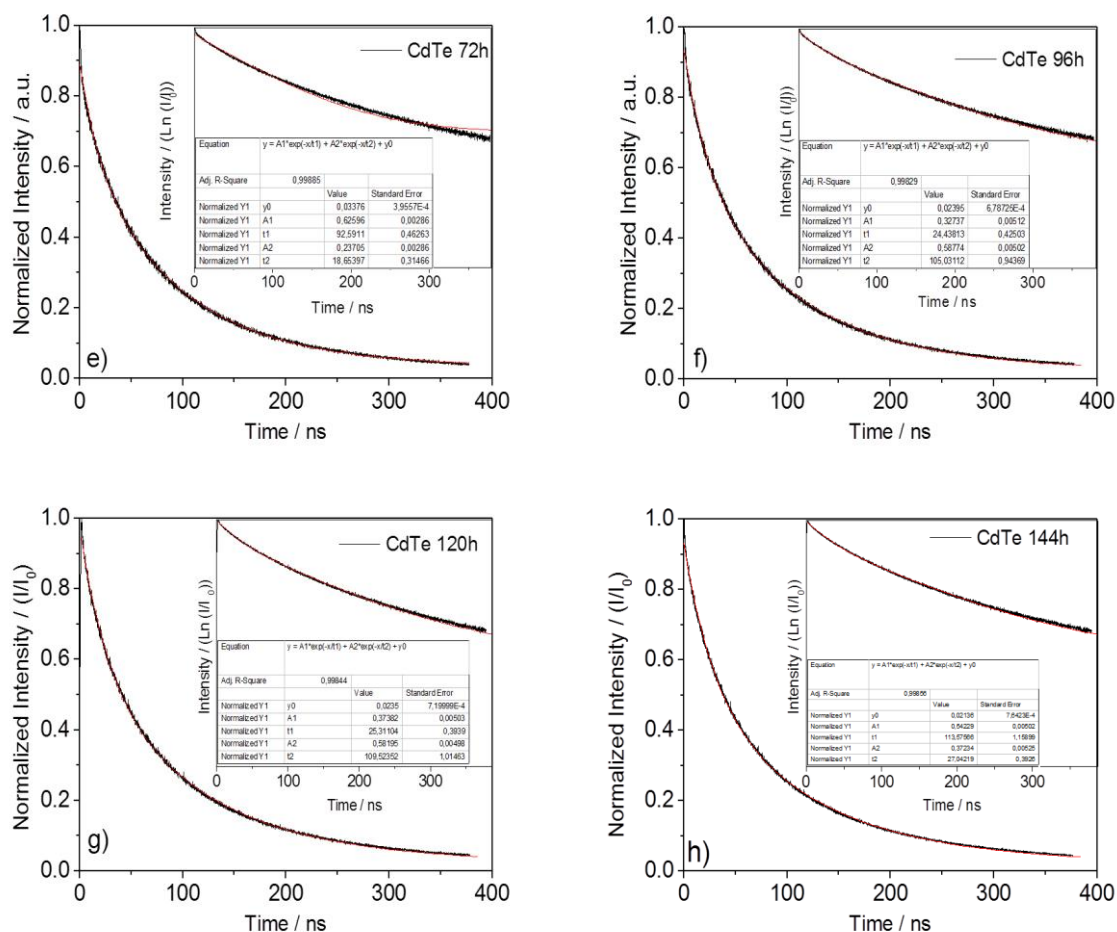


Figure S4. Luminescence decay curves for the MPA-CdTe QDs prepared in the presence of $N_2H_4 \cdot H_2O$ at 10.0 mol L^{-1} at (a) 1 h; (b) 2 h; (c) 24 h; (d) 48 h; (e) 72 h; (f) 96 h; (g) 120 h; and (h) 144 h of synthesis.

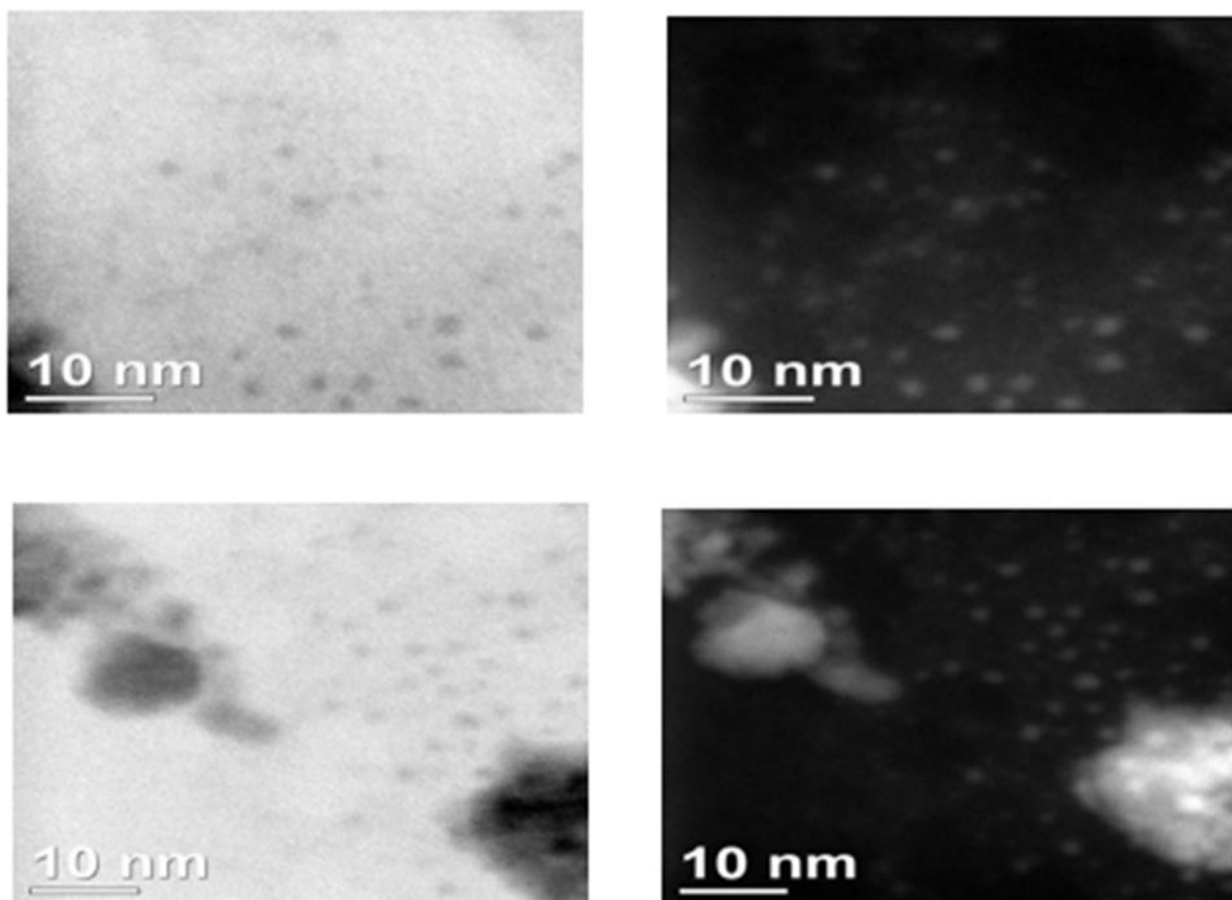


Figure S5. STEM images recorded for the MPA-CdTe nanocrystals prepared in this work.

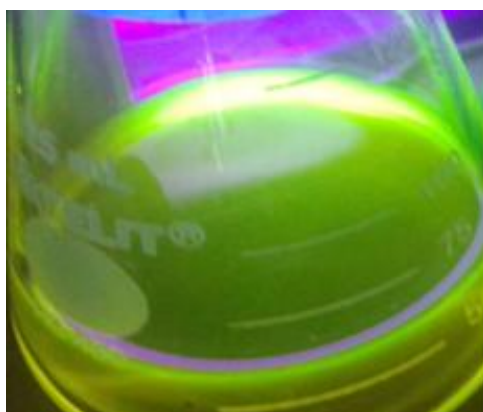


Figure S6. Photograph of the emission of MPA-CdTe QDs prepared in the presence of $\text{NH}_2\text{CH}_2\text{CH}_2\text{NH}_2$ at 5.0 mol L^{-1} .

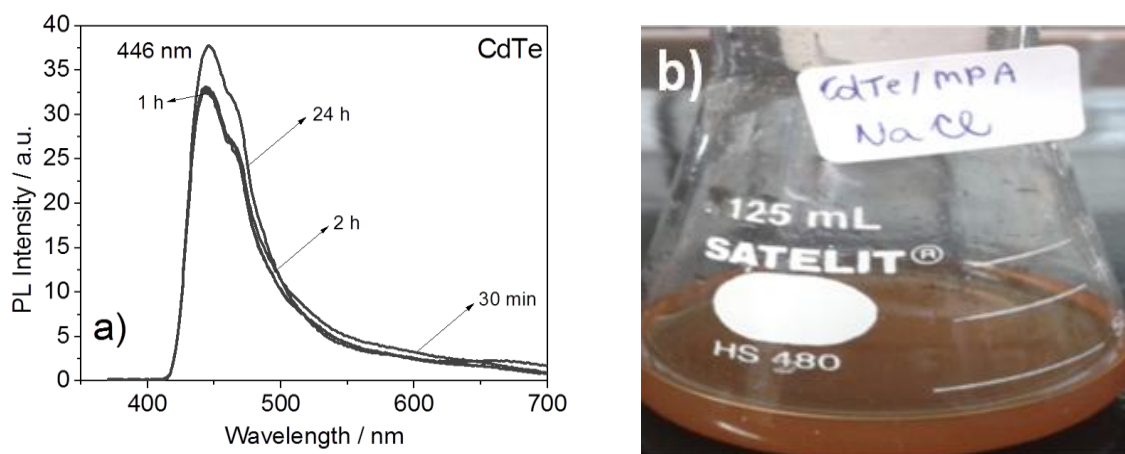


Figure S7. (a) PL spectra of the material synthesized in the presence of NaCl at 5.0 mol L^{-1} and (b) photograph of the emission of the synthesized material.

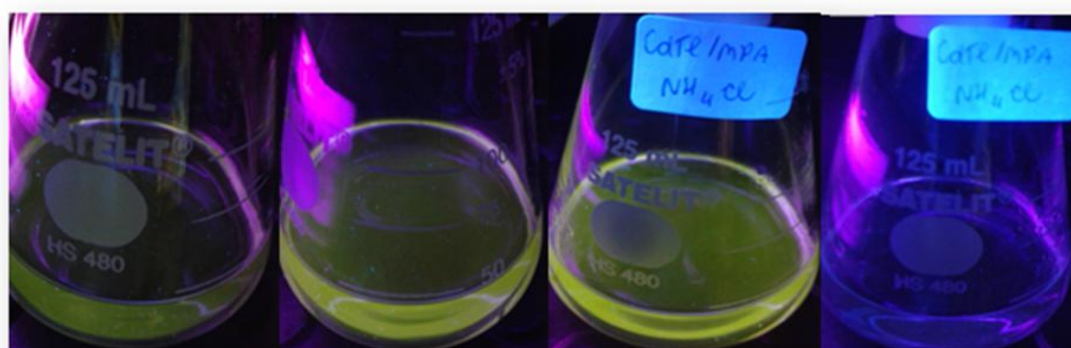


Figure S8. Emission photographs for the temporal evolution of MPA-CdTe QDs synthesized in the presence of NH_4Cl . From left to right, aliquots were withdrawn from the reaction medium at 30 min and 6, 24, and 48 h of synthesis.

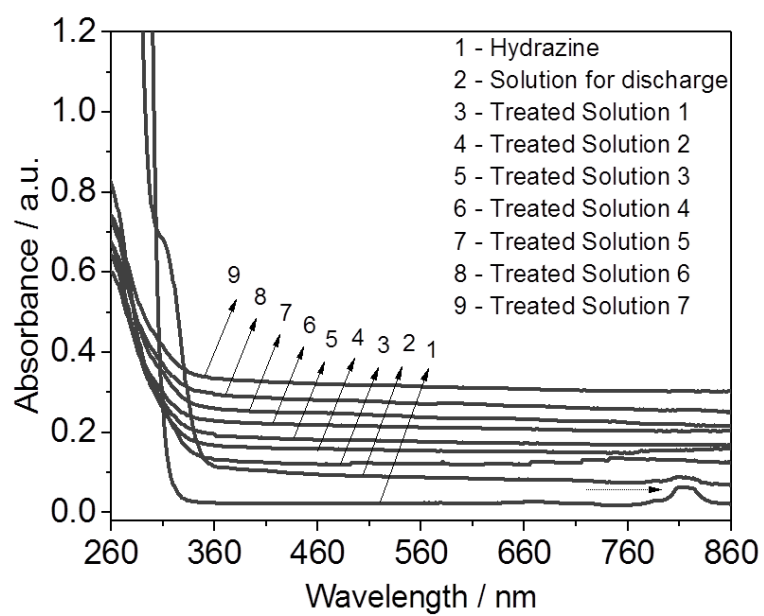


Figure S9. UV-Vis absorption spectra of the samples containing hydrazine before and after treatment, for further discharge into the environment.