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Supporting Information For

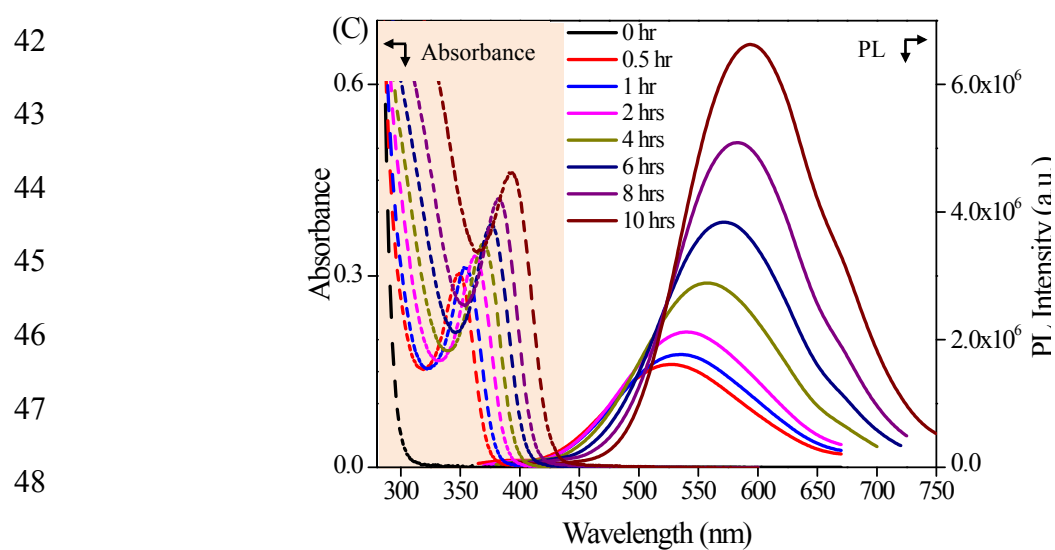
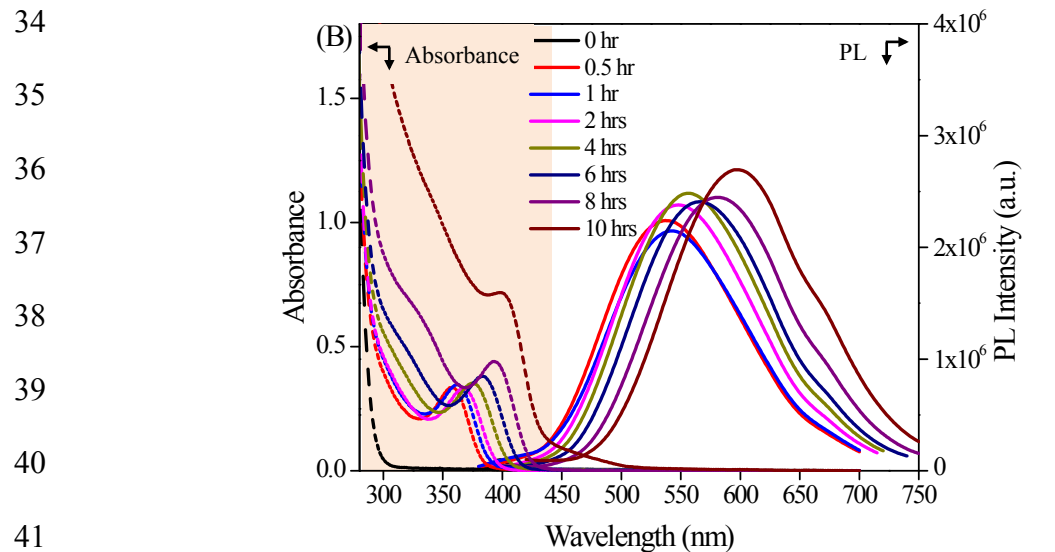
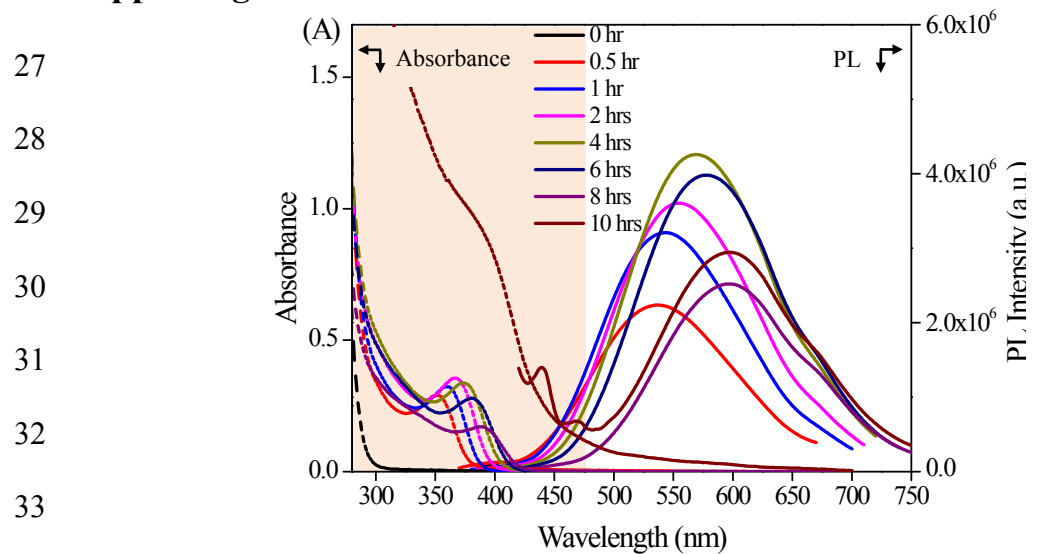
Single source precursor route for the one-pot synthesis of highly luminescent CdS quantum dots as ultra-sensitive and selective photoluminescence sensor for Co²⁺ and Ni²⁺ ions

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26 Supporting Information S1



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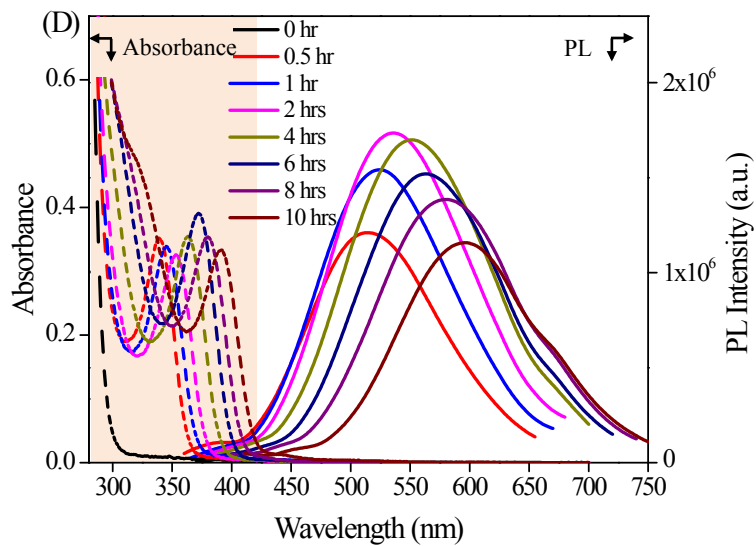
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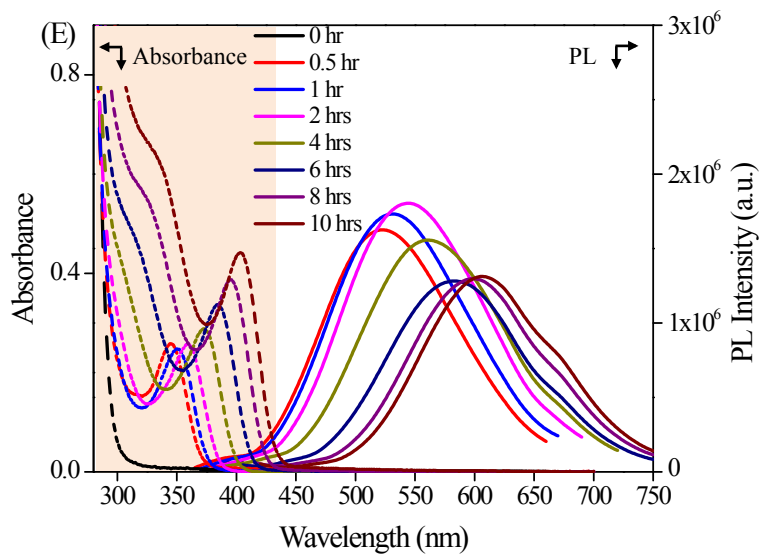
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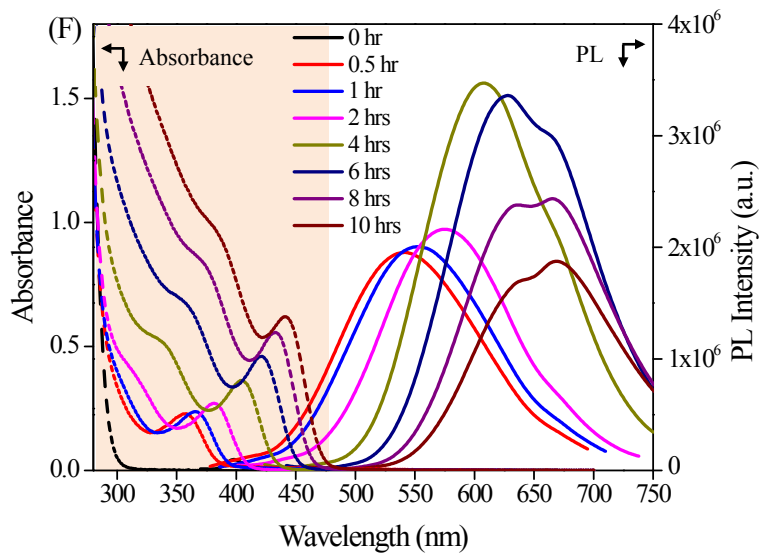
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72 **Figure S1.** Absorbance (dotted line) and photoluminescence (solid line) spectra of MPA-CdS
73 QDs formed by using a concentration ratio of $[CdCl_2] : [MPA] = 1 : 2.4$ (where $[CdCl_2] =$
74 $2.35mM$) at various reflux time for (A) pH 7, (B) pH 8, (C) pH 9, (D) pH 10, (E) pH 11, (F) pH
75 12. Excitation wavelength for the PL spectra is the corresponding absorption peak position
76 (λ_{abs}^{max}).

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78 Supporting Information S2

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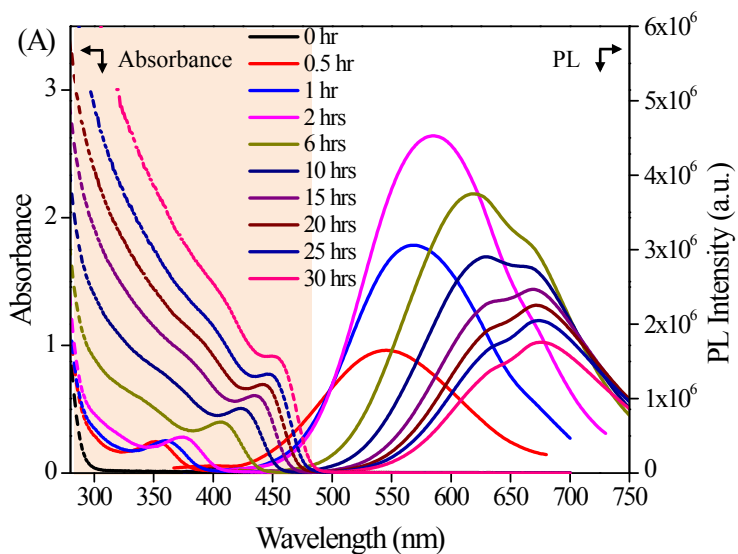
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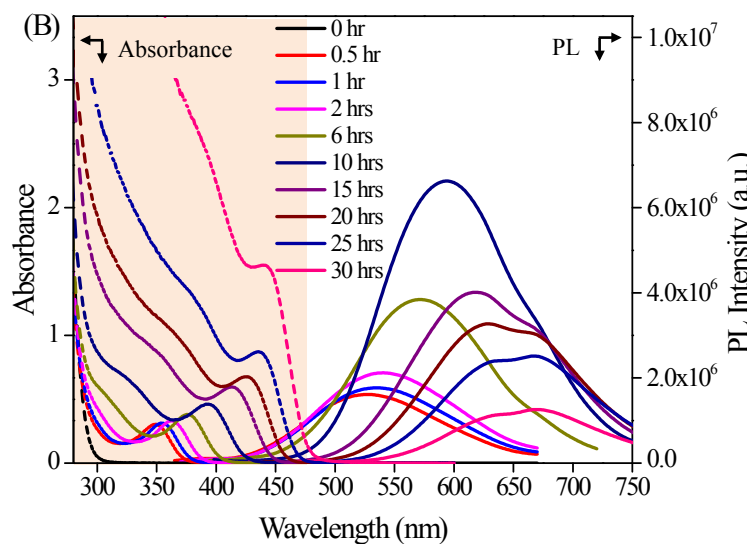
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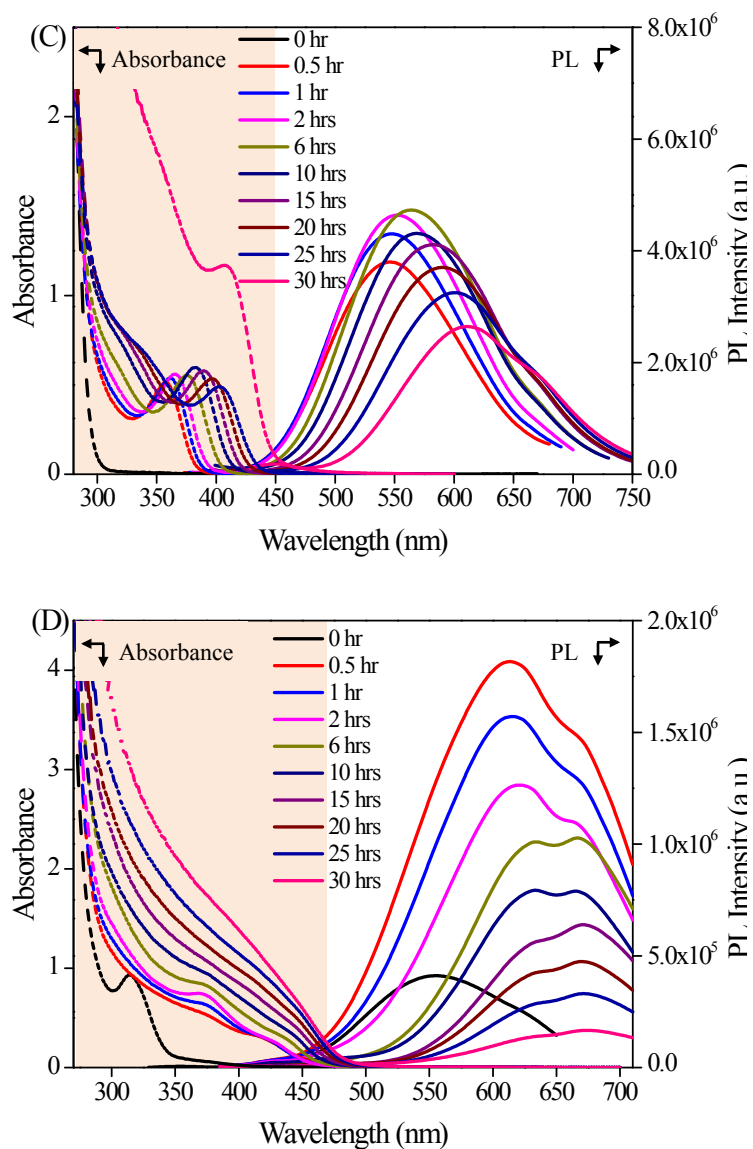


Figure S2. Absorbance (dotted line) and photoluminescence (solid line) spectra of MPA-CdS QDs formed by using different concentration ratios of $[CdCl_2] : [MPA]$; (A) 1 : 1.5, (B) 1 : 2.4, (C) 1 : 4.0 and (D) 1 : 8.0 (where $[CdCl_2] = 2.35mM$) at pH 9 with various reflux time. Excitation wavelength for the PL spectra is the corresponding absorption peak position (λ_{abs}^{max}).

119 **Supporting Information S3**

120 **Table S1.** Comparison of the previously literature reported methods and our method for
 121 synthesis of CdS QDs.

Cd Source	Sulfur Source	Reaction Conditions	Water Solubility	Refs.
Cd(NO ₃) ₂	Thioacetamide	Ethylene glycol, heating	Yes	14
Cd(NO ₃) ₂	C ₁₃ H ₁₁ NS	Propylene glycol, heating	No	18
CdCl ₂	Thiourea	Heating	Yes	24
CdO	S	1-octadecene and oleic acid, microwave irradiation	No	17
Cd(NO ₃) ₂	Na ₂ S	AOT/diethyl ether/H ₂ O	No	20
Cd(OAc) ₂	Na ₂ S	DMF/H ₂ O, heating	Yes	22
Cd(NO ₃) ₂	Na ₂ S	R. T. [#]	Yes	23
CdCl ₂	Na ₂ S	R. T.	Yes	25
CdCl ₂	Na ₂ S	R. T.	Yes	26
CdCl ₂	Na ₂ S	Na ₃ PO ₄ , heating	No	19
Cd(ClO ₄) ₂	Na ₂ S	R. T.	Yes	27
bis[<i>N,N</i> -diethyl- <i>N'</i> -(benzoylthioureato)] cadmium(II)		HDA, heating	No	15
Cd-thiosemicarbazide		Heating	No	16
CdCl₂	MPA	Heating	Yes	This work

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123 [#] R. T. – Room temperature

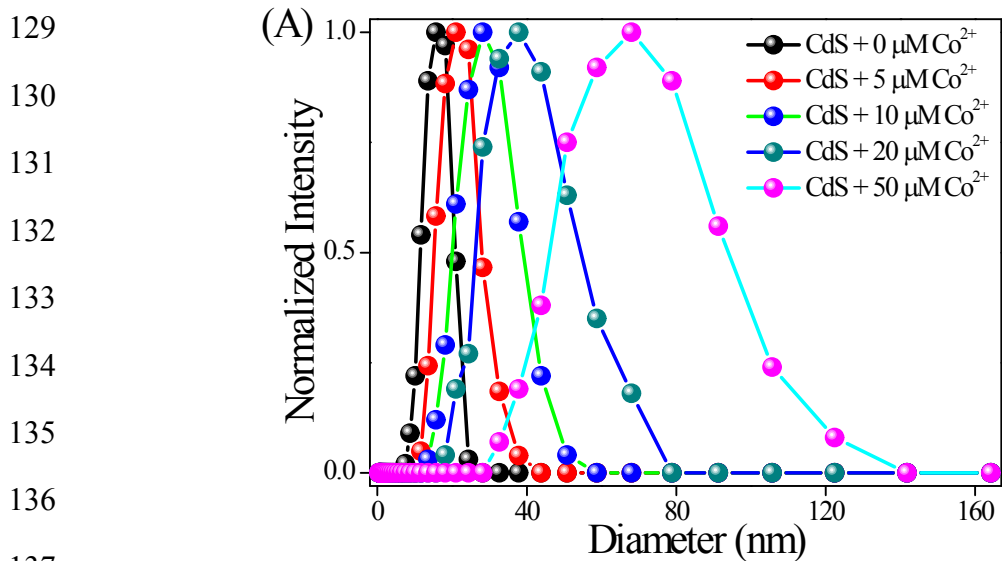
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128 **Supporting Information S4**



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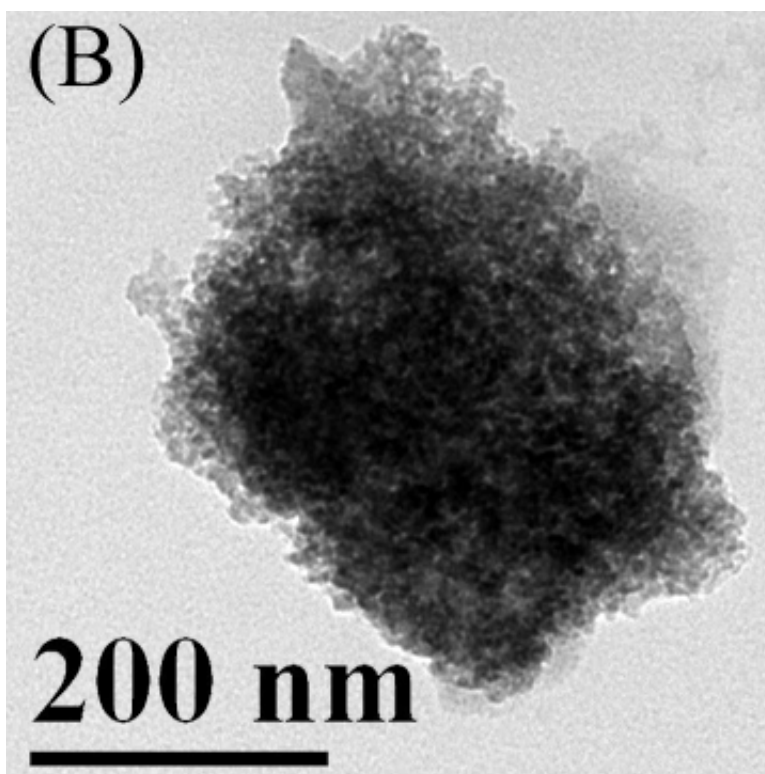
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151 **Figure S3.** (A) DLS spectra of MPA-CdS QDs in presence of various concentration of Co^{2+} (as

152 indicated) and (B) TEM image of MPA-CdS QDs in presence of 50 μM Co^{2+} .