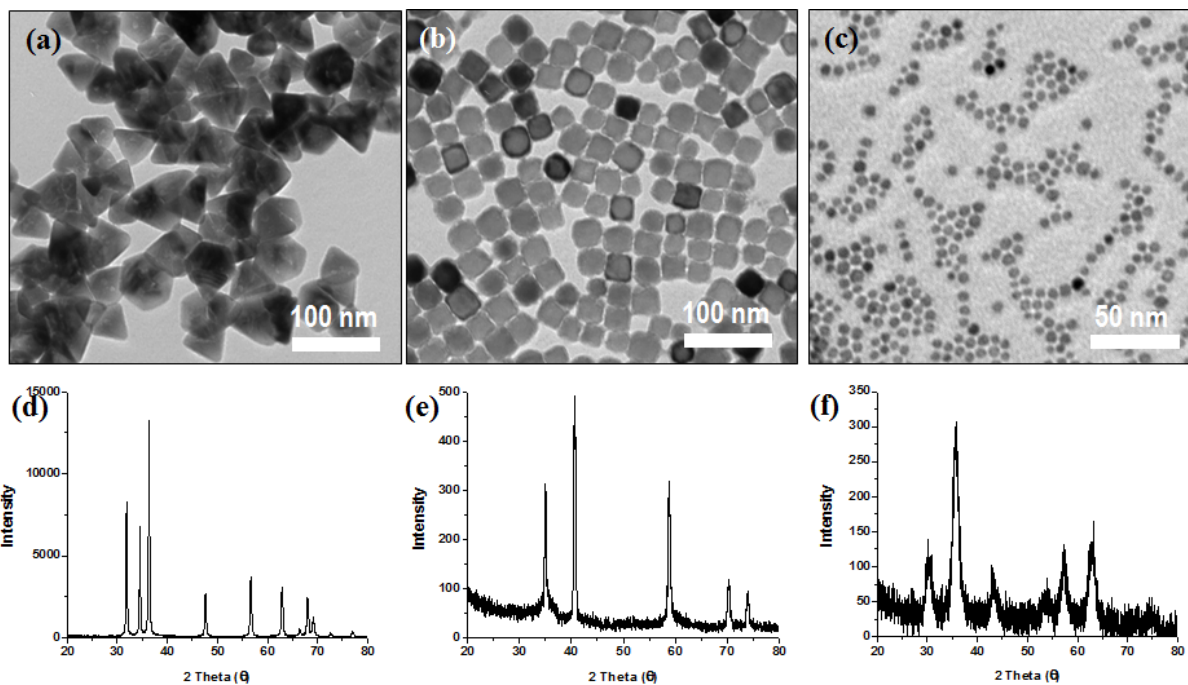


# Formation Mechanism of CdSe QDs through Thermolysis of Cd(oleate)<sub>2</sub> and TOPSe in The Presence of Alkylamine

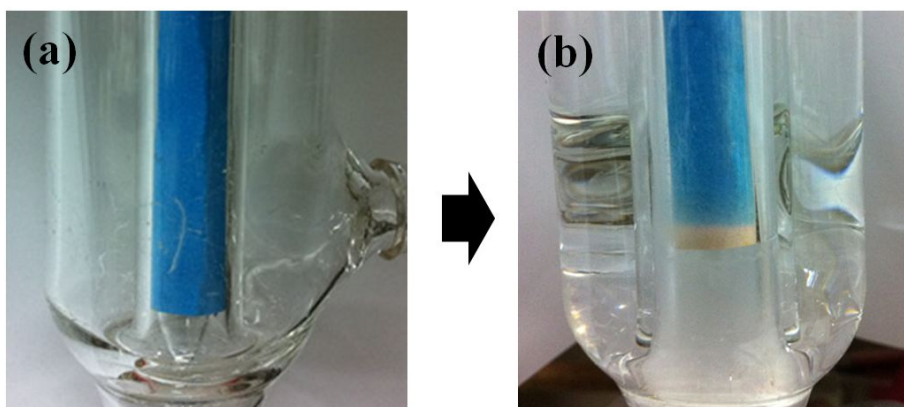
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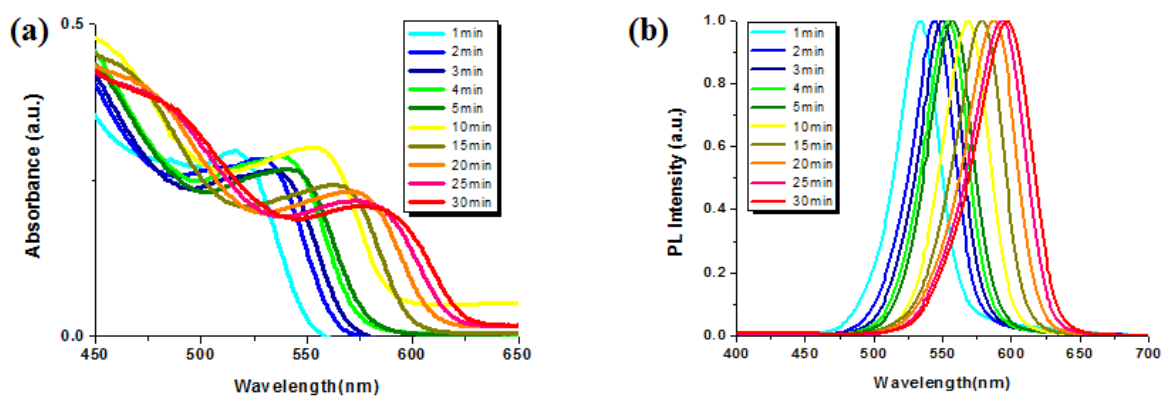
## < SUPPORTING INFORMATION >



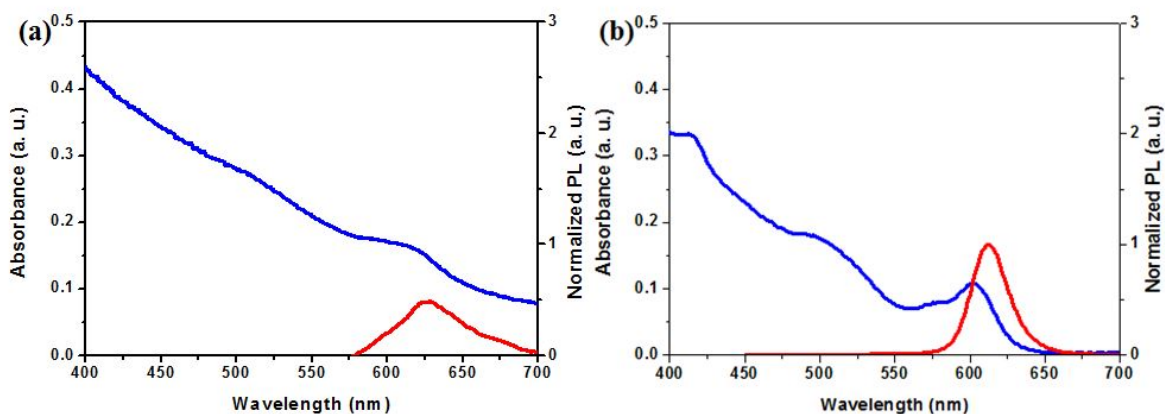
**Fig. S1** TEM images and XRD patterns of various metal oxide nanoparticles by thermal decomposition in the presence of alkylamine: (a) and (d) ZnO, (b) and (e) MnO, and (c) and (f) Fe<sub>3</sub>O<sub>4</sub>



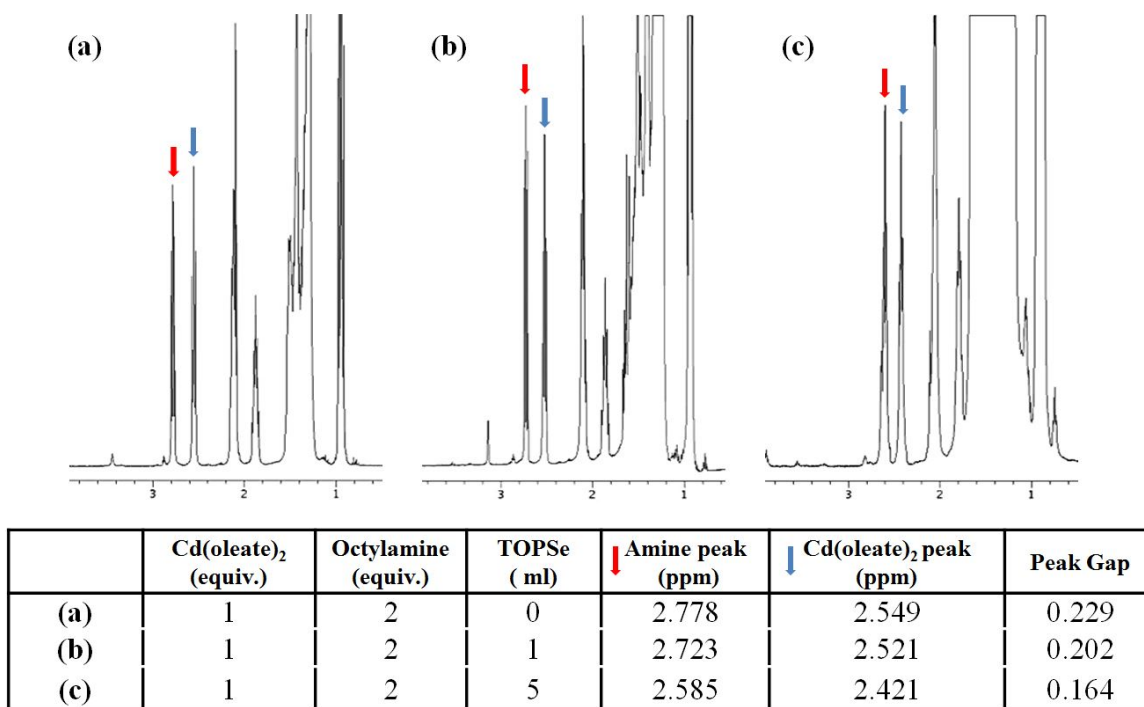
**Fig. S2** Detection of generated water through the condensation of HO-ML<sub>n</sub> by monitoring the color change of (a) CoCl<sub>2</sub> (blue) to (b) CoCl<sub>2</sub>·nH<sub>2</sub>O (pink)



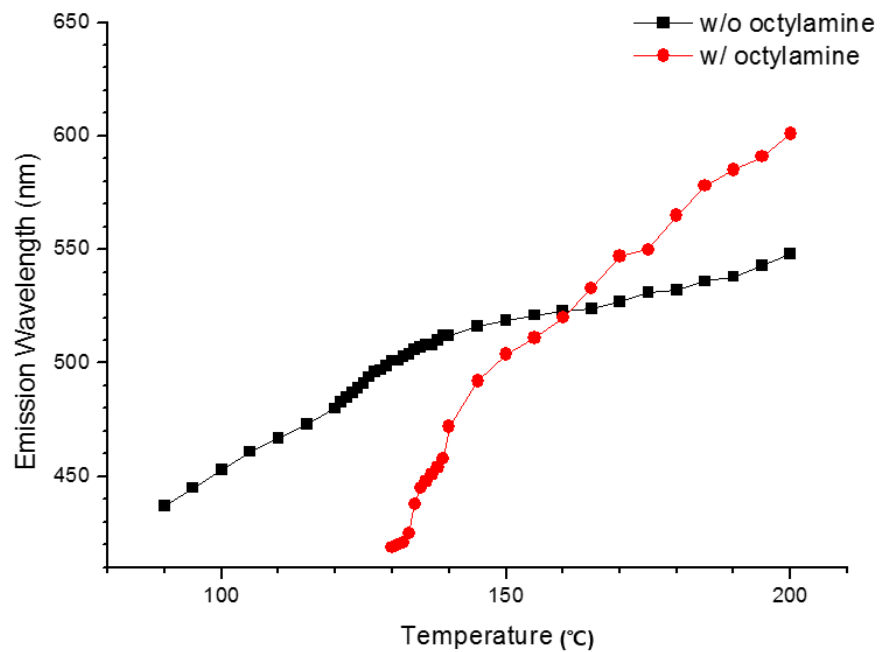
**Fig. S3** (a) UV-Vis and (b) PL spectra of synthesized CdSe QDs using intermediate I with the passing of reaction time



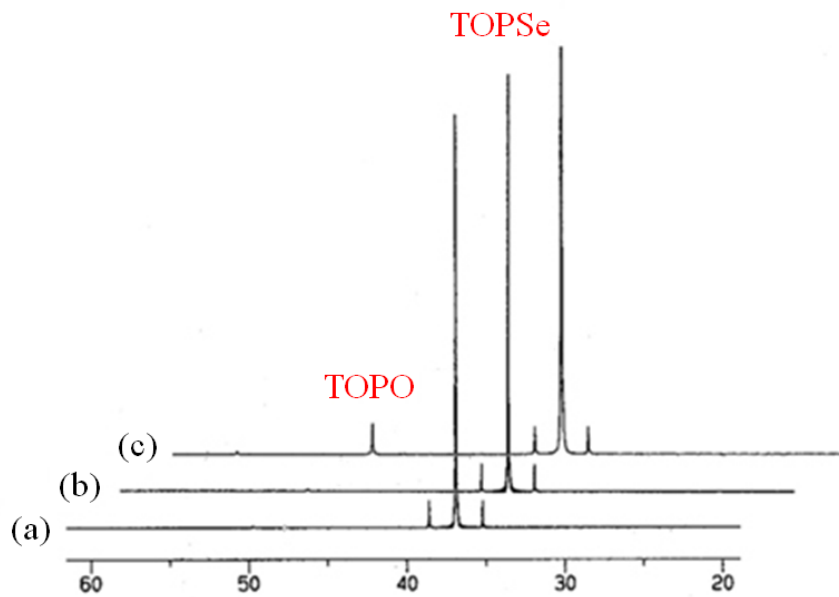
**Fig. S4** UV-Vis and PL spectra of synthesized QDs using (a) nanosized CdO and (b) bulk CdO at 250 °C for 10 min



**Fig. S5** <sup>1</sup>H NMR spectra of the mixed solution at room temperature; 1 eq. of Cd(oleate)<sub>2</sub> and 2 eq. of octylamine in toluene-*d*<sub>8</sub> was mixed with (a) 0 mL (b) 1 mL and (c) 5 mL of TOPSe solution (TOPSe = 1 mmol Se/1 mL TOP)



**Fig. S6** Reaction kinetics of the mixtures of Cd(oleate)<sub>2</sub> and TOPSe in the presence and absence of octylamine by measuring the emission wavelength of generated CdSe QDs.



**Fig. S7** <sup>31</sup>P-NMR spectra of (a) TOPSe, (b) TOPSe after heating at 250 °C and (c) reaction between TOPSe and bulk CdO powder