Electronic Supplementary Material (ESI) for CrystEngComm.

Facile one-pot aqueous synthesis of highly soluble and luminescent CdSe quantum dots without nitrogen bubbling

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Physicochemical Characterizations

The morphology of the samples was observed using field high-resolution transmission electron microscope (HR-TEM, JOEL JEM-2100) operating at an accelerating voltage of 200 kV. X-ray diffraction (XRD) patterns were carried out by Panalytical X'pert PRO MPD X-ray Diffractometer with Cu Kα radiation (λ = 0.15418 nm, 45 kV, 40 mA) in the 2θ range from 5˚ to 80˚ where the scanning mode was continuous with a step size of 0.04˚ and scan step time of 0.5 s. The elemental composition was investigated using X-ray photoelectron spectroscopy (XPS, ESCALAB 250Xi, Thermo Scientific). Fluorescence spectrometer (LUMINA, Thermo scientific) was used to study the photoluminescence (PL) spectra for samples. The transmission electron microscope. Diffuse reflectance spectra (DRS) was recorded on Shimadzu UV-2600 UV–Vis spectrophotometer in the range of 200–800 nm where barium sulfate was utilized as reference material.

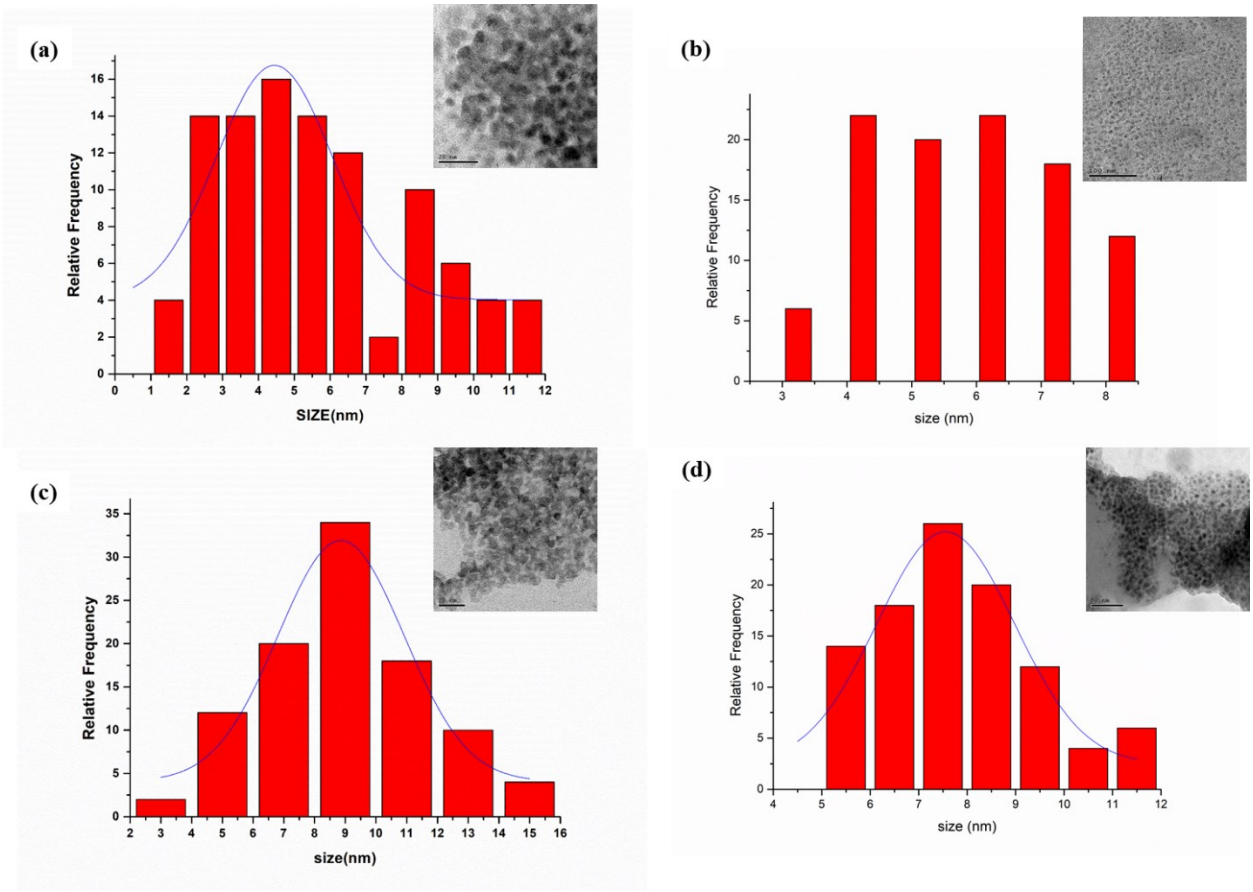

Fig. S1. The particle size histograms of CdSe QDs: 0h (a,b) and 4h (c,f), estimated from HR-TEM images (Fig 1 b,c) and Fig. 1 (e,f).

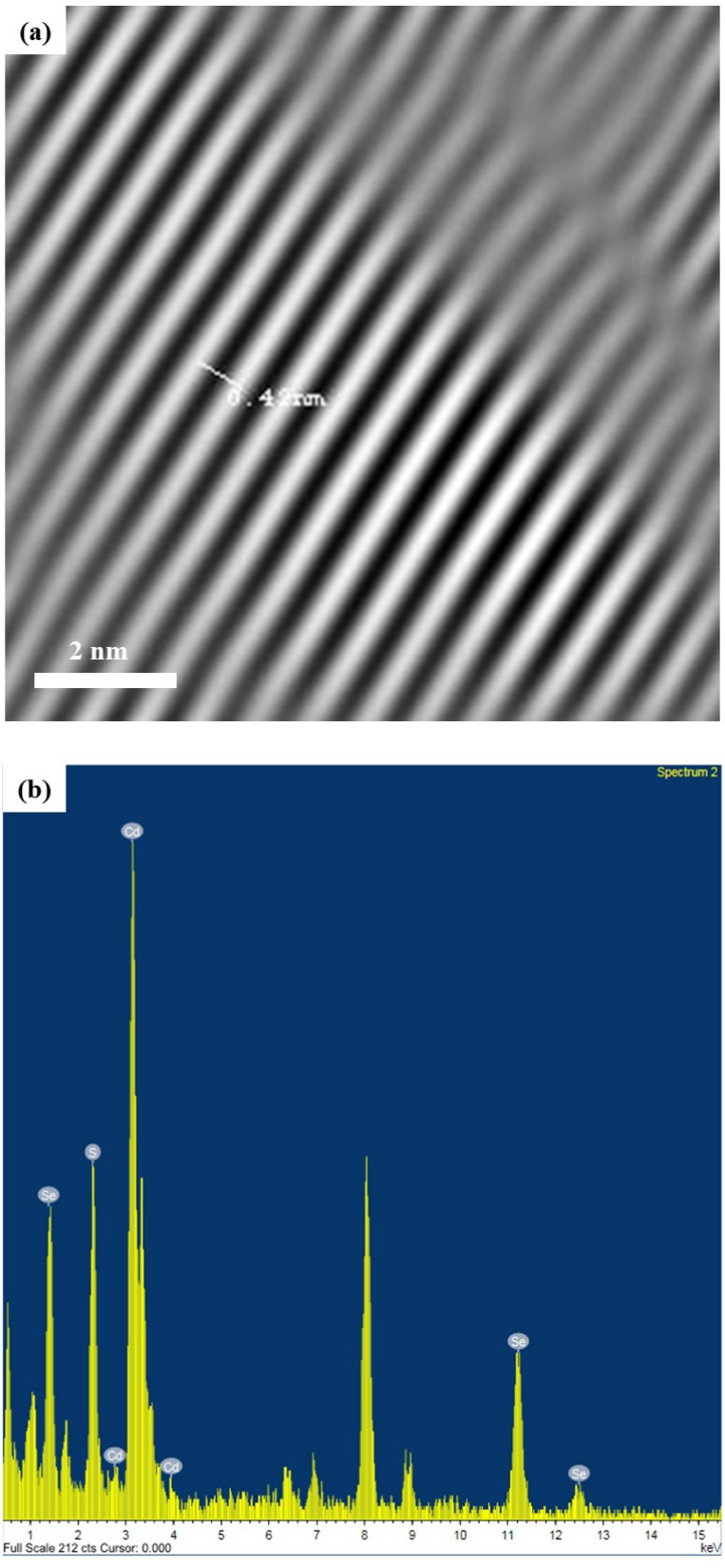

Fig. S2. The lattice fringes (a) and the EDX (b) of CdSe QDs (4h sample)

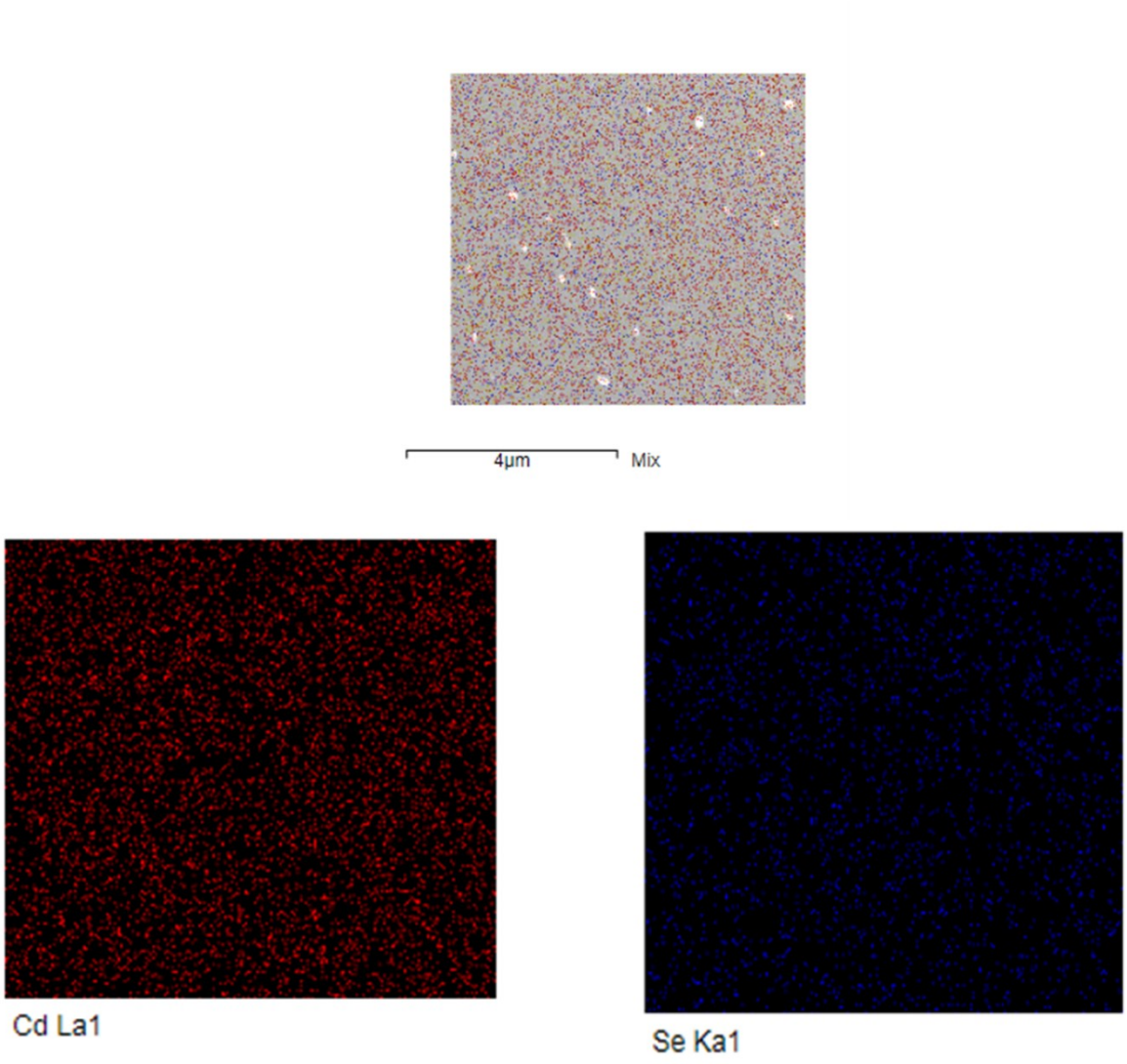

Fig. S3. The mapping spectra for the Cd and Se elements of the CdSe QDs (4h sample).

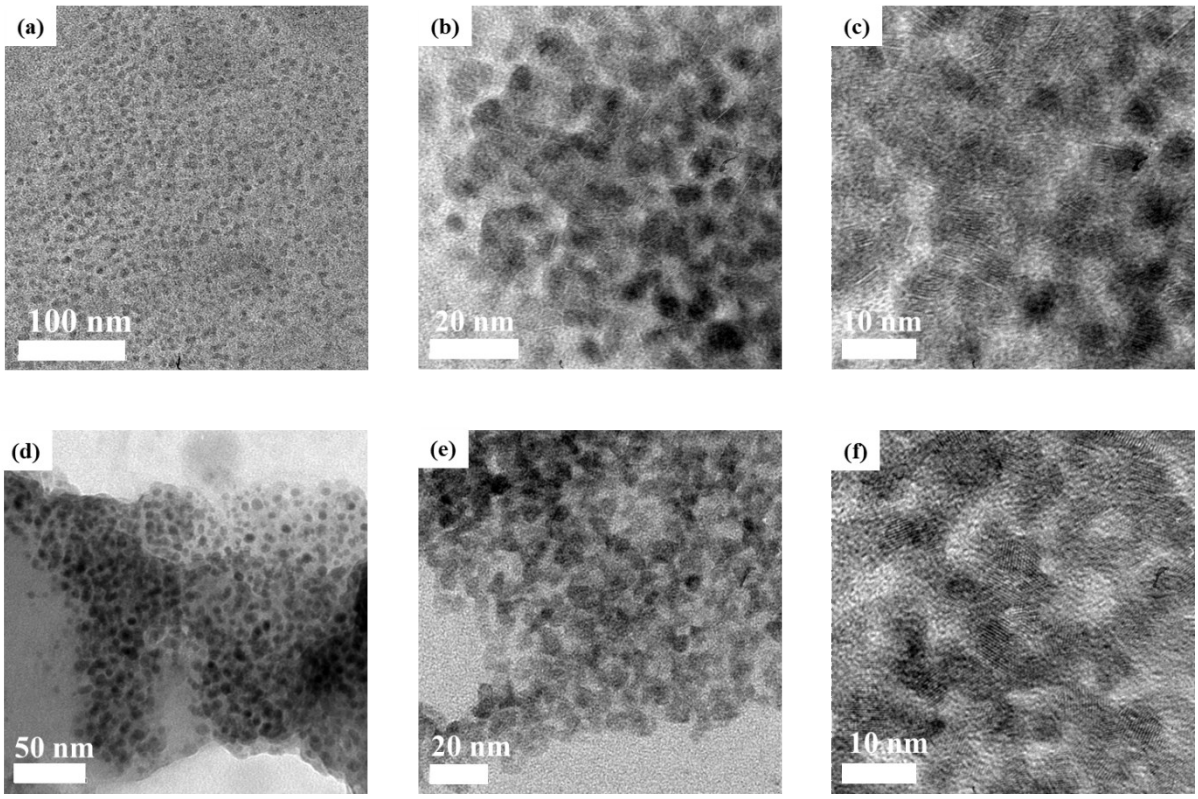

Fig. S4. The HR-TEM images of 0h (a-c) and 4h (d-f) samples of CdSe QDs.

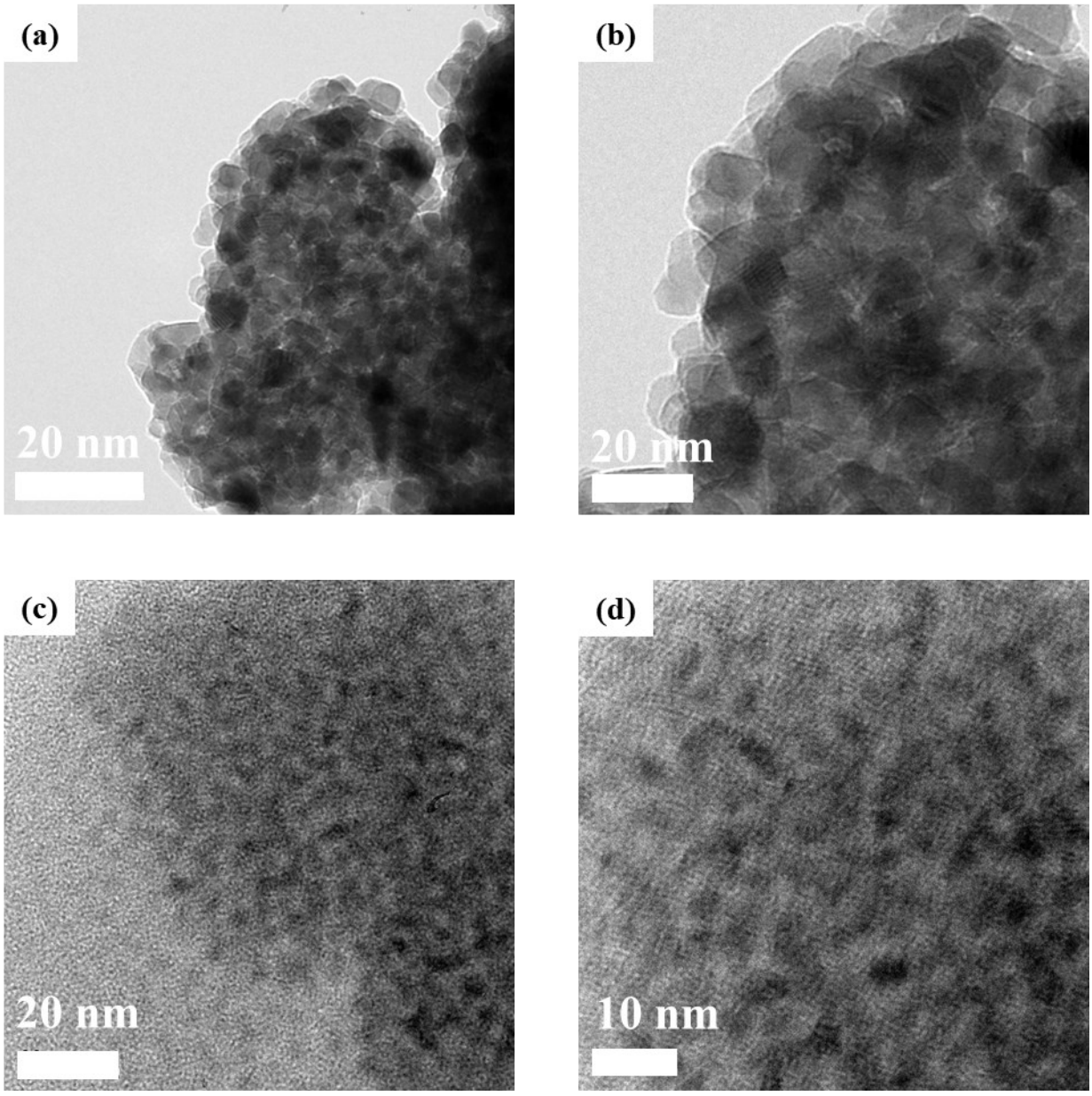

Fig. S5. The HR-TEM images of CdSe QDs synthesized using TGA only (a-b) and sodium citrate only (c-d)

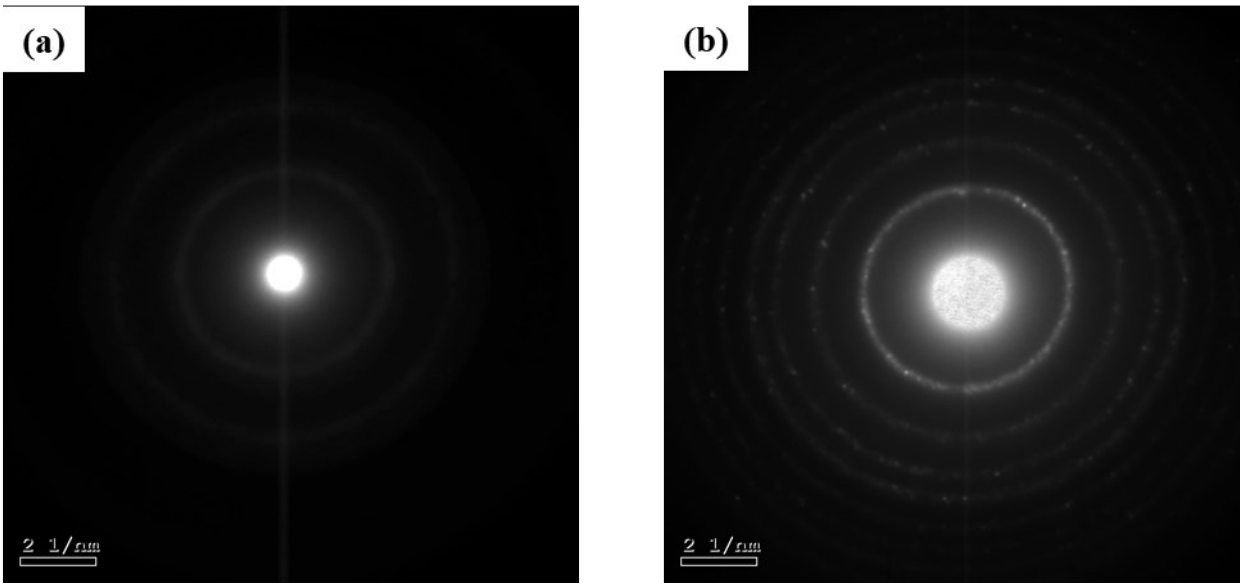

Fig. S6. The SAED patterns of of 0h (a) and 4h (b) samples of CdSe QDs.

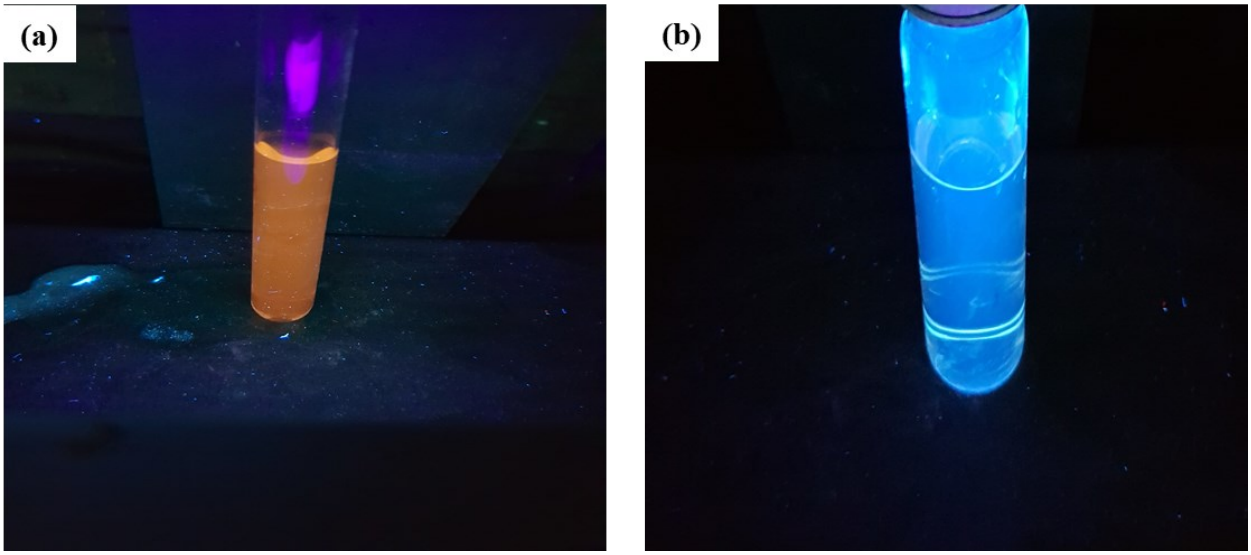

Fig. S7. The visiually observed bright PL emission of 0h (a) and 4h (b) samples of CdSe QDs under UV-irradaition (365 nm)