Electronic Supplementary Material (ESI) for RSC Advances.

Formation mechanism and optical properties of $CdMoO_4$ and $CdMoO_4$: Ln^{3+} (Ln = Pr, Sm, Eu, Dy, Ho and Er) microspheres synthesized via a facile sonochemical route

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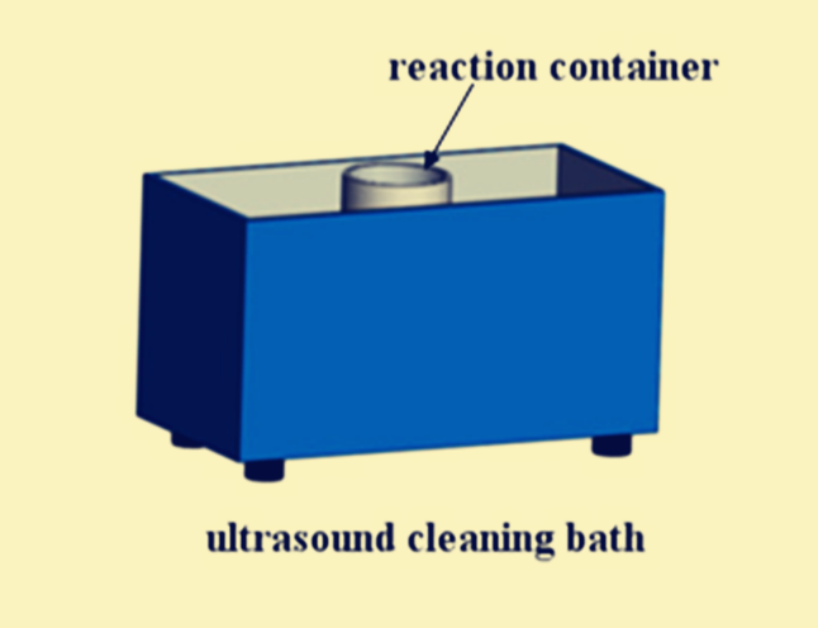

Fig. S1. Schematic illustration for reaction system and equipment.

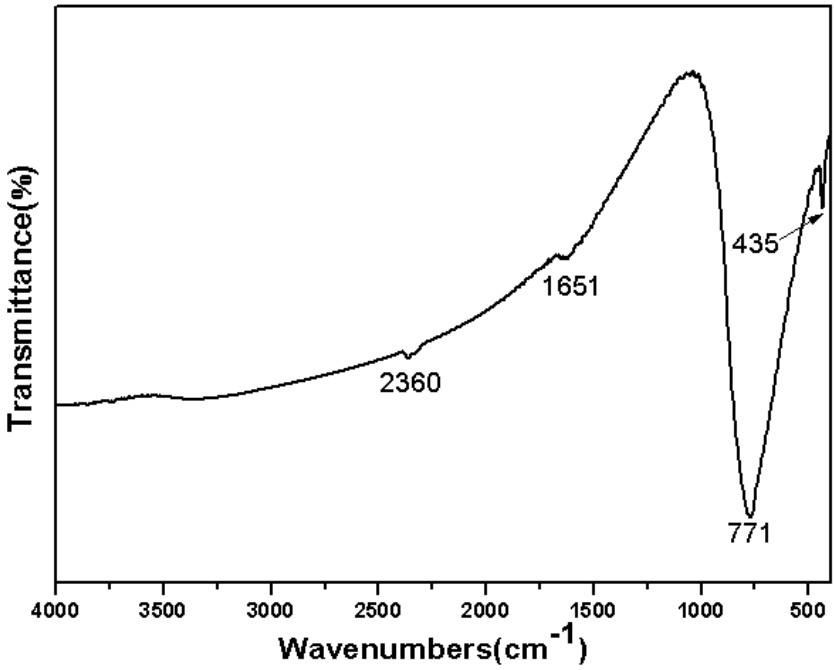

Fig. S2. FT-IR spectrum of $CdMoO_4$ samples.

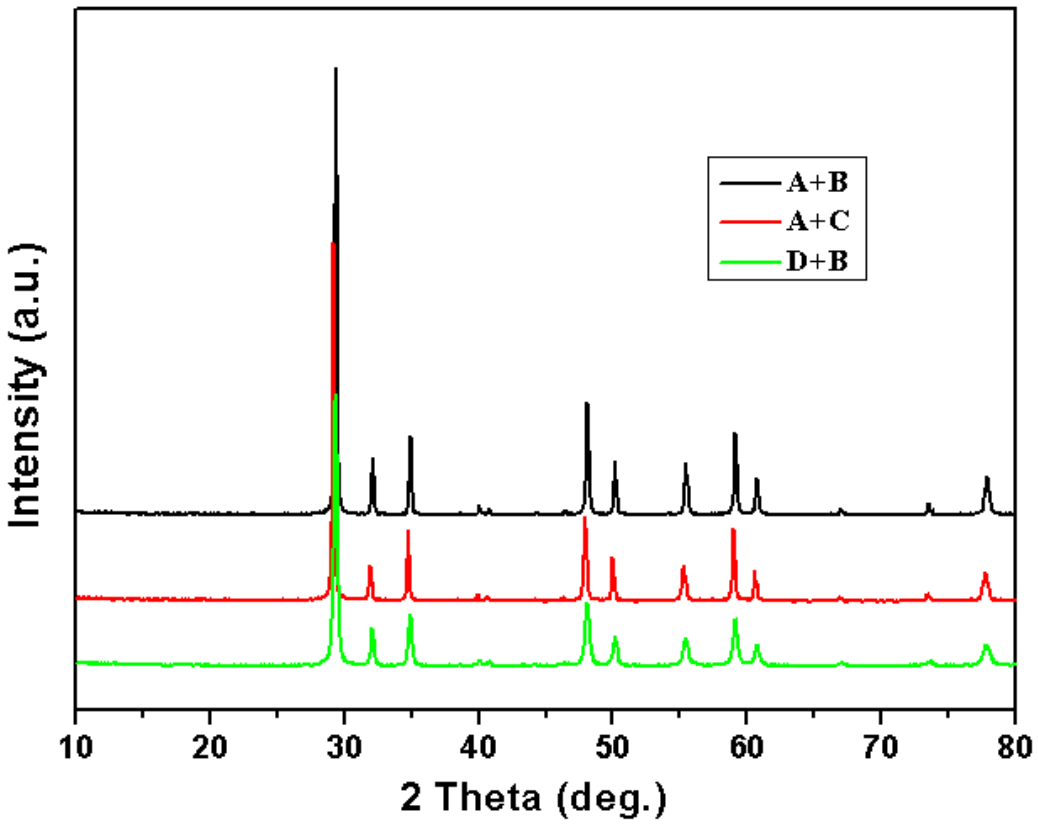

Fig. S3. XRD patterns of $CdMoO_4$ obtained by using different reactants. (A = $CdCl_2 \cdot 2.5H_2O$; B = $Na_2MoO_4 \cdot 2H_2O$; C = $(NH_4)_6Mo_7O_{24} \cdot 4H_2O$; D = $Cd(CH_3COO)_2 \cdot 2H_2O$)

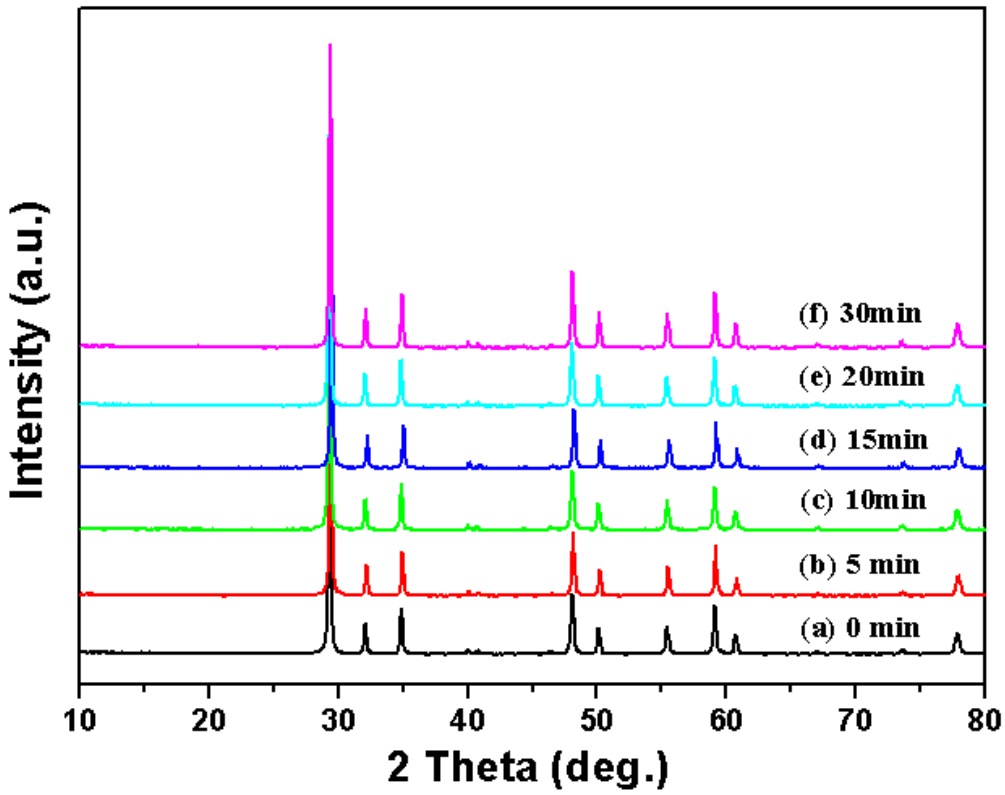

Fig. S4. XRD patterns of samples at different reaction time (a) 0, (b) 5, (c) 10, (d) 15 , (e) 20 min and (f) 30min, respectively.

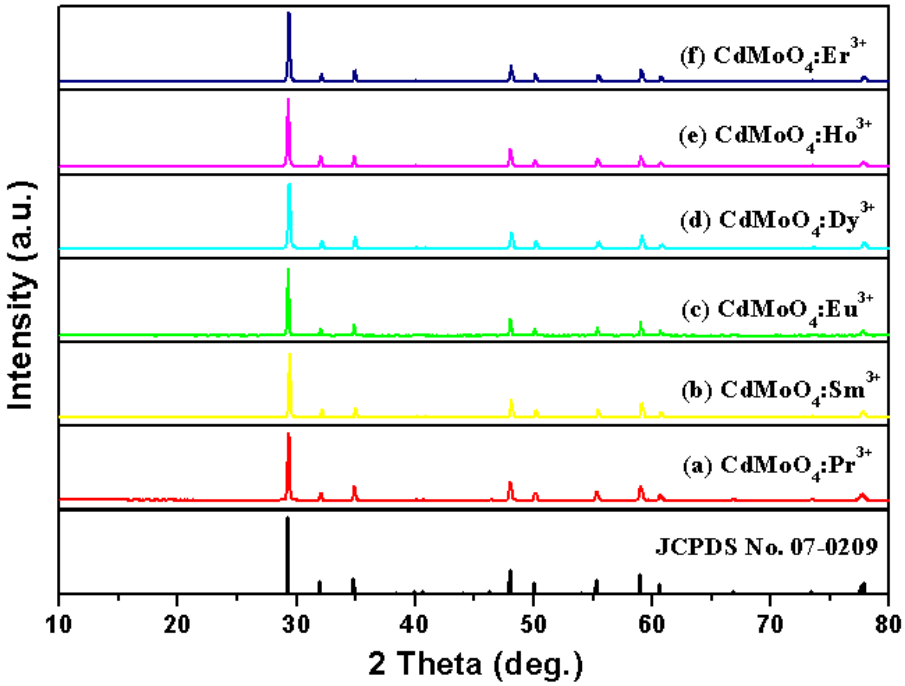

Fig. S5. XRD patterns of $CdMoO_4$: (a)Pr^{3+},(b)Sm^{3+}, (c)Eu^{3+}, (d)Dy^{3+}, (e)Ho^{3+} and (f)Er^{3+} phosphors.

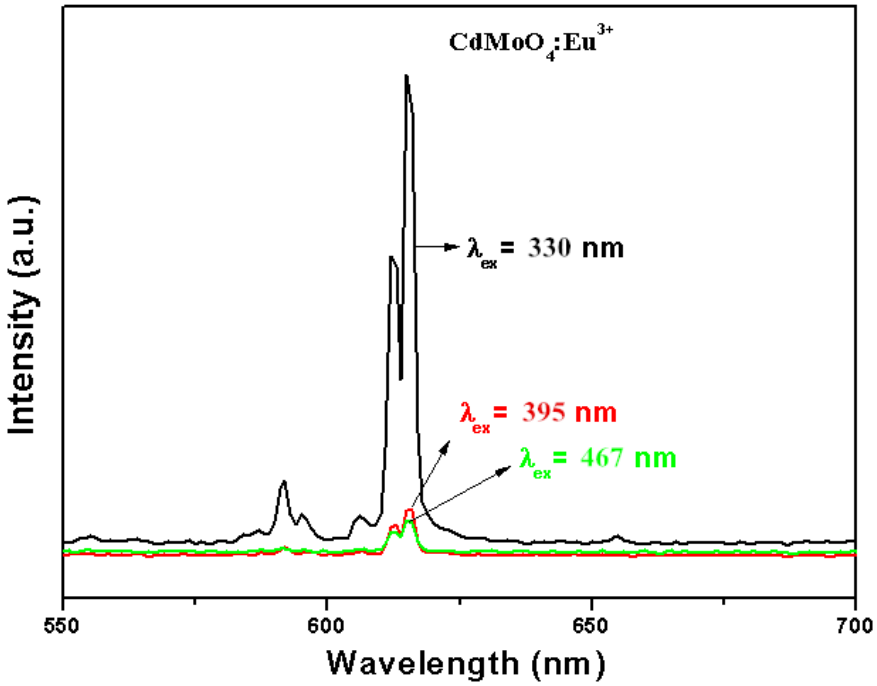

Fig.S6. Emission spectra of $CdMoO_4:Eu^{3+}$ sample under 330, 395 and 467 nm wavelength excitation.

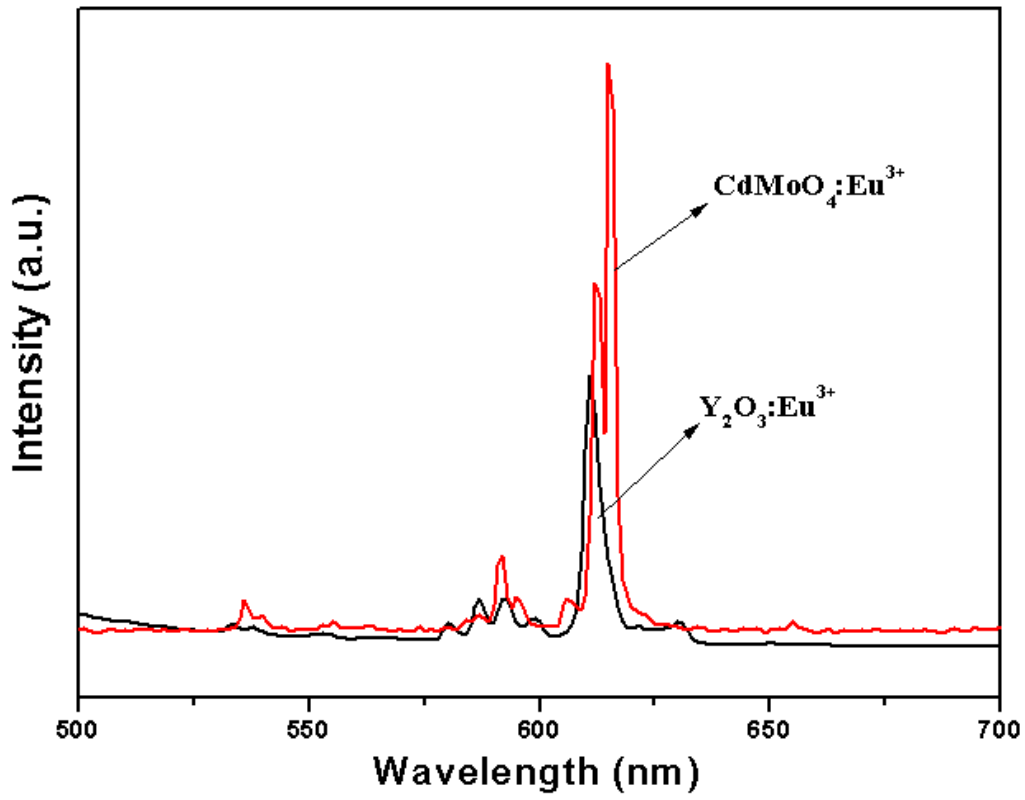

Fig.S7. Emission spectra of $CdMoO_4:Eu^{3+}$ compared with commercial red phosphor $Y_2O_3:Eu^{3+}$

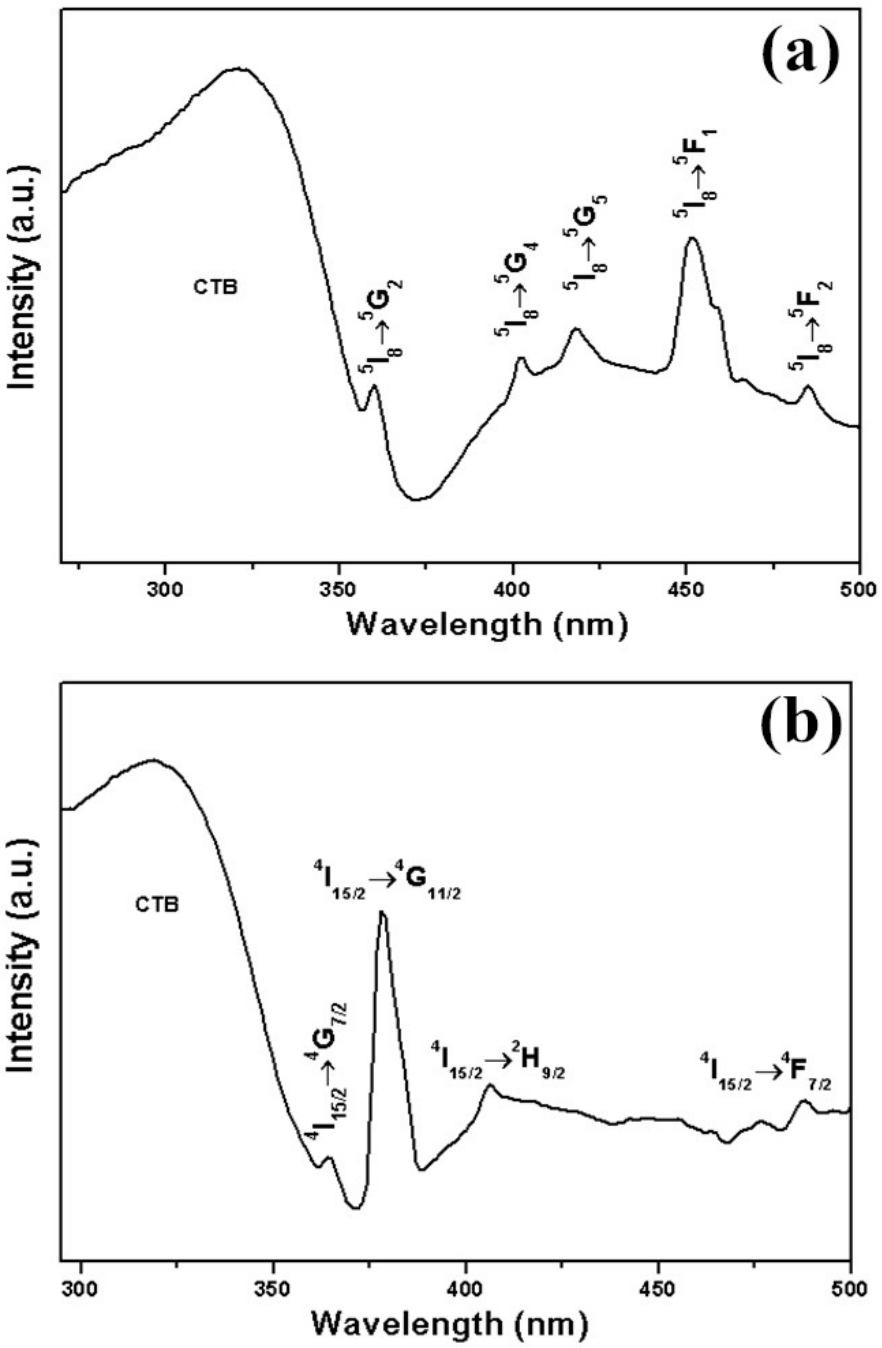

Fig. S8. Excitation spectra of $CdMoO_4:Ho^{3+}$ (a) $CdMoO_4:Er^{3+}$ (b) samples.