ELECTRONIC SUPPLEMENTARY INFORMATION

Salt assisted size-controlled synthesis and luminescence studies of single phase $CaWO_4:Dy^{3+}$: An insight into morphological evolution, energy transfer and colour evaluation

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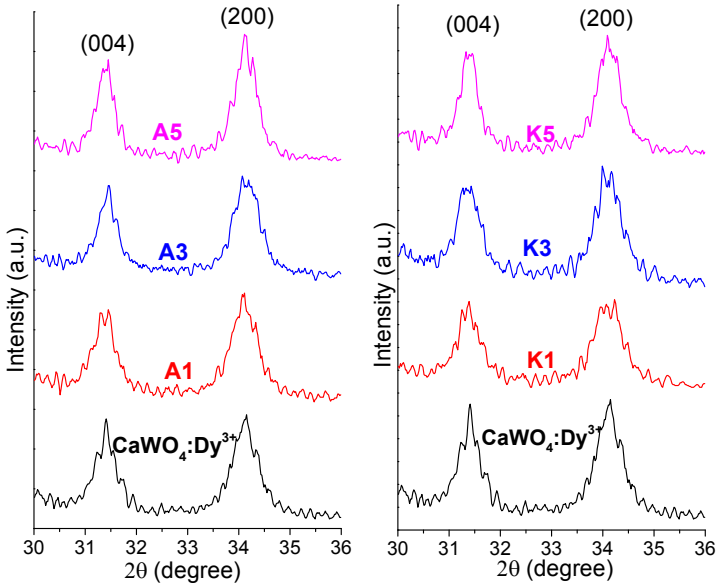

Figure S1. XRD patterns showing the variation of relative intensities of the (004) and (200) peaks of $CaWO_4:Dy^{3+}$ samples prepared in the presence of (a) NH_4Cl and (b) KCl. A1, A3 and A5 refers to the samples prepared in the presence of 10, 30 and 50 mM NH_4Cl respectively. Whereas K1, K3 and K5 refers to the samples prepared in the presence of 10, 30 and 50 mM KCl respectively.

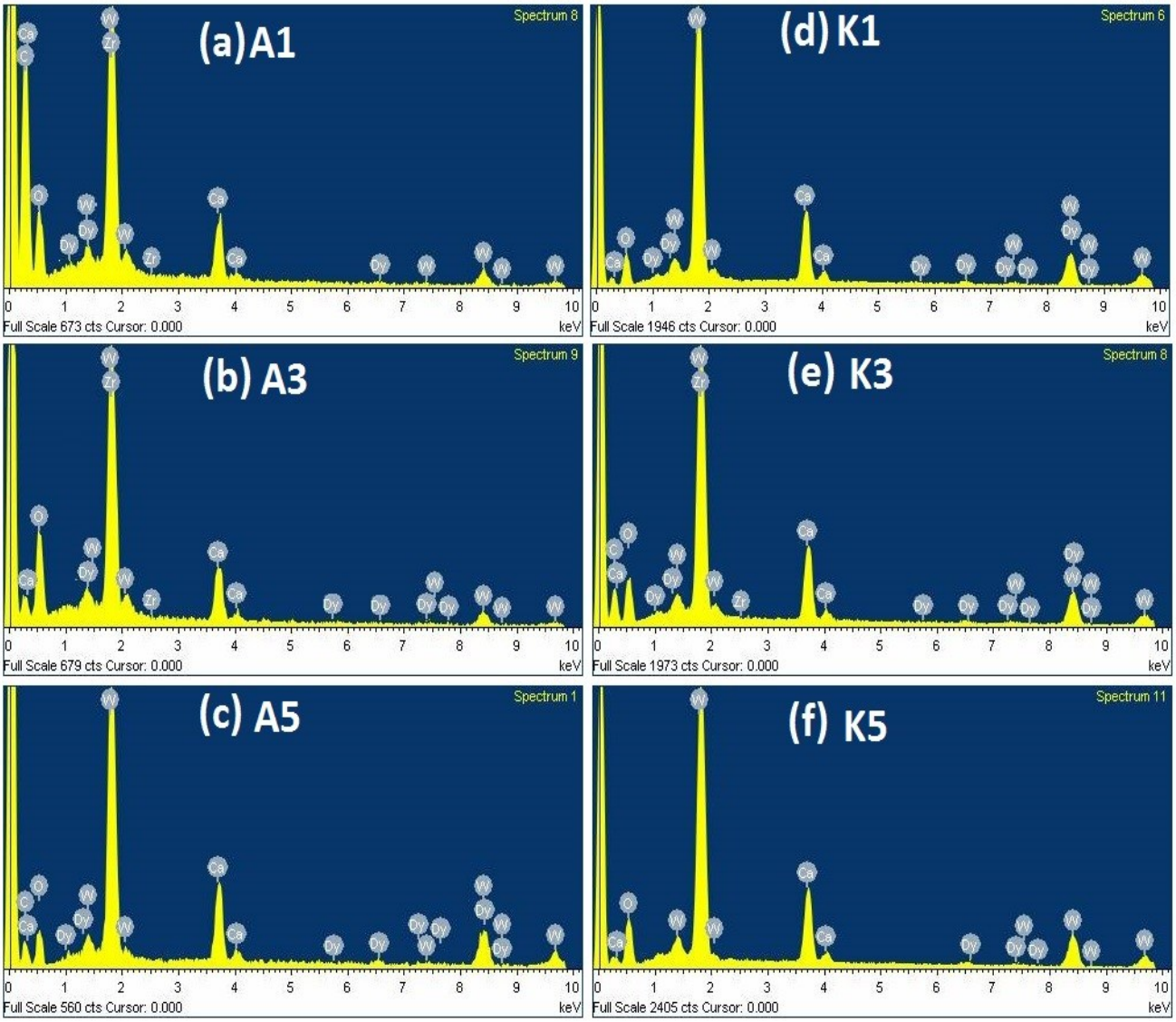

Fig S2. EDS spectra of the $CaWO_4:Dy^{3+}$ samples prepared with the addition of (a, b, c) NH_4Cl (b) KCl.

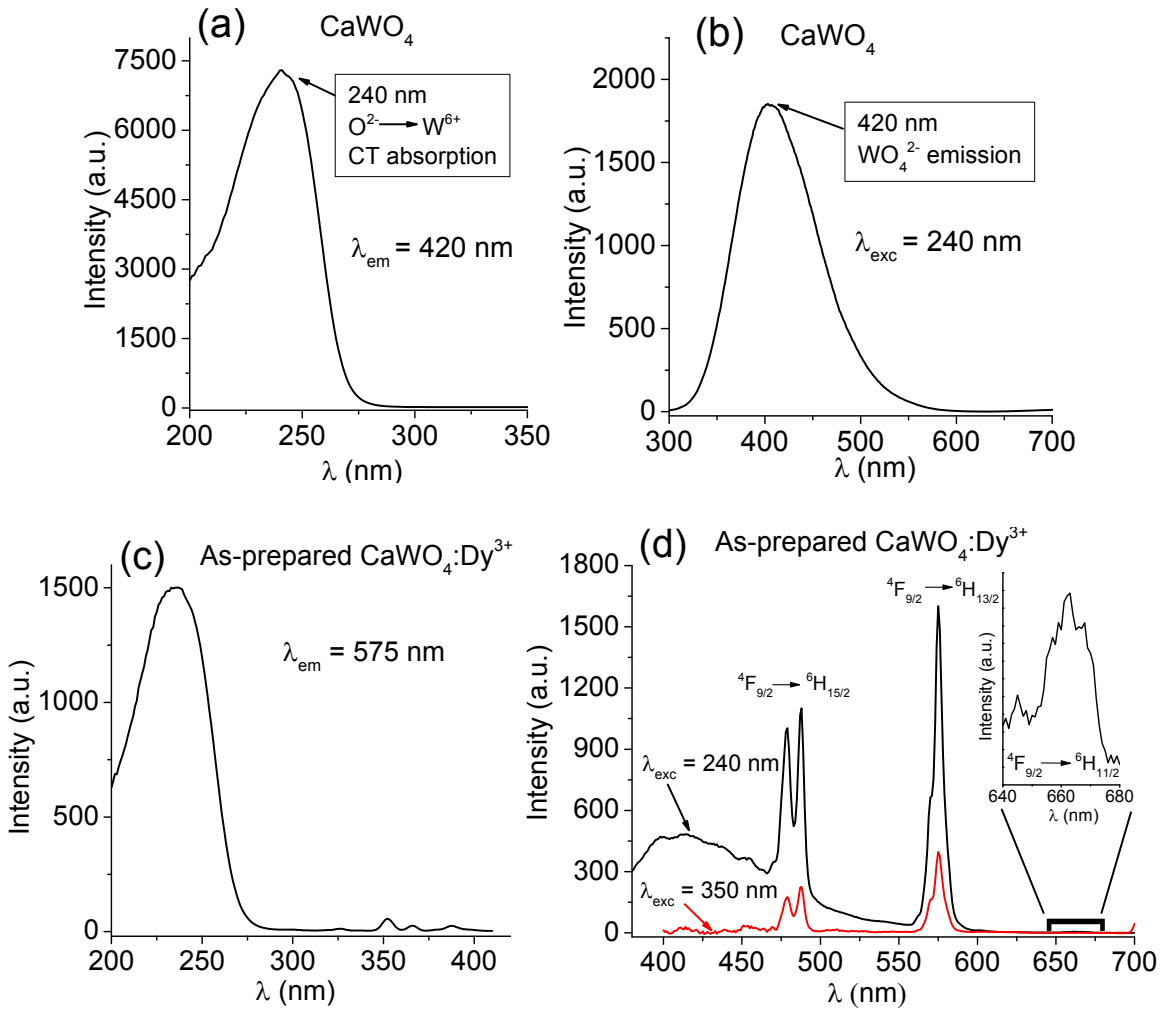

Figure S3. (a) Excitation and (b) emission spectra of undoped $CaWO_4$. (c) Excitation and (d) emission spectra of as-prepared $CaWO_4:Dy^{3+}$.

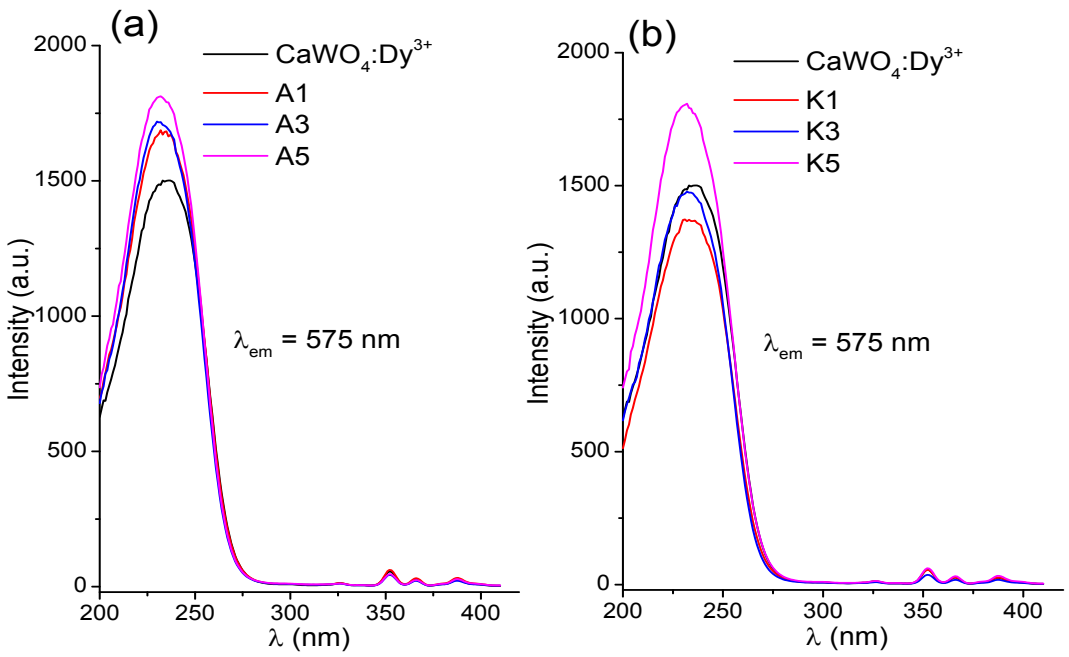

Figure S4. Excitation spectra of the as-prepared $CaWO_4:Dy^{3+}$ samples prepared in the presence of (a) NH_4Cl and (b) KCl.

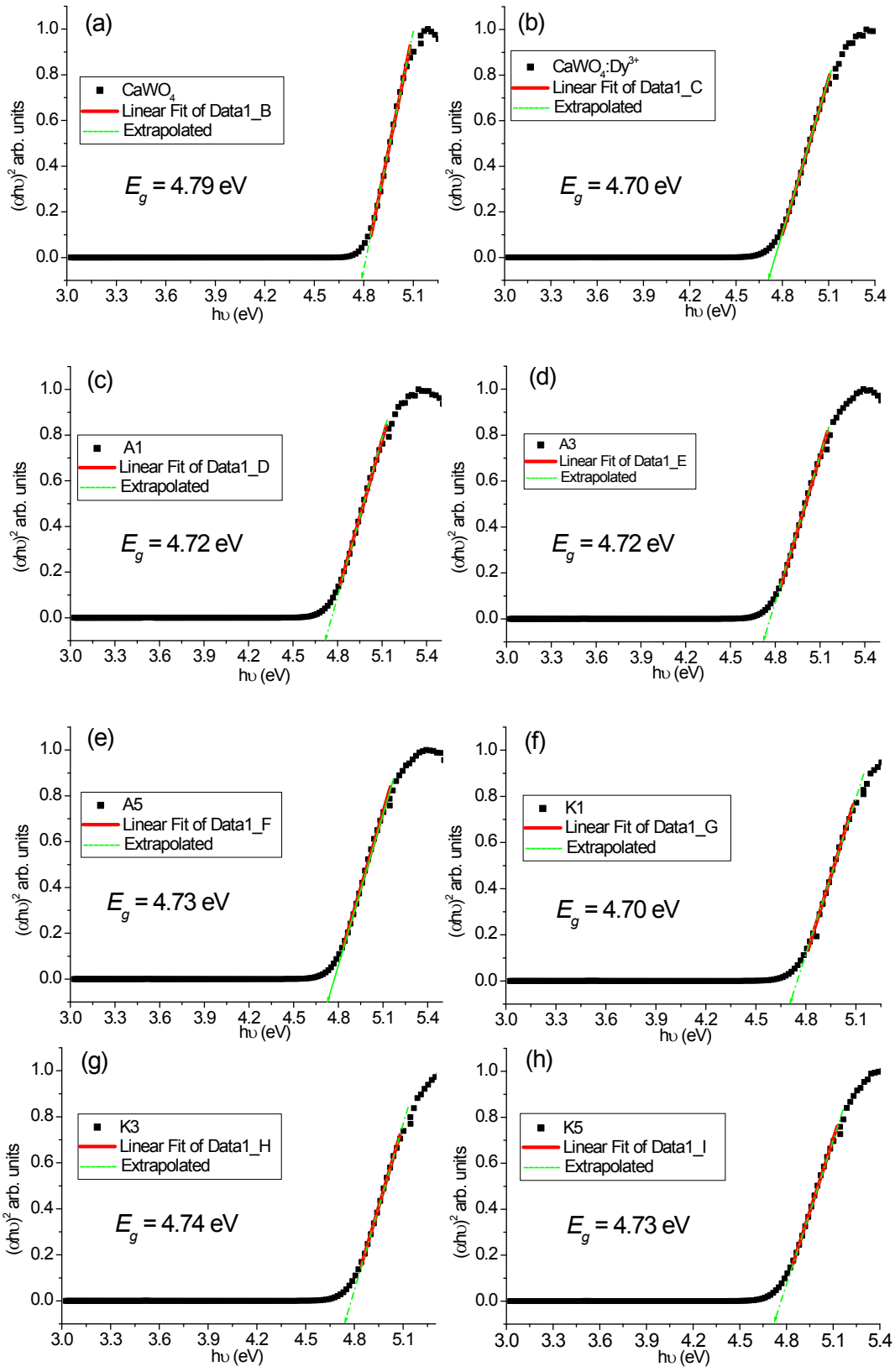

Figure S5. Tauc plot obtained from the excitation spectra of the $CaWO_4$ and $CaWO_4$:Dy^{3+} samples prepared in the absence and presence of salts.

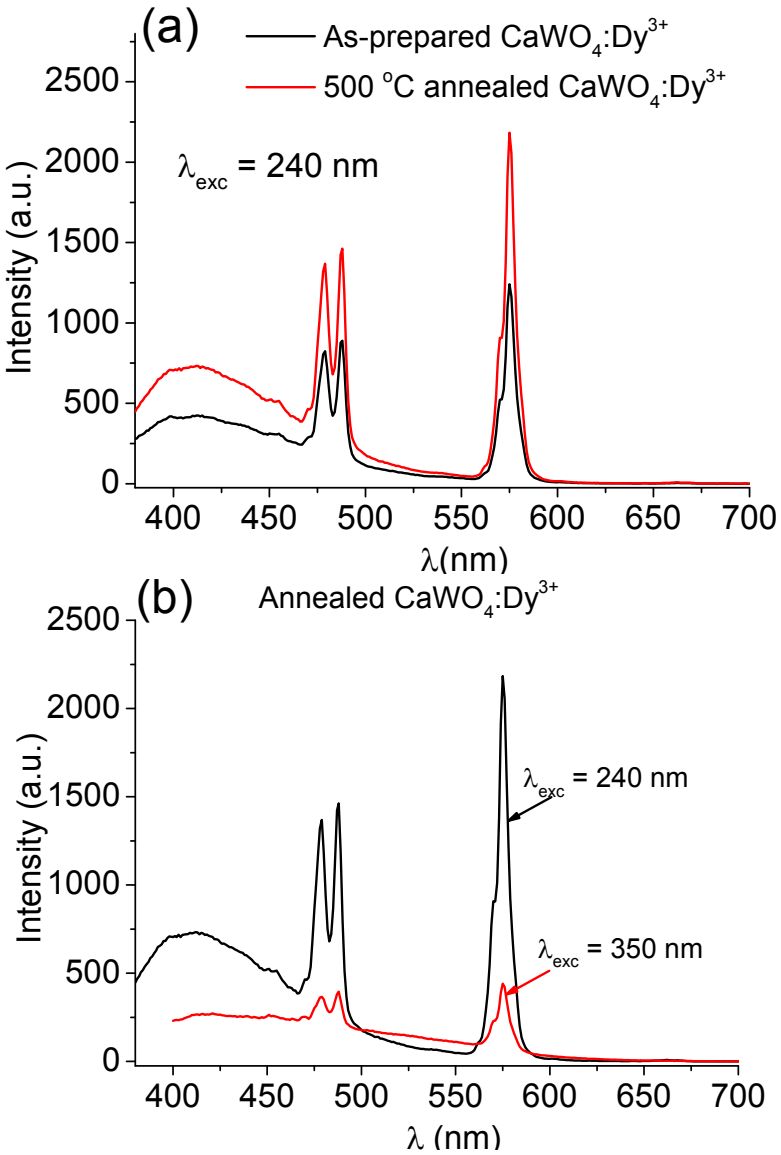

Fig. S6.(a) Emission spectra of the as-prepared and 500 °C annealed $CaWO_4:Dy^{3+}$ after excitation at 240 nm. (b) Emission spectra of the 500 °C annealed $CaWO_4:Dy^{3+}$ after excitation at 240 and 350 nm.

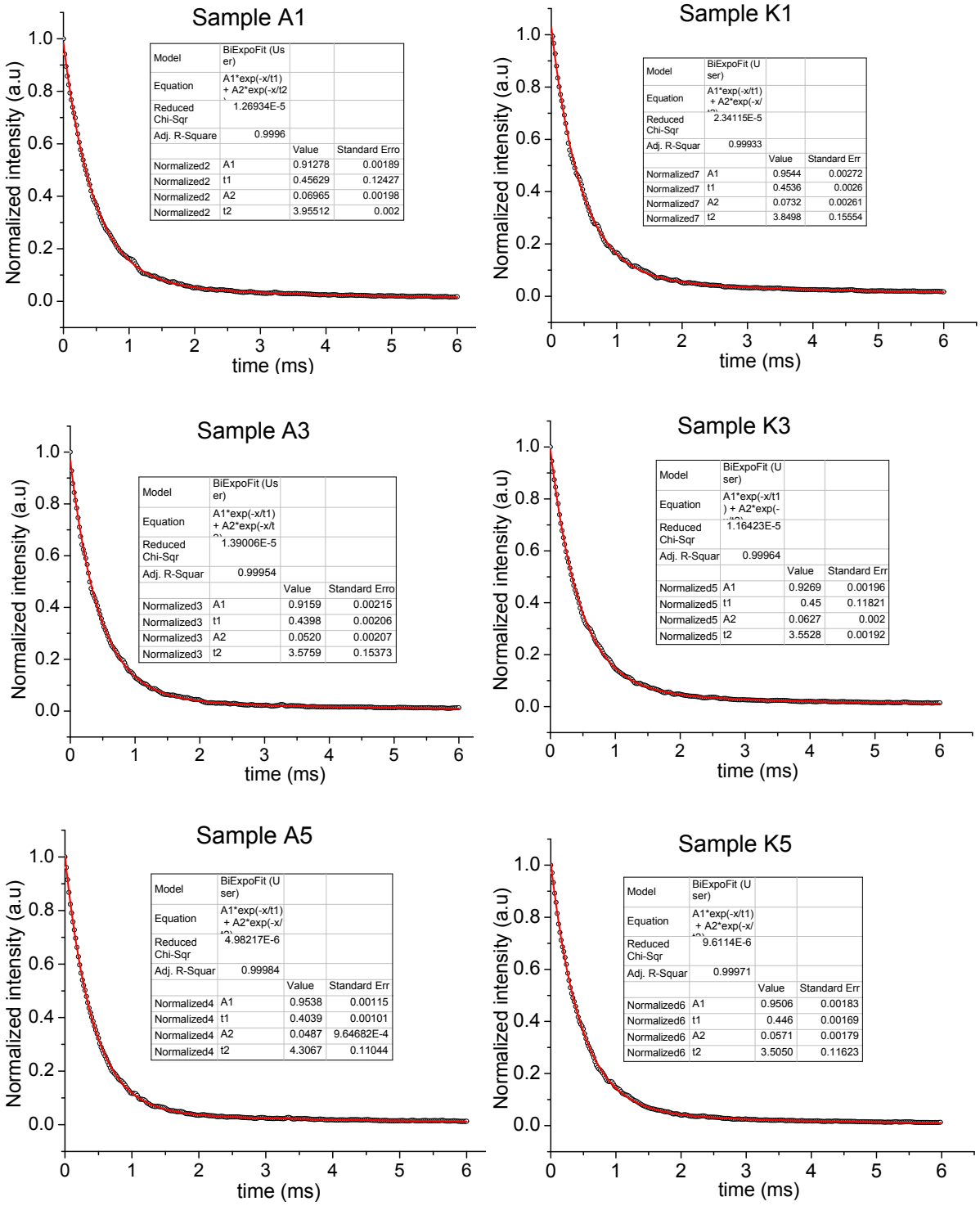

Fig. S7. Decay profiles of the as-prepared $CaWO_4:Dy^{3+}$ samples prepared in the presence of NH_4Cl and KCl.

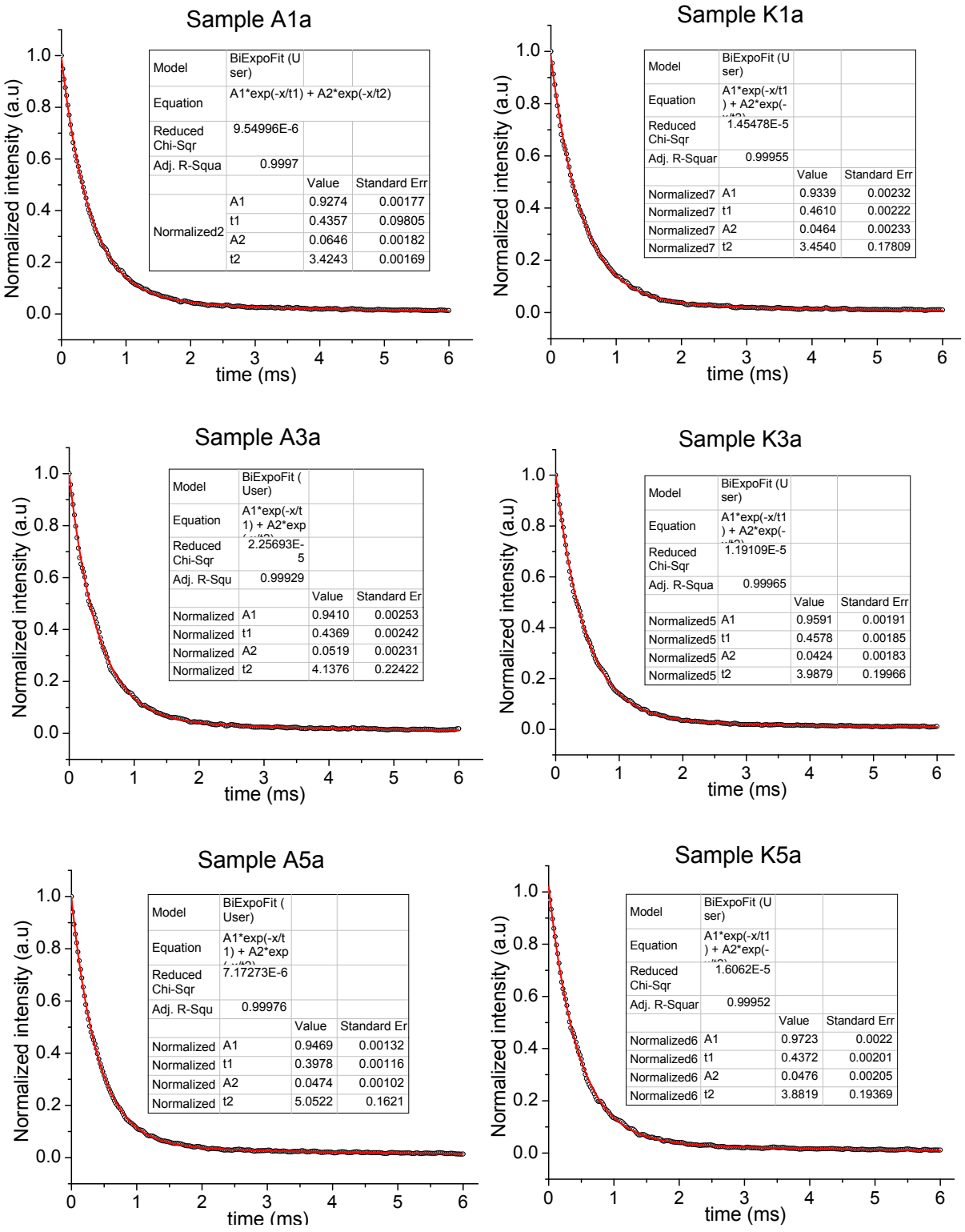

Fig. S8. Decay profiles of the annealed $CaWO_4:Dy^{3+}$ samples prepared in the presence of NH_4Cl and KCl.

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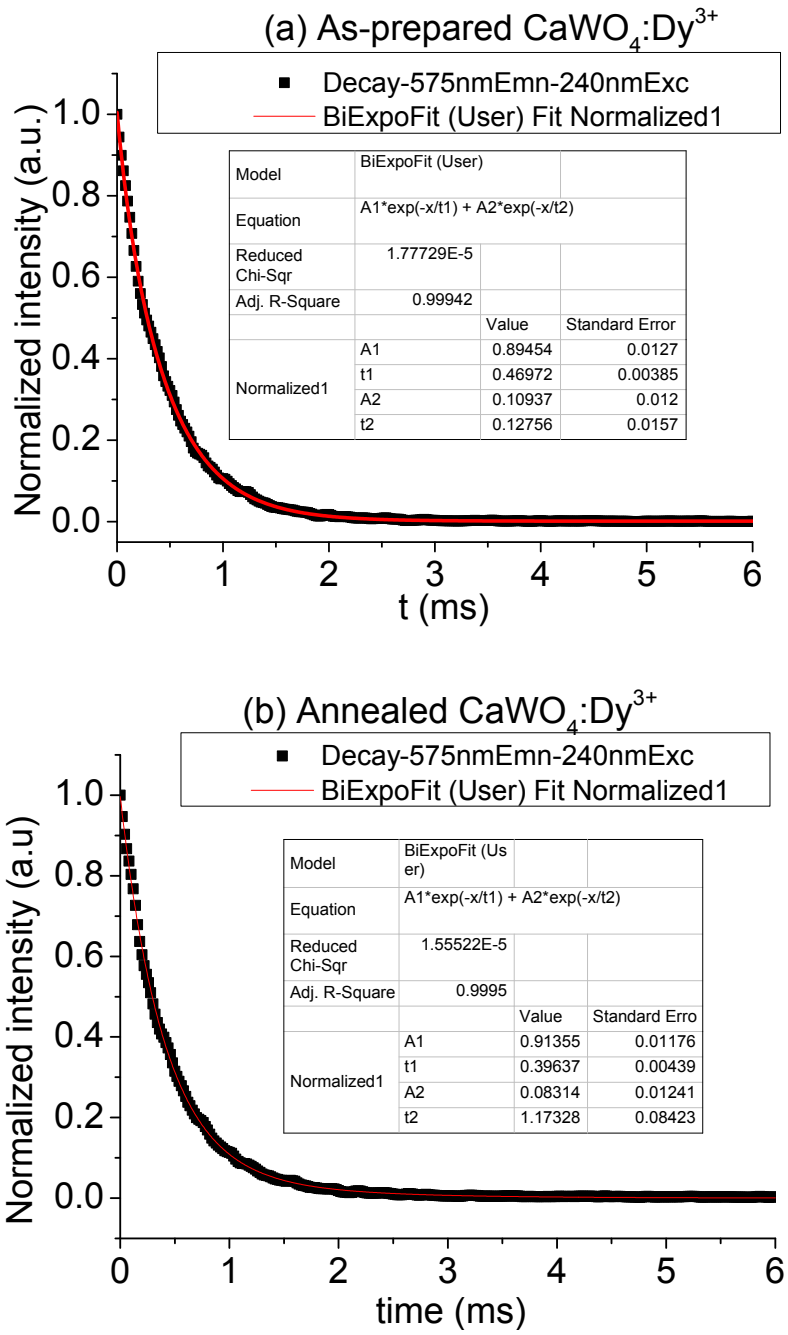

Fig. S9. Decay profiles of the (a) as-prepared and (b) annealed $CaWO_4:Dy^{3+}$ samples prepared in the absence of any salt.

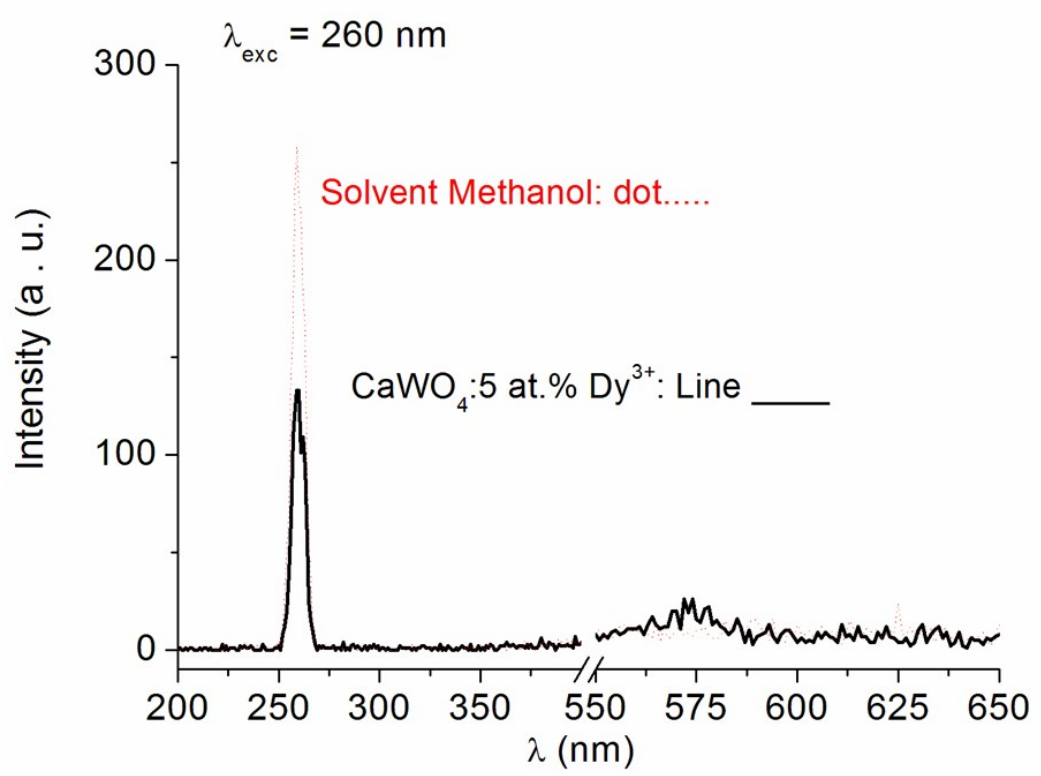

Figure S10. Typical spectra of methanol and sample ($CaWO_4$: 5 at.% Dy^{3+}) for QY calculation.

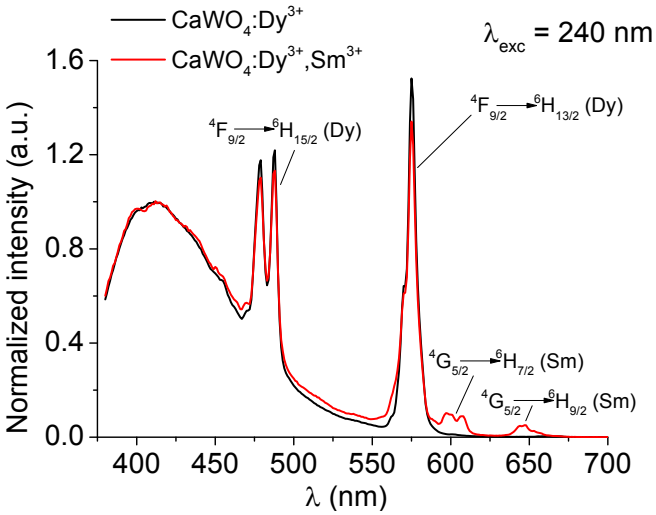

Figure S11. Emission spectra of the as-prepared $CaWO_4$:Dy^{3+}(5 at.%) and $CaWO_4$:Dy^{3+}(5 at.%), Sm^{3+}(5 at.%). The samples are excited at 240 nm.

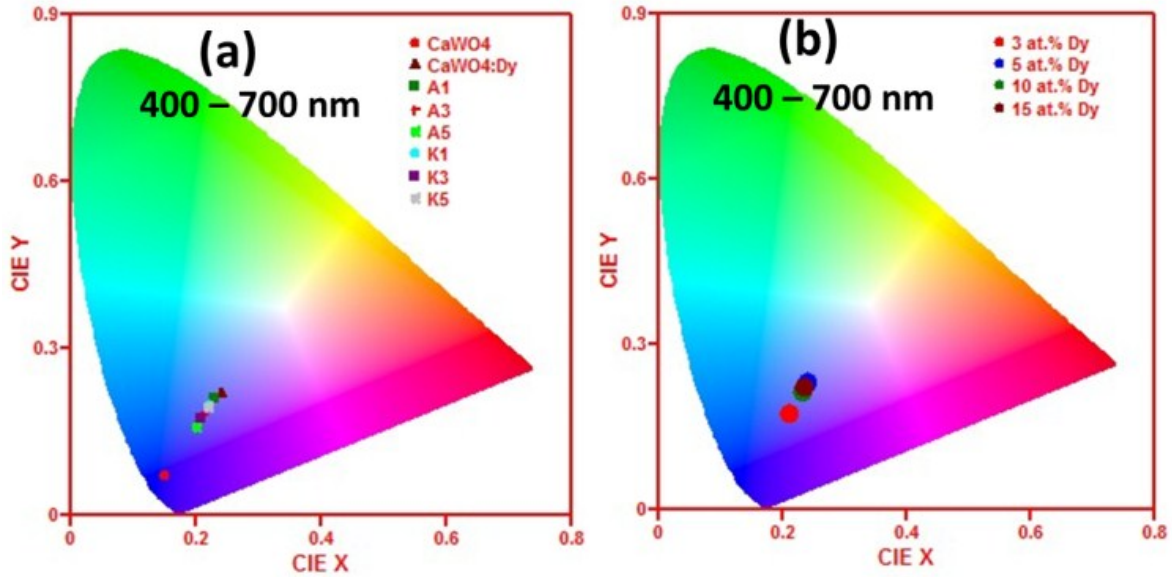

Figure S12. CIE coordinates of the $CaWO_4:Dy^{3+}$ samples.