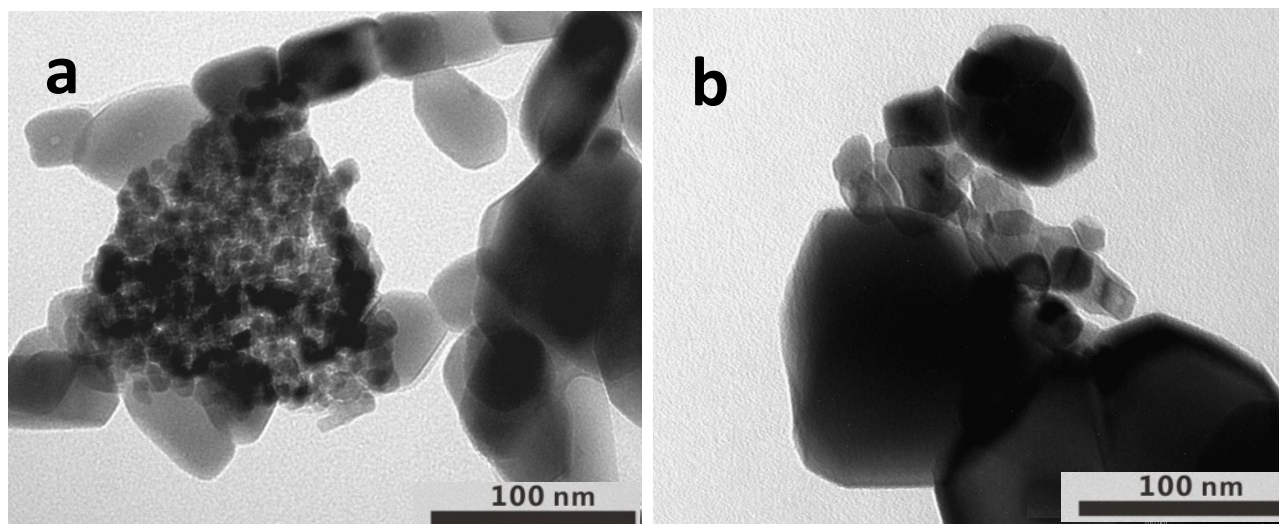
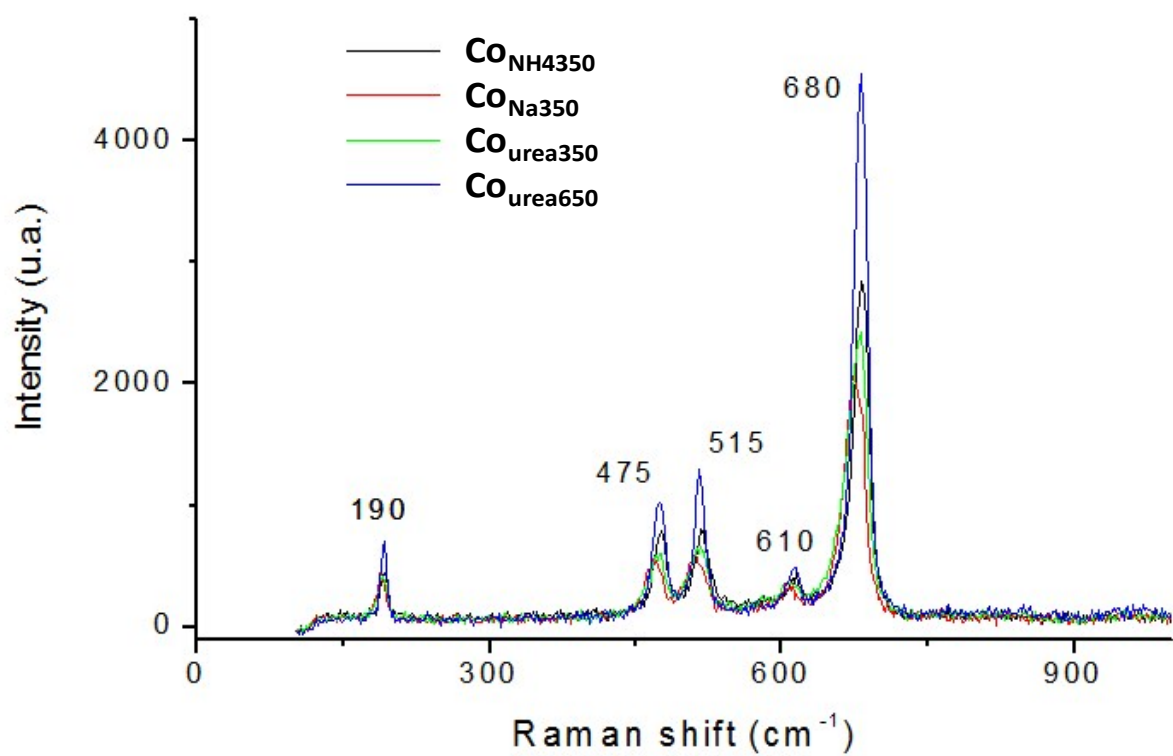


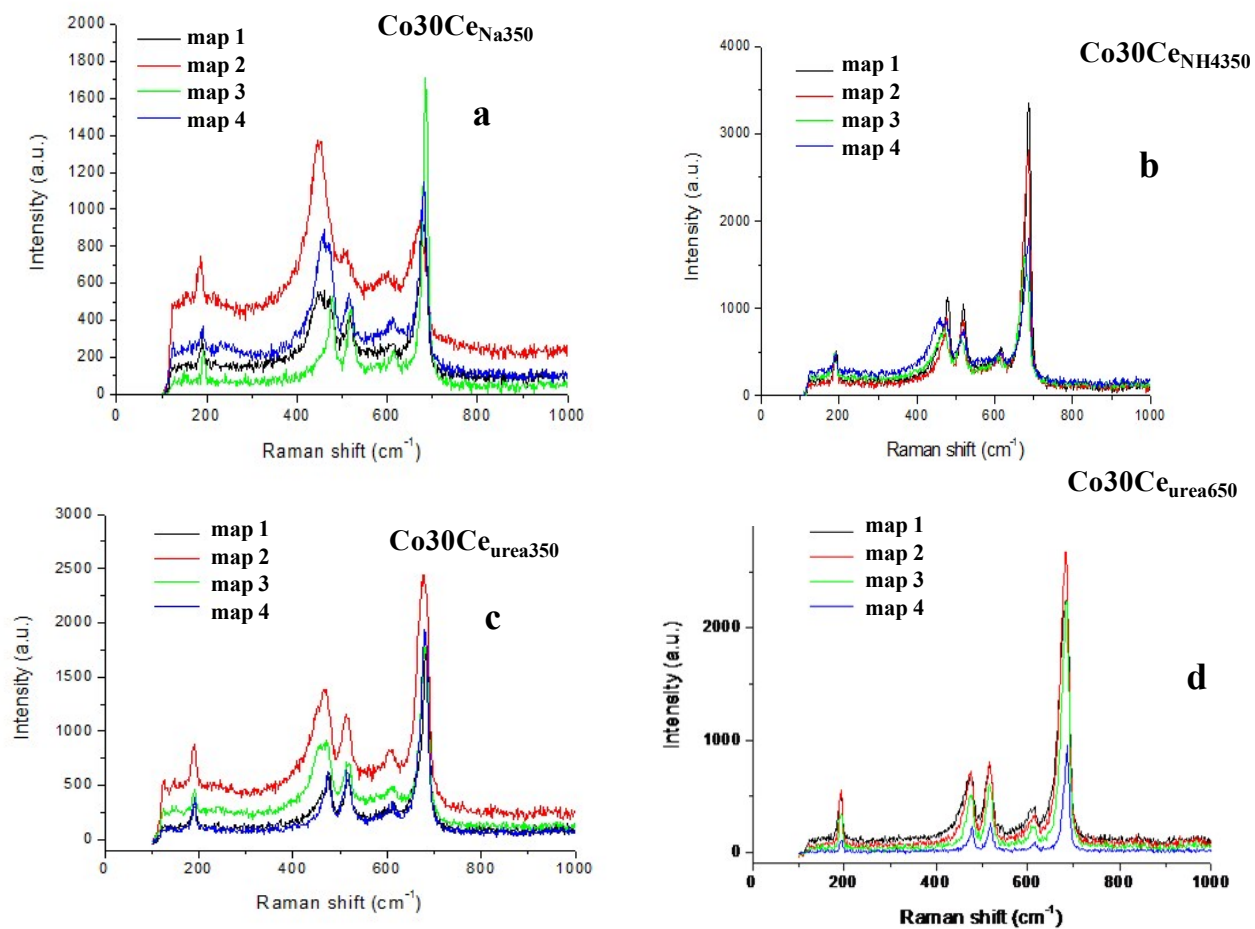
**Fig. S1.** XRD patterns of Co<sub>30</sub>Ce oxides, prepared by precipitation method using three different precipitating agents, after calcination at (a) 350 °C and (b) 650 °C.



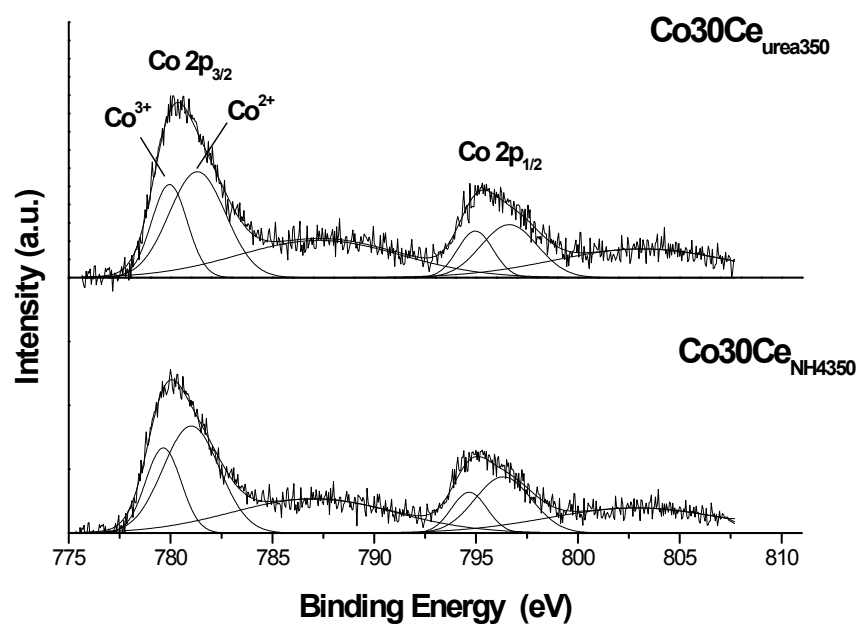
**Fig. S2.** TEM images (a) of  $\text{Co}_{30}\text{Ce}_{\text{urea}}$  calcined at  $650\text{ }^{\circ}\text{C}$  and (b) of  $\text{Co}_{30}\text{Ce}_{\text{NH}_4}$  calcined at  $650\text{ }^{\circ}\text{C}$ .



**Fig. S3.** Raman spectra of bare  $\text{Co}_3\text{O}_4$  oxides prepared using three different precipitating agents, after calcination at 350 °C or at 650 °C.



**Fig. S4.** Raman spectra of Co<sub>30</sub>Ce oxides prepared using three different precipitating agents, after calcination at 350 °C or at 650 °C.



**Fig. S5.** Experimental and fitted Co<sub>2</sub>p photoelectron spectra for Co<sub>30</sub>Ce oxides precipitated by urea and (NH<sub>4</sub>)<sub>2</sub>CO<sub>3</sub> and calcined at 350 °C.