Supporting Information

The procedure to synthesis of $LaCO_3OH$ using NaOH and Na_2CO_3 as the precipitator: 0.0045 mol NaOH and 0.0045 mol Na_2CO_3 were dissolved with 20 mL deionized water under stirring. The mixture was rapidly added to 20 mL of 0.03 M $La(NO_3)_3 * 6H_2O$ aqueous solution under vigorously stirring, giving a transparent sol. Then transferred it into a 60 mL Teflon liner and some distilled water was added up to 80 % of the total volume, then it was put into a stainless autoclave and maintained at 230 ^oC for 8 h. It was cooled to ambient temperature naturally. Then, the precipitates were washed with distilled water and absolute ethanol some times, and dried at 80 ^oC for 6 h. The products were finally obtained.

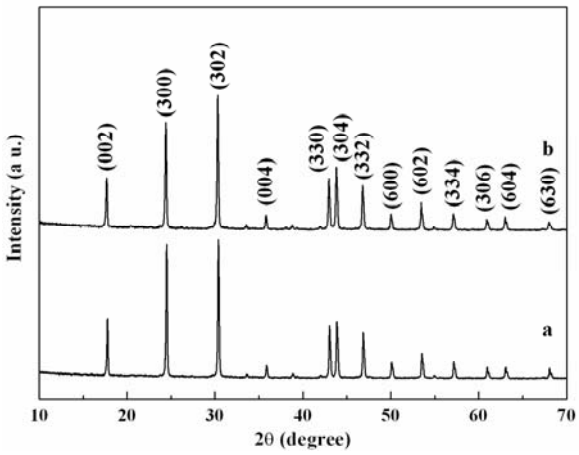

Figure 1. XRD patterns of the samples obtained at the 230 ^oC for 8 h. (a) Using NaOH and Na_2CO_3 as the precipitator; (b) Using urea as the precipitator.