

# **A facile, low-cost route for the preparation of calcined porous calcite and dolomite and their application as heterogeneous catalysts in biodiesel production**

**Rui Wang,<sup>ab</sup> Hu Li,<sup>a</sup> Fei Chang,<sup>a</sup> Jiafeng Luo,<sup>a</sup> Milford A. Hanna,<sup>c</sup> Daoyang Tan,<sup>a</sup> Deyu Hu,<sup>a</sup> Yuping Zhang,<sup>a</sup> Baoan Song,<sup>a</sup> and Song Yang<sup>\*a</sup>**

<sup>a</sup> *State-Local Joint Laboratory for Comprehensive Utilization of Biomass, State Key Laboratory Breeding Base of Green Pesticide and Agricultural Bioengineering, Center for Research and Development of Fine Chemicals, Guizhou University, Guiyang 550025, (P.R. China). Fax: (+86) 851-829-2170 E-mail: jhzx.msm@gmail.com (S. Yang)*

<sup>b</sup> *Food and Pharmaceutical Engineering Institute, Guiyang College, , Guiyang 550003, (P.R. China). Fax: (+86) 851-540-7613;*

*E-mail: wangrui961@gmail.com*

<sup>c</sup> *Industrial Agricultural Products Center, University of Nebraska, Lincoln, NE 68583-0730, USA. Fax: 1-402-472-6338; E-mail: mhanna@unlnotes.unl.edu*

## Supporting information

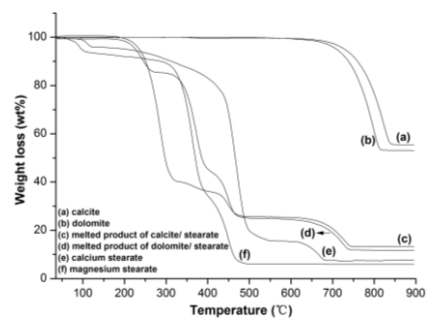
### Contents

**Figure S1.** TGA curves of natural mines and catalyst precursors

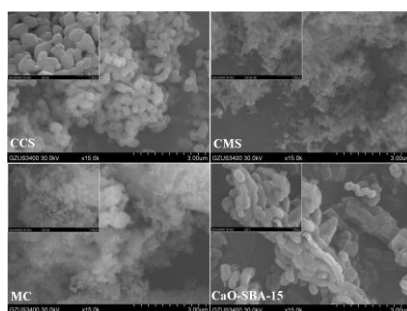
**Figure S2.** SEM images of calcined calcium stearate (CCS), calcined magnesium stearate (CMS), mesoporous CaO (MC), and CaO-SBA-15.

**Figure S3.** N<sub>2</sub> adsorption-desorption isotherms and BJH pore size distributions (inset) of CaO-SBA-15

**Figure S4.** Wide-angle XRD patterns of catalyst samples: calcined calcite (CC), calcined porous calcite (CPC), regenerated calcined porous calcite (RCPC)

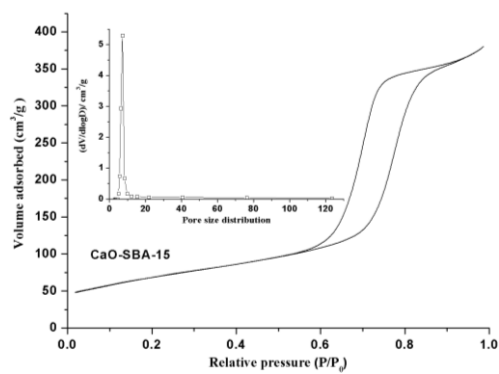


**Figure S1.** TGA curves of natural mines and catalyst precursors

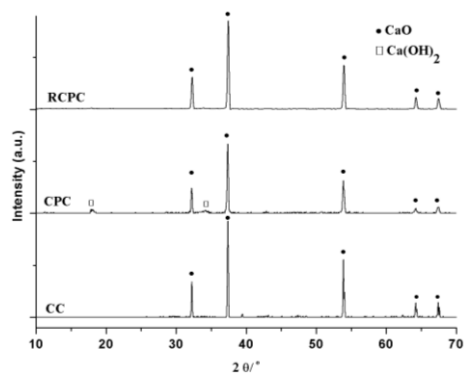


**Figure S2.** SEM images of calcined calcium stearate (CCS), calcined magnesium stearate (CMS), mesoporous CaO (MC), and

CaO-SBA-15



**Figure S3.** N<sub>2</sub> adsorption-desorption isotherms and BJH pore size distributions (inset) of CaO-SBA-15



**Figure S4.** Wide-angle XRD patterns of catalyst samples: calcined calcite (CC), calcined porous calcite (CPC), regenerated calcined porous calcite (RCPC)