Supporting information

Integrated and Metal Free Synthesis of Dimethyl Carbonate and Glycidol from Glycerol Derived 1,3-Dichloro-2-propanol via CO_2 Capture

Santosh Khokarale [1,*], Ganesh Shelke [1] and Jyri-Pekka Mikkola [1,2,*]

[1] Technical Chemistry, Chemical-Biological Centre, Department of Chemistry, Umeå University,
SE-90187 Umeå, Sweden; ganesh.shelke@umu.se
[2] Industrial Chemistry & Reaction Engineering, Johan Gadolin Process Chemistry Centre, Department of Chemical Engineering, Åbo Akademi University, FI-20500 Åbo-Turku, Finland
* Correspondence: santosh.khokarale@umu.se (S.K.); jyri-pekka.mikkola@umu.se (J.-P.M.)

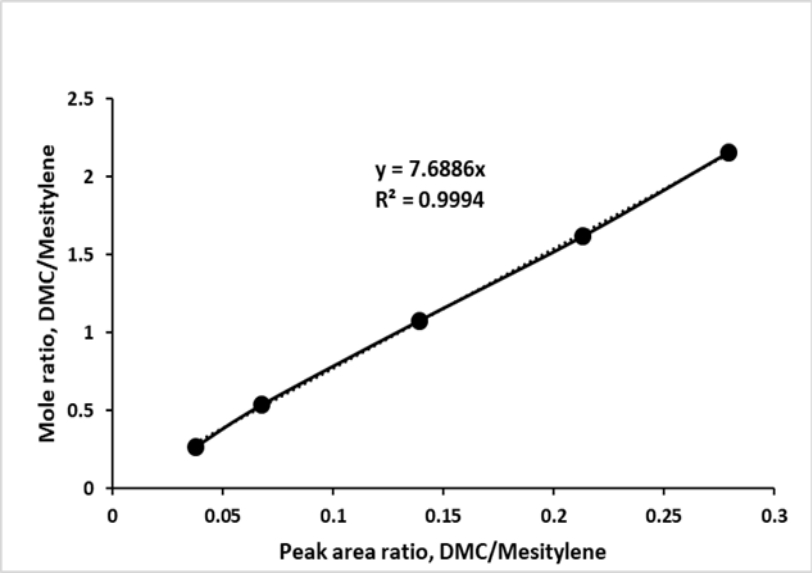

Figure S1. Calibration curve for the quantification of recovered dimethyl carbonate (Gas chromatography method)

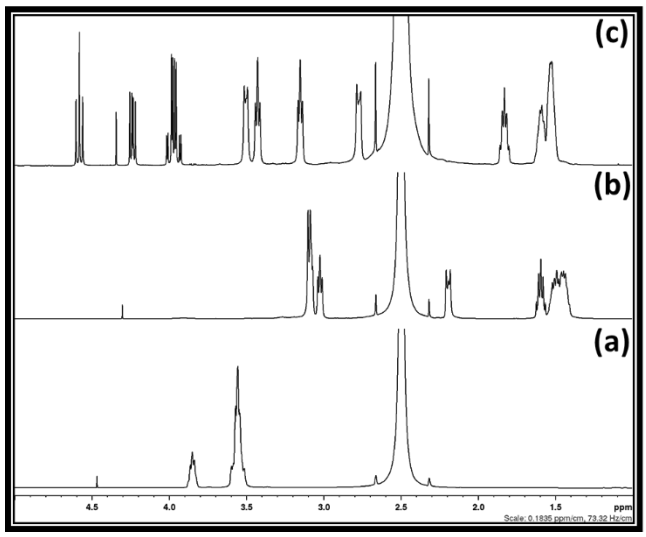

Figure S2. ^{1}H NMR spectra of the (a) 1,3-dichloro-2-propanol, (b) DBU and, (c) Reaction mixture after equivalent interaction of 1,3-dichloro-2-propanol, DBU and CO_2 in DMSO (NMR analysis with capillary filled with D_2O).

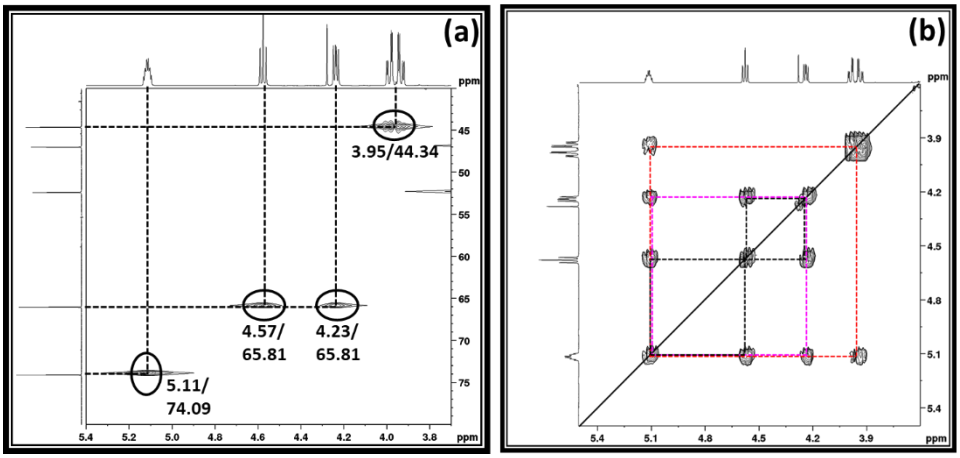

Figure S3. ^{1}H-^{13}C HSQC (a), and ^{1}H-^{1}H COSY (b) NMR spectra of the reaction mixture after equivalent interaction of 1,3-dichloro-2-propanol, DBU and CO_2 in DMSO

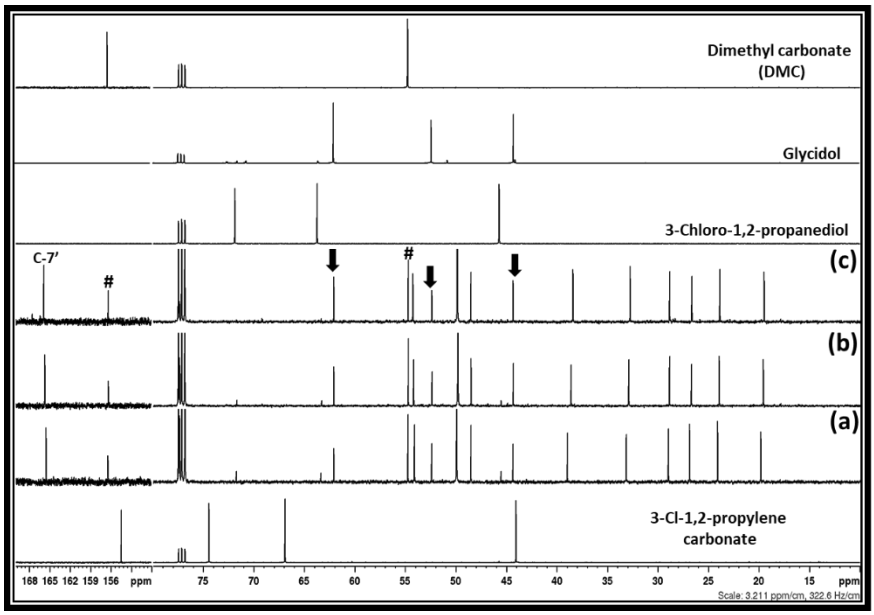

Figure S4-a) ^{13}C NMR spectra for the DBU catalyzed transesterification of 3-chloro-1,2-propylenecarbonate in methanol at 35 ^{o}C, (a) 30 min, (b) 1 h, and (c) 2 h. (Downward arrows and # sign indicate that the carbon atoms belonging to the glycidol and DMC, respectively).

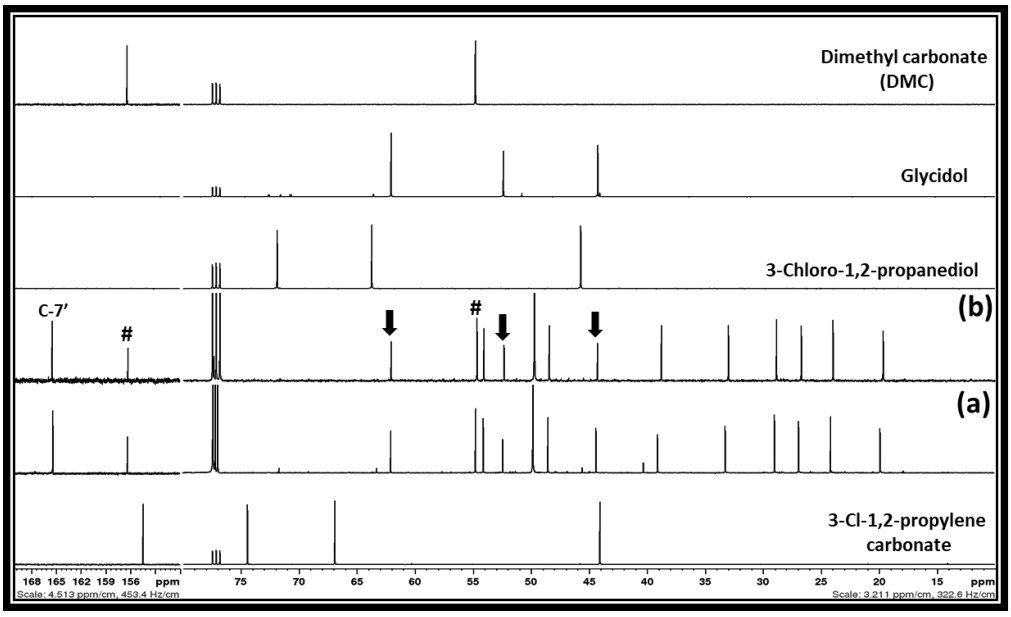

Figure S4-b) ^{13}C NMR spectra for the DBU catalyzed transesterification of 3-chloro-1,2-propylenecarbonate in methanol at 50 ^{o}C, (a) 15 min, and (b) 30 min. (Downward arrows and # sign indicate the carbon atoms belonging to the glycidol and DMC, respectively).

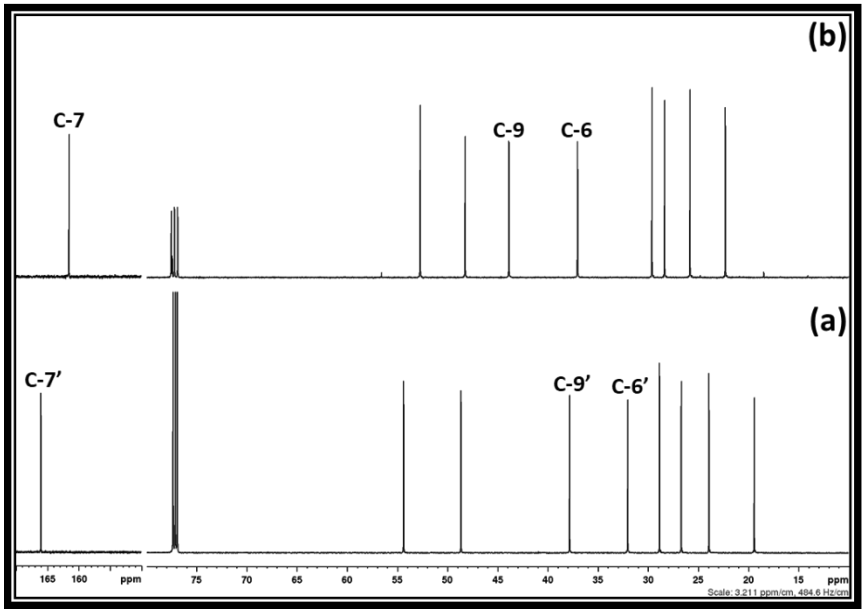

Figure S5. ^{13}C NMR spectra a) [DBUH][Cl] salt and, b) recovered DBU