Direct synthesis of Glycerol Carbonate using Glycerol and CO2 under the high pressure.

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In order to synthesis glycerol carbonate with glycerol and CO2, specific condition and solvent are needed. The reaction should be occurred under the high pressure. Temperature of inside reactor was around 170 ℃ and pressure was gradually increased from 4 MPa to 7 MPa. Also for the reaction with glycerol and CO2, acetonitrile should be used as the coupling agent. Different ratio of La/Zn mixed oxide catalysts were prepared. Also macroporous series of La/Zn catalysts were also prepared with irregular dispersed. Those catalysts will be characterized by SEM, XRD, BET (N2 physisorption), and FT-IR for showing the improved performance of those catalysts. Reaction results were analyzed by Gas Chromatograph. Using GC result we calculated the glycerol carbonate's yield, conversion and selectivity then compared those yields.