Chemical fixation of carbon dioxide catalyzed via hydroxyl and carboxyl-rich glucose carbonaceous material as a heterogeneous catalyst

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Carbon dioxide utilization has attracted great attention to researchers due to environmental problems. In this work, we present carbonaceous materials were synthesized from glucose, oxalic acid and urea for chemical fixation of CO_2 with an epoxide into cyclic carbonate without the aid of solvent. The derived heterogeneous carbonaceous materials containing different carboxyl, hydroxyl and amines were developed by facile hydrothermal method and used with a certain amount of KI which acts as cocatalyst. The synthesized catalysts were characterized by spectroscopic method. The results demonstrate that the catalyst has excellent catalytic activity under mild reaction conditions.