

Synthesis of MgO Nanostructures using Ionic Liquids with Microwave Irradiations and their Catalytic Application in Claisen Schmidt Condensation Reaction

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Various shape controlled MgO nanostructures were synthesized in different ILs in microwave (MW) irradiations, and used as solid basic catalysts in Claisen Schmidt condensation reaction. The growth mechanism of MgO nanostructures in presence of ILs and MW irradiations developed various basic sites at nano level. CO<sub>2</sub> TPD results clearly show that, due to the synergetic effect, basicity of MgO nanostructures altered strongly. The altered basicity of MgO catalysts showed significant effect on condensation reaction and were demonstrated competent activity compared with bulk MgO. Particularly, high surface area with altered combination of high, low and moderate basicity containing hexagonal MgO nanostructures exhibited the highest yield and conversion in a short reaction time. The relationship between basic properties of MgO and their catalytic activity was investigated in detail. This work was supported by the National Research Foundation of Korea (NRF) funded by the Ministry of Education (No.2009-0093816)