

Synthesis of Acid Functionalized Silica Coated Magnetic Catalyst and Applications in the Conversion of Biomass Feedstocks

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An acid catalyst with magnetic property coated with silica was prepared through stepwise synthesis. Amorphous silica was coated on crystalline nano-sized magnetic cores. The linker was attached to silica surface providing binding site for catalytic moiety, which can mimic homogeneous catalyst behavior. The prepared catalyst and its precursors were characterized by FT-IR, XRD, HRTEM, N₂ physisorption, and thermogravimetric analyses. The prepared heterogeneous catalyst provides catalytic activity for direct chemical conversions of biomass feedstocks into platform chemicals in one-pot system as well as convenient catalyst recovery. In this manner, tedious separation and purification steps of intermediate compounds are avoided. The study of catalytic activity for one-pot chemical conversions is under investigation. This work was supported by the Basic Science Research Program through the National Research Foundation of Korea (NRF) grant funded by the Ministry of Education (No. 2009-0093816).