

A Magnetically Separable Bi-functional Heterogeneous Catalyst for One-pot Two-step Chemical Conversions

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A bi-functional acid and oxidation catalyst with magnetic property coated with silica was prepared through stepwise synthesis. Initially, amorphous silica was coated on the magnetic nano-sized magnetic cores. Functionalizations of the two catalysts were subsequently performed. The developed catalyst was found effective in terms of catalytic activity and material reusability. In particular, the prepared heterogeneous catalyst, provided a synergistic catalytic activity for two-step chemical conversions of sugars into various platform chemicals in one pot system. In this manner, tedious separation and purification steps of intermediate compounds were avoided. The study of catalytic activity for the one-pot chemical conversions is under investigation. This work was supported by the National Research Foundation of Korea (NRF) grant funded by the Ministry of Science, ICT & Future Planning (No. 2012R1A2A1A01009683) and the Ministry of Education (No. 2009-0093816).