

Niobium-Based Solid Acid Catalyzed Hydroxyalkylation/Alkylation of 2-Methylfuran with Biomass-Derived Aldehydes and Ketones

Quiambao Raguidin Reibelle, Gebresillase Mahlet Nigus, 서정길[†]
명지대학교
(jeonggilseo@gmail.com[†])

In the synthesis of high-grade liquid fuel from biomass-derived carbohydrates or platform chemicals, C-C coupling reactions such as aldol condensation and alkylation are common strategies in increasing the carbon chain and in producing fuel precursors. Niobium-containing solid acids meet the requirements of catalyzing C-C coupling reactions because of its strong acidity, water tolerance ability, and controllable compositions and surface states. Although these characteristics seems to be promising for C-C coupling reactions, only a few cases have been recorded. Considering that hydroxyalkylation/alkylation are sensitive to the acidic strength of the catalysts, this study utilized niobium-based solid acids for the hydroxyalkylation/alkylation of 2-methylfuran with biomass-derived aldehydes or ketones to high carbon fuel precursors. This work was supported by Basic Science Research Program through the National Research Foundation of Korea (NRF) funded by the Ministry of Education (NRF 2017R1D1A1B03036324).