

One-pot Transesterification and Partial Hydrogenation in Supercritical Methanol for Conversion of Polyunsaturated Feedstock to C18:1

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For the reduction of the green-house gases, olefin metathesis of vegetable oil has come into the spotlight. Olefin metathesis is reaction where an unsaturated chain in vegetable oil is reacted with olefin, such as ethylene. but it is hard to commercialize the ethenolysis because of the inactivation of the Ru-based catalyst. In order to overcome the problem, vegetable oil has to go through pretreatment including the removal of impurities in vegetable oils, transesterification of oil to FAME, and concentration of methyl oleate (C18:1) that is used as the model compound in ethenolysis. So, in this research, one-pot supercritical transesterification and partial hydrogenation of polyunsaturated feedstock without hydrogen was tried to concentrate C18:1 and enhance the efficiency of process. As a result, production and partial hydrogenation of FAME without hydrogen gas was achieved in one-pot. And, portion of C18:1 FAME in product was increased and the reactivity strongly depended on temperature and the kind and amount of catalyst. This result could be applied to production of raw material for olefin metathesis.