

Transesterification of edible oil using Ca-based perovskite-type catalyst for biodiesel production

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Biodiesel, a promising non-toxic, eco-friendly alternative fuel, is produced by transesterification reaction of triglycerides in oils with alcohols and catalysts. In conventional process of biodiesel, homogeneous base catalysts show high yield of FAME (fatty acid methyl ester) derived from edible oil, but their reaction requires separation and purification steps, which account for a great part of producing biodiesel. Heterogeneous catalysts, on the other hands, are developed for an effective biodiesel production with low cost and noncorrosive because of simplifying the production and purification processes. Calcium oxide (CaO), which possesses a high basic strength, is representative catalyst for biodiesel production but suffers from the dissolution of Ca species into reactants as well as products. In this study, we synthesized Ca-based perovskite-type catalysts by pechini method. Their catalytic activity and durability for the transesterification of oil to fatty acid methyl ester were investigated.