

## Supercritical Dimethyl Carbonate Transesterification of Vegetable Oil with Metal Oxides

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Supercritical dimethyl carbonate(DMC) has been investigated as various reactants for glycerol-free transesterification. However, few studies for supercritical DMC were conducted. So, in this study, supercritical DMC transesterification of vegetable oil(Rapeseed, sesame) was studied. Also, the effect of metal oxides in the reaction as a catalyst was also investigated. This study showed the difference of the reaction rate according to the double chain in supercritical DMC transesterification and that ZnO was the optimum catalyst for the transesterification. And, it was studied that the change of reaction conditions(Reaction time, the kind of catalysts, the amount of the catalyst) had an effect on the biodiesel yield, while the change of molar ratio didn't show the change of the biodiesel yield. So, it is assumed that supercritical DMC process with metal oxide has different reaction mechanism with without metal oxide.