Umnart Khamlar 2008: Synthesis of Biodiesel from Jatropha Oil using Catalyst KNO_3/Faujasite. Master of Engineering (Chemical Engineering), Major Field: Chemical Engineering, Department of Chemical Engineering. Thesis Advisor: Associate Professor Paisan Kongkachuichay, Ph.D. 123 pages.

Methyl ester (biodiesel) was synthesized by transesterification of *Jatropha curcus Linn.* oil with methanol using catalysts having 20, 25, 30, 35 wt% KNO_3. The catalysts were prepared by a dry impregnation technique. The reactions were carried out in a batch reactor that equipped with a reflux set for methanol recovery. The result from the design of experiment showed that the main factors that affected the yield of methyl ester were type of catalyst, amount of catalyst used, and molar ratio of methanol to oil. After conducting several experiments by varying those factors, it was found that the maximum yield of methyl ester of 90% was obtained by using 20 wt% KNO_3/Faujasite with the following condition: molar ratio of methanol to of 30, 9 wt% of catalyst used, reaction temperature of 64.7 ^{o}C for 8 h with stirring of 600 rpm. Furthermore, the obtained product has the density of 0.89 g/cm^3, the viscosity of 6.1 mm^2/s and the flash point of 176 ^{o}C

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