

## **Biodiesel Production from Canola Oil Using Trans-Esterification Process with Koh as a Catalyst**

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**Abstract :** Biodiesel is one solution to overcome the use of petroleum fuels. Many alternative feedstocks that can be used among which canola oil. The purpose of this study was to determine the ability of canola oil and KOH for the trans-esterification reaction in biodiesel production. Canola oil has a very high purity that can be used as an alternative feedstock for biodiesel production and expected it will be produced biodiesel with excellent quality. In this case of study, we used trans-esterification process wherein the triglyceride is reacted with an alcohol with KOH as a catalyst, and it will produce biodiesel and glycerol as byproduct and we choose trans-esterification process because canola oil has a 0,445% FFA content. The variables studied in this research include the comparison of canola oil and methanol, temperature, time, and the percent of catalyst used. In this study the method of analysis we use GCMS and FTIR to know what the characteristic in canola oil. Development of canola oil seems to be the perfect solution to produce high-quality biodiesel. The reaction conditions resulted in 97.87% -w methyl ester (biodiesel) product by using a 0.5% wt KOH catalyst with canola and methanol ratio 1:8 at 60°C.

**Keywords :** biodiesel, canola oil, KOH, trans-esterification

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