

**EFFECT OF CATALYST AMOUNT OF ALUMINA-SUPPORTED  
ON CALCIUM OXIDE FOR BIODIESEL PRODUCTION FROM  
RUBBER SEED OIL**

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## ABSTRACT

### **EFFECT OF CATALYST AMOUNT OF ALUMINA-SUPPORTED ON CALCIUM OXIDE FOR BIODIESEL PRODUCTION FROM RUBBER SEED OIL**

The production of biodiesel from extracted rubber seed oil by using alumina supported on calcium oxide as catalyst was conducted via transesterification reaction. The effect of loading amount of  $\text{Al}_2\text{O}_3/\text{CaO}$  as catalyst upon the percentage yield of fatty acid methyl ester (FAME) was investigated. The result showed that the optimum condition for the reaction are 9:1 methanol to oil ratio, 3 hours reaction time at  $65^\circ\text{C}$  by using 2.0 g of catalyst produced 63% of FAME. The compositions of FAME present in rubber seed oil are palmitic acid, stearic acid, linoleic acid and linolenic acid. Characterization of catalyst of conducted by using Fourier Transform Infrared (FTIR) and Field Emission Scanning Electron Microscope (FESEM). The significant band for calcium oxide is  $875.89\text{ cm}^{-1}$  band the significant band for  $\text{Al}_2\text{O}_3$  is  $588.14\text{ cm}^{-1}$ . The surface morphology of the catalyst after calcinations process at  $718^\circ\text{C}$  is well agglomerated. Therefore, alumina supported on calcium oxide as catalyst in biodiesel production via tranesterification is successful.