

**TRANSESTERIFICATION OF BIODIESEL FROM PALM OIL  
USING KI SUPPORTED ON ALUMINA BEAD**

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## ABSTRACT

### TRANSESTERIFICATION OF BIODIESEL FROM PALM OIL USING KI SUPPORTED ON ALUMINA BEAD

In this research, the biodiesel was produced by transesterification process of palm oil catalysed by alumina-supported potassium iodide, KI/Al<sub>2</sub>O<sub>3</sub>. The catalyst was doped with nickel (II) nitrate and being calcined for 5 hours at temperature of 700°C according to the TGA analysis of weight decomposition. The transesterification process was carried out at 65°C in the round bottom flask for 5 hours. The effect of catalyst loading on the production of FAME was identified. For each reaction, the amount of catalyst loading was varied from 0 to 8 wt.% and the methanol to oil molar ratio was fixed at 1:55. The optimum catalyst loading was at 4 wt.% which have the highest yield (37.22%) of FAME content. Six peak of methyl ester was identified by using GS-MS analysis which are dodecanoic acid methyl ester, methyl tetradecanoate, hexadecanoic acid methyl ester, methyl stearate, (E)-9-octadecenoic acid methyl ester, and 9,12-octadecadienoic acid (Z, Z) methyl ester. This study also showed that further increasing of catalyst loading after 4 wt.% will decrease the amount of FAME content in the biodiesel produced.