

**PRODUCTION OF BIODIESEL FROM PALM OIL CATALYZED
BY ALUMINA-SUPPORTED AND SILICA-SUPPORTED
CATALYST**

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ABSTRACT

PRODUCTION OF BIODIESEL FROM PALM OIL CATALYZED BY ALUMINA-SUPPORTED AND SILICA-SUPPORTED CATALYST

The main objectives of this study were to determine the conversion of palm oil into biodiesel by using a different type of catalyst. Transesterification of palm oil with methanol has been studied in a heterogeneous system using alumina loaded with calcium oxide and potassium iodide besides the silica loaded with calcium oxide and potassium iodide. Synthesize calcium oxide from cockles shell also has been studied under the similar system. The optimum amount of catalyst that is 5.0% gives the highest percent yield where 10.76% by using cockles shell as catalyst. The support material also showed that the alumina is much better compared to silica in order to enhance the catalytic activity. The types of fatty acid in palm oil were determined by using gas chromatographer-mass spectrometry (GC-MS). The fatty acid that determined was palmitic and oleic acid. The free fatty acid in palm oil was 6.65%, acid value was 7.32 (mg/g oil) and saponification value was 109.99 (mg/g KOH).