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MARA

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**TITLE:**

**THERMAL STABILITY K/AC AND Na/AC CATALYST  
FOR BIODIESEL PRODUCTION**

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## **AUTHOR'S DECLARATION**

“ I hereby declare that this report is the Result of my own work except for quotations and summaries which have been duly acknowledged.”

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## ABSTRACT

The thermal stability in potassium (KOH) and sodium (NaOH) catalysts supported over activated carbon (AC) with K:AC and Na:AC mass ratios (1:1 and 1:3) is discussed in this work. Palm kernel shell (PKS) was used as a raw material for producing an activated carbon through carbonization and chemical activation.

Preparation of catalysts included wet impregnation, then 500°C calcination. Thermal stability analysis included analysis through thermogravimetric analysis (TGA).

The thermal stability and loss in mass in K:AC and Na:AC mass ratios (1:1 and 1:3) depend a lot on respective ratios, according to the results. Greater thermal stability and reduced loss in mass in K:AC 1:3 and Na:AC 1:3 catalysts in comparison with 1:1 ratio have been determined. It can therefore conclude that a larger proportion of AC in catalysts will make them more resistant at high temperatures, and hence, best for high temperature use.

The conclusion reached in this work is that catalyst performance in producing a biodiesel can be maximized through an optimized K:AC and Na:AC proportion. There is a recommendation for future work in optimizing the activation and studying alternative agricultural residues for catalyst development in a sustainable manner.