

## Study of Biofuel Produced by Babassu Oil Fatty Acids Esterification

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**Abstract :** In this work aviation, biofuel production was studied by fatty acids (C6 to C16) esterification. The process variables in heterogeneous catalysis were evaluated using an experimental design. Temperature and reaction time were the studied parameters, and the methyl esters content was the response of the experimental design. An ion exchange resin was used as a heterogeneous catalyst. The process optimization was carried out using response surface methodology (RSM) and polynomial model of second order. Results show that the most influential variables on the linear coefficient of each effect studied were temperature and reaction time. The best result of methyl esters conversion in the experimental design was under the conditions: 10% wt of catalyst; 100 °C and 4 hours of reaction. The best-achieved conversion was 96.5% wt of biofuel.

**Keywords :** esterification, ion-exchange resins, response surface methodology, biofuel

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