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ANALYSIS OF THE PRODUCTION OF BIODIESEL CATALYZED BY SODIUM METHOXIDE OBTAINED FROM BARU OIL (*DIPTERYX ALATA* VOG.) USING RESPONSE SURFACE METHODOLOGY

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ABSTRACT

This paper presents the results obtained by the transesterification of oil extracted from the baru (*Dipteryx alata* Vog.) seed using a central composite design and response surface methodology. The studied variables were: temperature of the reaction system, catalyst concentration and molar ratio alcohol/oil. The reactions were monitored in a reactor equipped with a mechanical stirring working at 700 rpm, in a time period of 50 min, by thin-layer chromatography. The results revealed that the three chosen variables exert significant influence on the reaction and their effects were quantified. The best result for the yield of biodiesel was obtained when the values of the variables temperature, catalyst concentration and molar ratio alcohol:oil were 45 °C, 1.7% and 8:1, respectively. The yields of biodiesel were considered fully satisfactory for its production, considering that the reaction was performed with the use of crude oil extracted from baru seed.

Keywords: biodiesel; baru (*Dipteryx alata*Vog.); transesterification; response surface; central composition planning