

Kinetic study of the transesterification reaction of African palm, rapeseed and sunflower oils for biodiesel production

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This paper aims to obtain apparent kinetics of the transesterification reaction of refined palm oil (*Elaeis Guineensis*) and a mixture of palm-sunflower and palm-rape seed oils to produce biodiesel with methanol using a catalytic medium with homogeneous basic sodium hydroxide. Statistical analyzes were performed varying the concentrations of catalyst and methanol's molar ratios in the reaction and the yield obtained experimentally was measured for each one. The kinetic study of the reaction was performed with the best conditions found and experimentally measured concentrations of each component in the mixture at different times. The final product was analyzed for quality variables and compared with ASTM D6751 in order to ensure proper functioning of it in diesel engines. The results show that biodiesel produced through a mixture of palm oil and sunflower oil, requires less reaction time and that adding sunflower oil to the palm becomes kinetics faster as bigger is the concentration of saturated fatty acids in the mixture.

Keywords: Biodiesel, Kinetics, Simulation, Transesterification.