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Abstract title PRODUCTION OF HIGH FFA JATROPA CURCAS OIL BIODIESEL USING OSCILLATORY FLOW REACTOR

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Jatropha Curcas is one of the most feasible sources for biodiesel feedstock. Some advantages of Jatropha curcas oil are non edible, growing in arid soil, and high oil yield from their seed, while it's disadvantage is tend to oxidized and form high Free Fatty Acid (FFA) due to the oil composition. Oscillatory Flow Reactor is useful when reaction should performed for a long time in a turbulence flow, the other advantage is OFR have a compact size because substantially smaller length to diameter ratios than conventional tubular reactor. Two step reaction was performed for biodiesel production from High FFA Oil, first reducing FFA by esterification process catalized by H_2SO_4 and the second is transesterification process catalized by KOH. Initial FFA on Jatropha Curcas Oil is 47%, the first step was performed in Stirred Tank Reactor for 90 minute, $60^\circ C$, etanol 50% v/v and H_2SO_4 1,5% v/v stirring on a speed 500 rpm 99% of the FFA was converted on this step while the second step was performed in Oscillatory Flow Reactor for 60 minute at $60^\circ C$, ethanol 25% v/v, Sodium Metoxide 1% v/v, 91% of the oil was converted on this step. It is concluded that OFR is sufficient enough for biodiesel production using High FFA Jatropha Curcas Oil as feedstock

Keyword : Jatropha Curcas Oil, Oscillatory Flow Reactor, esterification, transesterification

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