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BIODIESEL PERFORMANCE PRODUCED FROM CANOLA OIL BY ULTRASONIC STIRRING

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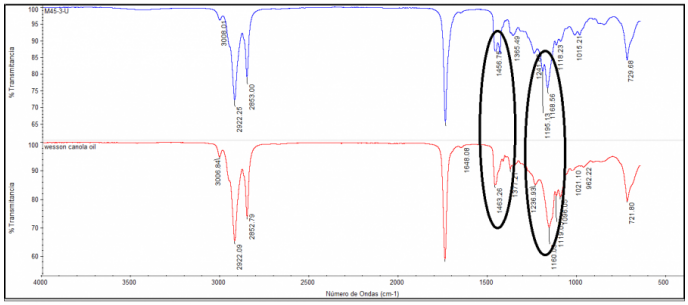
PURPOSE OF THE ABSTRACT
ultrasonic stirring for biodiesel production was evaluate and compare with mechanical stirring (conventional process) . Comercial canola oil , potassium hydroxide as catalyst (1.5% w/w) and methanol (20% v/v) were used for transesterification reaction.

Differents reaction times were processed for biodiesel production and monitoring by gas chromathography with flame ionizer and infrared spectroscopy for achieving visualizing the peaks and the absorbance bands characteristic for metylsters.

Canola oil (acidity index 0.03 mg/ kg of oil) reacted at 65°C with methoxide (potassium hydroxide and methanol) a differents stirring times: 15,30, 45 and 60 minutes with ultrasonic processor (frecuency: 20 kHZ, amplitude :30%) and with conventional method at 120 minutes of mechanical stirring and heating.
The conversion time of oil at biodiesel was achieving with ultrasonic processor at 45 minutes and aceptable yield (85%) compared with yield conventional method(yield: 89%). Also other parameters were measuread those are accorde with international biofuels standars for biodiesel .
The ultrasonic process result have others advantages as glycerine quality for uses in other industries that provides additionaly utility

FIGURES



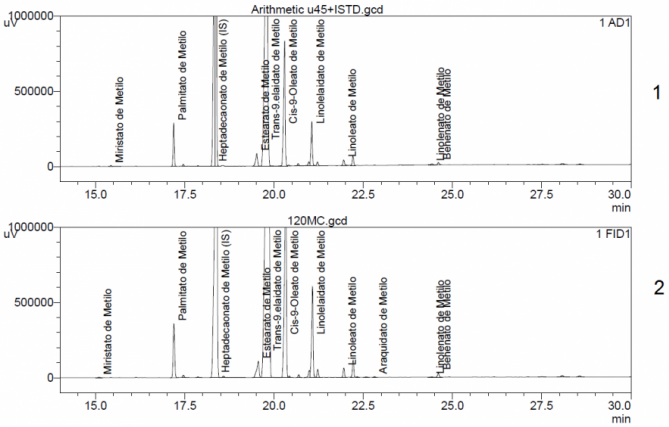


FIGURE 1

ultrasonic biodiesel and canola oil FTIR

COMERCIAL CANOLA OIL (RED)

ULTRASONIC BIODIESEL (BLUE)

FIGURE 2

CHROMATOGRAPHY GAS FOR BIODIESEL WITH ULTRASONIC STIRRING AND MECHANICAL STIRRING (CONVENTIONAL METHOD)

(1) ULTRASONIC STIRRING BIODIESEL

(2) MECHANICAL STIRRING BIODIESEL

KEYWORDS

ULTRASONIC STIRRING | MECHANICAL STIRRING | BIODIESEL | CHROMATOGRAPHY

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