

13th World Congress on **Biofuels and Bioenergy**
&
14th Global Summit and Expo on **Biomass and Bioenergy**
August 26-27, 2019 | Vienna, Austria

The use of different alcohols in lipase catalyzed *in-situ* transesterification processes to produce biodiesel

Migle Santaraite and E Sendzikiene

Vytautas Magnus University Agriculture Academy, Lithuania

Rapeseed with high oil acidity is called low quality rapeseed and it is cheap raw material used for biodiesel production. The use of low quality rapeseed oil and biocatalyst is a green approach. The production of biodiesel were done by the lipase catalysed *in situ* by transesterification process with using a mineral diesel (as an extraction solvent), methanol or ethanol and biocatalyst- lipase. The conversion of rapeseed oil to biodiesel fuel was evaluated in the presence of a lipase from lipozyme TL IM (Thermomyces lanuginosus). The reaction conditions were optimized and conversions of rapeseed oil to fatty acid methyl ester or fatty acid ethyl ester was evaluated. The optimization temperature of the reaction, the duration of reaction and concentration of lipase were performed. The optimal reaction conditions when methanol to oil molar ratio was 5:1 were found to be a duration reaction of 5 h, a temperature reaction of 25°C and a lipase concentration of 7% (based on oil weight). Results showed 99.90% yield of rapeseed oil and rapeseed methyl esters in reaction product. The degree of transesterification acquired was 98.99%. The optimal reaction conditions when ethanol to oil molar ratio was 5:1 were found to be a duration reaction of 7 h, a temperature reaction of 30°C and a lipase concentration of 5% (based on oil weight). Results showed 99.92% yield of rapeseed oil and rapeseed ethyl esters in reaction product. The degree of transesterification acquired was 99.89%.

Biography

Migle Santaraite graduated from Master's Degree in Environmental Engineering field at Kaunas University of Technology in 2015. Her field of study was renewable (solar, wind and geothermal) energy. Currently, she is a PhD student at the field of technology science, environmental engineering in Vytautas Magnus University Agriculture Academy. Her field of study relates to the biodiesel fuel production and evaluation of physical and environmental properties of product obtained.

m.santaraite@gmail.com

Notes: