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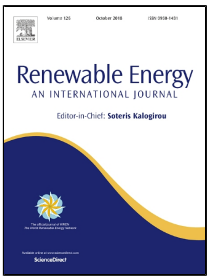

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Production of bio-fuel oil from pyrolysis of plant acidified oil

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Abstract: This study investigated the pyrolysis of plant acidified oil, aiming to upgrade the quality of oil for fuel use. The decomposition temperature of plant acidified oil was in the range of 300°C-500°C in 10K/min according to TG-DTG. The Py-GC-MS results showed that except alkane, alkene and oxygen containing compound, plant sterol derivatives were also detected. The ESI FT–ICR MS results showed the presence of some products produced from hydrogenation and polymerization reaction occurred in pyrolysis process. The yield of the liquid product reached the maximum of 90% at 500°C. The acid value and viscosity of pyrolysis products were relative high compared with diesel oil. The calorific value has no difference with that of diesel oil. According to above experiments, it was confirmed that pyrolysis components and characteristic of plant acidified oil was different with vegetable oil or fatty acid. Plant acidified oil was potential renewable source to obtain bio-fuel oil using pyrolysis method.

Keyword: plant acidified oil, pyrolysis, bio-fuel oil, plant sterol

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