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Bio crude oil production through hydrothermal liquefaction using homogeneous alkali catalyst from Korean native kenaf

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Hydrothermal liquefaction (HTL) is a promising technology for producing high density liquid fuels from kenaf, a herbaceous biomass. Also, high density liquid fuels through HTL can be used to conbustion fuels as heavy oil in power plant. HTL was used to process Korean native kenaf as energy crops to produce bio crude oil, bio char, gas and aquous phase products. In this study, in order to determine the optimal condition of HTL process, the kenaf was treated using 1-7% (w/w) NaOH at 250-350°C for 120 min. Subsequently, the mixed products (bio crude oil, bio char, and aqueous phase) were extracted by dichloromethan to only obtain bio crude oil. As a results, bio crude oil yield was approximately 20 % and bio char was produced approximately 10%. And, gas phase was mainly composed carbon dioxide and methane. After HTL process, kenaf convert to liquid fuels as conbustion fuels with high density, high calroie value, and high carbon content. The HTL process are effective procedures to produce the high quality bio crude oil.

Biography

Seong Ju Kim has completed Master's degree in Chemical Engineering from the Renewable & Bioproducts Energy Laboratory of Hankyong National University in South Koreain 2015. In 2016, he has chosen as a Ph.D course in Biomolecular and Chemical Engineering from Hankyong National University. He studies continously focussed on energy conversion from lignocellulosic biomass.

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