



Upgrading Bio-Oil Obtained From Microalgae Over Ni/Biochar Catalyst For Hydrocarbon Synthesis

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ABSTRACT

Upgrading batch process of bio-oil obtained from microalgal biomass was established over Ni/biochar catalyst under hydrogen pressure. Many parameters of the process were investigated including temperature, period of time, content of catalyst based on feedstock weight and agitating condition. The process was gradually improved by changing one parameter while keeping the others constantly. The purpose of the process was to enrich hydrocarbon content in the final liquid product. The Ni/biochar catalyst was synthesized from biochar also obtained from the microalgal biomass, and its characterizations were also provided in this paper or cited in a previous published report. The results revealed that the catalyst had high activity and selectivity in the upgrading process because composition of the liquid product mainly contained hydrocarbons, especially n-heptadecane. This product could be potentially used for blending with commercial diesel fuel. There were also many techniques applied for the characterizations and determination of the catalyst, feedstock and product including XRD, H₂-TPR, SEM, GC-MS, ASTM methods.

Keywords: biochar, pyrolysis oil, hydrogenation, biomass, metal supported catalyst.
