PYROLYTIC CONVERSION OF SUGARCANE BAGASSE AND RUBBER SEED OIL MIXTURE INTO LIQUID FUEL CATALYZED BY ZEOLITE-Y SYNTHESIZED FROM

RICE HUSK SILICA AND ALUMINUM METAL

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**Abstract**

In this study, sugarcane bagasse and rubber seed oil mixtures with different bagasse to oil ratios of 1 : 1; 1 : 2; 1 : 3; and 1 : 4 (m/v) were subjected to pyrolysis treatment for liquid fuel production, with the main purpose to investigate the effect of raw material compositions on chemical composition of the liquid fuels. Pyrolysis experiments were conducted in the presence of zeolite-Y synthesized from rice husk silica and aluminum metal through sol-gel route and subjected to calcination treatment at 700 oC for six hours as catalyst. The pyrolysis experiments were conducted at 350 oC for two hours, and the liquid fuels produced were analyzed using gas chromatography-mass spectrometry (GC-MS) technique for component identification. Analysis using GC-MS technique revealed the presence of a series of compounds in the liquids, and broadly belongs to hydrocarbon, alcohol, ester, ketone, aldehyde, and acid. The results also display quite significant effect of the raw material compositions on the composition of the liquid, the hydrocarbon contents in particular, in which the liquid fuel with the highest hydrocarbon content of 87 % was produced from the raw material with bagasse to oil ratio of 1: 3.

*Keywords: Liquid fuel, pyrolysis, sugarcane bagasse, rubber seed oil, zeolite-Y*