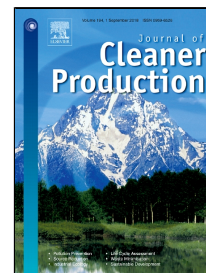


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Investigation on bio-oil yield and quality with scrap tire addition in sugarcane bagasse pyrolysis

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1 **Investigation on bio-oil yield and quality with scrap tire addition in sugarcane bagasse**
2 **pyrolysis**

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15 **Abstract:**

16 The study investigated potential of scrap tire and sugarcane bagasse as co-pyrolysis feedstock
17 with a focus on liquid yield. Two raw materials were fed to fixed-bed reactor in various mixing
18 ratios. The experiments were carried out at 500 °C with heating rate of 20 °C/min and Nitrogen
19 (flowrate: 50mL/min) was used as carrier gas. Sugarcane bagasse/scrap tire 1:3 produced
20 highest liquid yield (49.7 wt.% against 42.1 wt.% of pure sugarcane bagasse), which was then
21 characterized for physical and chemical properties using different chromatographic and
22 spectroscopic analytical techniques. Significant synergistic effects were indicated by the
23 quality and quantity of the co-pyrolysis liquid yield. The optimum feedstock mix produced oil
24 with calorific value of 41 MJ/Kg with lesser viscosity as compared to pure sugarcane bagasse
25 pyrolysis oil. Co-pyrolysis oil showed high potential to be used as feedstock for fuel production
26 after required processing.

27 **Keywords:** co-pyrolysis, Sugarcane bagasse, Scrap tire, Pyrolysis oil

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