

Production of biodiesel from non-edible *Jatropha curcas* oil via transesterification using Bi₂O₃-La₂O₃ catalyst

ABSTRACT

The simultaneous esterification and transesterification of *Jatropha curcas* oil (JCO) was carried out in the presence of Bi₂O₃ (167 wt.%) modified La₂O₃ catalyst at atmospheric pressure. The catalyst were characterized by X-ray diffraction (XRD), BET surface area, desorption of CO₂ (TPD-CO₂) and NH₃ (TPD-NH₃). Under the optimal reaction condition of methanol/oil molar ratio of 15:1, 2 wt.% of catalyst amount and a reaction temperature of 150 °C for 4 h, the highest conversion of biodiesel obtained was 93%. This catalyst maintained 87% of FAME conversion after three times of successive reuse.

Keyword: Biodiesel; Transesterification; *Jatropha curcas* oil; Bi₂O₃6La₂O₃; Heterogeneous catalyst