

Date Pits Oil Used as Potential Source for Synthesizing Jet Fuel and Green Diesel Fractions

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Abstract : Date pits are major agricultural waste produced in Oman. Current work was conducted to produce jet fuel and green diesel from hydrodeoxygenation of Date pits oil in the presence of Pd/C catalyst. The hydrodeoxygenation of Date pits oil occurred to be highly efficient at following mild operating conditions such as conditions temperature 300°C pressure 10bar with continuous stirring at 500rpm. Detailed product characterization revealed that large fraction of paraffinic hydrocarbons was found which accounts up to 91.1 % which attributed due to efficient hydrodeoxygenation. Based on the type of components in product oil, it was calculated that the maximum fraction of hydrocarbons formed lies within the range of green diesel 72.0 % then jet fuel 30.4% by using Pd/C catalysts. The densities of product oil were 0.88 kg/m³, the viscosity of products calculated was 3.49 mm²/s. Calorific values for products obtained were 44.11 MJ/kg when Pd/C catalyst was used for hydrodeoxygenation. Based on products analysis it can conclude that Date pits oil could successfully utilize for synthesizing green diesel and jet fuel fraction.

Keywords : biomass, jet fuel, green diesel, catalyst

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