RENEWABLE BIO-JET FUEL PRODUCTION FOR AVIATION：A REVIEW

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Abstract

Aviation industry plays an important role for social contact and business transport in the modern world. Traditional petroleum jet fuel not only relies heavily on fossil fuels, but also emits large amounts of greenhouse gases, vulnerable to the unstable of fuel prices and restricting the sustainable development of the aviation industry. It is essential to develop and industrialize alternative aviation fuels produced from renewable resources, especially biomass. Renewable bio-jet fuel has the potential over their life cycle to reduce CO2 emissions, which make bio-jet fuel an attractive substitution for aviation. The biomass feedstock for jet fuel production is abundant and can be diversified through multiple conversion routes. In addition to the existing oil based jet fuel, FT Synthesis, alcohol-to jet, sugar-to jet pathways, new technologies such as using solar energy, power, lignin, and plastic to produce jet fuel are being developed. This paper provides an overview on the conversion technologies, economic assessment, environmental influence and development of bio-jet fuel production. Future works such as looking for suitable feedstock which require minimum resources in terms of land and water quality and nutrients, improving competition for alternative jet fuels and reducing the market price, meeting emission reduction targets in large-scale production and making measures for the indirect impact are summarized.

Keywords: Bio-jet fuel; Feedstock; Production technology; Environmental influence; Economic; Challenges