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Review Paper

A review on conversion of triglycerides to on-specification diesel fuels without additional inputs

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SUMMARY

Dependence on fossil fuels for global energy supply has continued to generate concerns about climate change and sustainable development. It has motivated the search for carbon-neutral alternative resources for the production of transportation fuels to replace crude oil. Although biodiesels have recently emerged as a close substitute to petrol diesel, their use in compression ignition engines designed to run on petro-diesel fuels are linked to adverse effects on the engines' performance and life span. This informed efforts at upgrading biodiesel or direct conversion of triglycerides to hydrocarbon mixtures that are identical or similar to that of petro-diesel through hydrodeoxygenation. Moreover, it seems that commercial methods for the conversion of triglycerides to diesel fuels depends on inputs (methanol and hydrogen) derived from fossil fuels. However, it will be desirable to do so without inputs from fossil fuels. Hence, reaction paths for direct conversion of triglycerides to on-specification hydrocarbons fuels without hydrogen gas input are discussed and suggested strategies are in cognisance of green chemistry principles.

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