

**New process for high quality biodiesel production from highly unsaturated feedstock by hydrotreating supercritical transesterification**

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Biodiesel is a mixture of fatty acid alkyl esters obtained by chemically reacting vegetable oils or animal fats with alcohol. In recent decade, supercritical transesterification process has been studying to produce biodiesel because this process is environmentally friendly and much simpler than conventional catalytic process. The use of biodiesel is limited by some of characteristics such as oxidation stability and cold-flow property, which are important properties and depend on the degree of unsaturation of feedstock. Catalytic hydrogenation can improve biodiesel fuel properties by changing the fatty acids composition of biodiesel. In this study, we proposed new process combining transesterification and hydrogenation of highly unsaturated feedstock in supercritical methanol. Results showed that high quality biodiesel production was obtained through hydrotreating supercritical transesterification. Further studies will be required to develop suitable catalyst and optimize the process.