Extraction of biodiesel feedstock from early stage of food waste liquefaction

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Abstract

Biodiesel is commonly produced from vegetable oils, mostly edible and more expensive than petroleum diesel. By considering the cost of the conversion processes, cheap feedstock such as triglycerides and fatty acids (FA) extracted from early stage of food waste liquefaction has become a better choice than vegetable oils, as it could provide high yield of biodiesel without any compromise to food supply and other resources. In this study, FA from early stage of food waste liquefaction was extracted and tested for use as feedstock for biodiesel synthesis. The raw material was not pretreated but extraction was done by dry and wet methods. It was found that wet method could minimize the loss of short and medium-chained FA as well as reducing the number of steps required, thus, yielding higher amount of FA as feedstock. The effects of mixing, methanol ratio, reaction time and catalyst content were investigated for the acid-catalyzed esterification. The maximum biodiesel conversion obtained was 97.4%.

Keywords