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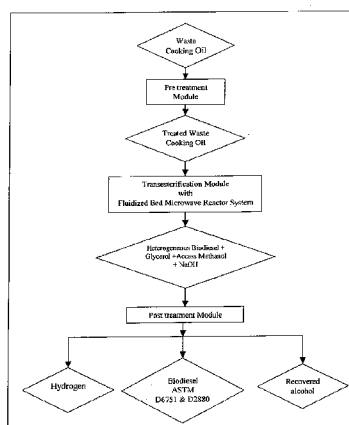


Figure 1

(57) Abstract: There is provided a system comprising of a pre-treatment stage, a reaction stage and a post-treatment stage for the production of alkyl esters from vegetable oils, animal fats or oils, as well as used or waste oils or fats or combinations thereof. Alkyl esters produced accordingly is known as biodiesel. The yield of biodiesel is increased significantly and the reaction time dramatically reduced due to the application of microwave irradiation in the system. Moreover, the system efficiently manages the reaction products by purifying the separated alkyl esters into biodiesel, converting the separated glycerol into hydrogen and recovering the alcohol and recycling back into said system to avoid wastage.