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Biodiesel production using waste cooking oil

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The effect of KOH concentration on biodiesel yield is experimentally investigated, with a view to determining the optimal catalyst. Three replicates of each of the transesterification experiments using different KOH concentrations, 0.75%, 1.00%, 1.25 % and 1.5 % and mass of Waste Cooking Oil, (WCO) were used. The Four experiment batches 1-4 (batch1- batch 4) produces different values of average WCO biodiesel yield, glycerol formed and losses recorded for three batches of the transesterification experiments evident. it was observed that for KOH concentrations (in relation to mass of WCO) under identical typical transesterification reaction conditions of 60°C temperature, 60 minutes duration and 22.0 % methanol (by mass of WCO), WCO biodiesel yield of 95.7%, 97.3%, 87.0 % and75.5 % were obtained. Similarly, 21.50g, 22.00g, 32.40g and 46.10 g glycerol were formed with the respective yields of the biodiesel. The losses in each run of the experiment are obviously due to no reacted alcohol, residual catalyst and emulsion removed during the washing stage of the production process.

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