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Biodiesel Production From Waste Cooking Oil Using g-C3N4 Photocatalyst

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Abstract : This paper explores the using of waste cooking oil (WCO) as an attractive option to reduce the raw material cost for the biodiesel production. This can be achieved through two steps; esterification using g-C3N4photocatalyst and then alkali transesterification. Several parameters have been studied to determine the yield of the biodiesel produced such as: Reaction time (2-6 hrs), catalyst concentration (0.3-1.5 wt.%), number of UV lamps (1or 3 lamps) and methanol: oil ratio (6:1-12:1). From the obtained results, the highest percentage yield was obtained using methanol: Oil molar ratio of 12:1, catalyst dosage 0.3%, time of 4 hrs and using 1 lamp. From the results it was clear that the produced biodiesel from waste cooking oil can be used as fuel.

Keywords : biodiesel, heterogeneous catalyst, photocatalytic esterification, waste cooking oil
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