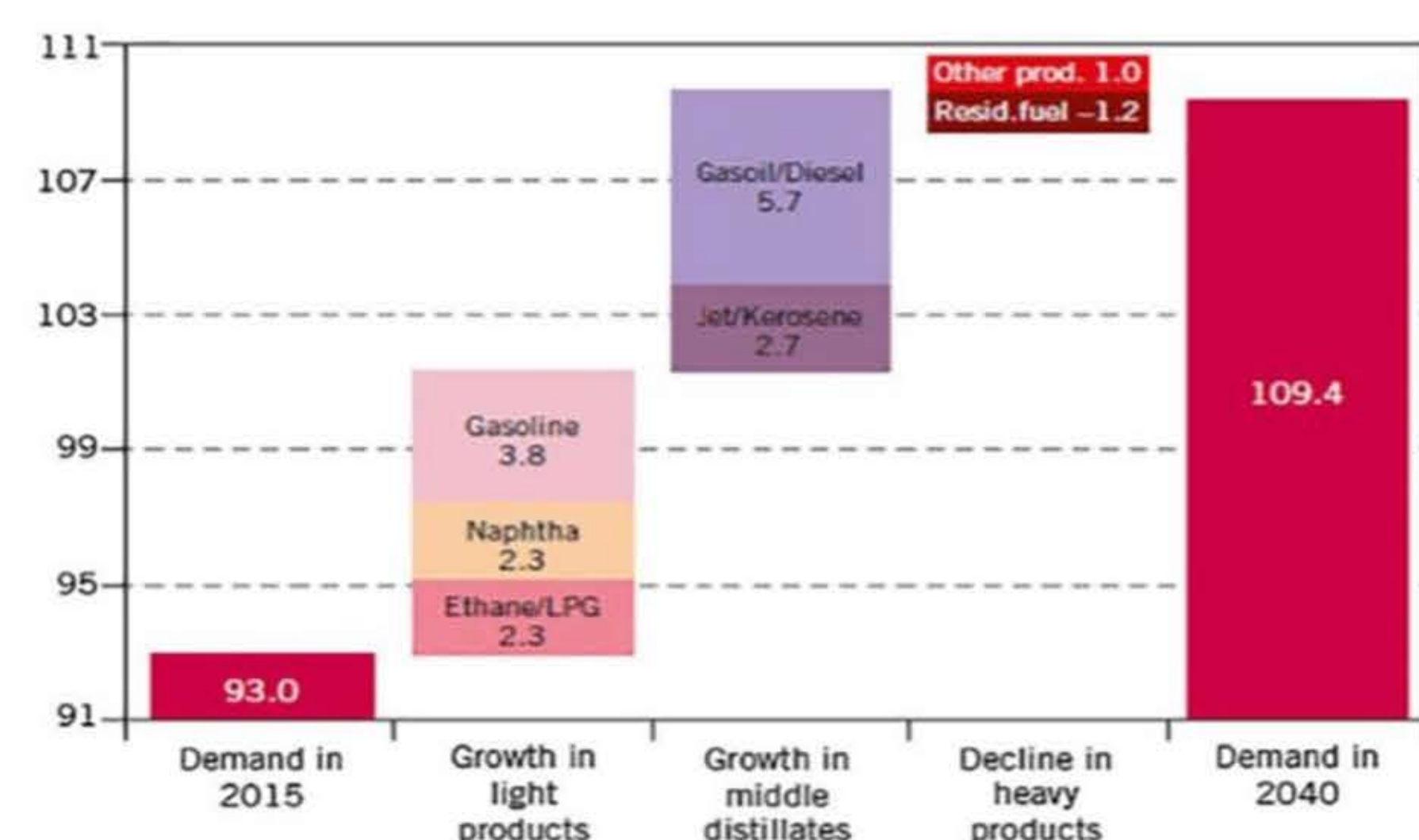


AIM

The aim of this project is to characterize, optimize and produce biodiesel from used cooking oil

Introduction

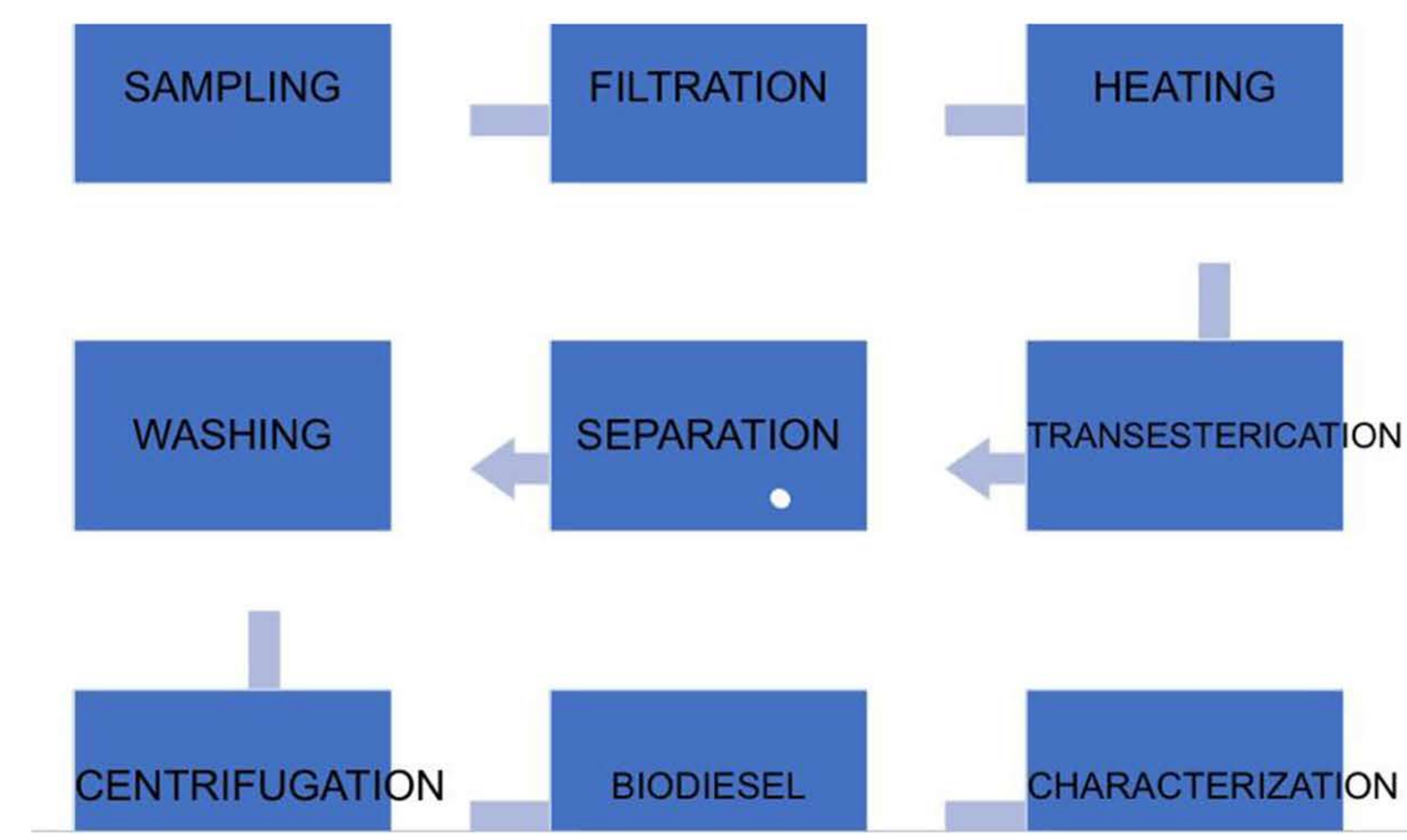
In recent years the demand for renewable fuels has greatly increased, is increasing the price of oil or by concern for the environment due to climate change induced by the use of fossil fuels, making renewable energy sources extremely important (Rosa et al., 2013).



Oil Demand Growth by type from 2015 to 2050 (OPEC) Currently the most dominant resources for world energy supply are crude oil, coal and gas (International energy agency 2015). The consumption of fossil fuels also releases greenhouse gases (GHGs) including SO_x, NO_x, and CO_x into the environment. Global warming and environmental hazards have become primary concerns by exploiting these energy resources

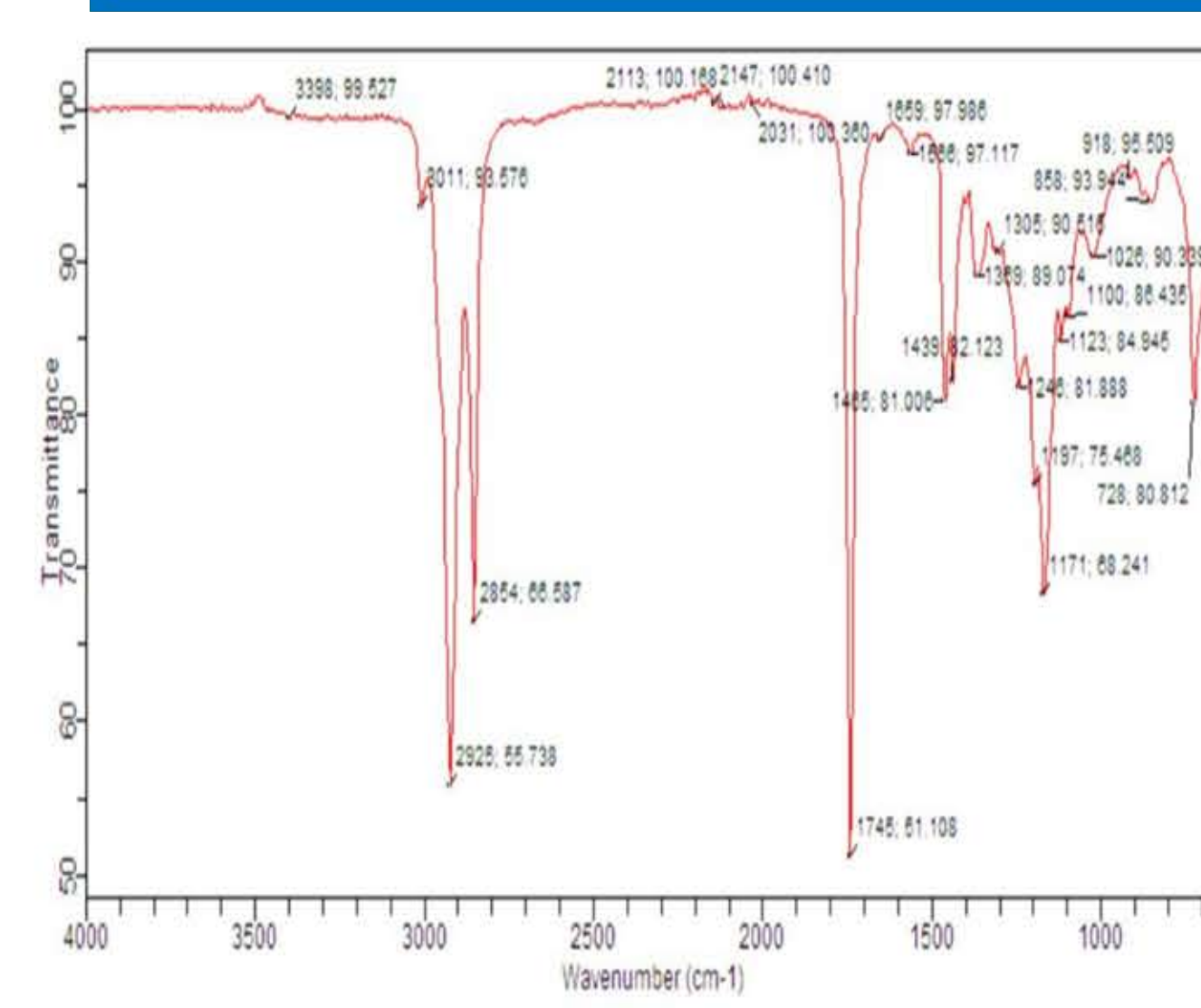
METHODOLOGY

The cooking oil was sourced from one of the largest oil Markets in Kano Metropolis, Nigeria. The oil was used to fry soya beans cake (Tofu).

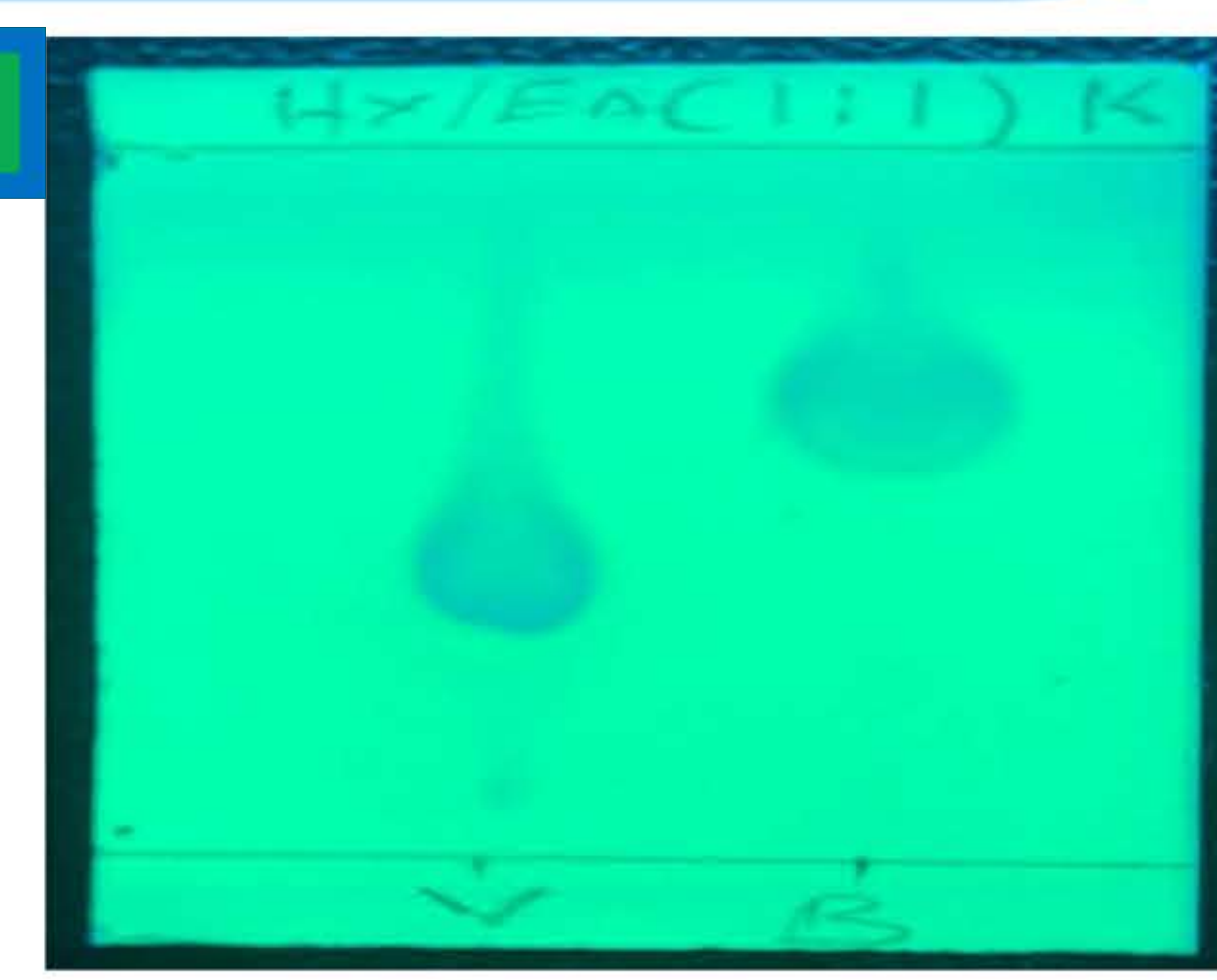


Results

•Biodiesel Spectrum



•TLC plate



Run	Oil/Alcohol Molar Ratio	Time (Minutes)	Temperature(°C)	Biodiesel (%)	yield
5th	1 : 3.0	60	25	100	
18th	1 : 3.0	60	60	100	
16th	1 : 3.0	180	25	20	
19th	1:1.9	120	42.5	20	

•Table 1

•Parameters varied by the response surface methodology and results obtained for biodiesel yield.

Conclusions

Biodiesel was produced from used cooking oil. Optimization was used for producing the biodiesel which gave us the optimum condition for the production the experiment conducted has predicted that carrying out the transesterification reaction for 60 minutes at the temperature range of 25°C- 60°C using 3g of alcohol and 20g of oil will give us 20ml of biodiesel which is equal to the grams of oil used. The biodiesel was characterized using physiochemical, FTIR and chromatographic properties.

References

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Rosa da Silva, Tatiana Aparecida; Queiroz Santos, Douglas; de Lima, Ana Paula; Borges Neto, Waldomiro (2013): Model for the correction of the specific gravity of biodiesel from residual oil, Independent Journal of Management and production, 4(1), 137-147