

# Production of Biodiesel through Transesterification of Palm Oil Using Waste Eggshells Catalyst

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The aim of this research was synthesized biodiesel from palm oil using transesterification calcium oxide from various eggshells catalyst. The chicken, duck, ostrich, quail, and crocodile eggshells were heated at 1300 °C for 4 h. The ratio of methanol, palm oil and calcium oxide from eggshell were 10 g, 3.0 ml and 0.8 g, respectively. The temperature of biodiesel synthesis was control at 65 °C for 3 h. The properties of biodiesel from eggshell catalyst and commercial were characterized by UV-vis spectroscopy, Fourier transform infrared spectroscopy (FTIR) and nuclear magnetic spectroscopy (NMR). The UV-vis and FTIR results show that the biodiesel synthesized from all eggshells catalyst were corresponding with commercial biodiesel. The NMR results show that the yield of biodiesel from CaO of quail eggshells catalyst had higher than other eggshells. This research shows that the CaO from waste eggshells catalyst can be used transesterification of biodiesel.

## Summary

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