

***Analysis of Biodiesel Production by Microwave Assisted Transesterification  
Method Using Heterogeneous Base Catalyst from Field Snail Shell (*Pilla  
ampullacea*)***

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***ABSTRACT***

Biodiesel is an alternative fuel for diesel engines produced by esterification and transesterification processes. Chemically, biodiesel is an ester made from vegetable or animal oil. Used cooking oil is one of the vegetable oils that has potential as a raw material for biodiesel and is still a waste. After passing through the esterification process, the next phase is the microwave assisted transesterification process, where the process converts triglycerides into methyl esters with the help of a catalyst. Microwave assisted transesterification aims to increase biodiesel production using microwaves with a longer time to break down molecules faster. Catalysts are needed in the process of making biodiesel, because catalysts function to accelerate the reaction of biodiesel formation. In this study, a heterogeneous catalyst (CaO) was used from the shell of a rice snail that had undergone a calcination process at 900 °C for 4 hours. Rice snail shells have the potential to produce CaO compounds that can be used as catalysts. The washing method in this study was water washing. This study used a completely randomized design (CRD) with 2 factors and 3 levels, namely variations in microwave radiation power (A) 80W (A1), 240W (A2), 400W (A3) and variations in catalyst particle size used (M) 40-60 mesh (M1), 60-100 mesh (M2), <100 mesh (M3). The yield of biodiesel produced was 62.75% in sample A3M1 with 400W radiation power.

***Keywords:*** *Biodiesel, Field Snail Shells, Microwave Assisted Transesterification, Waste Cooking Oil*