

# TITLE: PREPARATION OF ACTIVATED ADSORBENT FROM CLAMSHELL USING CHEMICAL IMPREGNATION METHOD

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### **AUTHOR'S DECLARATION**

" I hereby declare that this report is the resof my own work except for quotations and summaries which have been duly acknowledged."

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#### ABSTRACT

The demand for the activated adsorbent have been increasing because of its adsorption applications that are good for wastewater treatment, gas filtration. Because of this, There have been searching for alternative raw materials that can be cost effective and sustainable to produce activated adsorbents. Clam shells which are mostly rich in calcium carbonate (CaCO3) usually always discarded as waste where it can give some affect the environment because they are not biodegradable which means it would take a long time for it to decompose. This study are made to see whether it can turn clam shells into activated adsorbents through chemical impregnation method with Sodium Hydroxide (NaOH) as the activation agent at different temperatures, 600C and 700C

Then the samples of the clam shell powder were characterized using X-Ray Diffraction (XRD), Elemental Analyzer (EA), Proximate Analysis and Microscopic Imaging to check for the composition and structure of the clam shells. The result shows that the activated adsorbent have high ash content (96%) which shows that it high in inorganic material. EA also shows that the clam shells are also low in carbon content which means that the activated adsorbent are mainly made out of other materials. XRD data on the impregnated clam shell powder at 600C also able to confirm that the activated adsorbents from clam shells are primarily made out of calcium carbonate (CaCO3) as the peaks for calcium carbonate has shown a lot of similarity with the data. Microscopic imaging have also showed changes happen on the surface of the clam shell between raw, 600C and 700C of the clam shells. Where the 700C has shown a lot changes on the surface area, the pore structure looks more detailed These result shows that activated adsorbents.

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