

UNIVERSITI TEKNOLOGI MARA

**EFFECT OF EGGSHELL CALCIUM CARBONATE ON
THE PROPERTIES OF CASSAVA STARCH-BASED
BIOPLASTICS**

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of the requirements for the degree of

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AUTHOR'S DECLARATION

I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the results of my own work, unless otherwise indicated or acknowledged as referenced work. This thesis has not been submitted to anyother academic institution or non-academic institution for any degree or qualification.

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ABSTRACT

EFFECT OF EGGSHELL CALCIUM CARBONATE ON THE PROPERTIES OF CASSAVA STARCH-BASED BIO PLASTICS

The improvement of bio plastic by using natural polymers that reinforced with eggshell filler powder has turned into a field of increasing attentiveness. The objective for this research is to enhance the effect of eggshell loadings on cassava starch-based on the properties of bio plastics. This analysis was done by using cassava starch, eggshell act as filler, glycerol, hydrochloric acid and distilled water act as substitution for the petroleum-based that was mixed together. The mechanical properties and thermal analysis of the cassava starch/ eggshell bio plastics were characterized by Fourier Transform Infrared Spectrometer (FTIR), The FTIR showed the cassava starch/ eggshell was hydrophilic, and by the addition of the starch filler will impaired the hydrogen bond between water and starch molecules. The biodegradability behaviour of eggshell has decrease in weight loss what was done by soil burial test. Next, the eggshell filler enhanced the water with the percentage water absorption which is 40.12% for 20% (w/w) of eggshell filler compared to those of the pure cassava bio plastics which is 90.12% during two days.

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