

**BIODEGRADABILITY STUDY OF BIOPLASTIC DERIVED FROM
VARIOUS SPECIES OF BANANA PEEL WITH
DIFFERENT RIPENING STAGES**

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**Final Year Project Submitted In
Partial Fulfillment Of The Requirements.For
Bachelor.Of Science (Hons) Applied Chemistry
In.Faculty.of Applied Science
Universiti Teknologi MARA**

FEBRUARY 2023

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AS245 FSG

UTM 2023

This Final Year Project Report entitled “ **Biodegradability Study of Bioplastic Derived from Banana Peel with Different Ripening Stages**” was submitted by NurulAin Binti Ahmad Fadzil in partial fulfillment of the requirements for the Degree of Bachelor of Science (Hons.) Applied Chemistry, in the Faculty of Applied Science was approved.

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Date : 4 AUGUST 2023

ABSTRACT

BIODEGRADABILITY STUDY OF BIOPLASTIC DERIVED FROM VARIOUS SPECIES OF BANANA PEEL WITH DIFFERENT RIPENING STAGES

Bioplastic is a new invention in science and technology that reduces environmental issues such as pollution, climate change, and the greenhouse effect due to the high amount of synthetic plastic usage. This bioplastic comprised various species of banana peel: *Musa ABB* cv. Awak, *Musa AAA* cv. Berangan and *Musa AA* cv. Emas with different ripening stages (unripe (UR), ripe (R), and overripe (OR)), respectively. The bioplastic was mixed with food-grade corn starch and glycerol as a plasticizer agent. This research focused on studying bioplastic's biodegradation rate from different tests, including sensory tests, solubility tests, characterization using ATR-FTIR, and soil burial tests. This test evaluates the properties and description of the bioplastic that made them suitable to replace synthetic plastic. This study aims to determine what types of banana peel species with different stages can degrade quickly. Some characterization has been made to analyze and monitor the credibility of making high-quality bioplastic. The test used in this research examines the solubility percentage of bioplastic from different species and ripening stages. It shows that the ripe stage has a high weight loss compared to the unripe and overripe stages for every BPs species. The high weight loss of bioplastic is due to the high amount of cellulose and carbohydrate components that increase the solubility ability and can suit the soil with different parameters.

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