

**THE EFFECTS OF FERMENTATION  
TOWARDS PHYSICAL AND CHEMICAL PROPERTIES OF COCOA  
(*Theobroma cacao*) BEAN: REVIEW**

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**Final Year Project Report Submitted in Partial Fulfilment of the Requirement  
for the Degree of Bachelor of Science (Hons.) Plantation Technology and  
Management Faculty of Plantation and Agrotechnology**

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## DECLARATION

This Final Year Project is a partial fulfilment for a degree of Bachelor of Science (Hons.) Plantation Technology and Management, Faculty of Plantation and Agrotechnology, Universiti Teknologi MARA.

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I hereby declare that I have checked this project and in my opinion, this project is adequate in term of scope and quality for the award of the degree of Bachelor of Science (Hons.) Plantation Technology and Management, Faculty of Plantation and Agrotechnology, Universiti Teknologi MARA.

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## ABSTRACT

### THE EFFECTS OF FERMENTATION TOWARDS PHYSICAL AND CHEMICAL PROPERTIES OF COCOA (*Theobroma cacao*) BEAN

Fermented cocoa bean is the main ingredient of chocolate products because through fermentation the required flavour and aromas can be obtained. The proper fermentation methods applied is a must in order to produced chocolate with high quality because the specific aromas compound cannot be obtained from incomplete fermentation of the beans. Fermentation is carried out by microorganisms that dominating the fermentation inoculum. The microorganism that have been found to be important in order to reached cocoa fermentation succession are yeast, lactic acid bacteria and acetic acid bacteria as their activities will affect the physical and chemical properties of the fermented cocoa bean. Chemical that have been synthesized by those microorganisms will affect the taste and colour of the cocoa bean. By regulating the fermentation culture and pod storage practice, high fermented cocoa bean quality can be produced. By using starter cultures from specific species of yeasts, lactic acid bacteria and acetic acid bacteria with an accurate percentage of inoculum, the result for cocoa fermentation can be increase in term of flavour, aroma or colour. Pod storage that have been suggested to be applied by cocoa bean produced in Malaysia which is 21 days can be practiced as it is proved that pod storage an affect the properties of cocoa bean. Thus, it is important to understand how fermentation actually affects the flavour, aroma and colour of the cocoa bean so that cocoa bean producers can improvise the fermentation process to produce better fermented cocoa bean quality in term of physical or chemical properties.

Keywords: *fermentation, fermented cocoa bean, physical properties, chemical properties*