

UNIVERSITI TEKNOLOGI MARA

**PROFILING PEPTIDES IN FERMENTED
DRIED COCOA BEANS**

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Final year project report submitted in partial fulfillment of the
requirements for the degree of

**Bachelor of Science (Hons.) Plantation Technology and
Management**

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CANDIDATE'S DECLARATION

I declare that the work in this Final Year Project was carried out in accordance with the regulations of Universiti Teknologi Mara. It is original and is the result of my own work, unless otherwise indicated or acknowledged as referenced work. The final year project report has not been submitted to any other academic institution or non academic institution for any other degree or qualification.

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ABSTRACT

In this study, the objective of the research is to determine impact on amino acids and peptides profiles when the cocoa pods are fermented less than 5 days and to identify the profile of different peptides arising from fermenting dried cocoa beans at varying fermentation time. In this experiment dried cocoa beans from pods at Malaysian Cocoa Board, Hilir Perak were previously stored for 0, 2, 4 and 6 days were fermented for varying time which are 0, 24, 48, 72, 96 and 120 hours before the flavour extracted analysed. The process of extraction started with extraction of protein in the dried cocoa beans. Supernatant were precipitated using 100% cold acetone, incubated in ice for one hour and spin at 13000 rpm for 5min at 4°C. Following centrifugation, pellets were washed again with 100% acetone and were dried. Pellets were then adjusted with 100µl phosphate buffer saline (PBS). The samples then were analysing using SDS-PAGE electrophoresis. At last, silver staining protocols were performed by using AMRESCO Silver Bullit™ Silver Stain Kit to visualise the band on the gel. The amount of protein concentration was analyses using Bradford Method. Results revealed that during purification analysis, extraction methods for dried cocoa bean a very low concentration of protein from cocoa samples. This was observed during extraction where pellet becomes brownie. In the SDS-PAGE analysis, there is the present of non-heated unstained protein marker and protein marker but no band were seen in this sample to indicate the protein content of dried beans in different fermentation hours. In the concentration of dried cocoa beans protein, protein concentrations were underestimated when absorbance was measured at 595nm using Bradford method. Alternatively, less extinction coefficient of proteins in samples was known by measuring its absorbance at 280nm using UV light. As conclusion, the intended objectives of the study cannot be achieved due to several technical errors. However, the study findings would be helpful in future undertaking towards achieving the stated objectives.

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