

**EVALUATION OF FERMENTATION PARAMETERS
DURING FERMENTATION PROCESS OF
Baccaurea lanceolata Muell (Liposu)**

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**Final Year Project Report Submitted in
Partial Fulfillment of the Requirements for the
Degree of Bachelor of Science (Hons.) Biology
in the Faculty of Applied Sciences
Universiti Teknologi MARA**

DECEMBER 2014

Date

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ABSTRACT

EVALUATION OF *Baccaurea lanceolata* Muell (Liposu) FERMENTATION PARAMETERS

Baccaurea lanceolata or locally known as Liposu can be found in forested area near the riverbanks which is edible and has a very sour taste. This fruit is usually consumed by many people in Sabah and Sarawak without knowing its nutritive values. Although there are reports on its traditional medicine usage but there are no reported scientific research. The fermentation of *Baccaurea lanceolata* is done traditionally based on assumptions to see whether this fruit is able to be fermented and used in pickles production. In this study, the fermentation is done for 67 days but only 57 days showed the significant observation of fermentation results. During the process, the temperature was manipulated in order to identify the most suitable temperature for *Baccaurea lanceolata* (Liposu) fruit fermentation. The ranges of manipulated temperatures are from 25 °C to 30 °C for Group 1, 30 °C to 35 °C for Group 2 and 40 °C to 45 °C for Group 3. These temperature ranges were selected considering the growth of Lactic Acid Bacteria (LAB) which produced lactic acid. The pH, colony count and lactic acid production are selected as fermentation parameters as they are variable characteristics that indicate the preferred fermentation temperature. Group 1 showed the significance observation where the productions of lactic acid keep increasing since Day 4 until Day 36. The lactic acid produced recorded was more compared to Group 2 and Group 3. In addition, the colony count deals with the microorganism activities especially on the peaks in Group 1 which is referring to Lactic Acid Bacteria (LAB); 1st peak of LAB was on Day 15 showed 619 colony counts with 1.66% of lactic acid production and 2nd peak of LAB was on Day 36 showed 907 colony counts with 1.81% of lactic acid production higher than LAB colony counts and lactic acid productions in Group 2 and Group 3. The significance of the finding will help to improve the fruit fermentation procedure based on the scientific evaluation. Therefore, the best temperature range that can be used for *Baccaurea lanceolata* (Liposu) fermentation is from 25 °C to 30 °C due to the large production of lactic acid, stable pH and also colony count that indicated the presence and activity of Lactic Acid Bacteria (LAB) to produce lactic acids. It is recommended that future research should be done to isolate and identify the suspected cultured LAB.

CHAPTER 1

INTRODUCTION

1.1 Background of Study

Sabah is one of the largest states after Sarawak which is located in North Borneo with a landmass approximately 7.4 millions hectares and the total forested area is 4.7 hectares (Kulip, 2003). The area of forested region is rich with plant biodiversity and full of medicinal herbs that have been used by rural or local people in Sabah since long time ago. In spite of that, there are still many undiscovered fruits and yet to be identified formally in Sabah. Some of the local fruits become extinct because most of the forested area is exposed to some illegal activities related to the agricultural purposes such as land clearing (Lim, 2012). Therefore, the mass total of undiscovered local fruits decreased without taking any related attention to protect it although the problem is noticed by some people but it is not addressed. Most local people who are still living around the forested area use some of the indigenous fruit as food resources and only they know the value and importance of the fruit.

One of the local fruit that can be found in Sabah is *Baccaurea lanceolata* or locally known as Liposu, a fruit species grows freely in the forest near the riverbanks (Lim, 2012). Martin *et al.*, (1987) claimed that *B. lanceolata* is