UNIVERSITI TEKNOLOGI MARA

FERMENTATION OF TAPAI

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ABSTRACT

Tapai is one of the most favourable snacks in Asian countries. Tapai is a well-known dessert with a mild alcoholic flavor and a sweet sour taste. Tapai can be produced in various ways either by using cassava root or glutinous rice as one of the raw materials. Both of them are almost similar in taste. However, Tapai needs to be consumed immediately because it is a perishable product. It lasts up to three to five days if we let it in room temperature. If we let it to be fermented for too long, its alcohol content might increase and it may turns the Tapai becomes too alcoholic. So, this review article is reviewing about detecting alcohol released from Tapai by using enzymatic alcohol biosensor and other analytical instruments to detect alcohol released from Tapai.

Acknowledgement

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CHAPTER I

INTRODUCTION

1.1) Research Background

The word "ferment" is from the Latin word *fervere*, referring to "to boil". The fermentation process became a topic of scientific investigation around year of 1600. Louis Pasteur was first to study fermentation by demonstrating living cells is one of the factors for fermentation process to be occurred in the 1850s and 1860s. However, Pasteur was failed in his trial to remove the enzyme responsible for fermentation from yeast cells. Eduard Buechner continue the research in 1897 by grounding yeast to extract the fluid from them, and found that liquid could ferment a solution of sugar. Buechner's study is considered the start of the science of biochemistry, and he earned the 1907 Nobel Prize in chemistry. (*source retrieved from : https://www.thoughtco.com/what-is-fermentation-608199*)

Fermentation does not require oxygen to occur, so we define it as an anaerobic process. If there is abundant of oxygen, the yeast cells prefer fermentation to aerobic respiration, which then it can provide an adequate supply of sugar. Food and beverage can be fermented by a biochemical process which the microorganisms digest the carbohydrate like starch or sugar, and convert the substrate into desirable product such as lactic acid, ethanol and carbon dioxide (sorce *retrieved from: https://www.thoughtco.com/what-is-fermentation-608199*). We take yeast as an example since it is fermented to produce energy by converting sugar into alcohol. Fermented foods have many advantages over the raw materials from which it is made, not only in improving flavour and texture, appearance and aroma, but also increasing the foods' storage life. The cost of preservation also much cheaper compare to the preservation by canning and freezing.

Presence of bacteria is crucial in order to promote the fermentation process. *Lactobacillaceae* is the most crucial bacteria for the fermentation of foods to