



اَوَّلُ سَبِيلٍ تَكُونُ لَكُمْ مَبَارَا
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MARA

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TITLE:

EFFECTS OF PH SHIFTING AND FILTRATION ON THE
PROXIMATE COMPOSITION OF PIPER BETEL LEAF AND
MUNG BEAN SEEDS

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ABSTRACT

The objective of this Final Year Project (FYP) research is to determine the presence of the basic nutritional components of mung bean seeds and piper betel leaves using proximate analysis of food composition and other methods. There are six components that need to be determined, which are protein, carbohydrate, lipids, fibre, moisture and ash content. Before investigating the food composition, the samples need to undergo various process to see which one is suitable to use to check food composition in Research and Development. This report will be focused on using the process of Filtration and pH Shift. The samples that required to use in research is in the form of supernatant and pellets. However, the results of this research are half quantitative and half qualitative to prove the presence of the food composition inside the plant materials.

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CHAPTER ONE

BACKGROUND

1.1 Introduction

Obesity is one of the main health problems in Malaysia that it has the highest rates of obesity among the Southeast Asia countries. According to the Ministry of Health of Malaysia (KKM), about 50% of adults in Malaysia are classified as either overweight or obese in 2023 (KKM, 2023). This is because some people in Malaysia lead unhealthy lifestyle in their daily life by consuming high calories processed foods almost every single day. In order to overcome this issue, this is where proximate analysis plays an important role.

Proximate analysis of food composition is a quantitative method used to determine the major components of food, such as moisture, ash, fat, protein, fibre and carbohydrates. This analysis provides detailed information about the nutritional values of the food and help those who wants to go on diet to carefully choose on what is good and what is bad for their body health. For example, food that high in fat content are the main contributors to high calories intake which will lead to obesity (Slavin & Green, 2007). Proximate analysis is also important in food industry to determine the nutritional value and to be put in the food labelling (Cowburn & Stockley, 2005).

1.2 Literature Review

This section will be focused on searching the available resources about the plant materials used for the experiment which are mung bean seeds and piper betel leaves, chemical processing that need to be used, Filtration and pH shift process and composition of the plant material.