THERAPEUTIC BIOACTIVE OF PANDANUS AMARYLLIFOLIUS ROXB LEAVES FOR FUNCTIONAL FOOD APPLICATION

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ABSTRACT

Over the years, many researchers and the people in food industry have become increasingly interested in phenolic compounds in natural food source, mainly due to the current growing interest for natural antioxidants. The conventional or traditional way of extraction have a few downside in terms of extraction time and the extraction yield. Microwave assisted extraction (MAE) is one of the advance technology developed for the purpose of extraction. The purpose of this research is to study the effect of microwave power level on extraction of Pandanus Amaryllifolius Roxb leaves and to compare the total phenolic content (TPC) and antioxidant activity of traditional and microwave-extracted Pandanus Amaryllifolius Roxb leaves. The parameters that we varies during this experiment is the solvent concentration, soaking temperature and power level of the microwave. Both of the method were subjected to average 10 minutes of extraction. From the results of the experiment, MAE produce higher yield of TPC compared than that of soaking method with value 1.557 mg/g GAE and 0.979 mg/g GAE respectively. The result also established a linear correlation between total phenolic content (TPC) and antioxidant scavenging activity with R2 value is 0.915.

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CHAPTER 1

INTRODUCTION

1.1 Research Overview

This chapter provides the information on the therapeutic bioactive compounds in Pandanus Amaryllifolius Roxb leaves for functional food application. The bioactive compound will be extracted to test the total phenolic content (TPC) and the antioxidants activity. The problem statement for this research is that the conventional extraction method used to obtain the bioactive materials have quite a few downsides which are long time consuming, low extraction yields, and sometimes the properties or quality of the extracted compounds are damaged. The objectives and scope of work for this research project are highlighted as well.

1.2 Research Background

Pandan leaves is a tropical plant with aromatic scent. It is a vertical, green plant with fan-shaped sprays of long, narrow, blade-like leaves and woody aerial roots. The plant is rare in the wild but it is widely cultivated in Asian countries. It is a source of natural flavoring that is widely used in various parts of South East Asia including Thailand, India, Indonesia and also Malaysia (Andriani et al., 2015). They are commonly used in culinary area such as food coloring, flavor enhancing and aromatic flavor for the dishes.

Bioactive compounds are nutritional elements that is naturally present in small quantities of foods. It is a type of chemical compound found in plants and certain foods such as fruits, vegetables, nuts, oils, and whole grains. Many known bioactive compounds occur naturally in plants or fruit but it can also be produced in a certain environment, such as controlled fermentation of vegetable for alcohol production (Liu, He, Valiente, & Montserrat, 2017).