ANTIOXIDANT PROPERTIES OF SELECTED TRADITIONAL SALADS IN MALAYSIA

YUSRINA BINTI YUNUS

This report is submitted in partial fulfillment of the requirements needed
for the award of Bachelor in Chemical Engineering (Hons)

FACULTY OF CHEMICAL ENGINEERING
UNIVERSITI TEKNOLOGI MARA
SHAH ALAM
2016

ACKNOWLEDGEMENT

In preparing this project report, I had gained a lot of knowledge, training and information from other people, researchers, academicians, and practitioners. They have helped me to improve my understanding and thoughts. First and foremost, I would like to thank millions to my supervisor, Nurhaslina Binti Che Radzi for her valuable guidance, encouragement, critics and friendship. In addition, I want to thank you for your excellent cooperation and for all of the opportunities given to conduct my research. Without her continued support and interest, this research project would not have been the same as presented here.

Other than that, I would like to thank my parent for their support and guidance to help me finish this project report. Finally, for my best friend Noor Shaal Wani bt. Mohd Yasim that always be my side and give me a lot of ideas and good comment.

ABSTRACT

The total flavonoid content and antioxidant activity is the properties of anti-cancer. The existence of the flavonoid content and antioxidant activity in plant shows that there are anti-cancer properties thus may reduce the cause of cancer among people. In this study, the total flavonoid content and antioxidant activity of five popular Malay raw salads were measured by using total flavonoid contents equivalents and DPPH free radical scavenging assay methods. The extraction of plant is measured using different parameter which is the time of extraction (60 mins,120 mins,180 mins) and the methanol concentration in v/v (20%, 40%, 60%, 80%, 100%). The best response for both parameter is selected for further investigation of TFC and DPPH free radical scavenging assay. The results show that 80% of methanol concentration and 1 hour of extraction as the best response and is used for the subsequent experiment. Ranking order for total flavonoid content in the five plants in terms of quercertin equivalent were decreased in the order of *B. Racemosa* > *S. Androgynus.* > *C. Gynandra* > *A. Occidentale* > *S. Palustris.* The salads studied were the leaves of *Stenochlaena Palustris (*Pucuk Midin), *Barringtonia Racemosa* (Putat), *Sauropus Androgynus (*Cekur Manis), *Cleome Gynandra* (Maman*),* and *Anacardium Occidentale* (Pucuk Gajus). Meanwhile, the antioxidant activity of the plants was measured using DPPH radical scavenging assay with quercetin as positive control. Consequently, the DPPH scavenging effect of all extracts and standards on the DPPH radical decreased in the order of Quercertin > *B. Racemosa* > *A. Occidentale* > *C. Gynandra* > *S. Palustris* > *S. Androgynus.* Hence, the findings indicated promising antioxidant activity and total flavonoid content of aqueous extracts of these five traditional salads and *B. Racemosa* is found to have the highest total flavonoid content and antioxidant activity.

LIST OF CONTENTS

CHAPTER 1

INTRODUCTION

1.1 RESEARCH BACKGROUND

Cancer is a disease of the cells. It is defining as a disease in which a group of abnormal cells grow uncontrollably by disregarding the normal rules of cell division. Normal cells are usually subject to signals that shows whether the cell should divide, differentiate into another cell or die. Cancer cells develop a degree of autonomy from these signals, resulting in uncontrolled growth and proliferation. When this proliferation is allowed to spread and continue, it can be fatal (Momna, 2010).

There are a lot of type of cancer such as lung cancer, prostate cancer, breast cancer, cervix cancer, leukimia and a lot of others cancer. This cancer typically can cause death to all these types of cancer's sufferers if not treated at the early stages. According to World Health Organization (WHO), the world cancer statistics shows that cancers figure among the leading causes of morbidity and mortality worldwide, with nearly 14 million new cases and 8.2 million cancer related deaths in 2012. The number of new cases is predictable to rise by about 70% over the next 2 decades. Among men, the 5 most common sites of cancer diagnosed in 2012 were lung, prostate, colorectum, stomach, and liver cancer. Among women the 5 most common sites diagnosed were breast, colorectum, lung, cervix, and stomach cancer. More than 60% of world's total new annual cases occur in Africa, Asia and Central and South America. These regions account for 70% of the world's cancer deaths. It is expected that annual cancer cases will rise from 14 million in 2012 to 22