

**DETERMINATION OF ASCORBIC ACID AND α - TOCOPHEROL IN SELECTED
EDIBLE PLANTS AND THEIR RELATIONSHIP TO ANTIOXIDANT ACTIVITY**

By

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**Final Project Report Submitted in Partial Fulfillment for the Degree of Bachelor of
Science (Hons.) in Food Quality Management, Faculty of Applied Sciences
Universiti Teknologi MARA**

April 2003

ACKNOWLEDGEMENTS

First and foremost, I would like to express my gratitude to Allah S.W.T for guiding me to complete my thesis.

I gratefully acknowledge the wisdom and counsel of my supervisor, Pn. Zaibunnisa Abd. Haiyee who has guided me to complete this study. I wish to express my deepest thanks and appreciation for her invaluable guidance, advice, unreserved assistance and encouragement throughout the period of this study. Without her support and encouragement, this project would have not been accomplished.

I also would like to take this opportunity to express my gratitude for all the laboratory assistants of the Food Technology and Applied Chemistry Departments for their support throughout this study. Special thanks to Pn. Norahiza and Cik Hairiyah who have helped me with the HPLC system.

Lastly, I would like to thank my parents, my brother and sister for their love, thoughtful and steadfast support. I would also like to thanks my housemate and classmate especially Shirariza, Shahiza, Noradilla and Faiza for their companionship and support throughout this project.

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ABSTRACT

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Antioxidant are compounds that found to delay and inhibit the formation of a free radicals, thus giving protection from all kinds of disease. Earlier studies had proven that antioxidant activities were high in vegetables and fruits. This experimental study was conducted to determine ascorbic acid, α - tocopherol in selected edible plants and their relationship to antioxidant activity. The concentration of ascorbic acid determined using 2, titration method in tapioca shoots, cekur manis, selom, kesom, pudina and ulam raja were 192.89, 10.2.00, 68.33, 45.87, 31.67, and 15.60mg/100g, respectively. Alpha – tocopherol content of all samples were determined using Hexane- ethyl- acetate extraction. The concentration of α - tocopherol in cekur manis, selom and ulam raja were 19.23, 10.16 and 7.12mg/100g, respectively. Only trace amount of α - tocopherol found in other samples. Sample were extracted using 80% methanol solution for antioxidant activity determination using β - carotene bleaching method. The sequence of the antioxidant activity in these plants were as follows: kesom, pudina, tapioca shoots, selom, cekur manis and ulam raja. The total antioxidant activity of these plants were compared to α - tocopherol and BHT as standard. This study indicates that the presence of only ascorbic acid or α - tocopherol in that particular plant does not contribute much to its antioxidant activity. The presence of other antioxidant compound like polyphenol or the combination of a few antioxidant compounds in that plant responsible for its high antioxidant activity.

CHAPTER 1

INTRODUCTION

The health benefit of fruit and vegetable have been known for centuries and more recent epidemiological studies clearly demonstrate that plant- based food protect against several chronic disease including cardiovascular disease. Vegetable contain compound that contribute to health and wellness both by their traditional nutritive value and through enhancing the body's defense against chronic disease. The protective action of vegetable has been attributed to the presence of antioxidant, especially antioxidants vitamins including ascorbic acid and α - tocopherol and β - carotene. It is now recognized that fruits and vegetable may at least in part be mediated via their hypocholesterolemic and antioxidant activity.

Antioxidants are compound that inhibit or delay the onset or slow the rate of oxidation of autoxidizable material. There are two basic categories of antioxidants, namely synthetic and natural. In recent years, great interest has been focused on antioxidant vitamins, particularly because of their likely role in the prevention of cancer, heart disease and vascular disease (Gey & Puska, 1989). Each antioxidant is important and each has a separate role in protection against free radical damage.

“Tocopherol” is a term that is used to identify a family eight compounds consisting of α , β , γ , δ - tocopherol and the corresponding tocotrienols. The most