ANTIOXIDATIVE CONSTITUENTS OF *Cosmos caudatus* (Ulam raja) AND *Carica papaya* (Pucuk betik)

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2007

ANTIOXIDATIVE CONSTITUENTS OF *Cosmos caudatus* (ulam raja) AND *Carica papaya* (pucuk betik)

By

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Research Report submitted in partial fulfillment of
the requirements for the degree of
Bachelor of Science (Biological Sciences)

Department of Biological Sciences
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UNIVERSITI MALAYSIA TERENGGANU
2007

This project report should be cited as:

Rini Zunnurni, M. J. 2007. Study on Antioxidative constituents of *Cosmos caudatus* (Ulam raja) and *Carica papaya* (Pucuk betik). Undergraduate thesis, Bachelor of Science (Biological Sciences), Faculty of Science and Technology, University Malaysia Terengganu, Terengganu.

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UNIVERSITI MALAYSIA TERENGGANU

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ACKNOWLEGDEMENT

First of all, thanks to Allah for giving me strength to complete all my work on the time. I would like to express my sincere appreciation and gratitude to my supervisor, Puan Norhayati bt Yusuf for her invaluable advice, comments, guidance and encouragement through this final year project. Her views and advices played an important role in the successful completion of this thesis.

Special thanks go to the laboratory assistant of Biochemistry Laboratory, Puan Fatimah, Puan Ku Naizah and Mr.Mazrul, who helped a lot in the laboratory during the progress of my final year project. Not forgotten, The Golden Hope staffs that assist me in searching the information to complete this thesis, thanks.

I would like to thanks all my beloved friends Nisa, Hidayah, Yana, Liana, Did, Anum, Timah and my housemate who give support and spirit in many way throughout my project. Thank you so much.

Finally I would to express my love and appreciated to my family members especially my parents and my fiancé, Mohd Fazli for their moral and financial support to make this thesis a success.

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LIST OF ABBREVIATIONS

cm	centimeter
%	percentage
µg	microgram
µl	microliter
APX	Ascorbate peroxidase
AsA	Ascorbate
CAT	Catalase
EDTA	Ethylenediaminetetraacetic acid
fwt	Fresh weight
g	gram
GR	Glutathione reductase
H_2O_2	Hydrogen peroxide
l	liter
M	molar
MDAR	Monodehydroascorbate reductase
MDHA	Monodehydroascorbate
mg	miligram
min	minute
ml	miligram
mM	milimolar
NADP	Nicotinamide adenine dinucleotide phosphate
nm	nanometer
O_2	Oxygen
O_2.	Superoxide radical
°C	degree celcius
PDT	3-(2-pyridyl)-5,6-diphenyl-1,2,4 triazine
POD	Guaiacol peroxidase
ROS	Reactive oxygen species
rpm	revolution per minutes
SOD	Superoxide dismutase
t	Time
TCA	trichloroacetic acid
v/v	volume per volume
w/v	weight per volume

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ABSTRACT

Ulam are consumed because of their taste, which adds variety and flavor to the diet, as well as for their health benefits. Studies provided an important information and guidance for medicals industries as well as to promote healthy eating habit. The antioxidative constituents (α-tocopherol, ascorbic acid, carotenoid as well as catalase, guaiacol peroxidase and ascorbate peroxidase specific activity) were detected on the leaf tissues of *Cosmos caudatus* (ulam raja) and *Carica papaya* (pucuk betik). Result showed that *Cosmos caudatus* exhibited significantly higher concentrations of α-tocopherol, catalase and guaiacol peroxidase specific activities compared to *Carica papaya* while ascorbic acid concentrations was significantly higher in *Carica papaya* compared to *Cosmos caudatus*. No significant differences observed in carotenoid content and ascorbate peroxidase activity of *Cosmos caudatus* and *Carica papaya*. Results indicated that *Cosmos caudatus* were high in α-tocopherol concentration, catalase and guaiacol peroxidase specific activity while *Carica papaya* was high in ascorbic acid concentration.

KANDUNGAN ANTIOKSIDAN *Cosmos caudatus* (ULAM RAJA) DAN *Carica papaya* (PUCUK BETIK)

ABSTRAK

Ulam biasanya dimakan sebagai penambah rasa serta kepelbagaian di dalam makanan dan ulam juga mempunyai nilai kesihatan tersendiri. Kajian dijalankan bagi menyediakan panduan dan maklumat penting untuk industri perubatan, disamping itu menggalakkan cara pemakanan yang sihat. Kandungan antioksidan (α-tokoferol, asid askorbik, karotenoid, katalase, guaiacol peroksida dan askorbat peroksida) dikaji pada daun *Cosmos caudatus* (Ulam raja) dan *Carica papaya* (pucuk betik). Kajian menunjukkan *Cosmos caudatus* mengandungi kepekatan α-tokoferol, aktiviti spesifik enzim katalase dan guaiacol peroksida yang lebih tinggi berbanding *Carica papaya* manakala kepekatan asid askorbik didapati lebih tinggi dalam *Carica papaya* berbanding *Cosmos caudatus*. Tiada perbezaan signifikan dalam kandunagn karotenoid dan aktiviti spesifik enzim askorbat peroksida dalam *Cosmos caudatus* dan *Carica papaya*. Hasil kajian menunjukkan *Cosmos caudatus* tinggi kandungan kepekatan α-tokoferol, spesifik aktiviti enzim katalase dan guaiacol peroksida manakala *Carica papaya* mengandungi kepekatan asid askorbik yang tinggi.