

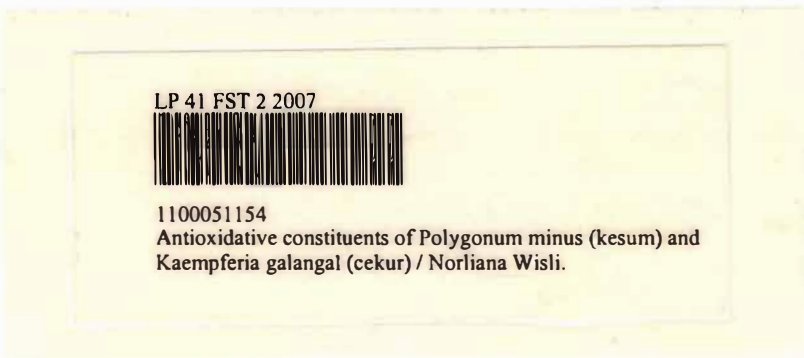
ANTIOXIDATIVE CONSTITUENTS OF
Polygonum minus (KESUM) AND *Kaempferia*
galangal (CEKUR)

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ANTIOXIDATIVE CONSTITUENTS OF *Polygonum minus* (KESUM) AND
Kaempferia galangal (CEKUR)

By

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Research Report submitted in partial fulfillment of
the requirements for the degree of
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UNIVERSITI MALAYSIA TERENGGANU
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FAKULTI SAINS DAN TEKNOLOGI
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RESEARCH REPORT VERIFICATION

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LIST OF ABBREVIATIONS

$\mu\text{g/ml}$	microgram permillilitre
μl	microlitre
$^1\text{O}_2$	singlet oxygen
Abs	Absorbance
APx	Ascorbate peroxidase
ASC	Ascorbate
CAT	catalase
cm	centimeter
Cu	Cuprum
Cu^{2+}	Ion cuprum
DNA	Deoxyribonucleic acid
E	Energy
Fe^{3+}	Ion ferric
Fwt	fresh weight
g	gram
GR	Glutathione Reductase
H_2O_2	Hydrogen peroxide
M	molar
ml	mililitre
mM	mili molar
nm	nanometer
O_2	Oxygen
$^{\circ}\text{C}$	Degree Celsius
OH^{\cdot}	hydroxyl radical
POD	peroxidase
PS	photosystem
SOD	Superoxide Dismutase

TCA

trichloroacetic acid

Zn

Zinc

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ABSTRACT

Polygonum minus and *Kaempferia galangal* not only used as 'ulam' but this herbs are also high in antioxidative constituents that important in medicinal value. The objectives of this research were to determine and to compare the concentrations of α -tocopherol, ascorbic acid and carotenoid content as well as catalase, ascorbate peroxidase (APx), and guaiacol peroxidase (POD) specific activity of *Polygonum minus* (kesum) and *Kaempferia galangal* (cekur). *Polygonum minus* exhibited significantly higher concentrations of ascorbic acid as well as ascorbate peroxidase (APx) specific activities compared to *Kaempferia galangal*. Contrastly, guaiacol peroxidase (POD) specific activity were significantly higher in *Kaempferia galangal* compared to *Polygonum minus*. No significant differences were observed in carotenoid, α -tocopherol, and catalase specific activity of both plants. The results suggest that *Polygonum minus* is a good source of natural dietary antioxidant as compared to *Kaempferia galangal*.

KANDUNGAN ANTIOKSIDAN DALAM *Polygonum minus* (KESUM) DAN *Kaempferia galangal* (CEKUR)

ABSTRAK

Polygonum minus dan *Kaempferia galangal* bukan sahaja digunakan sebagai 'ulam' tetapi tumbuhan ini juga mempunyai kandungan antioksidan yang tinggi dan penting dalam nilai perubatan. Objektif kajian ini adalah untuk menentukan dan membandingkan kepekatan α -tokopherol, asid askorbik, karotenoid dan aktiviti spesifik enzim katalase, askorbat peroksidase (APx) dan guaiacol peroksidase (POD) dalam *Polygonum minus* (kesum) dan *Kaempferia galangal* (cekur). *Polygonum minus* menunjukkan kepekatan asid askorbik dan aktiviti spesifik enzim askorbat peroksidase (APx) yang lebih tinggi berbanding *Kaempferia galangal*. Sebaliknya, *Kaempferia galangal* mempunyai aktiviti spesifik enzim guaiacol peroksidase (POD) yang lebih tinggi berbanding *Polygonum minus*. Tiada perbezaan yang bererti dapat diperhatikan dalam kandungan karotenoid, α -tokoferol dan aktiviti spesifik enzim katalase dalam kedua-dua tumbuhan. Keputusan menunjukkan *Polygonum minus* adalah merupakan sumber diet yang mengandungi antioksidan semula jadi yang lebih baik berbanding *Kaempferia galangal*.