

ANTIBIOTIC RESISTANCE OF *Staphylococcus aureus* (GENUS *Staph.*) AND *Enterococcus faecalis* (GENUS *Enteroc.*)

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ANTIOXIDATIVE CONSTITUENTS OF *Souropus androgynus* (CEKUR MANIS)
AND *Piper sarmentosum* (KADUK)

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Adalah ini diakui dan disahkan bahawa laporan penyelidikan bertajuk: **ANTIOXIDATIVE CONSTITUENTS OF *Souropus androgynus* (CEKUR MANIS) AND *Piper sarmentosum* (KADUK)**. Oleh **NOLIANA BINTI ABD. RAZAK**. no. matrik: **UK10216**. telah diperiksa dan semua pembetulan yang disarankan telah dilakukan. Laporan ini dikemukakan kepada Jabatan Sains Biologi sebagai memenuhi sebahagian daripada keperluan memperolehi Ijazah **SARJANA MUDA SAINS (SAINS BIOLOGI)**, Fakulti Sains dan Teknologi, Universiti Malaysia Terengganu.

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CURRICULAR VITAE

LIST OF ABBREVIATIONS

%	-	Percentage
µg	-	Microgram
µg/g	-	Microgram pergram
µg/ml	-	Microgram permililiter
µl	-	Microliter
¹ O ₂	-	Singlet oxygen
APx	-	Ascorbate Peroxidase
ASA	-	Ascorbate
CAT	-	Catalase
cm	-	Centrimeter
DNA	-	Deoxybonucleic acid
fw	-	Fresh weight
g	-	gram
GR	-	Glutathione Reductase
H ₂ O ₂	-	Hidrogen peroxide
mg	-	Miligram
mg/g	-	Miligram pergram
Mg/l	-	Miligram perliter
mg/ml	-	Miligram permililiter
ml	-	Mililiter
mM	-	Milimolar
nm	-	Nanometer
O ₂ ⁻	-	Superoxide radical
°C	-	Degree celcius
PDT	-	3-(2-Pyridyl)-5,6-dipeny-1,2,4 trianzine
POX	-	Peroxidase
ROS	-	Reactive Oxygen Species
rpm	-	Revolution per minutes
SOD	-	Superoxide Dismutase

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ABSTRACT

Dietary antioxidants include enzymatic and non-enzymatic antioxidant as well as bioactive plant phenols. The health benefits of 'ulam' are largely due to the antioxidant vitamins supported by the large number of phytochemicals, some with greater antioxidant properties. So, the objective of this study were to determine and to compare the level of antioxidative constituents; carotenoid, ascorbic acid, α -tocopherol concentration as well as catalase (CAT), ascorbate peroxidase (APx) and guaiacol peroxidase (POD) specific activities in *S. androgynus* and *P. sarmentosum*. *P. sarmentosum* contained significantly higher concentration of carotenoid as well as POD specific activity while *S. androgynus* contained significantly higher CAT specific activity compared to *P. sarmentosum*. There were no significant differences in ascorbic acid and α -tocopherol concentration, as well as in APx specific activity in *P. sarmentosum* and *S. androgynus*. Results revealed that both 'ulam' are a good sources of a natural dietary antioxidant for human.

KANDUNGAN ANTIOKSIDAN *Souropus androgynus* (CEKUR MANIS) dan *Piper sarmentosum* (KADUK)

ABSTRAK

Antioksidan dalam diet termasuk enzim dan bukan enzim antioksidan dan juga bioaktif fenol tumbuhan. Ulam mempunyai faedah yang sangat besar kepada kesihatan disebabkan oleh kandungan vitamin antioksidan dan disokong oleh kandungan fitokimia yang banyak dan setengahnya mempunyai lebih banyak sifat antioksidan. Oleh itu objektif kajian ini adalah untuk menentukan dan membandingkan kandungan antioksidan; karotenoid, asid askorbik, α - tokoferol dan aktiviti spesifik enzim katalase (CAT) , askorbat peroksida (APx) and guaiacol peroksida (POD) dalam *S. androgynus* dan *P. sarmentosum*. *P. sarmentosum* mengandungi kepekatan karotenoid dan aktiviti spesifik enzim POD yang lebih tinggi manakala *S. androgynus* mengandungi aktiviti spesifik enzim CAT yang lebih tinggi berbanding dengan *P. sarmentosum*. Tiada perbezaan signifikan dalam kepekatan asid askorbik dan α -tokoferol juga aktiviti spesifik enzim APx di dalam daun *P. sarmentosum* dan *S. androgynus*. Keputusan menunjukkan bahawa semua ulam adalah merupakan sumber antioksidan semulajadi yang baik dalam diet manusia.