

RESEARCH ON THE  
EFFECTS OF  
THE

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Comparison of antioxidant activities in different species mushrooms in the market / Lee Sook Hui.

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**COMPARISON OF ANTIOXIDANT ACTIVITIES IN DIFFERENT  
SPECIES MUSHROOMS IN THE MARKET**

**By**

**LEE SOOK HUI**

**RESEARCH PROJECT** submitted in partial fulfillment of the requirements for the  
Degree of Bachelor of Food Science  
(Food Service and Nutrition)

**FAKULTI AGROTEKNOLOGI DAN SAINS MAKANAN  
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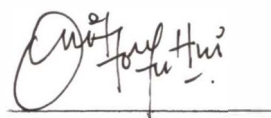
**DECLARATION**

I hereby declare that this research project is based on my original work except for quotations and summaries which have been duly acknowledged. I also declare that it has not been previously or concurrently submitted for any degree at UMT or other institutions.

25<sup>th</sup> June 2007

LEE SOOK HUI

UK 9517

A handwritten signature in black ink, appearing to read 'Lee Sook Hui', is written over a horizontal line.

25<sup>th</sup> June 2007

Approved by,

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MR. MOHAMAD KHAIRI BIN MOHAMAD ZAINOL

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## ABSTRACT

Four different species mushroom in the market including ear mushroom (*Auricularia auricula*), enoki (*Flammunila velutipes*), shiitake (*Lentinula edodes*), and tree oyster mushroom (*Pleurotus pulmonarius*) were obtained and methanolic extracts were prepared from these mushrooms and their antioxidant properties were studied. The antioxidant activities by  $\beta$ -carotene bleaching method or known as  $\beta$ -carotene linoleate model system were low to moderate at concentration with 2mg/ml (6.45% - 45.16%), moderate at 4mg/ml (46.34% - 56.10%). At the concentration with 6mg/ml, the antioxidant activities were low from 18.18% for *A. auricula* to high 90.91% for *F. velutipes* and the antioxidant activities were moderate to high at 8mg/ml (40.54% - 70.68%). Scavenging effects on 1, 1-diphenyl-2-picrylhydrazyl (DPPH) radicals were moderate (48.99% - 55.74%) at the concentration of 4mg/ml and among the samples tested *A.auricula* was the best mushroom type compared to others. With regards to Ferric Thiocyanate (FTC) method, the antioxidant activities were as *A. auricula* > *L. edodes* > *P. pulmonarius* > *F. velutipes* respectively. As a result, the *A. auricula* has an excellent antioxidant activity compared to others species mushroom in this research.

## PERBANDINGAN AKTIVITI ANTIOKSIDA DALAM SPESIES CENDAWAN YANG BERLAINAN DALAM PASARAN

### ABSTRAK

Empat jenis cendawan berlainan spesies termasuk cendawan berbentuk telinga (*Auricularia auricula*), enoki (*Flammunila velutipes*), shiitake (*Lentinula edodes*), dan cendawan tiram (*Pleurotus pulmonarius*) yang diperolehi dalam pasaran dikaji. Ekstrak methanol disediakan daripada empat jenis cendawan tersebut serta aktiviti antioksidanya telah dikaji. Aktiviti antioksidanya bagi cara  $\beta$ -carotene bleaching method atau dikenali sebagai  $\beta$ -carotene linoleate model system adalah rendah ke sederhana tinggi pada kepekatan sampel 2mg/ml (6.45%-45.16%), sederhana tinggi pada kepekatan sampel 4mg/ml (46.34%-56.10%). Pada kepekatan 6mg/ml, aktiviti antioksidanya adalah rendah pada *A. auricula* iaitu 18.18% kepada 90.91% bagi *F. velutipes* dan aktiviti antioksidanya adalah sederhana tinggi ke tinggi pada 8mg/ml (40.54%-70.68%). Kesan scavenging kepada 1,1-diphenyl-2-picrylhydrazyl (DPPH) radikal bebas adalah sederhana tinggi (48.99% - 55.74%) pada kepekatan 4mg/ml dan antara kesemua jenis cendawan yang dikaji, *A. auricula* merupakan jenis cendawan yang terbaik berbanding dengan cendawan lain. Berdasarkan cara Ferric Thiocyanate (FTC), antioksidanya aktiviti adalah seperti berikut *A. auricula* > *L. edodes* > *P. pulmonarius* > *F. velutipes*. Kesimpulannya, *A. auricula* merupakan cendawan yang paling baik aktiviti antioksidanya berbanding cendawan yang berlainan spesies dalam kajian ini.