

THE ANTHRAQUINONE COMPOUNDS OF *Melastoma
malabanicum* L. (SEMPUDUK) IN LEAF TISSUES
(WHITE AND PURPLE PETALS)

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THE ANTIOXIDATIVE COMPOUNDS OF *Melastoma malabathricum* L.
(SENDUDUK) IN LEAF TISSUES (WHITE AND PURPLE PETAL).

By
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A thesis submitted in partial fulfillment of
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RESEARCH REPORT VERIFICATION

Adalah ini diakui dan disahkan bahawa laporan penyelidikan bertajuk: **THE ANTIOXIDATIVE COMPOUNDS OF *Melastoma malabathricum* L. (SENDUDUK) IN LEAF TISSUES (WHITE AND PURPLE PETAL)** oleh **NURUL AIZAM IDAYU BINTI MAT SANI**, no. matrik: **UK12493** telah diperiksa dan semua pembedaan yang disarankan telah dilakukan. Laporan ini dikemukakan kepada Jabatan Sains Biologi sebagai memenuhi sebahagian daripada keperluan memperoleh ijazah **SARJANA MUDA SAINS (SAINS BIOLOGI)**, Fakulti Sains dan Teknologi, Universiti Malaysia Terengganu.

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DECLARATION

I hereby declare that this thesis entitled of **Antioxidative compounds of *Melastoma malabathricum* L. (senduduk) in leaf tissues (white and purple petal)** is the results of my own research except as cited in the references.

Signature : 

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Date : 18TH MAY 2008

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ABSTRACT

The health promoting effect of antioxidants from plants is thought to arise from their potential effects on the reactive oxygen species (ROS). Currently, the use of natural antioxidant, particularly, the phenolic substances including non-enzymatic and enzymatic in food, as well as preventive and therapeutic medicine, is gaining much recognition because of their health benefits. The objectives of this study are to determine and compare the antioxidative compounds [(carotenoid, ascorbic acid, α -tocopherol as well as specific activity of catalase (CAT), ascorbate peroxidase (APx) and guaiacol peroxidase (POD)] in leaves of *Melastoma malabathricum* L. (senduduk) of white and purple petal. Leaves of white petal contained significantly ($p < 0.05$) higher concentration of ascorbic acid and carotenoid as well as catalase (CAT) specific activity compared to purple petal. There were no significant ($p > 0.05$) differences in α -tocopherol concentration, as well as APx and POD specific activity in leaves of white and purple petal. Above results indicated that both species of herbs are good sources of an antioxidant to overcome the action of ROS.

ABSTRAK

Antioksidan daripada tumbuhan boleh meningkatkan tahap kesihatan hasil dari keupayaan untuk menghalang spesies oksigen reaktif (ROS). Kini, penggunaan antioksidan asli, sebahagiannya bahan fenolik termasuk antioksidan berenzim dan antioksidan bukan berenzim di dalam makanan, juga sebagai pencegah dan ubatan terapeutik, semakin dikenali kerana faedah kesihatannya. Objektif kajian ini adalah untuk menentukan dan membandingkan kandungan antioksidan [karotenoid, asid ascorbik, α -tokoferol dan aktiviti spesifik enzim katalase (CAT), askorbat peroksida (APx) dan guaiakol peroksida (POD)] dalam tisu daun *Melastoma malabathricum* L. (senduduk) terutamanya bunga ungu dan putih. Daun bunga putih mengandungi kepekatan asid askorbik dan karotenoid serta aktiviti spesifik enzim CAT yang lebih tinggi secara bererti ($p < 0.05$) berbanding dengan daun bunga ungu. Tiada perbezaan bererti ($p > 0.05$) dalam kepekatan α -tokoferol, dan juga aktiviti spesifik enzim APx dan POD dalam kedua-dua daun ungu dan putih. Keputusan membuktikan bahawa kedua-dua pokok herba merupakan sumber antioksidan semulajadi untuk mengatasi tindakan spesies oksigen reaktif.