

THE EFFECT OF FIRE AND MECHANICAL DAMAGES TO  
Reinforced Concrete (R.C.) Columns  
DEPARTMENT OF ENGINEERING

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THE EFFECT OF FIRE AND MECHANICAL DAMAGES TO *Melaleuca  
leucodendron* (L.) L. IN HEATH VEGETATION OF TERENGGANU

By

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Adalah ini diakui dan disahkan bahawa laporan penyelidikan bertajuk:

**The Effect of Fire and Mechanical Damages to *Melaleuca leucodendron* (L.) L. in Heath Vegetation of Terengganu**, oleh **Amiruddin Bin Abu Hasan**, No. Matrik: **UK 6900** 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 Gunaan (Pemuliharaan dan Pengurusan Biodiversiti)**, Fakulti Sains dan Teknologi, Kolej Universiti Sains dan Teknologi Malaysia.

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## ABSTRACT

The effect of fire and mechanical damage (stem removal and stem wound) was studied on *Melaleuca leucodendron*, a dominant species of heath vegetation of Terengganu. Wild fire induced shoot production from main stem. Over time post fire, shoots increased in number but decreased in their life span. Resprouting was monitored following stem removal of *M. leucodendron* saplings, 98.5 cm average in height. Half height stem removal produced more sprout than total stem removal treatment. For half height stem removal, saplings have higher ability to produce more sprouts compared with total stem removal only half of them produced sprout. Beside that many saplings from total stem removal did not survive because their stem submerged in flood. Wound closure in *M. leucodendron* achieved by compartmentalization of callus (from wood cambium) over wound and formation of wound periderm in the bark (phloem), first observed after 2 weeks of wounding. Wound closure rate by callus was approximately 3 mm per week. Results obtained could be useful in its potential in land rehabilitation or greening, as well as in biological control of this species in near future.

## KESAN KEBAKARAN DAN KECEDEeraan MEKANIKAL KE ATAS

### *Melaleuca leucodendron* (L.) L. DI VEGETASI PADANG TERENGGANU

#### ABSTRAK

Kajian kesan kebakaran dan kecederaan mekanikal (keratan batang dan luka) dijalankan ke atas *Melaleuca leucodendron*, spesies dominan vegetasi hutan padang Terengganu. Kebakaran mengaruh pengeluaran tunas daripada batang utama *M. leucodendron* dengan peningkatan bilangan dan pengurangan jangka hayat tunas berkadar dengan masa. Keratan pada separuh ketinggian dan keseluruhan batang utama anak pokok *M. leucodendron* pada ketinggian purata 98.5 cm menunjukkan anak pokok mengeluarkan tunas dengan banyak dan produktif bagi keratan pada separuh ketinggian, bagi keratan keseluruhan batang pula, hanya sebahagian anak pokok sahaja yang mengeluarkan tunas, manakala sebahagian lagi ada yang mati akibat terendam terlalu lama di dalam banjir. *M. leucodendron* menutup luka secara pembentukan lapisan periderma baru dari floem dan kalus daripada kambium bahagian xilem. Kadar penutupan ialah pada anggaran 3 mm per minggu. Maklumat daripada kajian penting untuk potensi penggunaan spesies ini dalam pemuliharaan tanah dan kawalan biologi populasi ini, disokong dengan kajian lanjut pada masa hadapan.