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Mycorrhizal spore abundance under Acacia plantation on bris soil of Setiu, Terengganu / Azalina Main.

Lihat sebelah

MYCORRHIZAL SPORE ABUNDANCE UNDER *Acacia* PLANTATION ON BRIS SOIL OF SETIU, TERENGGANU

By

Azalina Binti Main

Research Report submitted in partial fulfillment of
the requirements for the degree of
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Department of Biological Sciences
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PENGAKUAN DAN PENGESAHAN LAPORAN PROJEK PENYELIDIKAN I DAN II

Adalah ini diakui dan disahkan bahawa laporan penyelidikan bertajuk: MYCORRHIZAL SPORE ABUNDANCE UNDER *Acacia* PLANTATION ON BRIS SOIL OF SETIU, TERENGGANU oleh Azalina Binti Main, no. matrik UK 8727 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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LIST OF ABBREVIATIONS

°C	-	degree Celsius
cm	-	centimeter
dbh	-	diameter breast height
E	-	East
g	-	gram
ha	-	hectare
km	-	kilometer
m	-	meter
mm	-	millimeter
N	-	North
P	-	Phosphorus
RPM	-	rotation per minute
µm	-	micrometers
%	-	percentages

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ABSTRACT

This study has been conducted to screen mycorrhizal spore abundance *Acacia* plantation on BRIS soil of Setiu, Terengganu. Soil samples were collected under plantations of three *Acacia* species of *Acacia mangium, A. hybrid* and *A. auriculiformis* that were subjected to four mycorrhizae treatments; vesicular arbuscular mycorrhizae (VAM), ectomycorrhizae (ECM), ectoendomychorrhizae (ECM-VAM) and control sample without mycorrhizae addition. Soil samples were collected at two relatively differ rainfall, rainy season (November, 2005) and drier season (February, 2006). Spore from Glomales familiy were represented by four species with *Glomus* sp. being the most abundant followed by *Acaulospora* sp., *Gigaspora* sp. and *Scutellospora* sp. In ECM treatment, both periods recorded the highest number of spores with 115 on rainy season compare to 142 in drier season. The lowest number of spores has been recorded in soil subjected to VAM treatment in both seasons. Under *A. mangium*, rainy season showed the highest number of spores and the number of spores was similar between seasons under *A. hybrid*. In contrast, *A. auriculiformis* showed the highest number of spores in drier season. The differences in spore numbers mycorrhizal fungus species and mycorrhizal treatments indicate the possibility of mycorrhizal application to improve BRIS soil fertility.

KELIMPAHAN SPORA MIKORIZA DI BAWAH TANAMAN *Acacia* DI ATAS TANAH BRIS SETIU, TERENGGANU

ABSTRAK

Kajian ini dilakukan untuk meneliti kelimpahan spora mikoriza di bawah tanaman *Acacia* di atas tanah BRIS di Setiu, Terengganu. Sampel tanah diambil di bawah tiga tanaman spesies *Acacia* iaitu *Acacia mangium*, *A. hybrid*, dan *A. auriculiformis* yang telah diletakkan dengan empat jenis rawatan mikoriza iaitu mikoriza-vesikular arbuskular (VAM), ektomikoriza (ECM), ektoendomikoriza (ECM-VAM) dan sampel kawalan tanpa rawatan mikoriza. Sampel tanah diambil pada dua perbezaan taburan hujan; musim hujan (November, 2005) dan musim kering (Februari, 2006). Kehadiran spora dari famili Glomales dengan empat jenis berjaya dicerap iaitu *Glomus* sp. mencatatkan bilangan yang paling banyak diikuti *Acaulospora* sp., *Gigaspora* sp. dan *Scutellospora* sp. Di dalan rawatan ECM, kedua-dua musim merekodkan bilangan spora yang paling tinggi dengan 115 pada musim hujan dan 142 pada musim kering. Bilangan spora yang paling rendah dicatatkan pada rawatan VAM di kedua-dua musim. Di bawah *A. mangium*, musim hujan menunjukkan bilangan spora yang paling tinggi, manakala bilangan spora bagi *A. hybrid* mempunyai bilangan spora yang hampir sama di antara dua musim. Berbeza pula bagi *A. auriculiformis* menunjukkan bilangan spora yang paling tinggi pada musim kering. Perbezaan bilangan spesies spora dan rawatan mikoriza menunjukkan penggunaan mikoriza dapat memperbaiki kesuburan tanah di atas tanah BRIS.