

GROWTH AND UPTAKE OF NITROGEN IN MANGROVE
PROPAGULES OF FAMILY RHIZOPHORACEAE

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OF FAMILY RHIZOPHORACEAE

PREPARED BY

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A project report submitted in partial fulfillment of the
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BORANG PENGESAHAN DAN KELULUSAN LAPORAN

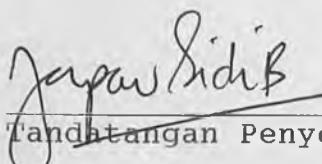
AKHIR PROJEK

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Mangrove Propagules Of Family
Rhizophoraceae

Dengan ini disahkan bahawa saya telah menyemak laporan projek ini dan

(i) Semua pembetulan yang disarankan oleh pemeriksa-pemeriksa telah dibuat, dan

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Tandatangan Penyelia

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Tarikh

UNTUK ALLAH YANG ESA, FAMILI TERSAYANG DAN KAWAN YANG
TERSAYANG.....

TERIMAKASIH

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Wassalam

A handwritten signature in black ink, appearing to read "Nurul Huda".

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ABSTRACT

A study of the growth and uptake of nitrogen of four mangrove propagules of Rhizophora mucronata, R. apiculata, Bruguiera gymnorhiza and B. parviflora in response to different nitrogen levels of 0.12% (control), 0.24% and 0.36% (with urea application) were conducted under control condition in the nursery house of the Faculty of Forestry, Universiti Pertanian Malaysia.

Two studies comprising of a short term experiment and a long term experiment were done. In the short term experiment, apical growth in R. apiculata did not show parallel trend with increase in the level of nitrogen. Apical growth were observed to be higher in lower levels of nitrogen (0.12%) when compared to the one in higher nitrogen levels. However, for R. mucronata, the apical growth were observed to be higher in higher nitrogen levels of nitrogen (0.24% and 0.36%). For B. gymnorhiza and B. parviflora the apical growth are similar in all levels of nitrogen.

For the nitrogen uptake in the mangrove, it was observed that the nitrogen uptake did not increase with increased level of nitrogen and if compared between species, Bruguiera gymnorhiza has the highest nitrogen uptake among three mangrove species.

In the long term experiment, irrespective of mangrove species and duration of the experiment, the nitrogen uptake varied in the different components of the plants and categorically ranked in the order of higher to lower as leaf > branch > root > stem.

ABSTRAK

Satu kajian telah dijalankan terhadap kadar tumbesaran dan pengambilan nitrogen dalam propagiul Rhizophora mucronata, Rhizophora apiculata, Bruguiera gymnorhiza dan Bruguiera parviflora berlawanan dengan tahap nitrogen yang berlainan 0.12% (dalam kawalan), 0.24% dan 0.36% (dengan aplikasi urea). Kajian ini dijalankan di rumah semaihan Fakulti Perhutanan, Universiti Pertanian Malaysia.

Kajian ini terdiri daripada dua eksperimen iaitu jangkamasa pendek dan jangkamasa panjang. Dalam eksperimen jangkamasa pendek, tumbesaran apikal untuk Rhizophora apiculata, tidak menunjukkan corak yang selari dengan peningkatan tahap nitrogen di mana tumbesaran apikal didapati lebih tinggi pada tahap nitrogen yang lebih rendah (0.12%) jika dibandingkan dengan tahap rawatan nitrogen yang lebih tinggi. Walau bagaimanapun, untuk Rhizophora mucronata tumbesaran apikal adalah lebih pada rawatan nitrogen yang lebih tinggi (0.24% dan 0.36%). Manakala untuk B. gymnorhiza dan B. parviflora tumbesaran apikal adalah sama dalam semua tahap rawatan nitrogen.

Sementara itu, untuk pengambilan nitrogen didapati pengambilan nitrogen tidak meningkat dengan peningkatan tahap nitrogen dan jika perbandingan spesies dibuat, Bruguiera gymnorhiza mempunyai nilai

pengambilan nitrogen yang tertinggi antara spesies.

Dalam eksperimen jangkamasa panjang, jika dibanding terhadap kadar pengambilan nitrogen di antara komponen dan jangka masa eksperimen, ia boleh disusun dari nilai pengambilan nitrogen tertinggi ke yang terendah iaitu daun > dahan > akar > batang.