

GROWTH AND UPTAKE OF NITROGEN IN MANGROVE
PROPAGULES OF FAMILY RHIZOPHORACEAE

NURRIDAN BT. ABDUL HAN

FACULTY OF FISHERIES AND MARINE SCIENCE
UNIVERSITI PERTANIAN MALAYSIA
SERDANG, SELANGOR

1993/94

TERENGGANU

GROWTH AND UPTAKE OF NITROGEN IN MANGROVE PROPAGULES
OF FAMILY RHIZOPHORACEAE

PREPARED BY

NURRIDAN BT. ABDUL HAN

A project report submitted in partial fulfillment of the
requirements for the degree of Fisheries and Marine
Science

FACULTY OF FISHERIES AND MARINE SCIENCE
UNIVERSITI PERTANIAN MALAYSIA, SERDANG, 1994

1994

1100023776

0200003132

UNIVERSITI PERTANIAN MALAYSIA
FAKULTI PERIKANAN DAN SAINS SAMUDERA
PSF 499 - PROJEK DAN SEMINAR

BORANG PENGESAHAN DAN KELULUSAN LAPORAN
AKHIR PROJEK

Nama penuntut : Nurridan Abdul Han
No Matrik : 24621
Nama Penyelia : Dr. Japar Sidik Bujang
Tajuk Projek : Growth And Uptake Of Nitrogen In
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

(ii) laporan ini telah mengikut format yang diberikan dalam panduan PSF 499 - Projek Dan Seminar, 1991, Fakulti Perikanan Dan Sains Samudera


Tandatangan Penyelia

28/4/94
/ Tarikh

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

TERIMAKASIH

ACKNOWLEDGEMENT

I would like to extend my greatest thanks to my supervisor, Dr. Japar Sidik Bujang for his support and guidance throughout the study and preparation of this project.

I am also indebted to all the people who have helped in one way or another and the kind assistance of Encik Abdul Kadir Yusuf of Faculty of Forestry and all the staff of Faculty of Fisheries.

Finally, my gratitude to my parents, husband, families and friends for their help and support.

Thanks everyone.

Wassalam

A handwritten signature in black ink, appearing to be 'Nurhidayah' or similar, written in a cursive style.

28/4/94

ABSTRACT

A study of the growth and uptake of nitrogen of four mangrove propagules of Rhizophora mucronata, R. apiculata, Bruquiera 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 and 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, Bruquiera 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, Bruquieria gymnorrhiza dan Bruquieria parviflora berlawanan dengan tahap nitrogen yang berlainan 0.12% (dalam kawalan), 0.24% dan 0.36% (dengan aplikasi urea). Kajian ini dijalankan di rumah semaian 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. gymnorrhiza 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, Bruquieria gymnorrhiza mempunyai nilai

pengambilan nitrogen yang tertinggi antara spesies.

Dalam eksperimen jangka masa 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.