

DETECTION OF ENDOGENOUS HORMONE IN THE CALYX
OF ROSELLE, *Hibiscus sabdariffa* L.

CHIN YEE WAN

DEPARTMENT OF BIOLOGICAL SCIENCE
FACULTY OF SCIENCE AND TECHNOLOGY
UNIVERSITI PUTRA MALAYSIA TERENGGANU
TERENGGANU
1999/2000

Ch: 791

1100024413

LP 4 FST 1 2000



1100024413

Detection of Endogenous Hormone in the Calyx of Roselle,
Hibiscus sabdariffa L. / Chin Yee Wan.



1100024413

PERPUSTAKAAN KOLEJ UNIVERSITI SAINS & TEKNOLOGI MALAYSIA (KUSTEM)			
Pengarang <i>Chin Yee Wan</i>		No. Panggilan <i>Ch 791</i> <i>LP</i> <i>21</i> <i>FST</i>	
Judul			
Tarikh	Waktu Pemulangan	Nombor Ahli	Tanda tangan
<i>19/5/2010</i>	<i>11:10 am -</i> <i>11:45 am</i>	<i>UK 17137</i>	<i>[Signature]</i>

LP
4
FST 1
2000

**DETECTION OF ENDOGENOUS HORMONE IN THE CALYX OF
ROSELLE, *Hibiscus sabdariffa* L.**

CHIN YEE WAN

**DEPARTMENT OF BIOLOGICAL SCIENCE,
FACULTY SCIENCE AND TECHNOLOGY,
COLLEGE UNIVERSITY TERENGGANU,
UNIVERSITY PUTRA MALAYSIA.**

2000

1100024413

**DETECTION OF ENDOGENOUS HORMONE IN THE
CALYX OF ROSELLE, *Hibiscus sabdariffa* L.**

BUKTI PENYEMPULAN DAN BELEKUNAN
LATIHAN ANHAR PERIKEN

BY

CHIN YEE WAN

DR. AWANG SOE BIN MASLAI

DETECTION OF ENDOGENOUS HORMONE IN
THE CALYX OF ROSELLE, *Hibiscus sabdariffa* L.

**This project report is submitted in partial fulfilment of
the requirements for the Degree of
Bachelor of Science (Hons) Biology**

**DEPARTMENT OF BIOLOGICAL SCIENCE,
FACULTY SCIENCE AND TECHNOLOGY,
COLLEGE UNIVERSITY TERENGGANU,
UNIVERSITY PUTRA MALAYSIA.**

2000

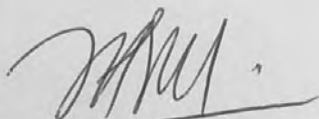
**JABATAN SAINS BIOLOGI
FAKULTI SAINS DAN TEKNOLOGI
KOLEJ UNIVERSITI TERENGGANU
UNIVERSITI PUTRA MALAYSIA TERENGGANU**

**BORANG PENGESAHAN DAN KELULUSAN
LAPORAN AKHIR PROJEK**

Nama Pelajar : **CHIN YEE WAN**
No. matrik : **UK 840**
Nama Penyelia : **DR. AWANG SOH BIN MAMAT**
Tajuk Projek : **DETECTION OF ENDOGENOUS HORMONE IN
THE CALYX OF ROSELLE, *Hibiscus sabdariffa* L.**

Dengan ini disahkan bahawa saya telah menyemak laporan projek ini dan

- i. semua pembetulan yang disarankan oleh pemeriksa-pemeriksa telah dibuat,
- ii. laporan in telah mengikut format yang diberikan dalam panduan BIO 4999 (projek) Jabatan Sains Biologi, Fakulti Sains dan Teknologi, Kolej Universiti Terengganu, Universiti Putra Malaysia Terengganu 1999/2000.



Dr. Awang Soh bin Mamat
Penyelia Utama

Tarikh: 16.4.2000

ACKNOWLEDGEMENT

I thank God for my blessed supervisor, Dr. Awang Soh bin Murnat and his warm and caring wife, whose dedicated and patient guidance, assistance and endless encouragement in the course of this study, seemed endless. Your humour is had certainly kept me hanging in there! Thank you!

Special thanks go out to Dr. Ku Halim Ku Bulat for his knowledge and expertise advice when I had truly needed it. Also not forgetting some of the faculty staff members-

Prof. Mazlan, "Your word is a lamp to my feet,
Termin Abd. Manan, "And a light to my path..." - Psalms 119:105
Prof. Mohd. Razaf. En. Mohd. professionalists
in the lab.

With immeasurable joy, my heartiest appreciation to

Dad, Mum, Ling and..... *Father LORD in Heaven*, love and prayers in
upholding are so faithfully ever..... *Pa and Ma* difficult at times.

..... *Ling and Bin*

My dear friends, Ah Ai, IC, Ah Joo, Ah Kim, Rina, Yap Nelson, Choo
Heng and Kelvin for being for being a "friend"! Thank you for enriching my life!!!
All the best in your future undertakings as we part to heed your various vocations in
life. My CF, thank you for your supportive prayers. Keep on praying.

★ Above all else, God, thank you for making all things possible!

ACKNOWLEDGEMENT

I thank God for my blessed supervisor, Dr. Awang Soh bin Mamat and his warm and caring wife, whose dedicated and patient guidance, assistance and zealous encouragement in the course of this study, seemed endless. Your humour sir had certainly kept me hanging in there! Thank you!

Special thanks go out to Dr. Ku Halim Ku Bulat for his knowledge and expertise advice when I had truly needed it. Also not forgetting some of the faculty staff members-En. Mazrol Azwardy Mamat, En. Syed Ahmad Rizal, En. Mohd. Tarmizi Abd. Manaf and En. Mohd. Ruzieman Abd. Manaf for their professionalism in the lab.

Dad, Mum, Ling and Bin, thank you for the support, love and prayers in upholding me so faithfully even though I had been difficult at times.

My dear friends, Ah Ai, TC, Ah Joo, Ah Kim, Rine, Yap. Nelson, Choon Hiang and Kelvin for being for being a 'friend'! Thank you for enriching my life!!! All the best in your future undertakings as we part to heed your various vocations in life. My CF, thank you for your supportive prayers. Keep on praying.

Above all else, God, thank you for making all things possible!

ABSTRAK

Pengesahan kehadiran dua jenis hormon endogenus, iaitu Auksin (IAA) dan Absisik Asid (ABA) dan kesan rawatan Giberelin dan Paclobutrazol terhadap kandungan ABA dalam kaliks Roselle telah dikaji. Kaedah spektrofotometer ultra lembayung-cahaya nampak dan spektrofotometer inframerah telah digunakan dalam pengesahan kehadiran IAA. Manakala hanya kaedah spektrofotometer ultra lembayung-cahaya nampak digunakan dalam pengesahan kehadiran ABA. Spektrum ultra lembayung-cahaya nampak bagi kedua-dua sample kaliks yang telah dirawat dengan GA₃ dan PP333 menunjukkan kehadiran IAA dan ABA dengan jelasny. Namun demikian, anjakan penyerapan telah dikesan dalam kedua-dua analisis. Ini mungkin disebabkan oleh faktor pembolehubah seperti anjakan pelarut, penggantian kumpulan berfungsi jenis penerima elektron atau penderma elektron pada struktur hormon. Spektrofotometer inframerah telah digunakan untuk mengesah kehadiran kumpulan berfungsi spesifik dalam sampel. Spektrum inframerah bagi GA₃ dan PP333 menunjukkan kehadiran kumpulan karboksilik, nitril dan gelang aromatik. Kumpulan berfungsi ini adalah seiras dengan struktur IAA. Kesimpulannya, kedua-dua sampel kaliks yang telah dirawat dengan GA₃ dan PP333 menunjukkan kehadiran IAA dan ABA. Didapati wujudnya korelasi positif antara kepekatan PP333 dan kandungan ABA. Sebaliknya, wujud korelasi negatif antara kepekatan GA₃ dan kandungan ABA.

ABSTRACT

The qualitative detection of the presence of two types endogenous hormone, Auxin (IAA) and Absciscic Acid (ABA) was carried out and the effects of exogenous Gibberelin and Paclobutrazol treatment on the content of ABA in the calyx of Roselle was studied. The Ultraviolet-Visible Spectrophotometry and Infrared Spectrophotometry method were applied in detecting the presence of IAA. Whilst only the Ultraviolet-Visible Spectrometry method was used in detecting the presence of ABA. The Ultraviolet-Visible spectrums of both GA₃ and PP333 treated calyx samples showed a presence of IAA and ABA. Nonetheless, peak shifts were detected in both cases. This maybe due to variables such as solvent shifts and the substitution of other electron accepting or donating functional groups. Thus the Infrared Spectrometry was used to further confirm the specific functional groups present in both samples. The Infrared spectrums of GA₃ and PP333 showed the presence of a carboxylic acid group, a nitrile group and an aromatic ring, which is consistent with the structure of IAA. In conclusion, both of the GA₃ and PP333 treated calyx samples the presence of IAA and ABA was detected. It was also observed that there is a positive correlation between the concentration of PP333 and the content of ABA. On the contrary, there is a negative correlation between the concentration of GA₃ and the content of ABA.