

การเพาะเลี้ยงเนื้อเยื่อมะขามแขกและการวิเคราะห์หาปริมาณ
แอนทราควิโนนในเนื้อเยื่อเพาะเลี้ยงและในฝักมะขามแขก



นางสาวสุปรียา บ่อมประเสริฐ

วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปริญญาวิทยาศาสตรมหาบัณฑิต

ภาควิชาเภสัชเวท

บัณฑิตวิทยาลัย จุฬาลงกรณ์มหาวิทยาลัย

พ.ศ. ๒๕๓๖

ISBN 974-583-293-6

ลิขสิทธิ์ของบัณฑิตวิทยาลัย จุฬาลงกรณ์มหาวิทยาลัย

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117869680

TISSUE CULTURES OF *Cassia angustifolia* VAHL AND
QUANTITATIVE ANALYSIS OF ANTHRAQUINONES IN THE CULTURES
AND SENNA PODS



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A Thesis Submitted in Partial Fulfillment of the Requirements
for the Degree of Master of Science in Pharmacy

Department of Pharmacognosy

Graduate School

Chulalongkorn University

1993

ISBN 974-583-293-6



Thesis Title TISSUE CULTURES OF *Cassia angustifolia*
VAHL AND QUANTITATIVE ANALYSIS OF
ANTHRAQUINONES IN THE CULTURES AND
SENNA PODS.
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สุปรียา ป้อมประเสริฐ : การเพาะเลี้ยงเนื้อเยื่อมะขามแขกและการวิเคราะห์หาปริมาณแอนทราควิโนนในเนื้อเยื่อเพาะเลี้ยง และในฝักมะขามแขก (TISSUE CULTURES OF Cassia angustifolia VAHL AND QUANTITATIVE ANALYSIS OF ANTHRAQUINONES IN THE CULTURES AND SENNA PODS. อ.ที่ปรึกษา : ผศ.ดร.วันชัย ดีเอโกนามกุล, 145 หน้า ISBN 974-583-293-6

การสร้างเนื้อเยื่อเพาะเลี้ยงและเซลล์เพาะเลี้ยงจากใบอ่อนของมะขามแขก สามารถทำได้ โดยการเปลี่ยนแปลงชนิดและปริมาณของฮอร์โมนพืชในสูตรอาหาร B5 โดยพบว่าฮอร์โมน BA 1 mg/l และ 2,4-D 0.5 mg/l มีความเหมาะสมในการชักนำให้เกิดเนื้อเยื่อเพาะเลี้ยงของมะขามแขก เนื้อเยื่อเพาะเลี้ยงนี้ได้ถูกนำมาประเมินหาศักยภาพในการสร้างสารในกลุ่ม anthraquinones ซึ่งเป็นสารสำคัญในมะขามแขก จากการตรวจสอบสาร anthraquinones ในเนื้อเยื่อเพาะเลี้ยง พบว่าเป็น chrysophanol และ physcion ในการวิเคราะห์เชิงปริมาณของ anthraquinones ทั้งสองชนิดนี้ ได้ใช้วิธี solid-phase extraction และ spectrophotometry ซึ่งได้ถูกพัฒนาขึ้นในการศึกษาครั้งนี้ วิธีนี้ให้ค่าของปริมาณ anthraquinones ที่แม่นยำเชื่อถือได้ และสามารถวิเคราะห์หาปริมาณ sennosides ในฝักมะขามแขกได้เป็นอย่างดี



ภาควิชา เกษียณ
สาขาวิชา
ปีการศึกษา 2535

ลายมือชื่อนิติ
ลายมือชื่ออาจารย์ที่ปรึกษา
ลายมือชื่ออาจารย์ที่ปรึกษาร่วม

##C375437 : MAJOR PHARMACOGNOSY

KEY WORD: Cassia angustifolia, SENNOSIDES, SENNA PODS, ANTHRAQUINONE, TISSUE CULTURE, QUANTITATIVE, ANALYSISSUPREEYA POMPASIRT : TISSUE CULTURES OF Cassia angustifolia VAHL AND QUANTITATIVE ANALYSIS OF ANTHRAQUINONES IN THE CULTURES AND SENNA PODS. THESIS ADVISOR : ASSISTANT PROFESSOR WANCHAI DE-EKNAMKUL, Ph.D. 145 pp. ISBN 974-583-293-6

Cell suspension and tissue cultures were successfully established from young leaf explant of Cassia angustifolia Vahl by manipulation of plant growth regulators in B5 medium. The callus and suspension cultures were maintained in B5 supplemented with 1 mg/l BA and 0.5 mg/l 2,4-D and evaluated for their potential in producing anthraquinones, the constituents in C. angustifolia plant. The anthraquinones found in the suspension cultures were chrysophanol and physcion. Quantitative analysis of anthraquinones was performed by solid-phase extraction and spectrophotometric method which was developed in this study. This method was rapid, accurate and reproducible and could also be used for the quantitative analysis of total pod sennosides in C. angustifolia plant.



ภาควิชา.....เภสัชวิทยา

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ปีการศึกษา..... 2535

ลายมือชื่อนิสิต.....

ลายมือชื่ออาจารย์ที่ปรึกษา.....

ลายมือชื่ออาจารย์ที่ปรึกษาร่วม.....

ACKNOWLEDGEMENTS

The author wishes to express her deepest appreciation and grateful thanks to her advisor, Assistant Professor Dr. Wanchai De-Eknamkul of the Department of Pharmacognosy, Faculty of Pharmaceutical Sciences, Chulalongkorn University, for his helpful guidances, suggestions, keen interest and continual encouragements throughout the course of this work.

The author would like to acknowledge her grateful thanks to Associate Professor Nijsiri Ruangrungsi, Department of Pharmacognosy, Faculty of Pharmaceutical Sciences, Chulalongkorn University, and Assistant Professor Noppamas Suppakun, Department of Pharmacognosy, Faculty of Pharmacy, Mahidol University for their helpful suggestion.

The author wishes to express her sincere gratitude to Professor Hidehiro Sakurai and all members of Department of Biology, School of Education, Waseda University, Tokyo, Japan, for the kindness, understanding and helps.

The author would like to extend her sincere thanks to all staff members of the Department of Pharmacognosy

and the Research Unit for Herb and Spice Development, Faculty of Pharmaceutical Sciences, Chulalongkorn University, for their kindness and valuable helps.

The author would also like to thank The Government Pharmaceutical Organization of Thailand and The Thai commodity Co., Ltd; Bangkok for their kindly providing *C. angustifolia* pod sample.

The author wishes to thank Mrs. Nirakkaporn Pumput for the preparation of this manuscript.

The author wishes to express her indebtedness and grateful thank to her family for their financial support, understanding and cheerfulness through her graduate study.

Finally, the author's grateful thanks are due to the Graduate School, Chulalongkorn University for granting her partial financial support to conduct this investigation.



CONTENTS

	Page
ABSTRACT (THAI).....	iv
ABSTRACT (ENGLISH).....	v
ACKNOWLEDGEMENTS.....	vi
CONTENTS.....	viii
LIST OF TABLES.....	xiv
LIST OF FIGURES.....	xvi
ABBREVIATIONS.....	xix
CHAPTER I INTRODUCTION.....	1
CHAPTER II HISTORICAL.....	5
1. Botanical Aspect of <i>Cassia</i>	
<i>angustifolia</i> Vahl.	5
2. Microscopical of <i>Cassia</i>	
<i>angustifolia</i> Pods	14
2.1 Anatomy and Histology.....	14
2.2 Powdered Drug	15
3. Chemical Constituents of	
<i>Cassia angustifolia</i> Vahl.	19
3.1 Chemical Constituents in Various	
Plant Parts	19
3.2 Formation and Distribution of	
Anthraquinone Derivatives in	
Senna	25
3.3 The Uses of <i>Cassia angustifolia</i>	27
3.4 Adverse Effects and Precaution.	29

	Page
4. Anthraquinone : The Chemistry and Distribution	30
4.1 Chemistry of Anthraquinones....	30
4.2 Biogenesis of Anthraquinone Compounds.....	39
4.2.1 Acetate-Malonate Pathway	39
4.2.2 Shikimate-Mevalonate Pathway.....	40
4.3 Distribution of the Anthraquinone.....	47
5. Sennosides	51
5.1 Chemistry of Sennosides.....	51
5.2 Distribution.....	52
5.2.1 Occurrence of Sennoside in <i>C. angustifolia</i>	52
5.2.2 Sennoside B Formation During Germination and Early Phase of Development	54
5.2.3 Distribution of Sennoside B in a Flowering <i>C.</i> <i>angustifolia</i> Vahl Plants	55
5.2.4 Variability of Sennoside B Extractable from Fruit of Individual Plants.....	56

	Page
6. Plant Tissue and Cell Culture as Source of Phytochemicals	59
7. Plant Tissue and Cell Cultures as Metabolite Model System	62
8. Source and Type of Plant Tissue and Cell Culture.....	64
8.1 Callus Culture.....	65
8.2 Cell Suspension Cultures.....	66
CHAPTER III MATERIALS AND METHODS.....	69
1. Plant Material.....	69
2. Chemicals and Apparatus.....	69
3. Development of Solid-Phase Extraction Spectrophotometry for Rapid Screening of High Sennoside- Producing Plants.....	70
3.1 Extraction of Sennosides from <i>C. angustifolia</i> Vahl Pods.....	70
3.2 Sample Cleaning of Senna Pod Extracts of Solid-Phase Extraction.....	71
3.3 Compositional Analysis of Sennoside Fraction by HPLC.....	71
3.4 Determination of Total Sennosides by Spectrophotometric Method.....	72

	Page
3.5 Determination of Total Sennosides by British Pharmacopoeia Method.....	72
4. Plant Tissue Culture Techniques....	76
4.1 Preparation of <i>C. angustifolia</i> Leaf Explants.....	76
4.2 Medium Preparation.....	77
4.2.1 Preparation of B5 Medium from Cibco ^R Prepared Medium.....	78
4.2.2 Preparation of MS Medium from Cibco ^R Prepared Medium.....	79
4.3 Study on the Effect of Hormonal Factors on Callus formation....	84
4.4 Establishment of Suspension Cultures.....	85
4.5 Study on Culture Growth of <i>C. angustifolia</i> Vahl Cell Cultures.....	86
5. Detection and Determination of Anthraquinones in <i>C. angustifolia</i> Suspension Cultures.....	86
5.1 Extraction of Anthraquinones from <i>C. angustifolia</i> Suspension Cultures.....	86

	Page
5.2 Sample Cleaning of <i>C.</i> <i>angustifolia</i> Vahl Cell Culture Extract by Solid-Phase Extraction.....	87
5.3 Detection of Anthraquinones in <i>C. angustifolia</i> Vahl Cell Suspension Cultures.....	87
5.3.1 TLC Conditions for Anthraquinone Identification.....	88
5.3.2 Mass spectroscopy.....	89
5.4 Quantitative Analysis of Anthraquinones (Chrysarobin and Physcion).....	89
CHAPTER IV RESULTS	90
1. Development of Solid-Phase Extraction Spectrophotometry for the Determination of Pod. Sennoside.....	90
1.1 Solid-Phase Extraction.....	90
1.2 Solvent System for Solid-Phase Extraction.....	91
1.3 Percent Recovery of Sennoside..	93
1.4 Accuracy, Precision and Reproducibility.....	96

	Page
2. Sennoside Contents in the Pods of <i>C. angustifolia</i> Vahl from Different Sources.....	98
3. Effect of Hormonal Factors on Callus Formation of <i>C. angustifolia</i> Vahl.....	100
4. Establishment of <i>C. angustifolia</i> Vahl Cell Suspension Cultures.....	102
5. Detection of Anthraquinones in Suspension Cultures of <i>Cassia angustifolia</i> Vahl.....	105
6. Determination of Anthraquinones Content in <i>C. angustifolia</i> Vahl Cell Cultures.....	109
7. Anthraquinone Production During the Culture Growth of <i>C. angustifolia</i> Vahl Cultures.....	111
CHAPTER V DISCUSSION	117
CONCLUSION	122
REFERENCES	124
VITA	145



LIST OF TABLES

Table		Page
1	Comparison of Alexandrian senna and Tinnevelly Senna Leaves.....	13
2	List of Compounds Found in Various Parts of <i>Cassia angustifolia</i> Vahl.....	21
3	Anthraquinone Glycosides and Aglycone.....	32
4	Distribution of Anthraquinones in Some Families.....	49
5	Distribution of Sennoside B within a Flower of <i>C. angustifolia</i> Vahl.....	56
6	Example of Secondary Metabolite Production by Plant Tissue Culture.....	61
7	Analysis of Sennoside by British Pharmacopoeia	74
8	Inorganic Salt and Vitamin Compositions of Plant Tissue Culture Media.....	80
9	Preparation of stock Solution of B5 and MS Media.....	82
10	Preparation of B5 and MS Media.....	83
11	The combination of Auxins and Cytokinins in Various Tested Culture Media.....	84
12	Comparision between the Methods of BP and the Solid-Phase Extraction & Spectrophotometry in the Determination of Total Sennoside Content in <i>C. angustifolia</i> Vahl Pods.....	97

Table	Page
13	Sennoside Contents in the Pods of <i>C. angustifolia</i> from Different Sources..... 99
14	Effect of Hormonal Factor and Different Media on the Differentiation <i>C. angustifolia</i> Vahl of Leave Explants..... 103
15	Phytochemical Screening of <i>C. angustifolia</i> Vahl Pods and Suspension Cultures for Various Chemical Group..... 108

LIST OF FIGURES

Figure		Page
1	<i>Cassia angustifolia</i> Vahl.....	6
2	Senna Fruits.....	9
3	a. Transverse Section of <i>Cassia angustifolia</i> Vahl pod.....	16
	b. Powdered <i>Cassia angustifolia</i> Vahl.....	17
4	Structure of Tinnevellin Glycoside in Tinnevelly Senna and 6-Hydroxymusizin Glycoside in Alexandrian Senna.....	20
5	The Structure and the Numbering System of Anthraquinones.....	31
6	Structures of Some Anthraquinones in <i>Cassia angustifolia</i> Vahl.....	33
7	The Structures of Chrysophanol and Alizarin...	34
8	Some Sugars Found in Anthraquinone Glycosides	35
9	Various Forms of Anthraquinones.....	36
10	Free Radical Oxidation of Dianthrone.....	37
11	Structure of Sennosides.....	37
12	Folding and Condensation of a Polyketide Chain.....	40
13	Acetate-Malonate Pathway of Anthraquinones....	41
14	Structure of Tectoquinone.....	42
15	Degradation of the Alizarin Dimethyl Ether....	42
16	Structures of Anthraquinones in <i>Morinda</i> <i>citrifolia</i> Linn.....	44

Figure	Page
17	Migration of Radioactivity from Different Precursors to Morindone..... 45
18	Shikimate-M evalonate Pathway of Anthraquinones..... 46
19	Formation of Sennoside B in Relation to the Water-Loss of Leaves of <i>Cassia</i> <i>angustifolia</i> Vahl..... 53
20	Formation of Sennoside B in Germinating Seeds and Plantlets of <i>Cassia angustifolia</i> Vahl..... 55
21	Distribution of Sennoside B in a Flowering Plant of <i>Cassia angustifolia</i> Vahl..... 57
22	Sennoside B Distribution within the Inflorescence of <i>Cassia angustifolia</i> Vahl..... 57
23	Frequency Distribution of Sennoside B Concentrations in Fruits of Individual <i>Cassia angustifolia</i> Vahl Plants..... 58
24	Schematic Representation of <i>in vitro</i> Cultures of Higher Plants..... 64
25	TLC Separation on Silica Gel Plate of Methanolic Extract of <i>C. angustifolia</i> Vahl Pods..... 92
26	Effect of the Solid-Phase Extraction on the Cleaning of Crude Methanolic Extract of <i>C. angustifolia</i> Vahl Pods..... 94
27	HPLC Chromatograms of the Crude Methanolic Extract of <i>C. angustifolia</i> Vahl Pods..... 95

Figure	Page
28	Variation of Sennoside Content in <i>C. angustifolia</i> Vahl Pods Obtained from Different Sources..... 99
29	The Young Leaf, Callus Culture, Callus Culture Forming Root and Shoot Culture of <i>C. angustifolia</i> Vahl..... 101
30	Suspension Culture of <i>C. angustifolia</i> Vahl.... 104
31	TLC Separation on s Silica Gel Plate of Petroleum Ether Extract of <i>C. angustifolia</i> Vahl Suspension Culture..... 106
32	UV-Absorption Spectra of Anthraquinones Produced by <i>C. angustifolia</i> Vahl Suspension Culture..... 107
33	Mass Spectrum of Physcion..... 110
34	Mass Spectrum of Chrysophanol..... 110
35	TLC Separation on Silica Gel Plate of Chloroform Extract of Suspension Culture of <i>C. angustifolia</i> Vahl..... 112
36	Calibration Curve of Standard Chrysophanol Obtained by UV Spectrophotometry..... 113
37	Time Course of Dry Weight. and Anthraquinone Content for Suspension Culture of <i>C. angustifolia</i> Vahl..... 115
38	Calibration Curve of Standard Sennoside B Obtained by UV Spectrophotometry..... 116

ABBREVIATIONS

2,4-D	=	2,4-Dichlorophenoxyacetic acid
B5	=	Gamborg media (1976)
BA	=	6-Benzylaminopurine
°C	=	Degree Celsius
ca	=	about
cm	=	Centimeter
conc	=	Concentration
et. al.	=	et alii
EtOH	=	Ethanol
Fig	=	Figure
fl.	=	Flower
g	=	Gram
Glu	=	Glucose
HPLC	=	High-performance liquid chromatography
IAA	=	Indole-3-acetic acid
IR	=	Infrared
l	=	Liter
lb/in ²	=	Pound per square inch
lf.	=	leaf
m	=	Meter
m/z	=	Mass to charge ratio
mg	=	milligram
min	=	Minute
ml	=	Milliliter

mm	=	Millimeter
MS	=	Mass spectrometry
MS	=	Murashige and Skoog media (1962)
MW	=	Molecular weight
NAA	=	α -Naphthalene acetic acid
nm	=	Nanometer
no	=	Number
p. (pp.)	=	Page (s)
pH	=	The negative logarithm of the concentration of hydrogen ions
ppm	=	part per million
Rf	=	Rate of flow in chromatography
Rt	=	Retention time
SD	=	Standard deviation
St.	=	Stem
TLC	=	Thin layer chromatography
UV	=	Ultraviolet
Vol. (Vols.)	=	Volume (s)
w/v	=	weight/volume (concentration)
μ g	=	Microgram
μ l	=	Microliter
μ m	=	Micrometer
λ max	=	Maximum absorption wavelength.