Table of Contents

	Page
Acknowledgements	iii
Abstract 918186	iv
List of Tables	ix
List of Figures	хi
Part I : Introduction	1
Botanical Characteristic of Genus Costus	7
Quantitative Analysis of Steroid Sapogenins	21
Part II : Experimental	37
Apparatus	560
Chemicals and reagents	61
Procedure	62
Results	84
Part III : Conclusion	113
References	116
References Appendix A	126
В	131
Vita	132

ลิขสิทธิ์มหาวิทยาลัยเชียงใหม Copyright[©] by Chiang Mai University All rights reserved

List of Tables

Table		Page
1.1	The species of some plants in Costus Genus and their	
	origins.	8
1.2	The summerisation of Steroidal sapogenin determination.	29
I.3	The relative merits and demerits of various assay	
	procedure for sapogenin.	33
I,.4	The HPLC System of Quantitative Analysis of Sapogenin	
	in Plants.	35
Ĭ.5	The HPLC System for Separation of Sapogenin Acetate.	36
II.1	Naturally-Occurring Sapogenins.	50
11.2	Absorption Spectra of Sulfuric Acid Chromogens	
	Steroidal Sapogenins.	55
11.3	Wavelength Position and Intensity of Absorption Maxima	
	of Sulfuric Acid Chromogens of Steroid Sapogenins.	57
II.4	The chemical constituents found in C. lacerus Gagn.	
	rhizome extract.	85
11.5	Determination of the weights and crude sapogenin	
	contents in C. lacerus Gagn. rhizome powder by the	9
a	extraction procedure II.1 and II.2.	89
11.6	Determination of moisture content of C. lacerus Gagn.	
	Thizome. Oy Chiang Mai Univ	e_{103}
11.7	Determination of total sapogenin content in C. lacerus	
	Gagn Thizomes by Gravimetric method	104

Table	F	age
8.11	The retention times of diosgenin, tigogenin, hecogenin	
	and standard mixture by using acetonitrile: methanol	
	: chloroform (83:10:7) as mobile phase, flow rate of	
	0.5 ml/min and chart speed of 0.25 cm/min.	106
II.9	Relationship between the concentration of hecogenin	
	and diosgenin and their peak areas obtained from the	
	HPLC method.	111

ลิขสิทธิ์มหาวิทยาลัยเชียงใหม Copyright[©] by Chiang Mai University All rights reserved

List of Figures

Figure		Page
1.1	Costus lacerus Gagn.	15
I.2	The rhizomes of C. lacerus Gagn.	16
I.3	The leaves and inflorescence of C. lacerus Gagn.	17
1.4	The flowers of C. lacerus Gagn.	18
1.5	Costus lacerus Gagn. 1. inflorescence 2. flowers	
	3. bracteole, ovary, calyx and corolla bud 4. leaf.	
	base with petiole, ligule, and sheath 5. leaf base	19
I.6	Costus lacerus Gagn. flower 1. calyx, corolla	
	2. corolla 3. labellum, 4. stamen and ovary.	20
11.1	Thin-layer chromatogram of C. lacerus Gagn.	86
11.2	Thin-layer chromatogram of C. lacerus Gagn.	87
11.3,4,5.	Thin-layer chromatogram of C. lacerus Gagn.	
	crude extract and precipitates obtained from	
	extraction procedure II.1. 90,9	1,92
11.6	Thin-layer chromatogram of C. lacerus Gagn.	
	crude extract and precipitates obtained from	
	extraction procedure II.2.	93
11.7	The multiple development TLC of the compound A	
	compared with diosgenin (Sigma Chemical Company)	
	D-1630 by Chiang Mai Unive	95
11.8	The two-dimensional TLC of the compound A combined	
	with diosgenin	96

Table	i e e e e e e e e e e e e e e e e e e e	Page
11.9	The multiple development, two-dimensional TLC	•
	of the compound A combined with diosgenin.	97
11.10	UV. absorption spectra of a. hecogenin, tigogenin,	
	diosgenin; b. compound A.	98
II.11	IR. absorption spectra of a. diosgenin; b. compound A	99
II.12	IR. absorption spectra of precipitates obtained from	
	extraction procedure II.2	100
II.13	Representative chromatogram of (a) standard hecogenin,	
	(b) standard diosgenin, (c) standard tigogenin, and	
	(d) synthetic mixture of (a), (b), and (c).	105
11.14	Representative chromatogram of synthetic mixture	107
II.15	Representative chromatogram of C. lacerus Gagn.	
	rhizome extract (a) extraction process II.1, (b)	
	extraction process II.2.	108
II.16	Representative chromatogram of standard hecogenin	
	at various concentrations	109
II.17	Representative chromatogram of standard diosgenin	
	at various concentrations.	110
II.18	Calibration graphs for hecogenin (H) and diosgenin (D)	112
	เทธิมหาวิทยาลิยเชียง	
	right [©] by Chiang Mai Unive	
AII	rights reserv	