

องค์ประกอบทางเคมีจากลำต้นเถาข้างและฤทธิ์ทางชีวภาพ



นางสาว ปิยนุช ทองผาสุก

ศูนย์วิทยทรัพยากร
จุฬาลงกรณ์มหาวิทยาลัย

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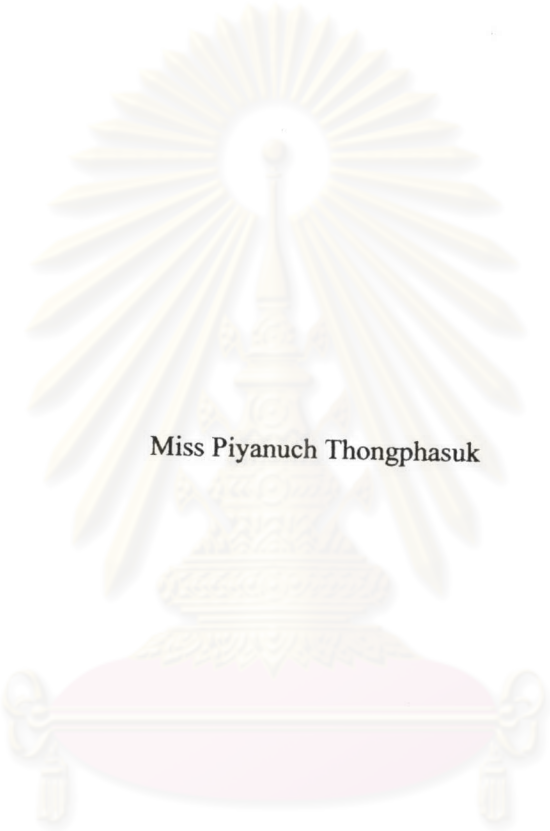
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CHEMICAL CONSTITUENTS FROM *STRYCHNOS VANPRUKII* STEM
AND THEIR BIOLOGICAL ACTIVITIES



Miss Piyanuch Thongphasuk

ศูนย์วิจัยทรัพยากร
จุฬาลงกรณ์มหาวิทยาลัย

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จากการศึกษาทางพฤกษเคมีของลำต้นเถาข้าง พบสารโคเทอร์ปีนชนิดใหม่ในกลุ่มของไอ
โซพิมาริน คือ 7 β -hydroxy-isopimara-8,15-dien-14-one และสารกลูโคแอลคาลอยด์ชนิดใหม่ 1
ชนิด คือ 3,4-dehydropalicoside พร้อมทั้งสารแอลคาลอยด์อีก 5 ชนิด คือ palicoside, 3,4,5,6-
tetrahydropalicoside, akagerine, 17-O-methylakagerine และ strychnocarpine, นอกจากนี้ยัง
พบสารในกลุ่มลิคแนน 3 ชนิดใหม่ 2 ชนิด คือ strychnoside และ vanprukoside และที่เคยมีราย
งานแล้ว คือ lyoniresinol 3-O- β -glucopyranoside สารกลุ่มฟีนอลิก 3 ชนิด คือ pyrocatechuic
glucopyranoside, syringic acid และ vanillic acid สารในกลุ่ม cyclitol คือ bornesitol สาร
ผสมของ β -sitosterol กับ stigmasterol และ สารผสมกลัยโคไซด์ของสารดังกล่าว สารในกลุ่มลิค
แนน 3 ชนิดแสดงฤทธิ์ต้านอนุมูลอิสระได้ดีกว่า ascorbic acid และสารทดสอบทั้งหมดแสดง
ฤทธิ์ยับยั้งเอนไซม์ acetylcholinesterase ได้น้อยกว่า galanthamine และไม่มีฤทธิ์ต้านจุลชีพต่อ
เชื้อทดสอบและฤทธิ์ความเป็นพิษต่อเซลล์ melanoma B16

ศูนย์วิทยทรัพยากร
จุฬาลงกรณ์มหาวิทยาลัย

สาขาวิชาเภสัชเคมีและผลิตภัณฑ์ธรรมชาติ
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ลายมือชื่อผู้คิด..... ปิยนุช ทองผาสุก
ลายมือชื่ออาจารย์ที่ปรึกษา..... รพีพล ภูโวาท
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Phytochemical study of the stem of *Strychnos vanprukii* Craib yielded a new isopimarane diterpenoid, 7 β -hydroxyisopimara-8,15-dien-14-one, and a new gluco-indole alkaloid, 3,4-dehydropalicoside, together with five other alkaloids: palicoside, 3,4,5,6-tetrahydropalicoside, akagerine, 17-*O*-methylakagerine and strychnocarpine. Two new lignans, strychnoside and vanprukoside, were also isolated together with the known lyoniresinol-3-*O*- β -glucopyranoside. Three phenolic compounds: pyrocatechuic glucoside, syringic and vanillic acid, a cyclitol compound (bornesitol), mixture of β -sitosterol and stigmasterol and mixture of their glucosides were also found. Three lignans displayed antioxidant activity more active than ascorbic acid. All of the tested compounds showed acetylcholinesterase inhibitory activity less active than galanthamine and possessed no antimicrobial activity against tested microorganisms and cytotoxic activity against melanoma B16 cell line.

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CONTENTS

	Page
ABSTRACT (Thai)	iv
ABSTRACT (English).....	v
ACKNOWLEDGEMENTS.....	vi
CONTENTS.....	vi
LIST OF TABLES.....	x
LIST OF FIGURES.....	xi
LIST OF SCHEMES.....	xviii
LIST OF ABBREVIATIONS.....	xix
CHAPTER	
I INTRODUCTION.....	1
II HISTORICAL	
Botanical Generalities.....	5
Chemical Constituents of Plants in the Genus <i>Strychnos</i>	14
<i>Strychnos</i> alkaloids.....	14
Biosynthesis of indole alkaloids.....	89
Pharmacological activities of <i>Strychnos</i> alkaloids.....	101
Lignans.....	105
III EXPERIMENTAL	
1. Source of Plant Material.....	108
2. General Techniques.....	108
Chromatography.....	108
Spectroscopy.....	110
Physical Properties.....	111
Solvents.....	111
3. Extraction Procedure.....	112
4. Isolation Procedure.....	113
Isolation of compound SVM-1.....	113
Isolation of compound SVM-2.....	114
Isolation of compound SVM-3.....	114
Isolation of compound SVM-4.....	114

CONTENTS

	Page
Isolation of compound SVM-5 and SVM-6.....	115
Isolation of compound SVC-1, SVC-2 and SVC-3.....	115
Isolation of compound SVC-4 and SVC-5.....	117
Isolation of compound SVC-6 and SVC-7.....	117
Isolation of compound SVH-1 and SVH-2.....	118
Isolation of compound SVH-3.....	119
5. Physical and Spectra Data of Isolated Compounds.....	120
6. Determination of biological activities	126
IV RESULT AND DISCUSSION	
Identification of Compound SVM-1	130
Identification of Compound SVM-2	133
Identification of Compound SVM-3	134
Identification of Compound SVM-4	136
Identification of Compound SVM-5	138
Structure Elucidation of Compound SVM-6	140
Identification of Compound SVC-1	143
Identification of Compound SVC-2.....	144
Identification of Compound SVC-3	146
Identification of Compound SVC-4	148
Identification of Compound SVC-5	150
Structure Elucidation of Compound SVC-6	152
Structure Elucidation of Compound SVC-7	154
Identification of Compound SVH-1	156
Structure Elucidation of Compound SVH-2	158
Identification of Compound SVH-3	161
Determination of biological activities	163
V CONCLUSION.....	169
REFERENCES.....	170
APPENDIX.....	186
VITA.....	278

LIST OF TABLES

Table	Page
1 <i>Strychnos</i> species in Thailand.....	3
2 <i>Strychnos</i> species.....	6
3 <i>Strychnos</i> alkaloids.....	18
4 Pharmacological activity of <i>Strychnos</i> alkaloids.....	101
5 Combined fractions from the methanol extract of <i>Strychnos vanprukii</i> Craib stem	113
6 Combined fractions from fraction M2.....	114
7 Combined fractions from fraction M6.....	115
8 Combined fractions from the chloroform extract of <i>Strychnos vanprukii</i> Craib Stem.....	116
9 Combined fractions from fraction C2.....	116
10 Combined fractions from fraction C3.....	117
11 Combined fractions from fraction C4.....	118
12 Combined fractions from the hexane extract of <i>Strychnos vanprukii</i> Craib stem.....	118
13 Combined fractions from fraction H3.....	119
14 NMR spectral data of of compound SVM-1 and (+)-lyoniresinol 3a-O- β -glucopyranoside (CD ₃ OD).....	131
15 NMR spectral data of compound SVM-2 and bornesitol (DMSO)...	133
16 NMR spectral data of compound SVM-3 and palicoside (CD ₃ OD)..	135
17 NMR spectral data of SVM-4 and pyrocatechuic glucopyranoside (CD ₃ OD).....	137
18 NMR spectral data of compound SVM-5 and 3,4,5,6-tetrahydropalicoside (CD ₃ OD).....	139
19 NMR spectral data of compound SVM-6 (CD ₃ OD).....	142
20 NMR spectral data of of compound SVC-2 and 17-O-methylakagerine (CDCl ₃).....	145
21 NMR spectral data of SVC-3 and akagerine in CDCl ₃	147
22 NMR spectral data of compound of SVC-4 and syringic acid (CD ₃ OD).....	149

LIST OF TABLES (CONTINUED)

Table		Page
23	NMR spectral data of compound SVC-5 and vanillic acid (CD ₃ OD).....	151
24	NMR spectral data of compound SVC-6 (CD ₃ OD).....	153
25	NMR spectral data of compound SVC-7.....	155
26	NMR spectral data of SVH-1 and mixture of β-sitosterol and stigmasterol (CDCl ₃).....	157
27	NMR spectral data of compound SVH-2 (CD ₃ OD).....	160
28	NMR spectral data of SVH-3 and strychnocarpine (CDCl ₃)....	162
29	Antioxidant activity (IC ₅₀) of isolated compounds.....	163
30	Anticholinesterase activity (IC ₅₀) of isolated compounds.....	165



 ศูนย์วิทยทรัพยากร
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LIST OF FIGURES

Figure		Page
1	<i>Strychnos vanprukii</i> Craib (Loganiaceae).....	4
2	Ultraviolet absorption spectrum of compound SVM-1.....	187
3	Infrared absorption spectrum of compound SVM-1.....	187
4	Mass spectrum of compound SVM-1.....	188
5	¹ H-NMR spectrum of compound SVM-1 (300 MHz ; in CD ₃ OD)	189
6	APT spectrum of compound SVM-1 (75 MHz ; in CD ₃ OD).....	189
7	¹ H- ¹ H COSY spectrum of compound SVM-1 (300 MHz ; in CD ₃ OD).....	190
8	Expanded ¹ H- ¹ H COSY spectrum of compound SVM-1	190
9	HMQC spectrum of compound SVM-1 (75 MHz ; in CD ₃ OD).....	191
10	Expanded HMQC spectrum of compound SVM-1.....	191
11	HMBC spectrum of compound SVM-1 (75 MHz ; in CD ₃ OD).....	192
12	Expanded HMBC spectrum of compound SVM-1.....	192
13	Ultraviolet absorption spectrum of compound SVM-2.....	193
14	Infrared absorption spectrum of compound SVM-2.....	193
15	¹ H-NMR spectrum of compound SVM-2 (500 MHz ; in DMSO)...	194
16	Expanded ¹ H-NMR spectrum of compound SVM-2.....	194
17	¹³ C-NMR spectrum of compound SVM-2 (125 MHz ; in DMSO)...	195
18	DEPT spectrum of compound SVM-2 (125 MHz ; in DMSO).....	196
19	¹ H- ¹ H COSY spectrum of compound SVM-2 (500 MHz ; in DMSO).....	197
20	Expanded ¹ H- ¹ H COSY spectrum of compound SVM-2	197
21	HMQC spectrum of compound SVM-2 (125 MHz ; in DMSO).....	198
22	Expanded HMQC spectrum of compound SVM-2.....	198
23	HMBC spectrum of compound SVM-2 (125 MHz ; in DMSO).....	199
24	Expanded HMBC spectrum of compound SVM-2.....	199
25	¹ H- ¹ H NOESY spectrum of compound SVM-2 (500 MHz ; in DMSO).....	200

LIST OF FIGURES (CONTINUED)

Figure		Page
26	Ultraviolet absorption spectrum of compound SVM-3.....	201
27	Infrared absorption spectrum of compound SVM-3.....	201
28	Mass spectrum of compound SVM-3.....	202
29	¹ H-NMR spectrum of compound SVM-3 (500 MHz ; in DMSO)...	203
30	Expanded ¹ H-NMR spectrum of compound SVM-3.....	203
31	Expanded ¹ H-NMR spectrum of compound SVM-3.....	204
32	¹³ C-NMR spectrum of compound SVM-3 (125 MHz ; in DMSO)...	204
33	DEPT spectrum of compound SVM-3 (125 MHz ; in DMSO).....	205
34	¹ H- ¹ H COSY spectrum of compound SVM-3 (500 MHz ; in DMSO).....	206
35	Expanded ¹ H- ¹ H COSY spectrum of compound SVM-3	206
36	HMQC spectrum of compound SVM-3 (125 MHz ; in DMSO).....	207
37	HMQC spectrum of compound SVM-3.....	207
38	HMBC spectrum of compound SVM-3 (125 MHz ; in DMSO).....	208
39	HMBC spectrum of compound SVM-3	208
40	HMBC spectrum of compound SVM-3	209
41	HMBC spectrum of compound SVM-3.....	209
42	HMBC spectrum of compound SVM-3.....	210
43	HMBC spectrum of compound SVM-3.....	210
44	Ultraviolet absorption spectrum of compound SVM-4.....	211
45	Infrared absorption spectrum of compound SVM-4.....	211
46	Mass spectrum of compound SVM-4.....	212
47	¹ H-NMR spectrum of compound SVM-4 (300 MHz ; in CD ₃ OD) ..	213
48	APT spectrum of compound SVM-4 (75 MHz ; in CD ₃ OD).....	213
49	¹ H- ¹ H COSY spectrum of compound SVM-4 (300 MHz ; in CD ₃ OD).....	214
50	HMQC spectrum of compound SVM-4 (75 MHz ; in CD ₃ OD).....	215

LIST OF FIGURES (CONTINUED)

Figure		Page
51	Expanded HMQC spectrum of compound SVM-4.....	215
52	HMBC spectrum of compound SVM-4 (75 MHz ; in CD ₃ OD).....	216
53	Expanded HMBC spectrum of compound SVM-4.....	216
54	Expanded HMBC spectrum of compound SVM-4 (125 MHz ; in CD ₃ OD)	217
55	Ultraviolet absorption spectrum of compound SVM-5.....	218
56	Infrared absorption spectrum of compound SVM-5.....	218
57	Mass spectrum of compound SVM-5.....	219
58	¹ H-NMR spectrum of compound SVM-5 (300 MHz ; in CD ₃ OD) ..	220
59	APT spectrum of compound SVM-5 (75 MHz ; in CD ₃ OD).....	220
60	Ultraviolet absorption spectrum of compound SVM-6.....	221
61	Infrared absorption spectrum of compound SVM-6.....	221
62	Mass spectrum of compound SVM-6.....	222
63	¹ H-NMR spectrum of compound SVM-6 (300 MHz ; in CD ₃ OD) ..	223
64	APT spectrum of compound SVM-6 (75 MHz ; in CD ₃ OD).....	223
65	¹ H- ¹ H COSY spectrum of compound SVM-6 (300 MHz ; in CD ₃ OD).....	224
66	Expanded ¹ H- ¹ H COSY spectrum of compound SVM-6	224
67	HMQC spectrum of compound SVM-6 (75 MHz ; in CD ₃ OD).....	225
68	Expanded HMQC spectrum of compound SVM-6.....	225
69	Expanded HMQC spectrum of compound SVM-6.....	226
70	HMBC spectrum of compound SVM-6 (75 MHz ; in CD ₃ OD).....	227
71	Expanded HMBC spectrum of compound SVM-6.....	227
72	Expanded HMBC spectrum of compound SVM-6.....	228
73	Expanded HMBC spectrum of compound SVM-6.....	228
74	¹ H-NMR spectrum of compound SVC-1 (500 MHz ; in DMSO)...	229
75	Ultraviolet absorption spectrum of compound SVC-2.....	230

LIST OF FIGURES (CONTINUED)

Figure		Page
76	Infrared absorption spectrum of compound SVC-2.....	230
77	Mass spectrum of compound SVC-2.....	231
78	¹ H-NMR spectrum of compound SVC-2 (300 MHz ; in CDCl ₃)... ..	232
79	Expanded ¹ H-NMR spectrum of compound SVC-2.....	232
80	¹³ C-NMR spectrum of compound SVC-2 (75 MHz ; in CDCl ₃).....	233
81	DEPT spectrum of compound SVC-2 (75 MHz ; in CDCl ₃).....	233
82	Ultraviolet absorption spectrum of compound SVC-3.....	234
83	Infrared absorption spectrum of compound SVC-3.....	234
84	Mass spectrum of compound SVC-3.....	235
85	¹ H-NMR spectrum of compound SVC-3 (300 MHz ; in CDCl ₃)... ..	236
86	Expanded ¹ H-NMR spectrum of compound SVC-3.....	236
87	¹³ C-NMR spectrum of compound SVC-3 (75 MHz ; in CDCl ₃).....	237
88	DEPT spectrum of compound SVC-3 (75 MHz ; in CDCl ₃).....	237
89	Ultraviolet absorption spectrum of compound SVC-4.....	238
90	Infrared absorption spectrum of compound SVC-4.....	238
91	Mass spectrum of compound SVC-4.....	239
92	¹ H-NMR spectrum of compound SVC-4 (300 MHz ; in CD ₃ OD)	240
93	APT spectrum of compound SVC-4 (75 MHz ; in CD ₃ OD).....	240
94	Ultraviolet absorption spectrum of compound SVC-5.....	241
95	Infrared absorption spectrum of compound SVC-5.....	241
96	Mass spectrum of compound SVC-5.....	242
97	¹ H-NMR spectrum of compound SVC-5 (300 MHz ; in CD ₃ OD) ..	243
98	APT spectrum of compound SVC-5 (75 MHz ; in CD ₃ OD).....	243
99	Ultraviolet absorption spectrum of compound SVC-6.....	244
100	Infrared absorption spectrum of compound SVC-6.....	244

LIST OF FIGURES (CONTINUED)

Figure		Page
101	Mass spectrum of compound SVC-6.....	245
102	¹ H-NMR spectrum of compound SVC-6 (300 MHz ; in CD ₃ OD) ..	246
103	APT spectrum of compound SVC-6 (75 MHz ; in CD ₃ OD).....	246
104	¹ H- ¹ H COSY spectrum of compound SVC-6 (300 MHz ; in CD ₃ OD).....	247
105	Expanded ¹ H- ¹ H COSY spectrum of compound SVC-6	247
106	HMQC spectrum of compound SVC-6 (75 MHz ; in CD ₃ OD).....	248
107	Expanded HMQC spectrum of compound SVC-6.....	248
108	HMBC spectrum of compound SVC-6 (125 MHz ; in CD ₃ OD).....	249
109	HMBC spectrum of compound SVC-6.....	249
110	HMBC spectrum of compound SVC-6.....	250
111	HMBC spectrum of compound SVC-6.....	250
112	HMBC spectrum of compound SVC-6.....	251
113	Ultraviolet absorption spectrum of compound SVC-7.....	252
114	Infrared absorption spectrum of compound SVC-7.....	252
115	Mass spectrum of compound SVC-7.....	253
116	¹ H-NMR spectrum of compound SVC-7 (300 MHz ; in CD ₃ OD) ..	254
117	APT spectrum of compound SVC-7 (75 MHz ; in CD ₃ OD).....	254
118	Expanded APT spectrum of compound SVC-7.....	255
119	¹ H- ¹ H COSY spectrum of compound SVC-7 (300 MHz ; in CD ₃ OD).....	256
120	Expanded ¹ H- ¹ H COSY spectrum of compound SVC-7	256
121	HMQC spectrum of compound SVC-7 (75 MHz ; in CD ₃ OD).....	257
122	Expanded HMQC spectrum of compound SVC-7.....	257
123	HMBC spectrum of compound SVC-7 (75 MHz ; in CD ₃ OD).....	258
124	Expanded HMBC spectrum of compound SVC-7.....	258
125	Expanded HMBC spectrum of compound SVC-7.....	259

LIST OF FIGURES (CONTINUED)

Figure		Page
126	Expanded HMBC spectrum of compound SVC-7.....	259
127	Infrared absorption spectrum of compound SVH-1.....	260
128	¹ H-NMR spectrum of compound SVH-1 (300 MHz ; in CD ₃ OD)	261
129	¹³ C-NMR spectrum of compound SVH-1 (75 MHz ; in CDCl ₃).....	262
130	Expanded ¹³ C-NMR spectrum of compound SVH-1 (75 MHz ; in CDCl ₃).....	262
131	Ultraviolet absorption spectrum of compound SVH-2.....	263
132	Infrared absorption spectrum of compound SVH-2.....	263
133	Mass spectrum of compound SVH-2.....	264
134	¹ H-NMR spectrum of compound SVH-2 (300 MHz ; in CD ₃ OD)	265
135	Expanded ¹ H-NMR spectrum of compound SVH-2 (300 MHz ; in CD ₃ OD).....	265
136	APT spectrum of compound SVH-2 (75 MHz ; in CD ₃ OD).....	266
137	Expanded APT spectrum of compound SVH-2.....	266
138	¹ H- ¹ H COSY spectrum of compound SVH-2 (300 MHz ; in CD ₃ OD).....	267
139	Expanded ¹ H- ¹ H COSY spectrum of compound SVH-2	267
140	HMQC spectrum of compound SVH-2 (75 MHz ; in CD ₃ OD).....	268
141	Expanded HMQC spectrum of compound SVH-2.....	268
142	HMBC spectrum of compound SVH-2 (75 MHz ; in CD ₃ OD).....	269
143	HMBC spectrum of compound SVH-2.....	269
144	¹ H- ¹ H NOESY spectrum of compound SVH-2 (300 MHz ; in CD ₃ OD).....	270
145	¹ H- ¹ H NOESY spectrum of compound SVH-2.....	270
146	Ultraviolet absorption spectrum of compound SVH-3.....	271
147	Infrared absorption spectrum of compound SVH-3.....	271
148	Mass spectrum of compound SVH-3.....	272
149	¹ H-NMR spectrum of compound SVH-3 (300 MHz ; in CDCl ₃)...	273
150	¹³ C-NMR spectrum of compound SVH-3 (75 MHz ; in CDCl ₃).....	273

LIST OF FIGURES (CONTINUED)

Figure		Page
151	^1H - ^1H COSY spectrum of compound SVH-3 (300 MHz ; in CD_3OD).....	274
152	Expanded ^1H - ^1H COSY spectrum of compound SVH-3	274
153	HMQC spectrum of compound SVH-3 (75 MHz ; in CD_3OD).....	275
154	Expanded HMQC spectrum of compound SVH-3.....	275
155	HMBC spectrum of compound SVH-3 (75 MHz ; in CD_3OD).....	276
156	Expanded HMBC spectrum of compound SVH-3.....	276
157	Expanded HMBC spectrum of compound SVH-3.....	277



ศูนย์วิจัยทรัพยากร
จุฬาลงกรณ์มหาวิทยาลัย

LIST OF SCHEMES

Scheme		Page
1	Taxonomic background of the <i>Strychnos</i>	2
2	The indole alkaloid skeletons.....	15
3	Formation of tryptamine.....	89
4	The conversion pathway of geraniol and nerol to loganin and secologanin.....	91
5	Formation of strictosidine from tryptamine and secologanin....	93
6	Strictosidine as a key role intermediate in indole alkaloids biosynthesis.....	94
7	Presumed central biosynthetic pathway indole alkaloid in <i>Strychnos</i>	95
8	4,21-Dehydrogeissochizine as the key intermediate in <i>Strychnos</i> alkaloids biosynthesis.....	96
9	Alkaloids derived from Nor-C-fluocurarine.....	98
10	Biogenetic route of spermostrychnine and tsilanine groups.....	99
11	Biogenetic route of isostrychnine and strychnine groups.....	99
12	Final stage in the biogenesis of strychnine.....	100
13	Extraction of <i>Strychnos vanprukii</i> Craib Stem.....	112
14	Mass fragmentation of compound SVM-1.....	132

ศูนย์วิจัยทรัพยากร
 จุฬาลงกรณ์มหาวิทยาลัย

LIST OF ABBREVIATIONS

ϵ	= Molar absorptivity
ν_{\max}	= Wave number at maximal absorption
λ_{\max}	= Wavelength at maximal absorption
$^{\circ}\text{C}$	= Degree Celsius
$^{13}\text{C-NMR}$	= Carbon-13 nuclear magnetic resonance
1D	= One dimensional
$^1\text{H-NMR}$	= Proton nuclear magnetic resonance
2D	= Two dimensional
AchE	= Acetylcholinesterase
APT	= Attached Proton Test
ATCI	= Acetylthiocholine Iodide
br	= broad (for NMR spectra)
CD_3OD	= Deuterated methanol
CDCl_3	= Deuterated chloroform
CHCl_3	= Chloroform
cm	= Centimeter
COLOC	= Correlation spectroscopy via Long-range Coupling
COSY	= Correlation spectroscopy
d	= doublet (for NMR spectra)
dd	= doublet of doublets (for NMR spectra)
DEPT	= Distortionless Enhancement by Polarization Transfer
$\text{DMSO-}d_6$	= Deuterated dimethyl sulfoxide
DPPH	= 2,2-diphenyl-1-picrylhydrazyl
DTNB	= 5, 5'-dithiobis-[2-nitrobenzoic acid]
EIMS	= Electron Impact Mass Spectrum
ESMS	= Electron spray ionization Mass Spectrum
EtOAc	= Ethyl acetate
g	= Gram
HETCOR	= Heteronuclear Chemical Shift Correlation
HMBC	= Proton detected Heteronuclear Multiple Bond Coherence

LIST OF ABBREVIATIONS (continued)

HMQC	= ^1H -detected Heteronuclear Multiple Quantum Coherence
Hz	= Hertz
IR	= Infrared spectrum
<i>J</i>	= Coupling Constant
KBr	= Potassium Bromide
Kg	= Kilogram
L	= Liter
<i>m</i>	= multiplet (for NMR spectra)
m.p.	= Melting Point
<i>m/z</i>	= Mass to Charge Ratio
M^+	= Molecular ion
MeOH	= Methanol
mg	= Milligram
MHz	= Megahertz
min	= minute
ml	= Millimeter
mm	= Millimeter
MS	= Mass Spectrometry
nm	= Nanometer
NMR	= Nuclear Magnetic Resonance
NOESY	= Nuclear Overhauser Effect spectroscopy
PBS	= Phosphate Buffer Saline
ppm	= part per million
<i>s</i>	= Singlet (for NMR spectra)
ssp.	= Species
<i>t</i>	= Triplet (for NMR spectra)
TLC	= Thin Layer Chromatography
UV	= Ultraviolet
δ	= Chemical shift
μl	= Microliter