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*Croton oblongifolius* Roxb. จาก อำเภอเมือง จังหวัดประจวบคีรีขันธ์

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CYTOTOXICITY OF CHEMICAL CONSTITUENTS OF THE STEM BARKS OF  
*Croton oblongifolius* Roxb. FROM MUANG, PRACHUAP KHIRI KHAN PROVINCE

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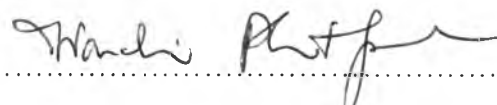
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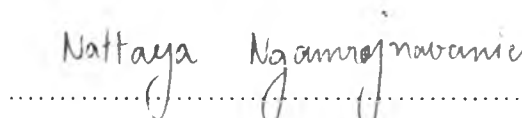
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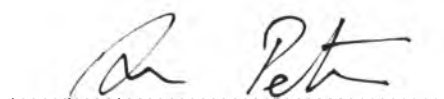
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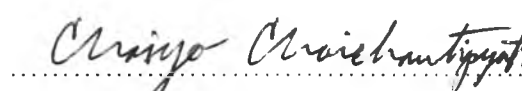
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ต้นเปล้าใหญ่ (*Croton oblongifolius* Roxb.) จาก อำเภอเมือง จังหวัด  
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จากการสกัดเปลือกต้นเปล้าใหญ่ (*Croton oblongifolius* Roxb.) จากอำเภอเมือง  
จังหวัดประจวบคีรีขันธ์ ด้วยตัวทำละลาย 3 ชนิด คือ เฮกเซน, เอทิลอะซิเตท และเมทา  
นอล ตามลำดับ และแยกสารบริสุทธิ์ด้วยวิธีคอลัมน์โครมาโตกราฟีบนซิลิกาเจลได้สาร 6  
ชนิด ได้แก่ Trachyloban-19-oic-acid (1) ซึ่งเป็นสารประกอบทราลิโลบาล, Poilaneic acid  
(2) ซึ่งเป็นสารประกอบเซมบรานอยด์, 12(E),14-labdadiene-7,8-diol (4), 6-acetoxy-12  
(E),14-labdadiene-7,8-diol (5), 12(E),14-labdadiene-6,7,8-triol (6) ซึ่งเป็นสารประกอบ  
แลบเดน และของผสมของสเตอรอยด์ 2 ชนิด ได้แก่ Stigmasterol and  $\beta$ -sitosterol (3)  
และเป็นครั้งแรกที่พบสาร 1, 5 และ 6 ในต้นเปล้าใหญ่ และได้สังเคราะห์อนุพันธ์ของสาร  
4 โดยปฏิกิริยา acetylation ได้ 7-acetoxy-12,14-labdadiene-8-ol การหาสูตรโครงสร้าง  
ของสารต่างๆที่แยกได้โดยอาศัยสมบัติทางกายภาพและทางสเปกโตรสโกปี และนำสารที่  
แยกได้มาทดสอบฤทธิ์ในการยับยั้งเซลล์มะเร็งซึ่งได้แก่ Hep-G2 (ตับ), SW 620 (ลำไส้),  
Chago (ปอด), Kato-3 (กระเพาะอาหาร) and BT 474 (เต้านม) พบว่าสาร 4 และสาร 6 มี  
ฤทธิ์ในการยับยั้งเซลล์มะเร็งทั้ง 5 ชนิด สาร 5 มีฤทธิ์ในการยับยั้งเซลล์มะเร็งปานกลางกับ  
มะเร็งชนิด Hep-G2, SW 620, Chago และ Kato-3 นอกจากนี้สาร 1 และ 2 มีฤทธิ์ยับยั้ง  
เซลล์มะเร็งชนิด Hep-G2 และ SW 620 เพียงเล็กน้อย

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ลายมือชื่ออาจารย์ที่ปรึกษาร่วม..... ออมร เพชรสม

BOONJIRA BOONTHA: CYTOTOXICITY OF CHEMICAL CONSTITUENTS  
OF THE STEM BARKS OF *Croton oblongifolius* Roxb. FROM MUANG,  
PRACHUAP KHIRI KHAN PROVINCE

THESIS ADVISOR: NATTAYA NGAMROJNAVANICH, Ph.D.

THESIS CO-ADVISOR: Associate Professor AMORN PETSOM, Ph.D.

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The stem barks of *Croton oblongifolius* Roxb. were extracted with hexane, ethyl acetate and methanol, respectively. The extracts were separated by column chromatography on silica gel. Six compounds were isolated and identified, namely, Trachyloban-19-oic-acid (1) (trachylobane diterpenoid), Poilaneic acid (2) (cembrane diterpenoid), 12(E),14-labdadiene-7,8-diol (4), 6-acetoxy-12(E),14-labdadiene-7,8-diol (5), 12(E),14-labdadiene-6,7,8-triol (6) (labdane diterpenoid) and a mixed steroid of Stigmasterol and  $\beta$ -sitosterol(3). Moreover, this is the first report of compound 1, 5 and 6 from this plant. Compound 4a was obtained from the acetylation of compound 4, which was assigned as 7-acetoxy-12,14-labdadiene-8-ol. Their physical properties and spectroscopic data identified the structures of the isolate compounds. The compounds were tested for cytotoxicity against cancer cell lines: Hep-G2 (hepatoma), SW 620 (colon), Chago (lung), Kato-3 (gastric) and BT 474 (breast). Compound 4 and compound 6 showed strong activity against all cancer cell lines. Compound 5 and compound 4a showed moderate activity against Hep-G2, SW 620, Chago and Kato-3. However, compound 1 and compound 2 showed only weak activity against Hep-G2 and SW 620.

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## CONTENTS

	Page
ABSTRACT IN THAI.....	iv
ABSTRACT IN ENGLISH .....	v
ACKNOWLEDGEMENT.....	vi
CONTENTS .....	vii
LIST OF TABLES .....	x
LIST OF FIGURES .....	xii
LIST OF ABBREVIATIONS .....	xv
CHAPTER I INTRODUCTION .....	1
CHAPTER II LITERATURE REVIEWS	
2.1 General characteristics of the plants in the Genus <i>Croton</i> .....	4
2.2 Botanical characteristics of <i>C. oblongifolius</i> Roxb. ....	4
2.3 The chemical constituents of <i>C. oblongifolius</i> Roxb.....	6
2.4 Biological activity of Diterpene compounds.....	12
2.5 Biological activity of diterpene compounds isolated from <i>C. oblongifolius</i> Roxb. ....	15
2.6 Cytotoxic activity of some compounds of <i>C. oblongifolius</i> .....	16
2.7 Biosynthesis of diterpenoid compounds .....	17
2.7.1 Biosynthesis of Labdane compound.....	20
2.7.2 Biosynthesis of Trachylobane compound.....	21
CHAPTER III EXPERIMENTS	
3.1 PLANT MATERIALS.....	22
3.2 INSTRUMENT AND EQUIPMENTS.....	22
3.3 CHEMICAL.....	23
3.4 EXTRACTION AND ISOLATION.....	24

	Page
3.5 SEPARATION OF CRUDE EXTRACTION OF	
<i>C. oblongifolius</i> Roxb.....	26
3.5.1 Separation of hexane crude extract.....	26
3.5.2 Separation of ethyl acetate crude extract.....	28
3.5.3 Separation of methanol crude extract.....	28
3.6 PURIFICATION AND PHYSICAL PROPERTY	
OF COMPOUNDS OF HEXANE CRUDE EXTRACT	
3.6.1 Purification and Physical property of Compound <u>1</u> .....	29
3.6.2 Purification and Physical property of Compound <u>2</u> .....	31
3.6.3 Purification and Physical property of Mixture <u>3</u> .....	32
3.6.4 Purification and Physical property of Compound <u>4</u> .....	33
3.6.5 Purification and Physical property of Compound <u>5</u> .....	34
3.6.6 Purification and Physical property of Compound <u>6</u> .....	35
3.6.7 Purification and Physical property of	
modification of Compound <u>4</u> .....	36
3.7 PURIFICATION OF THE COMPOUNDS FROM	
ETHYL ACETATE CRUDE EXTRACT.....	38
3.8 BIOLOGICAL EVALUATION.....	38
CHAPTER IV RESULTS AND DISCUSSION	
4.1 STRUCTURE ELUCIDATION OF THE ISOLATED	
COMPOUNDS FROM THE STEM BARKS	
OF <i>C. oblongifolius</i> Roxb. ....	39
4.1.1 Structure elucidation of Compound <u>1</u> .....	39



	<b>Page</b>
4.1.2 Structure elucidation of Compound <u>2</u> .....	42
4.1.3 Structure elucidation of Mixture <u>3</u> .....	45
4.1.4 Structure elucidation of Compound <u>4</u> .....	49
4.1.5 Structure elucidation of Compound <u>5</u> .....	53
4.1.6 Structure elucidation of Compound <u>6</u> .....	56
4.1.7 Structure elucidation of Compound <u>4a</u> .....	65
4.2 RESULTS OF BIOLOGICAL ACTIVITY.....	69
CHAPTER V CONCLUSION .....	71
REFERENCES .....	73
APPENDIX .....	78
VITA.....	118

## LIST OF TABLES

	Page
<b>Table 1</b> The chemical constituents of <i>C. oblongifolius</i> Roxb.....	8
<b>Table 2</b> Plant diterpene biological activity.....	13
<b>Table 3</b> Cytotoxic activity against cancer cell lines of some diterpene compounds from <i>C. oblongifolius</i> .....	16
<b>Table 4</b> The solvent extracts of the stem barks of <i>C. oblongifolius</i> Roxb.....	24
<b>Table 5</b> The result from column chromatography of hexane crude extract...	27
<b>Table 6</b> Screening test of cytotoxic activity of hexane, ethyl acetate and methanol crude extract of the stem barks of <i>C. oblongifolius</i> from Muang, Prachuab khiri khan province .....	38
<b>Table 7</b> The IR absorption bands assignment of Compound <u>1</u> .....	39
<b>Table 8</b> Comparison of <sup>13</sup> C-NMR data of Compound <u>1</u> with Trachyloban-19-oic acid.....	41
<b>Table 9</b> The IR absorption band assignment of Compound <u>2</u> .....	42
<b>Table 10</b> Comparison of <sup>13</sup> C-NMR data of Poilaneic acid with Compound <u>2</u> .....	44
<b>Table 11</b> The IR absorption band assignment of Mixture <u>3</u> .....	45
<b>Table 12</b> The <sup>13</sup> C-NMR chemical shift of Mixture <u>3</u> compared with $\beta$ -sitosterol .....	47
<b>Table 13</b> The IR absorption bands assignment of Compound <u>4</u> .....	49
<b>Table 14</b> The <sup>13</sup> C-NMR chemical shift of Compound <u>4</u> compared with Nidorellol .....	52
<b>Table 15</b> The IR absorption bands assignment of Compound <u>5</u> .....	53

	Page
<b>Table 16</b> The $^{13}\text{C}$ -NMR chemical shift of Compound 4 compared with 6-acetoxy-12(E),14-labdadiene-7,8-diol .....	55
<b>Table 17</b> The IR absorption bands assignment of Compound <u>6</u> .....	56
<b>Table 18</b> The HMQC spectral data of Compound <u>6</u> .....	58
<b>Table 19</b> The HMQC, HMBC and COSY spectral data of Compound <u>6</u> .....	59
<b>Table 20</b> The $^{13}\text{C}$ -NMR chemical shift of Compound <u>6</u> compared with Crotomachlin.....	61
<b>Table 21</b> The IR absorption bands assignment of Compound <u>4a</u> .....	65
<b>Table 22</b> The $^{13}\text{C}$ -NMR chemical shift of Compound <u>4a</u> compared with 7-acetoxy-12(E),14-labdadiene-8-diol.....	67
<b>Table 23</b> Cytotoxic activity against 6 cell lines of compounds from <i>C. oblongifolius</i> and Doxorubicin .....	69
<b>Table 24</b> The isolated compounds from the stem barks of <i>C. oblongifolius</i> Roxb. and derivative .....	72

## LIST OF FIGURES

Figure	Page
1. <i>Croton oblongifolius</i> Roxb.....	5
2. The structures of diterpenoid compounds from <i>C. oblongifolius</i> Roxb.....	10
3. Biosynthesis of Labdane diterpene.....	20
4. Biosynthesis of Trachylobane diterpene.....	21
5. The acetylation of Compound <u>4</u> .....	34
6. The structure of Compound <u>1</u> .....	40
7. The structure of Compound <u>2</u> .....	43
8. The structure of Stigmasterol and $\beta$ -sitosterol.....	48
9. The structure of Compound <u>4</u> .....	51
10. The fragmentation pattern of Compound <u>4</u> .....	51
11. The structure of Compound <u>5</u> .....	54
12. The NOESY correlation of Crotomachlin .....	62
13. The structure of Compound <u>6</u> .....	62
14. The HMBC correlation of Compound <u>6</u> .....	63
15. The COSY correlation of Compound <u>6</u> .....	63
16. The NOESY correlation of Compound <u>6</u> .....	64
17. The structure of Compound <u>4a</u> .....	68
18. The IR spectrum of Compound <u>1</u> .....	79
19. The $^1\text{H}$ -NMR spectrum of Compound <u>1</u> .....	80
20. The $^{13}\text{C}$ -NMR spectrum of Compound <u>1</u> .....	81
21. The DEPT 135, $90^\circ$ $^{13}\text{C}$ -NMR spectrum of Compound <u>1</u> .....	82
22. The EIMS spectrum of Compound <u>1</u> .....	83

Figure	Page
23. The IR spectrum of Compound <u>2</u> .....	84
24. The <sup>1</sup> H-NMR spectrum of Compound <u>2</u> .....	85
25. The <sup>13</sup> C-NMR spectrum of Compound <u>2</u> .....	86
26. The DEPT 135, 90 <sup>13</sup> C-NMR spectrum of Compound <u>2</u> .....	87
27. The EIMS spectrum of Compound <u>2</u> .....	88
28. The IR spectrum of Mixture <u>3</u> .....	89
29. The <sup>1</sup> H-NMR spectrum of Mixture <u>3</u> .....	90
30. The <sup>13</sup> C-NMR spectrum of Mixture <u>3</u> .....	91
31. The EIMS spectrum of Mixture <u>3</u> .....	92
32. The GC spectrum of Mixture <u>3</u> .....	93
33. The IR spectrum of Compound <u>4</u> .....	94
34. The <sup>1</sup> H-NMR spectrum of Compound <u>4</u> .....	95
35. The <sup>13</sup> C-NMR spectrum of Compound <u>4</u> .....	96
36. The DEPT 135,90 <sup>13</sup> C-NMR spectrum of Compound <u>4</u> .....	97
37. The EIMS spectrum of Compound <u>4</u> .....	98
38. The IR spectrum of Compound <u>5</u> .....	99
39. The <sup>1</sup> H-NMR spectrum of Compound <u>5</u> .....	100
40. The <sup>13</sup> C-NMR spectrum of Compound <u>5</u> .....	101
41. The DEPT 135, 90 <sup>13</sup> C-NMR spectrum of Compound <u>5</u> .....	102
42. The EIMS spectrum of Compound <u>5</u> .....	103
43. The IR spectrum of Compound <u>6</u> .....	104
44. The <sup>1</sup> H-NMR spectrum of Compound <u>6</u> .....	105
45. The <sup>13</sup> C-NMR spectrum of Compound <u>6</u> .....	106
46. The DEPT 135, 90 <sup>13</sup> C-NMR spectrum of Compound <u>6</u> .....	107
47. The EI MS spectrum of Compound <u>6</u> .....	108

Figure	Page
48. The COSY-NMR spectrum of Compound <u>6</u> .....	109
49. The HMBC-NMR spectrum of Compound <u>6</u> .....	110
50. The HMQC-NMR spectrum of Compound <u>6</u> .....	111
51. The NOESY-NMR spectrum of Compound <u>6</u> .....	112
52. The IR spectrum of Compound <u>4a</u> .....	113
53. The $^1\text{H}$ -NMR spectrum of Compound <u>4a</u> .....	114
54. The $^{13}\text{C}$ -NMR spectrum of Compound <u>4a</u> .....	115
55. The DEPT 135, $90^\circ$ $^{13}\text{C}$ -NMR spectrum of Compound <u>4a</u> .....	116
56. The EIMS spectrum of Compound <u>4a</u> .....	117

## ABBREVIATIONS

br s	=	Broad singlet ( for NMR spectra )
<i>c</i>	=	Concentration
<sup>0</sup> C	=	Degree Celcius
CDCl <sub>3</sub>	=	Deuterated chloroform
CHCl <sub>3</sub>	=	Chloroform
cm	=	Centimeter
<sup>13</sup> C-NMR	=	Carbon-13 nuclear magnetic resonance
COSY	=	Correlated SpectroscopY
d	=	Doublet ( for NMR spectra )
dd	=	Doublet of doublet ( for NMR spectra )
ddd	=	Doublet of doublet of doublet ( for NMR spectra )
DEPT	=	Distortionless Enhancement by Polarization Transfer
DMSO	=	Dimethyl sulfoxide
δ	=	Chemical Shift
EI MS	=	Electron Impact Mass Spectrum
EtOAc	=	Ethyl acetate
g	=	Gram
<sup>1</sup> H-NMR	=	Proton nuclear magnetic resonance
Hz	=	Hertz
HMBC	=	Heteromolecular Multiple Bond Correlation
HMQC	=	Heteromolecular Multiple Quantum Correlation
IR	=	Infrared spectrum
<i>J</i>	=	Coupling constant

kg	=	Kilogram
L	=	Litre
M <sup>+</sup>	=	Molecular ion
mg	=	Milligram
MHz	=	Megahertz
ml	=	Millilitre
mm	=	Millimetre
m.p.	=	Melting point
MeOH	=	Methanol
M	=	Molar
m/z	=	Mass to charge ratio
M.W.	=	Molecular weight
MS	=	Mass spectrometry
No.	=	Number
NMR	=	Nuclear Magnetic Resonance
NOESY	=	Nuclear Overhauser Enhancement Spectroscopy
ppm	=	Part per million
q	=	Quartet ( for NMR spectra )
s	=	Singlet ( for NMR spectra )
t	=	Triplet ( for NMR spectra )
TLC	=	Thin layer Chromatography
wt	=	Weight
R <sub>f</sub>	=	Retention factor in chromatography