

สารประกอบเกลือโรเคนชนิดใหม่จากเปลือกต้นเปล้าใหญ่
Croton oblongifolius Robx. จากอำเภอไพร่ไทย จังหวัดกาญจนบุรี

นางสาวกุศลีน มุสิกกุล

วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปริญญาวิทยาศาสตรมหาบัณฑิต

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NEW CLERODANE COMPOUND FROM STEM BARK OF
Croton Oblongifolius Roxb. FROM AMPHOE SAI YOK
KANCHANABURI PROVINCE

Miss Kusalin Musikul

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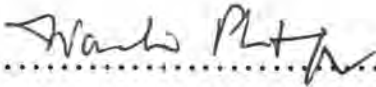
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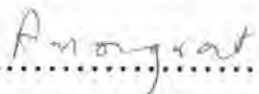

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กุศลสิน มุสิกกุล : สารประกอบเคอลอโรเดนชนิดใหม่จากเปลือกต้นเปลือกใหญ่ *Croton oblongifolius* Roxb. อำเภอไทรโยค จังหวัดกาญจนบุรี (NEW CLERODANE CONPOUND FROM STEM BARK OF *Croton oblongifolius* Roxb. FROM AMPHOE SAI YOK KANCHANABURI PROVINCE) อาจารย์ที่ปรึกษา: รศ.ดร. โสภณ เรืองสำราญ 87 หน้า. ISBN 974-346-564-2

ได้มีการสกัดแยกสารประกอบเคอลอโรเดนใหม่หนึ่งชนิด คือ Croblongifolin (methyl-ent-(18R,10 β)-3,19S:15,16:12S,20R:19,20-tetraepoxy-cleroda-13(16)), สารประกอบเคอลอโรเดน (14-dien-18 β -oate), สารประกอบแลบเดนสองชนิดคือ Labda-14-ene-8,13(S)-diol และ (7S,12Z)-12,14-Labdadiene-7,8-diol จากเปลือกต้นเปลือกใหญ่ อำเภอไทรโยค จังหวัดกาญจนบุรี และได้ทำการพิสูจน์สูตรโครงสร้างของ Croblongifolin โดยอาศัยข้อมูลทางสเปกโตรสโกปี ซึ่งได้แก่ IR, MS, 1D และ 2D NMR เทคนิคคือ DEPT, COSY, NOESY, HMBC และ HMQC และนำมาทดสอบการยับยั้งเซลล์มะเร็งในหลอดทดลองกับเซลล์มะเร็ง KATO-3 (กระเพาะอาหาร), SW 620 (ลำไส้), BT 474 (เต้านม) HEP-G2 (ตับ) และ CHAGO (ปอด) พบว่าสารเคอลอโรเดนชนิดใหม่มีฤทธิ์ยับยั้งเซลล์มะเร็งทั้ง 5 ชนิด

ภาควิชา..... 1 คน
สาขาวิชา..... เคมีอินทรีย์
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ลายมือชื่อนิสิต..... กุศลสิน มุสิกกุล
ลายมือชื่ออาจารย์ที่ปรึกษา..... โสภณ เรืองสำราญ
ลายมือชื่ออาจารย์ที่ปรึกษาร่วม..... อ.พร. อัครานพคุณ

KUSALIN MUSIKUL : NEW CLERODANE COMPOUND FROM STEM BARK OF *Croton oblongifolius* Roxb. FROM AMPHOE SAI YOK KANCHANABURI PROVINCE. THESIS ADVISOR: ASSOC. PROF. SOPHON ROENGSUMRAN, Ph.D. 87 pp. ISBN 974-346-564-2

A new clerodane diterpenoid compound, Croblongifolin (methyl-*ent*-(18R,10 β)-3,19S:15,16:12S,20R:19,20-tetraepoxy-cleroda-13(16)), a known clerodane (14-dien-18 β -oate), two labdanes diterpenoid compounds, Labda-14-ene-8,13(S)-diol and (7S,12Z)-12,14-Labdadiene-7,8-diol were isolated from the stem bark of *Croton oblongifolius* Roxb.. The structure of new compound was established by spectroscopic data (IR, MS spectra, 1D and 2D NMR techniques including DEPT, COSY, NOESY, HMBC and HMQC) and they were tested for cytotoxicity against various human tumor cell lines (KATO-3 (gastric), SW 620 (colon), BT 474 (breast), HEP-G2 (hepatoma), and CHAGO (lung)). Croblongifolin showed the strong exhibition against 5 cell lines.

Department *chemistry* Student's signature *KUSALIN MUSIKUL*
Field of study *organic chemistry* Advisor's signature *Sophon Roengsumran*
Academic year *2000* Co-advisor's signature *Chungo Deekhamtipyath*

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Last but not least the author would like to dedicate this master thesis with great respect and love to her family for all things that they have endured and sacrificed for her success.

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LIST OF ABBREVIATIONS

b.p.	=	Boiling point
br s	=	Broad singlet (for NMR spectra)
<i>c</i>	=	Concentration
⁰ C	=	Degree celcius
CDCl ₃	=	Chloroform
CH ₂ Cl ₂	=	Dichloromethane
cm	=	Centimetre
cm ⁻¹	=	Reciprocal centimetre
¹³ 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	=	Gramme
¹ H-NMR	=	Proton nuclear magnetic resonance
<i>H_z</i>	=	Hertz
HMBC	=	Heteromolecular Multiple Bond Correlation
HMQC	=	Heteromolecular Multiple Quantum Correlation
IR	=	Infrared spectrum
<i>J</i>	=	Coupling constant
kg	=	Kilogramme
L	=	Litre
M ⁺	=	Molecular ion
mg	=	Milligramme
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_f	=	Retention factor in chromatography
μl	=	Microlitre