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นาย จุฑาวัตร อุ่นภักดี



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PHYTOCHEMICAL STUDY OF *DIOSPYROS UNDULATA* VAR. *CRATERICALYX* LEAVES

Mr. Jutawatra Aoonpakh

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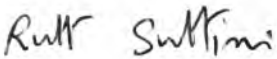
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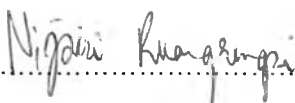
.....Dean of Faculty of  
Pharmaceutical Sciences  
(Associate Professor Sunibhond Pummangura, Ph.D.)

THESIS COMMITTEE

..... Chairman  
(Associate Professor Rapepol Bavovada, Ph.D.)

..... Thesis Advisor  
(Assistant Professor Rutt Suttisri, Ph.D.)

..... Member  
(Associate Professor Ekarin Saifah, Ph.D.)

..... Member  
(Associate Professor Nijisiri Ruangrunsi, Ph.D.)

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การศึกษาพฤกษเคมีของใบชะพลิง (*DIOSPYROS UNDULATA* VAR. *CRATERICALYX*. (CRAIB) BAKH.) วงศ์ Ebenaceae ด้วยเทคนิคโครมาโทกราฟีสามารถแยกองค์ประกอบทางเคมีจากสิ่งสกัดได้สารชนิดใหม่ในกลุ่มของ dimeric naphthoquinone 1 ชนิด คือ undulatanone (7,7'-biplumbagin) รวมทั้งสารที่ทราบสูตรโครงสร้างแล้ว คือ maritinone และ plumbagin และยังสามารถแยกสารกลุ่มไตรเทอร์ปีน ได้อีก 3 ชนิด คือ lupeol, friedelin และ betulin การพิสูจน์โครงสร้างทางเคมีของสารเหล่านี้ ทำโดยการวิเคราะห์ข้อมูล UV, IR, MS, <sup>1</sup>H-NMR และ <sup>13</sup>C-NMR โดยเฉพาะอย่างยิ่ง 1D-NMR และ 2D-NMR ร่วมกับการเปรียบเทียบข้อมูลที่ได้ กับสารอื่นที่มีสูตรโครงสร้างทางเคมีที่สัมพันธ์กัน

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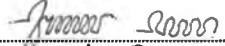

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KEY WORD: *Diospyros undulata* var. *cratericalyx* / Ebenaceae / dimeric naphthoquinones/ naphthoquinones / triterpenoids

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In the course of the phytochemical study of the leaves of *Diospyros undulata* var. *cratericalyx* (Craib) Bakh. (family Ebenaceae) using chromatographic techniques, a novel dimeric naphthoquinone, undulatanone (7,7'-biplumbagin), together with the known compounds maritinone and plumbagin were obtained. Three triterpenoids : lupeol, friedelin and betulin, were also isolated. The structure elucidation of these compounds were accomplished through the analysis of their UV, IR, MS, <sup>1</sup>H-NMR and <sup>13</sup>C-NMR, especially the 1D-NMR and 2D-NMR data, together with the comparison of these values to other related compounds.

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**LIST OF ABBREVIATIONS**

br	= broad (for NMR spectra)
$^{\circ}\text{C}$	= Degree Celsius
$\text{CDCl}_3$	= Deuterated chloroform
$\text{CHCl}_3$	= Chloroform
cm	= Centimeter
COLOC	= Correlation spectroscopy via Long-range Coupling
$^{13}\text{C}$ -NMR	= Carbon-13 nuclear magnetic resonance
COSY	= Correlation spectroscopy
1D	= One dimensional
2D	= Two dimensional
d	= doublet (for NMR spectra)
dd	= doublet of doublets (for NMR spectra)
DEPT	= Distortionless Enhancement by Polarization Transfer
$\delta$	= Chemical Shift
$\epsilon$	= Molar absorptivity
$\text{ED}_{50}$	= 50% Effective Dose
EIMS	= Electron Impact Mass Spectrum
g	= Gram
$^1\text{H}$ -NMR	= Proton nuclear magnetic resonance
HMBC	= $^1\text{H}$ -detected Heteronuclear Multiple Bond Coherence
HETCOR	= Heteronuclear Chemical Shift Correlation
HRMS	= High Resolution Mass Spectrum
Hz	= Hertz
IR	= Infrared spectroscopy
$J$	= Coupling Constant
KBr	= Potassium Bromide
Kg	= Kilogram
L	= Liter
$\lambda_{\text{max}}$	= Wavelength at maximal absorption
$\text{M}^+$	= Molecular ion
m	= multiplet (for NMR spectra)
MeOH	= Methanol
mg	= Milligram

MHz	= Megahertz
μg	= Microgram
ml	= Millimeter
mm	= Millimeter
<i>m/z</i>	= Mass to Charge Ratio
m.p.	= Melting Point
MS	= Mass Spectrometry
nm	= Nanometer
NMR	= Nuclear Magnetic Resonance
$\nu_{\max}$	= Wave number at maximal absorption
ppm	= part per million
s	= Singlet (for NMR spectra)
sp.	= Species
ssp.	= Subspecies
t	= Triplet (for NMR spectra)
TLC	= Thin Layer Chromatography
UV	= Ultraviolet Spectroscopy