

พฤษเคมีของเปลือกเตาและลักษณะทางเภสัชเวทของชะเอมเหนือ



นายธนภัทร ทรงศักดิ์

ศูนย์วิทยทรัพยากร

วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปริญญาเภสัชศาสตรมหาบัณฑิต

จุฬาลงกรณ์มหาวิทยาลัย
ภาควิชาเภสัชเวท

บัณฑิตวิทยาลัย จุฬาลงกรณ์มหาวิทยาลัย

พ.ศ. 2538

ISBN 974-632-033-5

ลิขสิทธิ์ของบัณฑิตวิทยาลัย จุฬาลงกรณ์มหาวิทยาลัย

16457948

**Phytochemistry of Stem Bark and Pharmacognostic Specification of
Derris reticulata Craib**



Mr. Thanapat Songsak

ศูนย์วิทยุทยากร

**A Thesis Submitted in Partial Fulfillment of the Requirements
for the Degree of Master of Science in Pharmacy
Department of Pharmacognosy**

**Graduate School
Chulalongkorn University**


1995

ISBN 974-632-033-5



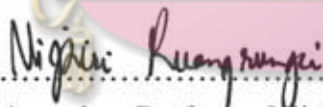
Thesis Title Phytochemistry of Stem Bark and Pharmacognostic Specification of *Derris reticulata* Craib
By Mr. Thanapat Songsak
Department Pharmacognosy
Thesis Advisor Associate Professor Nijsiri Ruangrunsi, M.Sc. in Pharm.
Thesis Co-Advisor Assistant Professor Thatree Phadungcharoen, M.Sc. in Pharm.

Accepted by the Graduate School, Chulalongkorn University in Partial Fulfilment of the Requirements for the Master's Degree.



..... Dean of Graduate School
(Associate Professor Santi Thoongsuwan, Ph.D.)

Thesis Committee


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..... Thesis Co-Advisor
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..... Member
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..... Member
(Associate Professor Laddawan Boonyaratanakornkit, M.Sc. in Pharm.)



พิมพ์ต้นฉบับบทคัดย่อวิทยานิพนธ์ภายในกรอบสี่เหลี่ยมนี้เพียงแผ่นเดียว

ธนภัทร ทรงศักดิ์ : พฤษเคมีของเปลือกเถาและลักษณะทางเภสัชเวชของชะเอมเหนื่อ (PHYTOCHEMISTRY OF STEM BARK AND PHARMACOGNOSTIC SPECIFICATION OF DERRIS RETICULATA CRAIB) อาจารย์ที่ปรึกษา : รศ. นิจศิริ เรืองรังษี, อาจารย์ที่ปรึกษาร่วม : ผศ. ธาตรี ผดุงเจริญ, 267 หน้า. ISBN 974-632-033-5

การศึกษาทางพฤษเคมีของเปลือกเถาชะเอมเหนื่อ Derris reticulata Craib (Leguminosae) ได้ทำการแยกสารประกอบ 2 ชนิดจากสิ่งสกัดในเอทานอล ได้แก่ lupinifolin ; (2S)-4',5-dihydroxy-8-(3"-methyl-2"-butenyl)-2",2"-dimethylpyrano [5".6"-g] flavanone และ lupiwighteone ; 5,7,4'-trihydroxy -8-(3"-methyl-2"-butenyl) isoflavone ซึ่งเป็นสารที่มีการศึกษามาแล้ว การพิสูจน์เอกลักษณ์และสูตรโครงสร้างทางเคมีของสารทั้ง 2 ชนิดนี้พิสูจน์โดยการวิเคราะห์ข้อมูลจากสเปกตรัมของ UV, IR, MS และ NMR ร่วมกับการเปรียบเทียบข้อมูลของสารที่ทราบสูตรโครงสร้างแล้ว พบว่าข้อมูลของ ¹³C-NMR ที่เคยมีรายงานของ lupinifolin ควรมีการทบทวนแก้ไข และจากการศึกษาทางโครมาโทกราฟี ฉาบบาง (Thin-layer chromatography) สามารถตรวจพบน้ำตาลซูโครสในสิ่งสกัดชั้นน้ำของพืชชนิดนี้

นอกจากนี้ได้ทำการศึกษาลักษณะจำเพาะทางเภสัชเวช ได้แก่ ศึกษาการหาค่าคงที่จากใบ, ศึกษาลักษณะของผงสมุนไพร และการตรวจหากระสวนรังคเลข (Chromatographic patterns) ขององค์ประกอบทางเคมีของเถาโดยวิธีเอกมิติ (One-dimensional) และทวิมิติ (Two-dimensional) เพื่อเป็นแนวทางในการตรวจเอกลักษณ์ของพืชสมุนไพรดังกล่าว

เนื่องจากตัวอย่างเถาชะเอมเหนื่อที่เก็บมาทำการวิจัยนั้นมีลักษณะภายนอก และรสชาติใกล้เคียงกับชะเอมไทยที่มีขายตามร้านขายยาแผนโบราณและผลจากการศึกษาเปรียบเทียบลักษณะทางโครมาโทกราฟี ฉาบบาง พบว่าชะเอมไทยจากแหล่งต่าง ๆ ดังกล่าวเป็นต้นชะเอมเหนื่อ

ศูนย์วิทยพัชยากร
จุฬาลงกรณ์มหาวิทยาลัย

ภาควิชา เภสัช เวท
สาขาวิชา เภสัช เวท
ปีการศึกษา 2537

ลายมือชื่อนิสิต ธนภัทร ทรงศักดิ์
ลายมือชื่ออาจารย์ที่ปรึกษา นิจศิริ เรืองรังษี
ลายมือชื่ออาจารย์ที่ปรึกษาร่วม ธาตรี ผดุงเจริญ



C 675415 : MAJOR PHARMACOGNOSY

KEY WORD: DERRIS RETICULATA / LEGUMINOSAE / CHEMICAL CONSTITUENTS /
PHARMACOGNOSTIC STUDY / STEM BARK

THANAPAT SONGSAK : PHYTOCHEMISTRY OF STEM BARK AND
PHARMACOGNOSTIC SPECIFICATION OF DERRIS RETICULATA CRAIB. THESIS
ADVISOR : ASSO. PROF. NIJSIRI RUANGRUNGSI, M.Sc. IN PHARM., THESIS
CO-ADVISOR : ASST. PROF. THATREE PHADUNGCHAROEN, M.Sc. IN PHARM. 267
pp. ISBN 974-632-033-5

The research work was emphasized on phytochemical and pharmacognostic studies of Derris reticulata Craib (Leguminosae). A known flavanone named lupinifolin ; (2S)-4',5-dihydroxy-8-(3"-methyl-2"-butenyl)-2",2"-dimethylpyrano [5".6"-g] flavanone and a known isoflavone named lupiwightone ; 5,7,4'-trihydroxy-8-(3" methyl-2"-butenyl) isoflavone were isolated from the ethanol extract of D. reticulata Craib stem bark. The identification and structure elucidation of the isolated compounds were executed by analyses of the UV, IR, MS, NMR spectral data, as well as comparison with the published values previously reported in the literatures and found that the ¹³C-NMR assignment of lupinifolin should be revised. The determination of free sugar in the aqueous portion of the D. reticulata Craib stem's extract revealed the presence of sucrose which may be the major sweetener of this plant.

Pharmacognostical specification was established by detailed studying of the quantitative values of leaf, microscopical study of powdered drug and chromatographic patterns of chemical constituents of stem both one-dimensional and two-dimensional TLC with a view to bring out the diagnostic characters of the drugs.

Identification for the corrected botanical origin of Cha-aem Thai by Thin-layer chromatographic patterns led to the conclusion that Cha-aem Thai samples which were commercially available in various local traditional drug distributors are Derris reticulata Craib, Cha-aem nuea.

ภาควิชา..... เกษษเวช
สาขาวิชา..... เกษษเวช
ปีการศึกษา..... 2537

ลายมือชื่อนิสิต..... อนันท์ ทรงศักดิ์
ลายมือชื่ออาจารย์ที่ปรึกษา..... หม่อมราชวงศ์ ธีระเกียรติ
ลายมือชื่ออาจารย์ที่ปรึกษาร่วม..... ศาสตราจารย์ ดร. พงษ์ภิญโญ



Acknowledgements

The author wishes to express his grateful appreciation to his thesis advisor, Associate Professor Nijisiri Ruangrunsi of the Department of Pharmacognosy, Faculty of Pharmaceutical Sciences, Chulalongkorn University, for his helpful guidance, suggestion, keen interest, continual encouragement and kindness throughout the research studies.

The author would like to acknowledge his sincere thanks to Assistant Professor Thatree Phadungcharoen of the Department of Pharmacognosy, Faculty of Pharmaceutical Sciences, Chulalongkorn University, for concern, kindly assistance and valuable advice.

The author wishes to acknowledge their appreciations to Associate Professor Laddawan Boonyaratanakornkit, Associate Professor Dr. Wanchai De-Eknamkul, and Head of the Department of Pharmacognosy ; Associate Professor Chaiyo Chaichantipyuth for their kindnesses and helps.

The author is deeply grateful to Dr. Munekazu Iinuma and Dr. Toshiyuki Tanaka of the Department of Pharmacognosy, Gifu Pharmaceutical University, Japan, for their assistances in NMR, IR and MS experiments, and their valuable suggestions on the structure elucidation of the isolated compounds.

The author would like to thank all NMR-operators of the Scientific and Technological Research Equipment Center, Chulalongkorn University for their kindly support in DEPT experiments.

The author would like to acknowledge his appreciation to Professor Dr. Sasri Panyarajun for her encouragement, valuable advice, also for her cheerfulness and sympathy throughout.

The author is also gratefully indebted to his family for their love, understanding and financial support.

Finally, the author's thanks are due to Chulalongkorn University Graduate School for granting his partial financial support (of fourteen thousand baht) to conduct this investigation.



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ABBREVIATIONS

br	=	Broad (for NMR spectra)
br s	=	Broad singlet (for NMR spectra)
cm	=	Centimetre
°C	=	Degree Celsius
COLOC	=	Correlation spectroscopy via long range coupling
¹³ C-NMR	=	Carbon -13 nuclear magnetic resonance
d	=	Doublet (for NMR spectra)
dd	=	Doublet of doublets (for NMR spectra)
DEPT	=	Distortionless enhancement by polarization transfer
EIMS	=	Electron impact mass spectrum
g	=	Gram
Glc	=	Glucose
¹ H-NMR	=	Proton nuclear magnetic resonance
HPLC	=	High performance liquid chromatography
hR _f	=	Rate of flow in chromatography multiplied by 100
HETCOR	=	Heteronuclear chemical shift correlation
HMBC	=	Heteronuclear multiple bond connectivity
NMR	=	Nuclear magnetic resonance
NOESY	=	Nuclear overhauser effect spectroscopy
IR	=	Infrared
<i>J</i>	=	Coupling constant
kg	=	Kilogram
L	=	Litre
m	=	Multiplet
m.p.	=	Melting point
MS	=	Mass spectrum

M ⁺	=	Molecular ion
Me	=	Methyl group
MHz	=	Mega Hertz
λ_{\max}	=	Maximum absorption wavelength
min	=	Minute
MW	=	Molecular weight
mg	=	milligram
ml	=	Millilitre
mm	=	Millimetre
<i>m/z</i>	=	Mass to charge ratio
No.	=	Number
nm	=	Nanometre
ppm	=	Part per million
s	=	Singlet (for NMR spectra)
sh	=	Shoulder
spp	=	Species
t	=	Triplet (for NMR spectra)
TLC	=	Thin layer chromatography
TMS	=	Tetramethylsilane
UV	=	Ultra Violet
δ	=	Chemical shift
ν_{\max}	=	Wave number at maximum absorption

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