

องค์ประกอบทางเคมีของเหง้าหม่ายี้

*Zingiber rubens* Roxb.

นางสาววิภาวี ฉันทรุจิ



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**CHEMICAL CONSTITUENTS OF THE RHIZOMES OF**

***Zingiber rubens* Roxb.**



**Miss Wipawee Chuntaruchi**

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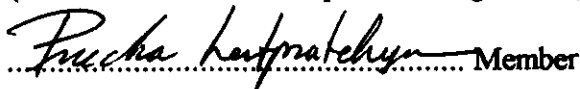
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พิมพ์ต้นฉบับบทความวิจัยวิทยานิพนธ์ภายในกรอบสี่เหลี่ยมนี้เพียงแผ่นเดียว

วิชา วิจัย : องค์ประกอบทางเคมีของเหง้าหมายี่ ( Chemical constituents of the rhizomes of *Zingiber rubens* Roxb.) อาจารย์ที่ปรึกษา : ผศ.ดร.อมร เพชรสม, 126 หน้า. ISBN 974-635-219-9

นำเหง้าหมายี่แห้งมาทำการกลั่นด้วยไอน้ำ ได้สารผสมของน้ำมันหอมระเหย ซึ่งสามารถระเหยได้ 13 องค์ประกอบ โดยการเปรียบเทียบแมสสเปกตรัมของแต่ละองค์ประกอบกับแมสสเปกตรัมในฐานข้อมูล NIST และจากสกัดด้วยตัวทำละลาย ทำการแยกสารที่สกัดได้ โดยใช้เทคนิคทางโครมาโทกราฟี พบว่าสามารถแยกได้เป็นสารผสม 2 ชนิด และสารประกอบ 3 ชนิด และหาสูตรโครงสร้างของสารเหล่านี้โดยอาศัยคุณสมบัติทางกายภาพและข้อมูลทางสเปกโตรสโกปี ดังนี้ สารผสม 1 เป็นสารผสมของ campesterol, stigmasterol และ  $\beta$ -sitosterol. สารผสม 2 เป็นสารผสมของ campesteryl-3-O- $\beta$ -D-glucopyranoside, stigmasteryl-3-O- $\beta$ -D-glucopyranoside และ  $\beta$ -sitosteryl-3-O- $\beta$ -D-glucopyranoside. สารประกอบ 3 ชนิด คือ elemol, 3',5-dihydroxy-4',7-dimethoxyflavonol และ 5-hydroxy-4',7-dimethoxyflavonol.

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A mixture of essential oils from dried rhizomes of *Zingiber rubens* Roxb. were obtained by steam-distillation. Thirteen of the components were identified by comparison of their mass spectra to those in the NIST database. Solvent extraction of the rhizomes and separation of the crude extracts by chromatography led to two mixtures and three compounds. The structures of these compounds were determined by their physical properties and spectroscopic data. Mixture 1 was a mixture of campesterol, stigmasterol and  $\beta$ -sitosterol. Mixture 2 was a mixture of campesterol-3-O- $\beta$ -D-glucopyranoside, stigmasterol-3-O- $\beta$ -D-glucopyranoside,  $\beta$ -sitosterol-3-O- $\beta$ -D-glucopyranoside. The three compounds were elemol, 3',5-dihydroxy-4',7-dimethoxyflavonol and 5-hydroxy-4',7-dimethoxyflavonol.



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## LIST OF ABBREVIATIONS

br	broad (IR), (NMR)
$^{\circ}\text{C}$	degree celsius
$^{13}\text{C}$ NMR	carbon 13 nuclear magnetic resonance
cm	unit of centimetre
$\text{cm}^{-1}$	unit of wavenumber
cont.	continue
$\delta$	chemical shift
d	doublet (NMR)
dd	doublet of doublet (NMR)
DEPT	distortionless enhancement by polarization transfer
EI	electron impact technique in mass spectrometry
Fig.	figure
g	gram (s)
GC-MS	gas chromatography-mass spectrometry
GLC	gas liquid chromatography
$^1\text{H}$ NMR	proton nuclear magnetic resonance
HMBC	heteronuclear multiple bond correlation
HMQC	heteronuclear multiple quantum correlation
IR	infrared

J	coupling constant (NMR)
kg	kilogram
m	medium (IR)
m	multiplet (NMR)
M <sup>+</sup>	molecular ion in mass spectrum
m.p.	melting point
M.W.	molecular weight
m/z	mass per charge
mg	milligram (s)
min.	minute
$\nu_{\max}$	the wavelength at maximum absorption
No.	number
NOE	nuclear overhauser effect
ppm	part per million
q	quartet (NMR)
R <sub>f</sub>	rate of flow in chromatography
R <sub>t</sub>	retention time
s	strong (IR), singlet (NMR)
t	triplet (NMR)
TLC	thin layer chromatography
w	weak (IR)
wt.by.wt.	weight by weight