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นางสาวระวิวรรณ แก้วอมตวงศ์

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FREE RADICAL SCAVENGING COMPOUNDS FROM *OCHNA INTEGERRIMA*

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โดยใช้วิธีทางโครมาโตกราฟีต่างๆ สามารถแยกสารประกอบเคมี 19 ชนิด จากส่วนใบ เนื้อไม้ เปลือกต้น เนื้อราก และเปลือกรากของช้างน้าว การพิสูจน์โครงสร้างอาศัยการวิเคราะห์ข้อมูลทางสเปคโตรสโคปี ได้แก่ UV, IR, MS และ NMR พบว่าประกอบด้วยสารใหม่ 2 ชนิด คือ 6‴-hydroxylophirone B และ 6‴-hydroxylophirone B 4‴-*O*-β-glucoside และเป็นสารที่มีรายงานมาแล้ว 17 ชนิด ได้แก่ lophirone C, ochnaflavone, calodenone, 5-hydroxy-4′-methoxy-6,7-methylenedioxy isoflavone, lophirone A, 7″-*O*-methyl ochnaflavone, squarrosin, 5,3′,4′-trimethoxy-6,7-methylenedioxy isoflavone, 3,3′,4′,5,7-pentahydroxy-6-prenylflavanone, 3-(2,4-dihydroxybenzoyl)-4,6-dihydroxy-2-(4-hydroxyphenyl)-1-benzofuran-7-yl 2-(4-hydroxyphenyl) ethenyl ketone, 3-(2,4-dihydroxybenzoyl)-2,3-dihydro-4,6-dihydroxy-2-(4-hydroxyphenyl)-1-benzofuran-7-yl 2-(4-hydroxyphenyl) ethenyl ketone, 5,4′-dimethoxy-6,7-methylenedioxy isoflavone, gerontoisoflavone A, 4′,7-dihydroxy 5-methoxy isoflavone, *trans* tetracocyl ferulate, 2,7,4′-trihydroxy isoflavone และ protocatechuic acid พบว่าสารที่แสดงฤทธิ์จับอนุมูล DPPH ปานกลาง คือ 3-(2,4-dihydroxybenzoyl)-4,6-dihydroxy-2-(4-hydroxyphenyl)-1-benzofuran-7-yl 2-(4-hydroxyphenyl) ethenyl ketone, 4′,7-dihydroxy 5-methoxy isoflavone และ 2,7,4′-trihydroxy isoflavone

ภาควิชาเภสัชเวท
สาขาวิชาเภสัชเคมีและผลิตภัณฑ์ธรรมชาติ
ปีการศึกษา 2545

ลายมือชื่อนิสิต.....
ลายมือชื่ออาจารย์ที่ปรึกษา.....
ลายมือชื่ออาจารย์ที่ปรึกษาร่วม.....
ลายมือชื่ออาจารย์ที่ปรึกษาร่วม.....

4176955133: MAJOR PHARMACEUTICAL CHEMISTRY AND NATURAL PRODUCTS
KEY WORDS: *OCHNA INTEGERRIMA* / FREE RADICAL SCAVENGING COMPOUNDS / FLAVONOIDS

RAWIWUN KAEWAMATAWONG: FREE RADICAL SCAVENGING COMPOUNDS FROM *OCHNA INTEGERRIMA*. THESIS ADVISOR: ASSOC. PROF. KITTISAK LIKHITWITAYAWUID, Ph.D., THESIS CO-ADVISOR: ASSOC. PROF. NIJSIRI RUANGRUNGSI, Ph.D., PROF. NORIO AIMI, Ph.D., 204 pp. ISBN 974-17-1370-3.

By repetitive chromatography, a total of 19 pure compounds were isolated from the leaves, stem wood, stem bark, root wood and root bark of *O. integerrima*. The structures of these compounds were determined by spectroscopic methods (UV, IR, MS and NMR). They included two new compounds, 6‴-hydroxylophirone B and 6‴-hydroxylophirone B 4‴-*O*-β-glucoside and seventeen known compounds, namely lophirone C, ochnaflavone, calodenone, 5-hydroxy-4′-methoxy-6,7-methylenedioxy isoflavone, lophirone A, 7″-*O*-methyl ochnaflavone, squarrosin, 5,3′,4′-trimethoxy-6,7-methylenedioxy isoflavone, 3,3′,4′,5,7-pentahydroxy-6-prenylflavanone, 3-(2,4-dihydroxybenzoyl)-4,6-dihydroxy-2-(4-hydroxyphenyl)-1-benzofuran-7-yl 2-(4-hydroxyphenyl) ethenyl ketone, 3-(2,4-dihydroxybenzoyl)-2,3-dihydro-4,6-dihydroxy-2-(4-hydroxyphenyl)-1-benzofuran-7-yl 2-(4-hydroxyphenyl) ethenyl ketone, 5,4′-dimethoxy-6,7-methylenedioxy isoflavone, gerontoisoflavone A, 4′,7-dihydroxy 5-methoxy isoflavone, *trans* tetracocyl ferulate, 2,7,4′-trihydroxy isoflavone and protocatechuic acid. 3-(2,4-Dihydroxybenzoyl)-4,6-dihydroxy-2-(4-hydroxyphenyl)-1-benzofuran-7-yl 2-(4-hydroxyphenyl) ethenyl ketone, 4′,7-dihydroxy 5-methoxy isoflavone and 2,7,4′-trihydroxy isoflavone exhibited moderate DPPH radical scavenging activity.

Department Pharmacognosy
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LIST OF SCHEMES

ABBREVIATIONS

Acetone-d_6	=	Deuterated acetone
ε	=	Molar absorptivity
br s	=	Broad singlet (for NMR spectra)
°C	=	Degree Celsius
$CDCl_3$	=	Deuterated chloroform
$CHCl_3$	=	chloroform
cm	=	Centimeter
^{13}C NMR	=	Carbon-13 nuclear magnetic resonance
COSY	=	Correlated spectroscopy
1-D	=	One dimensional
2-D	=	Two dimensional
DEPT	=	Distortionless Enhancement by Polarization Transfer
d	=	Doublet (for NMR spectra)
dd	=	Doublet of doublets (for NMR spectra)
δ	=	Chemical shift
DPPH	=	2,2-diphenyl-1-picrylhydrazyl
DMSO-d_6	=	Deuterated dimethyl sulfoxide
EIMS	=	Electron impact mass spectrum
FABMS	=	Fast atom bombardment mass spectrum
g	=	Gram
HETCOR	=	Heteronuclear chemical shift correlation
HMBC	=	^1H-detected Heteronuclear Multiple Bond Coherence
HMQC	=	^1H-detected Heteronuclear Multiple Quantum Coherence
^1H NMR	=	Proton nuclear magnetic resonance
HPLC	=	High performance liquid chromatography
HRFABMS	=	High resolution fast atom bombardment mass spectrum

ABBREVIATIONS (continued)

Hz	=	Hertz
IC_{50}	=	Median inhibitory concentration
IR	=	Infrared spectrum
J	=	Coupling constant
kg	=	Kilogram
λ_{max}	=	Wavelength at maximal absorption
$[M+H]^+$	=	quasimolecular ion
m	=	Multiplet (for NMR spectra)
MeOH	=	Methanol
MeOH-d_4	=	Deuterated methanol
mg	=	Miligram
MHz	=	Megahertz
ml	=	Milliliter
mm	=	Millimeter
µg	=	Microgram
µl	=	Microliter
µm	=	Micrometer
MPLC	=	Medium Pressure liquid chromatography
m/z	=	Mass to charge ratio
MS	=	Mass spectrometry
NMR	=	Nuclear magnetic resonance
nm	=	Nanometer
No.	=	Number
NOE	=	Nuclear Overhauser effect
ODS	=	Octadecylsilane

ABBREVIATIONS (continued)

ν_{max}	=	Wave number at maximal absorption
s	=	Singlet (for NMR spectra)
sp.	=	Species
t	=	Triplet (for NMR spectra)
TLC	=	Thin layer chromatography
UV	=	Ultraviolet