

New advances in the production of edible plant vaccines: chloroplast expression of a tetanus vaccine antigen, TetC

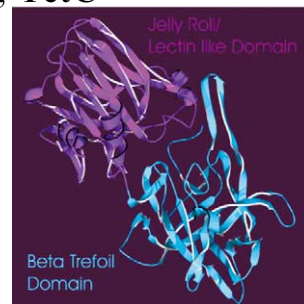
Phytochemistry, 2004, **65**, 989

John Tregoning^{a,b}, Pal Maliga^b, Gordon Dougan^a, Peter J. Nixon^a

^a*Department of Biological Sciences and Centre for Molecular Microbiology and Infection, Imperial College London, South Kensington Campus, London SW7 2AZ, UK*

^b*Waksman Institute, Rutgers University, 190 Frelinghuysen Road, Piscataway, NJ 08854-8020, USA*

This review describes the production of edible vaccines, paying particular attention to the development of a vaccine based upon the expression of a tetanus antigen, TetC, in the tobacco chloroplast.



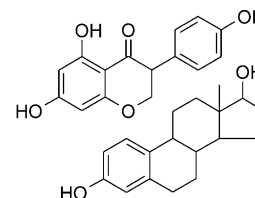
Dietary phytoestrogens and health

Phytochemistry, 2004, **65**, 995

Teresa Cornwell, Wendie Cohick, Ilya Raskin

Biotech Center, Cook College, Rutgers University, New Brunswick, NJ, 08901-8520, USA

This review summarizes the dietary sources of phytoestrogens and examines 105 clinical studies related to the effects of phytoestrogens.



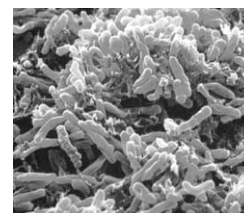
Natural antimycobacterial metabolites: current status

Phytochemistry, 2004, **65**, 1017

Adewole L. Okunade, Memory P. F. Elvin-Lewis, Walter H. Lewis

Department of Biology, One Brookings Drive, Washington University, St. Louis, MO 63130, USA

The review covers current reports of naturally occurring compounds, and in some cases synthetic analogs, largely from plants, fungi and marine organisms that demonstrate significant activity in the in vitro bioassays against *Mycobacterium tuberculosis* (MTB), and other species.



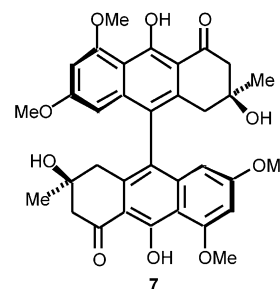
Austrocolorins A₁ and B₁: atropisomeric 10,10'-linked dihydroanthracenones from an Australian *Dermocybe* sp.

Phytochemistry, 2004, **65**, 1033

Karren Beattie, Catherine Elsworth, Melvyn Gill, Nives M. Milanovic, Deddi Prima-Putra, Evelin Raudies

School of Chemistry, The University of Melbourne, Parkville 3010, Australia

Austricolorin A₁ (**7**) and its atropisomer austrocolorin B₁, examples of the rare 10,10'-coupled (tricolorin) class of dihydroanthraceneone dimers, are isolated and characterised from an Australian toadstool belonging to subgenus *Dermocybe* of *Cortinarius*. The absolute stereochemistry of **7** is determined by spectroscopic and chemical methods.



1,2-Dehydroreticuline synthase, the branch point enzyme opening the morphinan biosynthetic pathway

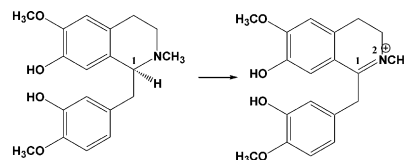
Kazumasa Hirata^a, Chotima Poeaknapo^a, Juergen Schmidt^b, Meinhard H. Zenk^a

^aBiozentrum Universität Halle, Weinbergweg 22, D-06120 Halle/S., Germany

^bInstitut für Pflanzenbiochemie, Weinberg 3, D-06120 Halle/S., Germany

A synthase which oxidizes (*S*)-reticuline to 1,2-dehydroreticuline has been found to occur in seedlings of opium poppy (*Papaver somniferum* L.)

Phytochemistry, 2004, **65**, 1039



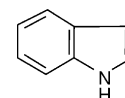
Transcriptional activation of *Igl*, the gene for indole formation in *Zea mays*: a structure–activity study with elicitor-active *N*-acyl glutamines from insects

Monika Frey^a, Dieter Spitteller^b, Wilhelm Boland^b, Alfons Gierl^a

^aLehrstuhl für Genetik, Technische Universität München, Am Hochanger 8, D-85350 Freising, Germany

^bMax-Planck-Institut für Chemische Ökologie, Hans-Knöll-Str. 8, D-07743 Jena, Germany

The structural requirements of fatty acid–amino acid conjugates for induction of *Igl* transcription were investigated. A link to jasmonate signaling is described.



Phytochemistry, 2004, **65**, 1047

Biosynthetic experiments with tall plants under field conditions. $^{18}\text{O}_2$ incorporation into humulone from *Humulus lupulus*

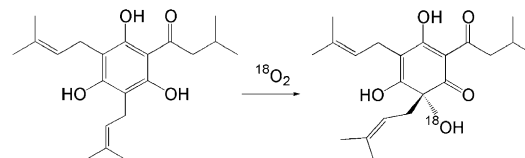
Stefan Hecht^a, Klaus Kammhuber^b, Josef Reiner^c, Adelbert Bacher^a, Wolfgang Eisenreich^a

^aLehrstuhl für Organische Chemie und Biochemie, Technische Universität München, Lichtenbergstr. 4, D-85747 Garching, Germany

^bBayerische Landesanstalt für Landwirtschaft, Hüll 5 1/3, D-85283 Wolnzach, Germany

^cLehrstuhl für Organische Chemie I, Universität Bayreuth, Universitätsstr. 30, D-95440 Bayreuth, Germany

The biosynthetic origin of oxygen atoms in humulone and cohumulone in *Humulus lupulus* were studied by incorporation experiments with $^{18}\text{O}_2$ under field conditions. The incorporation data show that the hydroxy functions at C-6 are derived from molecular oxygen.



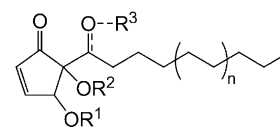
Phytochemistry, 2004, **65**, 1057

Hygrophorones A–G: fungicidal cyclopentenones from *Hygrophorus* species (Basidiomycetes)

Tilo Lübken, Jürgen Schmidt, Andrea Porzel, Norbert Arnold, Ludger Wessjohann

Department of Bioorganic Chemistry, Leibniz-Institute of Plant Biochemistry, Weinberg 3, D-06120 Halle/Saale, Germany

A series of new cyclopentenone derivatives and butyrolactones with antifungal activity could be isolated from fruit bodies of the basidiomyceteous genus *Hygrophorus*. Structural elucidations are based on 1D and 2D NMR spectroscopic analyses as well as HR-FT-ICR-MS investigations.



Phytochemistry, 2004, **65**, 1061

Phytochemistry, 2004, **65**, 1073

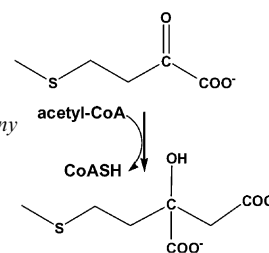
Glucosinolate biosynthesis: demonstration and characterization of the condensing enzyme of the chain elongation cycle in *Eruca sativa*

Kimberly L. Falk^a, Christine Vogel^a, Susanne Textor^a, Stefan Bartram^a, Alastair Hick^b, John A. Pickett^b, Jonathan Gershenzon^a

^aMax Planck Institute for Chemical Ecology, Beutenberg Campus, Hans-Knöll-Strasse 8, D-07745 Jena, Germany

^bRothamsted Research, Harpenden AL5 2JQ, UK

2-(ω -Methylthioalkyl)malate synthase, which catalyzes the condensation of acetyl CoA with 4-methylthio-2-oxobutanoate, was demonstrated in extracts of *Eruca sativa* (arugula). This enzyme carries out the first step in the chain elongation pathway of methionine for glucosinolate biosynthesis.

Phytochemistry, 2004, **65**, 1085

Flavonoid methylation: a novel 4'-*O*-methyltransferase from *Catharanthus roseus*, and evidence that partially methylated flavanones are substrates of four different flavonoid dioxygenases

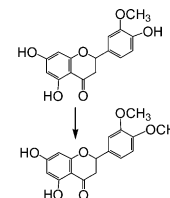
Gudrun Schröder^a, Elke Wehinger^a, Richard Lukačín^b, Frank Wellmann^b, Wallburga Seefelder^c, Wilfried Schwab^c, Joachim Schröder^a

^aInstitut für Biologie II, Universität Freiburg, D-79104 Freiburg, Germany

^bInstitut für Pharmazeutische Biologie, Philipps-Universität Marburg, Deutschhaus-Str. 17A, D-35037 Germany

^cUniversität Würzburg, Lehrstuhl für Lebensmittelchemie, Am Hubland, D-97074 Würzburg, Germany

Molecular and functional characterization of an *O*-methyltransferase that methylates 3'-methylated flavonoids in the 4'-position, and demonstration that a 3'-methylated flavanone is accepted by the enzymes synthesizing flavones, flavonols, and dihydroflavonols.

Phytochemistry, 2004, **65**, 1095

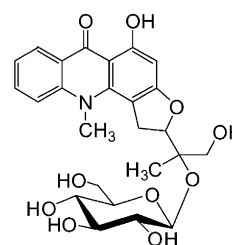
Specific accumulation and revised structures of acridone alkaloid glucosides in the tips of transformed roots of *Ruta graveolens*

Inna Kuzovkina^a, Irina Al'terman^a, Bernd Schneider^b

^aTimiryazev Institute of Plant Physiology, Russian Academy of Sciences, Botanicheskaya ul. 35, 127276 Moscow, Russia

^bMax-Planck-Institute for Chemical Ecology, Beutenberg Campus, Hans-Knöll-Str. 8, D-07745 Jena, Germany

The tissue-specific distribution of acridone alkaloids and glucosides was studied in hairy root cultures of *Ruta graveolens* by chromatographic and spectroscopic methods including HPLC-NMR. Rutacridone was the major alkaloid in the differentiation zone and gravacridonediol glucoside was the dominant metabolite in the root tips. The structures of two acridone glucosides have been revised.

Phytochemistry, 2004, **65**, 1101

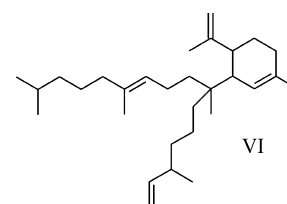
Biosynthesis of unusual monocyclic alkenes by the diatom *Rhizosolenia setigera* (Brightwell)

G. Massé^{a,b}, S.T. Belt^a, S.J. Rowland^a

^aPetroleum & Environmental Geochemistry Group, University of Plymouth, Drake Circus, Plymouth, PL4 8AA, UK

^bISOMer, Faculté des Sciences et des Techniques, Université de Nantes, 2, Rue de la Houssinière, 44027 Nantes, Cedex 03, France

Novel, polyunsaturated monocyclic sester- and triterpenes such as VI, isolated from the diatom, *Rhizosolenia setigera*, are biosynthesised mainly via the mevalonate pathway.



Control of dehydrodiferulate cross-linking in pectins from sugar-beet tissues

Phytochemistry, 2004, **65**, 1107

Elias A-H Baydoun^a, Natalie Pavlencheva^b, Carol M. Cumming^c, Keith W. Waldron^d, Christopher T. Brett^c

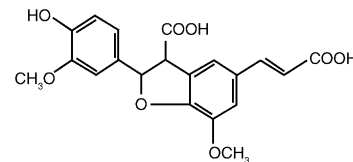
^aDepartment of Biology, American University of Beirut, Beirut, Lebanon

^bKazan Institute of Biochemistry and Biophysics, Russian Academy of Sciences, PO Box 30, 420503 Kazan, Russia

^cPlant Science Group, Robertson Building 410E, Institute of Biomedical & Life Sciences, University of Glasgow, Glasgow G12 8QQ, UK

^dInstitute of Food Research, Norwich Science Park, Norwich NR4 7UA, UK

Cross-linking of beet pectin in vitro produced different ratios of dehydrodiferulate dimers compared to in vivo. Hydrogen peroxide concentration and tissue of origin had major effects on the types of dehydrodimer formed. The formation of the 8–5 dehydrodimer (benzofuran form), shown in the graphic, is strongly favoured under in vitro conditions.



Venusol from *Gunnera perpensa*: structural and activity studies

Phytochemistry, 2004, **65**, 1117

Fatima Khan^a, Xolani K. Peter^b, Rod. M. Mackenzie^a, Lynn Katsoulis^c, Ronette Gehring^d, Orde Q. Munro^a, Fanie R. van Heerden^b, Siegfried E. Drewes^a

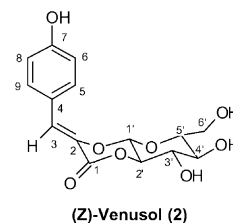
^aSchool of Chemical and Physical Sciences (Chemistry), University of Natal, Private Bag X01, Scottsville, 3209, Pietermaritzburg, South Africa

^bDepartment of Chemistry and Biochemistry, Rand Afrikaans University, PO Box 524, Auckland Park, 2006, South Africa

^cCato Research South Africa, Waterford Drive, Fourways, 2055, South Africa

^d1201 Linton Court, Cary, NC 27511, USA

The major compound causing contraction of uterine muscle was identified as Z-venusol (2).



Two compounds from allelopathic rice accession and their inhibitory activity on weeds and fungal pathogens

Phytochemistry, 2004, **65**, 1123

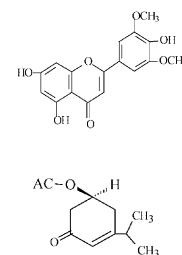
Chuihua Kong^{a,b}, Xiaohua Xu^b, Bin Zhou^{a,b}, Fei Hu^a, Chaoxian Zhang^c, Maoxin Zhang^a

^aInstitute of Tropical and Subtropical Ecology, South China Agricultural University, Guangzhou 510642, China

^bState Key Laboratory of Elemento-Organic Chemistry, Nankai University, Tianjin 300071, China

^cInstitute of Plant Protection, Chinese Academy of Agricultural Sciences, Beijing 100094, China

Two compounds were isolated from the leaves of allelopathic rice accession. Their structures were identified by analysis of their HR-MS and NMR spectra. Both compounds were released into the soil and were active against selected weeds and pathogens in rice production.



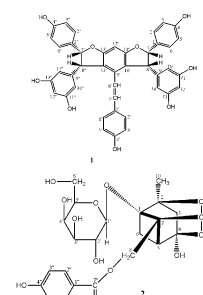
Lipoxygenase inhibiting and antioxidant oligostilbene and monoterpene galactoside from *Paeonia emodi*

Phytochemistry, 2004, **65**, 1129

Naheed Riaz, Abdul Malik, Aziz-ur Rehman, Zaheer Ahmed, Pir Muhammad, Sarfraz Ahmad Nawaz, Juveria Siddiqui, Muhammad Iqbal Choudhary

International Centre for Chemical Sciences, H.E.J. Research Institute of Chemistry, University of Karachi, Karachi-75270, Pakistan

Paeoninol and paeonin C, oligostilbene and monoterpene galactoside, have been isolated from the methanolic extract of the fruits of *Paeonia emodi*. Their structures have been assigned on the basis of spectral analysis including 1D and 2D NMR techniques.



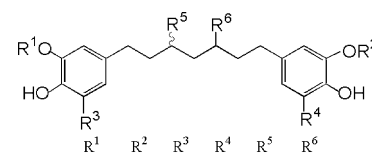
Diarylheptanoids from the rhizomes of *Zingiber officinale*

Jianping Ma, Xiaoling Jin, Li Yang, Zhong-Li Liu

National Laboratory of Applied Organic Chemistry, Lanzhou University, Lanzhou, Gansu 730000, China

Seven new diarylheptanoids **1a–c**, **2a–c** and a cyclic diarylheptane **3** were isolated from the rhizomes of *Zimber officinale* along with 25 known compounds.

Phytochemistry, 2004, **65**, 1137



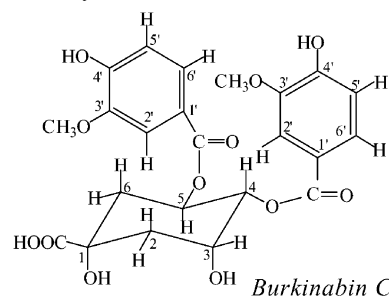
	R ¹	R ²	R ³	R ⁴	R ⁵	R ⁶
1a	CH ₃	CH ₃	H	H	S-AcO	S-AcO
1b	CH ₃	CH ₃	H	H	R-AcO	S-OH
1c	CH ₃	CH ₃	OCH ₃	H	R-OH	S-OH
2a	CH ₃	CH ₃	H	H	=O	S-AcO
2b	H	CH ₃	OCH ₃	H	=O	OH
2c	CH ₃	H	H	OCH ₃	=O	OH

LC/MS/NMR analysis of isomeric divanilloylquinic acids from the root bark of *Fagara zanthoxyloides* Lam.

Badiore Ouattara^{a,b}, Luc Angenot^a, Pierre Guissou^b, Pierre Fondue^c, Jacques Dubois^d, Michel Frédérick^a, Olivia Jansen^a, Jean-Claude van Heugen^c, Jean-Noël Wauters^a, Monique Tits^a

Gradient HPLC coupled to DAD/UV, MS/MS and NMR has been applied to the rapid structure determination of three new isomeric divanilloylquinic acids from *Fagara zanthoxyloides* collected in Burkina Faso. Furthermore these new compounds named burkinabins A–C could play a useful role in sickle cell disease.

Phytochemistry, 2004, **65**, 1145



Sablacaurin A and B, two 19-nor-3,4-seco-lanostane-type triterpenoids from *Sabal causiarum* and *Sabal blackburniana*, respectively

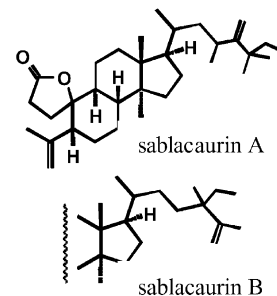
Rabab El-Dib^{a,b}, Maki Kaloga^a, Ibrahim Mahmoud^b, Hesham S.M. Soliman^b, Fatma A. Moharram^b, Herbert Kolodziej^a

^aFreie Universität Berlin, Institut für Pharmazie, Pharmazeutische Biologie, Königin-Luise- Str. 2 + 4, D-14195 Berlin, Germany

^bHelwan University, Faculty of Pharmacy, PO Box 11795 Ain-Helwan, Cairo, Egypt

Sablacaurin A [25-ethyl,23-methyl-19-nor-24-methylene-3,4-seco-4(28)-lanosten-10,3-olide] and sablacaurin B [24-ethyl,24-methyl-19-nor-3,4-seco-4(28),25(26)-lanostadiene-10,3-olide], the first 19-nor lanostane derivatives of the 3,4-seco type with a spiro element, have been isolated from the leaves of *Sabal causiarum* and *Sabal blackburniana* respectively.

Phytochemistry, 2004, **65**, 1153



Cytotoxic lupane-type triterpenoids from *Acacia mellifera*

Charles Mutai^{a,b}, Dennis Abatis^a, Constantinos Vagias^a, Dimitri Moreau^c, Christos Roussakis^c, Vassilios Roussis^a

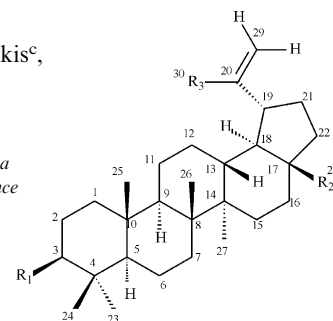
^aUniversity of Athens, Department of Pharmacy, Division of Pharmacognosy and Chemistry of Natural Products, Panepistimiopolis Zografou, Athens 157 71, Greece

^bKenya Medical Research Institute, Centre for Traditional Medicine and Drug Research, P.O Box 54840, Nairobi, Kenya

^cISOMer, Laboratoire de Pharmacogénomique Marine, Faculté de Pharmacie, 1 Rue Gaston Veil, F-44035 Nantes, France

One new and eight previously described lupane-type metabolites were isolated for the first time from *Acacia mellifera* (Leguminosae). The cytotoxicity of the isolated metabolites was evaluated on the NSCLC-N6 cell line, derived from a human non-small-cell bronchopulmonary carcinoma.

Phytochemistry, 2004, **65**, 1159



Diterpenes from the leaves of *Croton zambesicus*

Phytochemistry, 2004, **65**, 1165

Sebastien Block^a, Chiara Baccelli^a, Bernard Tinant^b, Luc Van Meervelt^c, Raoul Rozenberg^d, Jean-Louis Habib Jiwan^d, Gabriel Llabrès^e, Marie-Claire De Pauw-Gillet^f, Joelle Quetin-Leclercq^a

^aLaboratoire de Pharmacognosie, Unité CHAM, Université Catholique de Louvain, UCL 72.30-CHAM, Av. E. Mounier, 72, 1200 Bruxelles, Belgium

^bUnité CSTR, Département de Chimie, UCL, Place Pasteur 1, 1348 Louvain-la-Neuve, Belgium

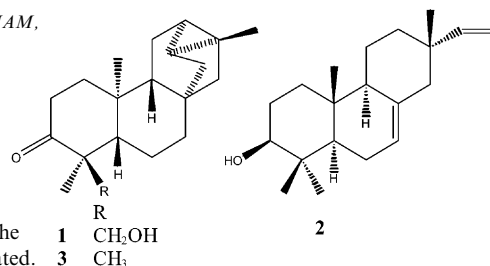
^cBiomolecular Architecture, Chemistry Department, K.U. Leuven, Celestijnenlaan 200F, 3001 Leuven, Belgium

^dLaboratoire de Spectrométrie de Masse, UCL, Place Pasteur 1, 1348 Louvain-la-Neuve, Belgium

^eDépartement de Physique Expérimentale, Université de Liège, Allée du 6 Août, 17, 4000 Liège, Belgium

^fCRCE, Histologie-Cytologie Université de Liège, Rue de Pitteurs, 20, 4020 Liège, Belgium

Two new trachylobane (**1**, **3**) and one isopimarane (**2**) diterpenes were isolated from the leaves of *Croton zambesicus* Muell. Arg and their cytotoxic activity has been investigated.



ent-Kaurene diterpenoids from *Isodon oresbius*

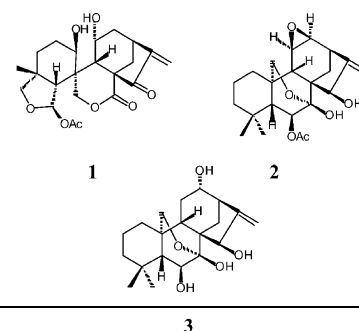
Phytochemistry, 2004, **65**, 1173

Wei Xiang, Rong-Tao Li, Zong-Yu Wang, Sheng-Hong Li, Qin-Shi Zhao, Hong-Jie Zhang, Han-Dong Sun

State Key Laboratory of Phytochemistry and Plant Resources in West China,

Kunming Institute of Botany, Chinese Academy of Sciences, Kunming 650204, P. R. China

Three new *ent*-kaurene diterpenoids, oreskaurins A–C (**1**–**3**), and eleven known compounds were isolated from *Isodon oresbius*.



Thelephantins I–N: *p*-terphenyl derivatives from the inedible mushroom *Hydnellum caeruleum*

Phytochemistry, 2004, **65**, 1179

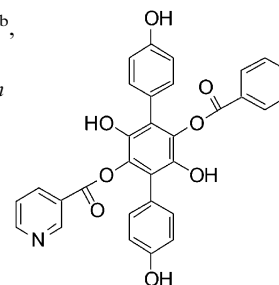
Dang Ngoc Quang^{a,c}, Toshihiro Hashimoto^a, Yuki Hitaka^a, Masami Tanaka^a, Makiko Nukada^b, Isao Yamamoto^b, Yoshinori Asakawa^a

^aFaculty of Pharmaceutical Sciences, Tokushima Bunri University, Yamashiro-cho, Tokushima 770-8514, Japan

^bFaculty of Food Culture, Kurashiki Sakuyo University, Kurashiki 710-0290 Japan

^cFaculty of Chemistry, Hanoi University of Education, 136 Xuan Thuy Road, Cau Giay, Hanoi, Vietnam

Six *p*-terphenyl derivatives named thelephantins I–N (**1**–**6**) together with a known compound, dihydroaurantiacin dibenzoate were isolated from the methanolic extract of fruit bodies of telephoraceous Basidiomycete *Hydnellum caeruleum*



A benzil and isoflavone derivatives from *Derris scandens* Benth.

Phytochemistry, 2004, **65**, 1185

W. Mahabusarakam^a, S. Deachathai^a, S. Phongpaichit^b, C. Jansakul^c, W.C. Taylor^d

^aDepartment of Chemistry, Faculty of Science, Prince of Songkla University, Hat Yai, Songkhla, 90112, Thailand

^bDepartment of Microbiology, Faculty of Science, Prince of Songkla University, Hat Yai, Songkhla, 90112, Thailand

^cDepartment of Physiology, Faculty of Science, Prince of Songkla University, Hat Yai, Songkhla, 90112, Thailand

^dSchool of Chemistry, University of Sydney, New South Wales 2006, Australia

A benzil derivative: scandione and two isoflavones: scandenal and scanderone together with 15 known compounds were isolated from the stem of *Derris scandens*. Radical scavenging, anti-bacterial and hypertensive activities of some of the compounds were investigated.

