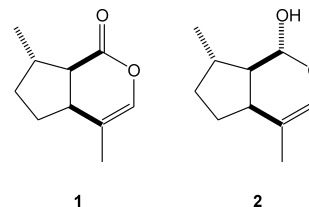


Aphid sex pheromones: from discovery to commercial production

Michael A. Birkett, John A. Pickett

Biological Chemistry Division, Rothamsted Research, Harpenden, Hertfordshire, AL5 2JQ, UK

Sex pheromone components for a number of pest aphid species comprise the cyclopentanoid nepetalactones **1** and **2**. The nepetalactone **1** is produced on a commercial scale from catmint, *Nepeta cataria* (Lamiaceae). The availability of aphid sex pheromone components is now facilitating the development of aphid pest control strategies, particularly in the manipulation of populations of beneficial insects such as parasitic wasps and predatory lacewings.



Phytochemistry, 2003, **62**, 651

Large differences in amino acid sequences among ferredoxins from several species of genus *Solanum*

Yoshiki Mino, Toshio Hazama, Yuji Machida

Department of Environmental Analysis, Osaka University of Pharmaceutical Sciences, 4-20-1 Nasahara, Takatsuki, Osaka 569-1094, Japan

The complete amino acid sequences of [2Fe-2S] ferredoxins from four species of genus *Solanum* were determined, and were compared with those of other higher plants.

```

10      20      30      40
ATYKVLVTPDGP IEFDCPDDVY ILDQAEEEGHEL PYSCR
50      60      70      80
AGSCSSCAGKVTAGTVDQSDGNFLDDQMDGFVLT CVAY
90
PKSDVTIETHKEEDLTG
    
```

Solanum nigrum ferredoxin

Phytochemistry, 2003, **62**, 657

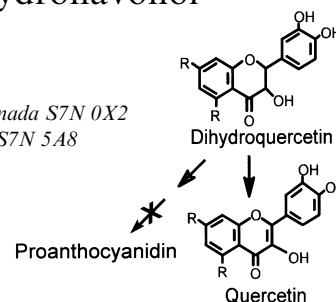
Pigmentation in the developing seed coat and seedling leaves of *Brassica carinata* is controlled at the dihydroflavonol reductase locus

M.A. Susan Marles^a, Margaret Y. Gruber^a, Graham J. Scoles^b, Alister D. Muir^a

^aSaskatoon Research Centre, Agriculture and Agri-Food Canada, 107 Science Place, Saskatoon, SK, Canada S7N 0X2

^bDepartment of Plant Sciences, University of Saskatchewan, 51 Campus Drive, Saskatoon, SK, Canada S7N 5A8

RP-HPLC profiles revealed that flavonoid intermediates accumulated in unpigmented seed coat of *Brassica carinata*. Transcript analyses determined that dihydroflavonol reductase gene expression was altered.



Phytochemistry, 2003, **62**, 663

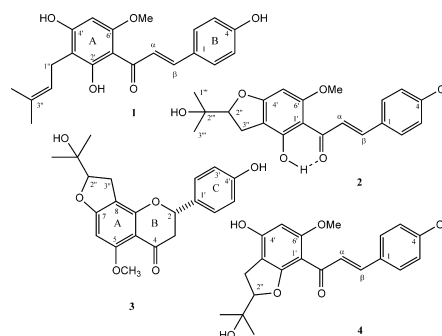
Microbial transformation of xanthohumol

Wimal H.M.W. Herath^a, Daneel Ferreira^a, Ikhlas A. Khan^{a,b}

^aNational Center for Natural Products Research, Research Institute of Pharmaceutical Sciences, The University of Mississippi, University, MS 38677, USA

^bDepartment of Pharmacognosy, School of Pharmacy, The University of Mississippi, University, MS 38677, USA

Microbial transformation of xanthohumol (**1**), using the culture broth of *Pichia membranifaciens* afforded three metabolites, (*E*)-2-(2'''-hydroxyisopropyl)-dihydrofurano [2'',3'':4',3']-2',4-dihydroxy-6'-methoxychalcone (**2**), (2*S*)-2''-(2'''-hydroxyisopropyl)-dihydrofurano [2'',3'':7,8]-4'-hydroxy-5-ethoxyflavanone (**3**) and (*E*)-2''-(2'''-hydroxyisopropyl)-dihydrofurano [2'',3'':2',3']-4'-hydroxy-6'-methoxychalcone (**4**).



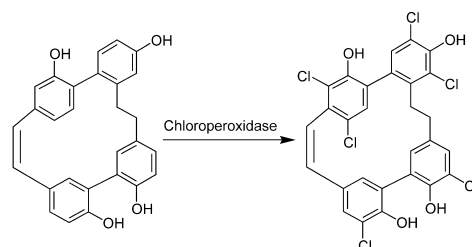
Phytochemistry, 2003, **62**, 673

First detection of a chloroperoxidase in bryophytes

Andreas Speicher, Ronny Heisel, Jürgen Kolz

Institut für Organische Chemie, Universität des Saarlandes, PO Box 151150, D-66041 Saarbrücken, Germany

For the first time an enzyme of the chloroperoxidase type was detected in bryophytes namely in the liverwort *Bazzania trilobata*.



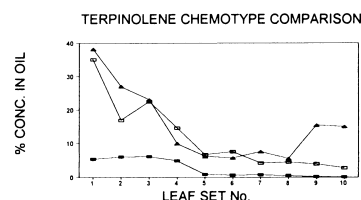
Phytochemistry, 2003, **62**, 679

Monoterpenoid accumulation in 1,8-cineole, terpinolene and terpinen-4-ol chemotypes of *Melaleuca alternifolia* seedlings

Michael F. Russell, Ian A. Southwell

Wollongbar Agricultural Institute, Wollongbar, NSW 2477, Australia

Individual seedling leaves of the 1,8-cineole (■), terpinolene (▲) and terpinen-4-ol (□) chemotypes of *Melaleuca alternifolia* were examined for volatile constituents from the emergence of the first true leaves, through to 6-week-old, tenth leaf set material.



Phytochemistry, 2003, **62**, 683

Seed phosphorus and inositol phosphate phenotype of barley low phytic acid genotypes

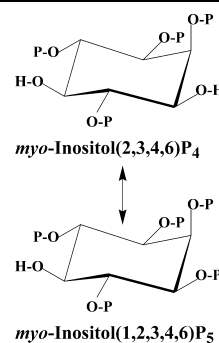
John A. Dorsch^a, Allen Cook^a, Kevin A. Young^a, Joseph M. Anderson^b, Andrew T. Bauman^c, Carla J. Volkmann^c, Pushpalatha P.N. Murthy^c, Victor Raboy^a

^aUSDA-ARS, 1691 South 2700 West, Aberdeen, ID 83210, USA

^bUSDA-ARS, 1150 Lilly Hall, Purdue University, West Lafayette, IN 47907, USA

^cDepartment of Chemistry, Michigan Technological University, Houghton, MI 49931, USA

Seed inositol phosphates of four barley low phytic acid genotypes are described. Barley low phytic acid 2-1 accumulates D/L-Ins(2,3,4,6)P₄ and Ins(1,2,3,4,6)P₅.



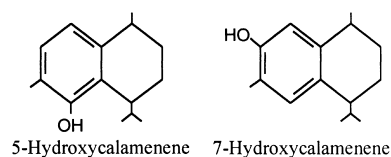
Phytochemistry, 2003, **62**, 691

Identification of a hydroxy substituted calamenene—a sesquiterpene associated with wound reactions in non-infected xylem of *Tilia* spp.

Eckhard Melcher, Peter Jüngel, Bianca Möllendorf, Uwe Schmitt

Federal Research Centre for Forestry and Forest Products, Institute for Wood Biology and Wood Protection, Leuschnerstr. 91, D-21031 Hamburg, Germany

The increase in the concentration of hydroxycalamenene with duration of wound response and its localization in non-infected xylem of lime trees is reported.



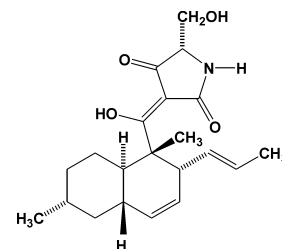
Phytochemistry, 2003, **62**, 707

Phytotoxicity of the tetramic acid metabolite trichosetin

Eufrocino C. Marfori, Shin' ichiro Kajiyama, Ei-ichiro Fukusaki, Akio Kobayashi

Department of Biotechnology, Graduate School of Engineering, Osaka University, 2-1 Yamada-oka, Suita-shi, Osaka 565-0871, Japan

The first details of the phytotoxicity of trichosetin are reported.



Phytochemistry, 2003, **62**, 715

Xanosporic acid, an intermediate in bacterial degradation of the fungal phototoxin cercosporin

Thomas K. Mitchell^a, Fatima Alejos-Gonzalez^b, Hanna S. Gracz^c, David A. Daneshmand^d, Margaret E. Daub^b, William Scott Chilton^b

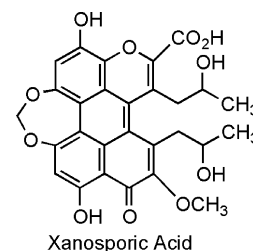
^aDepartment of Plant Pathology, North Carolina State University, Raleigh, NC 27695, USA

^bDepartment of Botany, North Carolina State University, Raleigh, NC 27695, USA

^cDepartment of Structural and Molecular Biochemistry, North Carolina State University, Raleigh, NC 27695, USA

^dDepartment of Crop Science, North Carolina State University, Raleigh, NC 27695, USA

Cercosporin is oxidized by *Xanthomonas campestris* pv. *zinniae* to non-toxic xanosporic acid, characterized as its lactone.



Phytochemistry, 2003, **62**, 723

Identification of 6-methylsulfinylhexyl isothiocyanate as an apoptosis-inducing component in wasabi

Makoto Watanabe, Masahiko Ohata, Sumio Hayakawa, Mamoru Isemura, Shigenori Kumazawa, Tsutomu Nakayama, Michiyo Furugori, Naohide Kinai

School of Food and Nutritional Sciences, University of Shizuoka, and Centre of Excellence for Evolutionary Human Health Sciences, Yada 52-1, Shizuoka 422-8526, Japan

A compound that induces apoptosis in human leukemic and stomach cancer cell lines was isolated from an ethanol extract of Japanese horseradish wasabi (*Wasabia japonica*). The compound was identified as 6-methylsulfinylhexyl isothiocyanate.



Phytochemistry, 2003, **62**, 733

Bioactive sucrose esters from *Bidens parviflora*

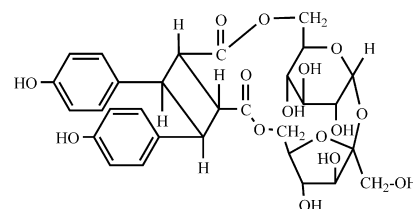
Naili Wang^a, Xinsheng Yao^a, Rie Ishii^b, Susumu Kitanaka^c

^aDepartment of Natural Products Chemistry, Shenyang Pharmaceutical University, 103, Wenhua Road Shenhe District Shenyang, Shenyang 110015, China

^bSaitama Institute of Public Health, 639-1 Kamiokubo, Urawa, Saitama 338-0824, Japan

^cCollege of Pharmacy, Nihon University, 7-7-1 Narashinodai, Funabashi, Chiba 274-8555, Japan

Three sucrose esters and a substituted truxillate were isolated from *Bidens parviflora* Willd.



Antiplasmodial and antifungal activities of iridal, a plant triterpenoid

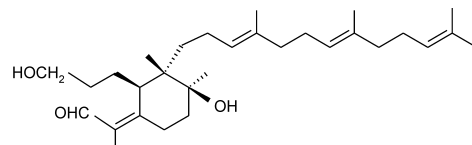
Françoise Benoit-Vical^a, Christine Imbert^b, Jean-Paul Bonfils^c, Yves Sauvaire^c

^aLaboratoire de Chimie de Coordination du CNRS, 205 Route de Narbonne, F-31077 Toulouse Cedex 4 and Service de Parasitologie-Mycologie, CHU Rangueil, TSA 50032, F-31059 Toulouse Cedex, France

^bLaboratoire de Parasitologie et Mycologie Médicales, CHU la Milétrie, BP 577, F-86021 Poitiers Cedex, France

^cLaboratoire de Recherche sur les Substances Naturelles Végétales UPRES EA 1677, Université Montpellier II, Place Eugène Bataillon cc 024, F-34095 Montpellier Cedex 5, France

The antimalarial study of iridal, extracted from *Iris germanica* L. in vitro on *Plasmodium falciparum* chloroquine-resistant and -sensitive strains and in vivo on *P. vinckei* presents an interesting and specific antiplasmodial activity.



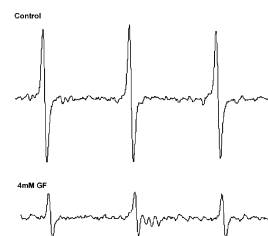
Phytochemistry, 2003, **62**, 747

Scavenging of reactive oxygen species by a novel glucurinated flavonoid antioxidant isolated and purified from spinach

Margalit Bergman, Alexander Perelman, Zvy Dubinsky, Shlomo Grossman

Faculty of Life Sciences, Bar-Ilan University, Ramat Gan 52900, Israel

NAO, the natural water soluble antioxidants isolated from spinach and its isolated component, glucurinated flavonoid (GF), exhibited strong antioxidant activities. The direct free radical scavenging properties of the GF and the NAO were elucidated using ERS technique. The results obtained indicate that the natural antioxidants derived from spinach may directly affect the scavenging of ROS.



Phytochemistry, 2003, **62**, 753

Stereochemistry of megastigmane glucosides from *Glochidion zeylanicum* and *Alangium premnifolium*

Hideaki Otsuka^a, Eiji Hirata^b, Takakazu Shinzato^c, Yoshio Takeda^d

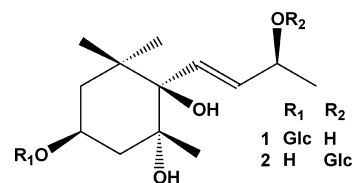
^aGraduate School of Biomedical Sciences, Hiroshima University, Hiroshima 734-8551, Japan

^bFaculty of Agriculture, University of the Ryukyus, Okinawa 903-0129, Japan

^cSubtropical Field Science Center, University of the Ryukyus, Okinawa 905-1427, Japan

^dFaculty of Integrated Arts and Sciences, The University of Tokushima, Tokushima 770-8502, Japan

Structural elucidation of two megastigmane glucosides from *Glochidion zeylanicum* and the absolute structures of previously isolated megastigmane glucosides are reported.



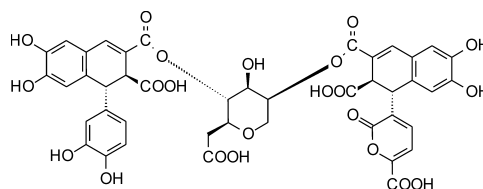
Phytochemistry, 2003, **62**, 763

Lignan derivatives from the liverwort *Bazzania trilobata*

Jochen M. Scher, Josef Zapp, Hans Becker

Pharmakognosie und Analytische Phytochemie, Universität des Saarlandes, Gebäude 32, D-66041 Saarbrücken, Germany

Eight macrocyclic lignan derivatives, trilobatin D–K, as well as jamesopyrone were isolated from the liverwort *Bazzania trilobata*. Their structures have been elucidated based on extensive NMR spectral evidence.



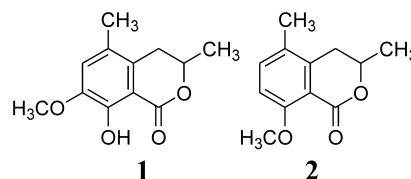
Phytochemistry, 2003, **62**, 769

Dihydroisocoumarins and a tetralone from *Cytospora eucalypticola*

Tetsuo Kokubun, Nigel C. Veitch, Paul D. Bridge, Monique S.J. Simmonds
Royal Botanic Gardens, Kew, Richmond, Surrey, TW9 3AB, UK

Two dihydroisocoumarins were isolated from the culture filtrate of *Cytospora eucalypticola* together with three known dihydroisocoumarins and a tetralone. Their structures were determined by spectroscopic methods. The antifungal, antibacterial and insect antifeedant activities of some of the compounds were evaluated.

Phytochemistry, 2003, **62**, 779



New insights on the structure of algaenan from *Botryococcus braunii* race A and its hexane insoluble botryals based on multidimensional NMR spectroscopy and electrospray–mass spectrometry techniques

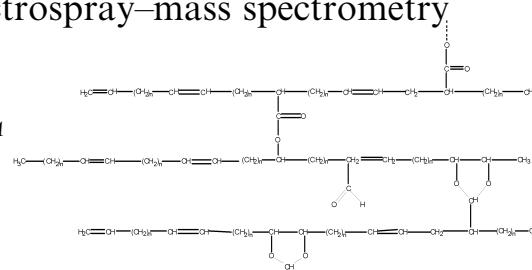
Andre J. Simpson^{a,b}, Xu Zang^a, Robert Kramer^a, Patrick G. Hatcher^a

^aDepartment of Chemistry, The Ohio State University, Columbus, OH 43210, USA

^bDepartment of Chemistry, The University of Toronto, 1265 Military Trail, Scarborough, Ontario, Canada M1C 1A4

Structural relationships between the hexane insoluble botryals and algaenan from *B. braunii* race A are determined with the ultimate aim to establish a structure for the insoluble algaenan.

Phytochemistry, 2003, **62**, 783



Homoisoflavonoids and xanthenes from the tubers of wild and in vitro regenerated *Ledebouria graminifolia* and cytotoxic activities of some of the homoisoflavonoids

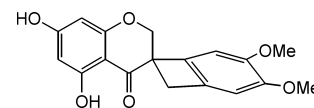
Joan Mutanyatta^a, Bhagali G. Matapa^a, Deborah D. Shushu^b, Berhanu M. Abegaz^a

^aDepartment of Chemistry, University of Botswana, Private Bag 00704, Gaborone, Botswana

^bDepartment of Biological Sciences, University of Botswana, Private Bag 00704, Gaborone, Botswana

Five new and six known homoisoflavonoids, and two known xanthenes were isolated from the bulbs of wild *Ledebouria graminifolia*. These same compounds were detected in in vitro generated specimens.

Phytochemistry, 2003, **62**, 797



Sesqueneolignans and other constituents from the seeds of *Joannesia princeps*

Reiner Waibel, Gerd Benirschke, Monika Benirschke, Hans Achenbach

Department of Pharmaceutical Chemistry, Institute of Pharmacy and Food Chemistry, University of Erlangen, Schuhstr. 19, D-91052 Erlangen, Germany

(±)-3,3'-Bisdemethylpinoresinol and six sesqueneolignans were isolated from the seeds of *Joannesia princeps* together with the known neolignans isoamericanin A, americanol A and isoamericanol A.

Phytochemistry, 2003, **62**, 805

