Phytochemistry, 2003, **62**, 1019

Recent findings on natural products with erectile-dysfunction activity

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[a]*School of Chemical and Physical Sciences, University of Natal, Private Bag X01, Scottsville, 3209, Pietermaritzburg, South Africa*
[b]*Jacob George, Al-Essa Medical and Scientific Company, PO Box 3562, Safat 13036, Kuwait*

Recent findings relating to eight pure compounds and six purified extracts from natural sources for E-D activity, are reported. To date there is no natural equivalent to match Viagra.

Steroids
Alkaloids
Amino acids vs. Viagra
Isoflavones
Prostaglandins
Diterpenes

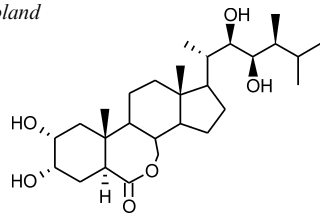
Phytochemistry, 2003, **62**, 1027

The chemical characteristic and distribution of brassinosteroids in plants

Andrzej Bajguz[a], Andrzej Tretyn[b]

[a]*University of Bialystok, Institute of Biology, Swierkowa 20 B, 15-950 Bialystok, Poland*
[b]*Nicholas Copernicus University, Institute of General and Molecular Biology, Gagarina 9, 87-100 Torun, Poland*

Brassinosteroids represent a class of plant hormones with high-growth promoting activity. They are found at low levels in pollen, anthers, seeds, leaves, stems, roots, flowers, grain, and young vegetative tissues throughout the plant kingdom. Brassinosteroids are a family of about 60 phytosteroids. The article gives a comprehensive survey on the hitherto known brassinosteroids isolated from plants. The chemical characteristic of brassinosteroids is also presented.



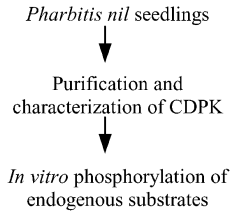
Phytochemistry, 2003, **62**, 1047

Biochemical evidence for a calcium-dependent protein kinase from *Pharbitis nil* and its involvement in photoperiodic flower induction

Krzysztof Jaworski[a], Adriana Szmidt-Jaworska[a], Andrzej Tretyn[b], Jan Kopcewicz[a]

[a]*Department of Plant Physiology and Morphogenesis, Nicholaus Copernicus University, Institute of General and Molecular Biology, Gagarina 9 St., PL 87-100 Torun, Poland*
[b]*Department of Biotechnology, Gagarina 9 St., PL 87-100 Torun, Poland*

Isolation and characterization of 54 kDa calcium-dependent protein kinase (CDPK) from *Pharbitis nil* and identification of endogenous substrates, whose phosphorylation is controlled by light/dark condition in a calcium-dependent manner, are described.



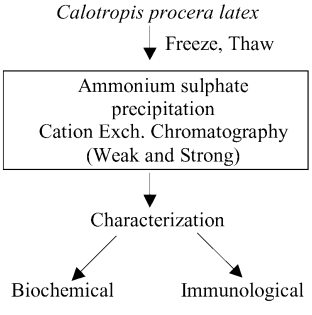
Phytochemistry, 2003, **62**, 1057

Procerain, a stable cysteine protease from the latex of *Calotropis procera*

Vikash Kumar Dubey, M.V. Jagannadham

Molecular Biology Unit, Institute of Medical Sciences, Banaras Hindu University, Varanasi, 221005, India

Procerain, a very stable cysteine protease with amidolytic activity, was purified to homogeneity from the latex of *Calotropis procera* (Family—Asclepiadaceae). A detailed biochemical and immunological characterization was carried out.



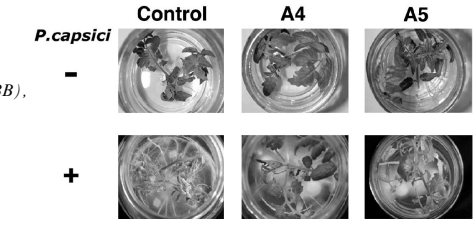
Phytochemistry, 2003, **62**, 1073

Pn-AMPs, the hevein-like proteins from *Pharbitis nil* confers disease resistance against phytopathogenic fungi in tomato, *Lycopersicum esculentum*

Ok Sun Lee[a], Boyoung Lee[a], Nammi Park[a], Ja Choon Koo[a], Young Hoe Kim[a], Theertha Prasad D[a], Chandrakant Karigar[a], Hyun Jin Chun[a], Byoung Ryong Jeong[a], Doh Hoon Kim[b], Jaesung Nam[b], Jae-Gil Yun[c], Sang-Soo Kwak[d], Moo Je Cho[a], Dae-Jin Yun[a]

[a]*Division of Applied Life Science (BK21 program), and Plant Molecular Biology and Biotechnology Research Center, Gyeongsang National University, Jinju 660-701, South Korea*
[b]*Faculty of Natural Resources and Life Science, Dong-A University, Pusan 604-714, South Korea*
[c]*Department of Horticulture Science, Jinju National University, Jinju 660-758, South Korea*
[d]*Laboratory of Environmental Biotechnology, Korea Research Institute of Bioscience and Biotechnology (KRIBB), Yusong, Daejeon 305-806, South Korea*

Constitutive expression of Pn-AMP2 in tomato confers enhanced resistance against two major fungal pathogens. *Phytophthora capsici* and *Fusarium oxysporum*.



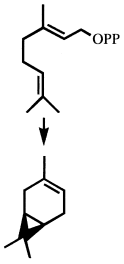
Phytochemistry, 2003, **62**, 1081

A cDNA clone for 3-carene synthase from *Salvia stenophylla*

Dirk J. Hoelscher, David C. Williams, Mark R. Wildung, Rodney Croteau

Institute of Biological Chemistry, Washington State University, PO Box 646340, Pullman, WA 99164-6340, USA

A cDNA encoding 3-carene synthase was isolated from *Salvia stenophylla*. The enzyme converts geranyl diphosphate to (+)-3-carene and to lesser amounts of other monoterpene olefins characteristic of the essential oil.



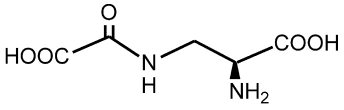
Phytochemistry, 2003, **62**, 1087

Neuroactive and other free amino acids in seed and young plants of *Panax ginseng*

Yu-Haey Kuo[a], Fumio Ikegami[b], Fernand Lambein[a]

[a]*Laboratory of Physiological Chemistry, Department of Biochemistry, Faculty of Medicine and Health Sciences, Ghent University, Jozef Kluyskensstraat 27, B-9000 Ghent, Belgium*
[b]*Graduate School of Pharmaceutical Sciences, Chiba University, Yayoi-cho 1-33, Inage-ku, Chiba 263-8522, Japan*

High concentrations of neuroactive amino acids β-ODAP and GABA were found in the seed and young (1–3 years old) plants of *Panax ginseng* C.A. Meyer.



β-ODAP

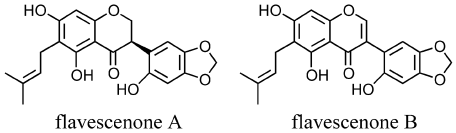
Phytochemistry, 2003, **62**, 1093

Efficient production and capture of 8-prenylnaringenin and leachianone G—biosynthetic intermediates of sophoraflavanone G—by the addition of cork tissue to cell suspension cultures of *Sophora flavescens*

Ping Zhao[a], Chie Hamada[a], Kenichiro Inoue[b], Hirobumi Yamamoto[a]

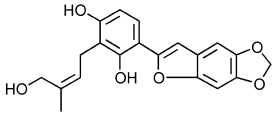
[a]*Medicinal Plant Garden, School of Pharmaceutical Sciences, Nagasaki University, 1-14 Bunkyo-machi, 852-8521 Nagasaki, Japan*
[b]*Laboratory of Pharmacognosy, Gifu Pharmaceutical University, 6-1 Mitahora-higashi 5 chome, 502-8585 Gifu, Japan*

Addition of cork tissue and methyl jasmonate to cell suspension cultures of *Sophora flavescens*, was accompanied by formation of 13 minor flavonoids including flavescenones A–C and two intermediates of sophoraflavanone G, 8-prenylnaringenin and leachianone G.



flavescenone A

flavescenone B



flavescenone C

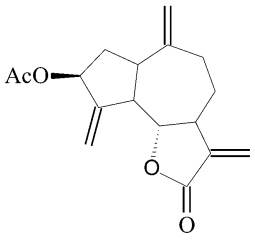
Phytochemistry, 2003, **62**, 1101

Microbial transformation of zaluzanin-D

G.N. Krishna Kumari, S. Masilamani, M.R. Ganesh, S. Aravind

Centre for Natural Products, SPIC Science Foundation, 111 Mount Road, Chennai 600 032, India

Microbial transformation of zaluzanin-D (**1**) with different plant pathogenic fungi yielded oxidized, reduced as well as de-acylated products.



1

Phytochemistry, 2003, **62**, 1105

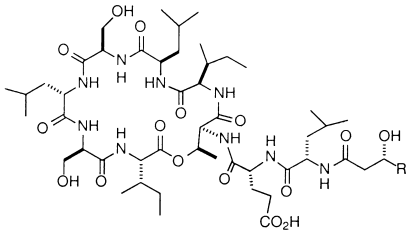
Structure, chemistry, and biological activity of pseudophomins A and B, new cyclic lipodepsipeptides isolated from the biocontrol bacterium *Pseudomonas fluorescens*

M. Soledade C. Pedras[a], Nargis Ismail[a], J. Wilson Quail[a], Susan M. Boyetchko[b]

[a]*Department of Chemistry, University of Saskatchewan, 110 Science Place, Saskatoon SK, Canada, S7N 5C9*

[b]*Agriculture and Agri-Food Canada, Saskatoon Research Centre, 107 Science Place, Saskatoon SK, Canada, S7N 0X2*

The chemical structures of pseudophomins A and B were established by a combination of spectroscopic data, X-ray crystallography, and selective chemical degradation.



Phytochemistry, 2003, **62**, 1115

(+)-Strigol, a witchweed seed germination stimulant, from *Menispermum dauricum* root culture

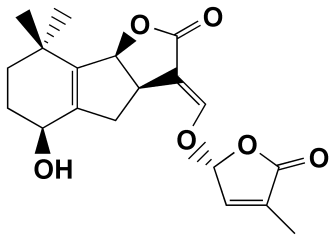
Norifumi Yasuda[a], Yukihiro Sugimoto[a], Masako Kato[b], Shinobu Inanaga[a], Koichi Yoneyama[c]

[a]*Arid Land Research Center, Tottori University, 1390 Hamasaka, Tottori 680-0001, Japan*

[b]*Division of Material Science, Graduate School of Human Culture, Nara Women's University, Nara 630-8506, Japan*

[c]*Center for Research on Wild Plants, Utsunomiya University, Utsunomiya 321-8505, Japan*

(+)-Strigol was isolated from *Menispermum dauricum* root culture filtrate. Its identity was confirmed by HPLC, ^{1}H NMR, UV and MS, and on the basis of its CD spectrum. This is the first report on isolation of strigolactone from aseptic plant culture.



Phytochemistry, 2003, **62**, 1121

Meliternatin: a feeding deterrent and larvicidal polyoxygenated flavone from *Melicope subunifoliolata*

Shuit Hung Ho[a], Jing Wang[a], K.Y. Sim[b], Gwendoline C.L. Ee[c], Zamrie Imiyabir[d], K.F. Yap[e], Khozirah Shaari[e], Swee Hock Goh[e]

[a]*Department of Biological Sciences, National University of Singapore, Singapore 117543, Singapore*

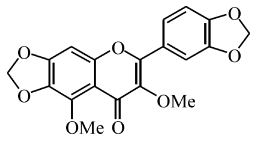
[b]*Department of Chemistry, National University of Singapore, Singapore 117543, Singapore*

[c]*Department of Chemistry, Universiti Putra Malaysia, Malaysia*

[d]*Forest Research Centre, Sepilok, Sandakan, Sabah, Malaysia*

[e]*Forest Research Institute of Malaysia, Kuala Lumpur, Malaysia*

Over 60 Malaysian plants were screened against two species of insects and *Melicope subunifoliolata* (Rutaceae) was shown to have strong feeding deterrent activity against *Sitophilus zeamais* and very good larvicidal activity against *Aedes aegypti*. One insecticidal and feeding deterrent compound, meliternatin (3,5-dimethoxy-3′,4′,6,7-bismethylendioxyflavone) and six other polyoxygenated flavones were isolated from *M. subunifoliolata*.



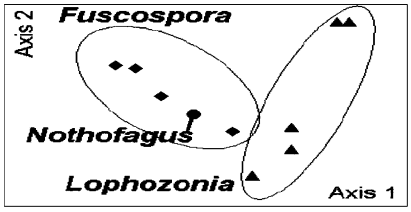
Phytochemistry, 2003, **62**, 1125

Taxonomic significance of flavonoid variation in temperate species of *Nothofagus*

Eckhard Wollenweber[a], Jan F. Stevens[b], Marion Dörr[a], Andrew C. Rozefelds[c]

[a]*Institut für Botanik der Technischen Universität, Schnittspahnstrasse 3, D-64287 Darmstadt, Germany*
[b]*Department of Chemistry, Oregon State University, 153 Gilbert Hall, Corvallis, OR 97331, USA*
[c]*Tasmanian Herbarium, College Road, Sandy Bay, Hobart, Tax 7001, Australia*

Forty-two flavonoids and a stilbene were identified in the leaf exudates of 11 temperate species of *Nothofagus*. The flavonoid profiles were investigated using multivariate and cluster analysis. The results are in good agreement with a recent subgeneric classification.



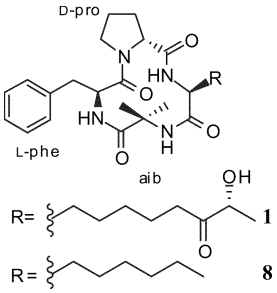
Phytochemistry, 2003, **62**, 1133

A plant growth retardant related to chlamydocin and its proposed mechanism of action

Hiroko Tani[a], Tamaki Honma[b], Yuzo Fujii[c], Koichi Yoneyama[d], Hiromitsu Nakajima[a]

[a]*Department of Agricultural Chemistry, Faculty of Agriculture, Tottori University, Tottori 680-8553, Japan*
[b]*Department of Forestry Science, Faculty of Agriculture, Tottori University, Tottori 680-8553, Japan*
[c]*Department of Materials Science, Yonago National College of Technology, Yonago 683-8502, Japan*
[d]*Weed Science Center, Utsunomiya University, Utsunomiya 321-8505, Japan*

The plant growth retardant, **8**, was discovered in the course of the investigation of the structure–activity relationship of **1**, a fungal plant growth retardant. Compounds **1** and **8** affected the hormonal levels in rice seedlings, but their effects were quite different.



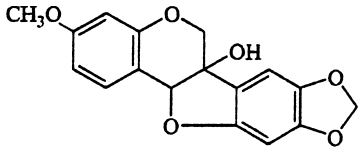
Phytochemistry, 2003, **62**, 1141

Isolation and identification of an allelopathic substance in *Pisum sativum*

Hisashi Kato-Noguchi

Department of Biochemistry and Food Science, Faculty of Agriculture, Kagawa University, Miki, Kagawa 761-0795, Japan

The putative compound causing the growth inhibitory effect of pea residue was isolated and its structure determined as pisatin.



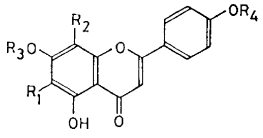
Phytochemistry, 2003, **62**, 1145

Effects of seven pure flavonoids from mosses on germination and growth of *Tortula muralis* HEDW. (Bryophyta) and *Raphanus sativus* L. (Magnoliophyta)

Adriana Basile[a], Sergio Sorbo[a], José Antonio López-Sáez[b], Rosa Castaldo Cobianchi[a]

[a]*Dipartimento di Biologia Vegetale, Università Federico II, Via Foria, 223, I-80139 Naples, Italy*
[b]*Laboratorio de Arqueobotanica, Centro de Estudios Históricos, CSIC, Duque de Medinaceli, 8, E-28014 Madrid, Spain*

Seven pure flavonoids from mosses (apigenin, apigenin-7-*O*-triglycoside, lucenin-2, luteolin-7-*O*-neohesperidoside, saponarine and vitexin and bartramiaflavone) showed allelopathic activity against germination and development of the moss *Tortula muralis* and *Raphanus sativus*. Flavonoids caused a decrease in the percentage of spore germination, protonemal development and root growth and caused morphological alterations. The most active flavonoid was saponarin.



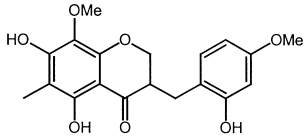
Phytochemistry, 2003, **62**, 1153

Homoisoflavonoids from *Ophiopogon japonicus* Ker-Gawler

Nguyen Thi Hoang Anh[a], Tran Van Sung[a], Andrea Porzel[b], Katrin Franke[b], Ludger A. Wessjohann[b]

[a]*Institute of Chemistry, National Centre for Natural Sciences and Technology, Hoang Quoc Viet, Cau Giay, Hanoi, Viet Nam*
[b]*Institute of Plant Biochemistry, Weinberg 3, D-06120 Halle/Saale, Germany*

Five new and eight known homoisoflavonoids were isolated from the tuberous roots of the medicinal plant *Ophiopogon japonicus* (Liliaceae) and identified by spectroscopic data.



Phytochemistry, 2003, **62**, 1159

MALDI-TOF mass spectrometry and PSD fragmentation as means for the analysis of condensed tannins in plant leaves and needles

Anke Behrens, Nagamitsu Maie, Heike Knicker, Ingrid Kögel-Knabner

Lehrstuhl für Bodenkunde, Technische Universität München, 85350 Freising-Weihenstephan, Germany

Within this work, MALDI-TOF mass spectrometry, PDS fragmentation and ^{13}C NMR spectroscopy was applied for the determination of the chain length and chemical composition of condensed tannins isolated from leaves and needles of ubiquitous trees.