Phytochemistry, 2004, **65**, 7

Cupins: the most functionally diverse protein superfamily?

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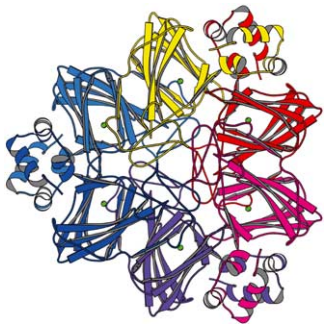
The BioCentre, School of Plant Sciences, The University of Reading, Whiteknights, Reading RG6 6AS, UK

This review describes the diversity of structure and function in this superfamily that comprises a wide range of metalloenzymes and non-enzymic factors such as the seed globulins.



Phytochemistry, 2004, **65**, 19

Purification and characterization of phytocystatins from kiwifruit cortex and seeds

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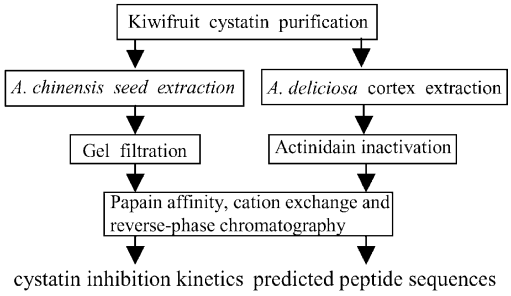
Gene Technologies, The Horticultural and Food Research Institute of New Zealand, PB 92169, Auckland, New Zealand

Kiwifruit cystatins were purified from seeds and cortex. Inhibition kinetics and predicted full length peptides from an in-house generated kiwifruit EST database are reported.



Phytochemistry, 2004, **65**, 31

Bio-fermentation of modified flavonoids: an example of in vivo diversification of secondary metabolites

Michael G. Willits[a], Maïté Giovanni[b], Rogerio T.N. Prata[a], Catherine M. Kramer[a], Vincenzo De Luca[c], John C. Steffens[a], Gerson Graser[a]

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[b]*INRA de Versailles, Station de Génétique et d'Amélioration des Plantes, Route de St Cyr, 78026 Versailles Cedex, France*
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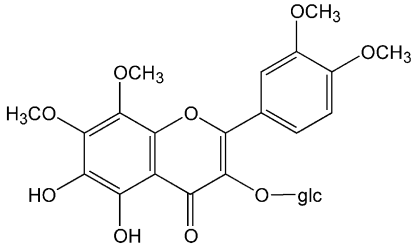
A bio-fermentation technique was used for the in vivo diversification of flavonoids based on the heterologous expression of six *O*-methyltransferases from *Mentha x piperita* and one *O*-glucosyltransferase each from *Arabidopsis thaliana* and *Allium cepa*.



Phytochemistry, 2004, **65**, 43

The S8 serine, C1A cysteine and A1 aspartic protease families in Arabidopsis

Eric P. Beers[a], Alan M. Jones[b], Allan W. Dickerman[c]

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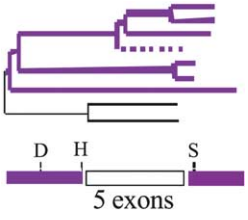
[b]*Department of Biology, University of North Carolina, Chapel Hill, NC 27599, USA*
[c]*Virginia Bioinformatics Institute, Virginia Polytechnic Institute and State University, Blacksburg, VA, 24061, USA*

Investigations of a relatively small number of protease genes have revealed important roles for proteases in signal transduction, leaf and embryo development and disease resistance. Also, some genes predicted to code for serine proteases are functioning as acyltransferases in secondary metabolism rather than as hydrolases. Thus it appears that plant protease genes participate in a broad range of plant processes and that a comprehensive functional analysis of predicted proteases would yield novel insights. For this review information regarding the S8 family of subtilisin-like serine proteases, the C1A family of papain-like cysteine proteases and the A1 family of pepsin-like aspartic proteases is presented as a tool for genetic studies.

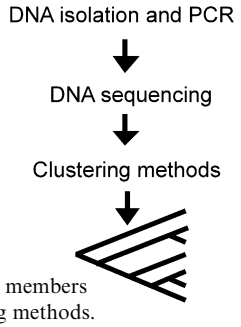


Phytochemistry, 2004, **65**, 59

Relationships in subtribe Diocleinae (Leguminosae; Papilionoideae) inferred from internal transcribed spacer sequences from nuclear ribosomal DNA

Eduardo S. Varela[a], João P. M. S. Lima[a], Alexsandro S. Galdino[a], Luciano da S. Pinto[a], Walderly M. Bezerra[a], Edson P. Nunes[b], Maria A. O. Alves[a], Thalles B. Grangeiro[a]

[a]*Laboratório de Citogenética e Genética Molecular, Departamento de Biologia, Bloco 906, Centro de Ciências, Universidade Federal do Ceará (UFC), Av. Humberto Monte, s/n. 60.451-970, Fortaleza-Ceará, Brazil*
[b]*Herbário Prisco Bezerra, Departmento de Biologia, Universidade Federal do Ceará (UFC), Av. Humberto Monte, s/n. 60.451-970, Fortaleza-Ceará, Brazil*



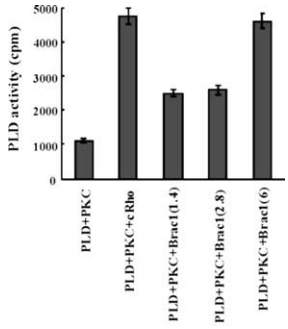
Sequences of nuclear ribosomal DNA (nrDNA) internal transcribed spacer regions (ITS/5.8S) were determined for members of subtribe Diocleienae and phylogenetic relationships were deduced from the trees produced by different clustering methods.

Phytochemistry, 2004, **65**, 71

A rac-like small G-protein from *Brassica campestris* activates a PKC-dependent phospholipase D

Hoyeon Kim[a], Minyeop Nahm[a], Chaeoh Lim[a], Daejin Yun[a], Mooje Cho[a], Jeongdong Bahk[a,b]

[a]*Division of Applied Life Sciences, Graduate School of Gyeongsang National University, Jinju 660-701, South Korea*
[b]*Agricultural Plant Stress Research Center, Chonnam National University, Gwangju 500-757, South Korea*



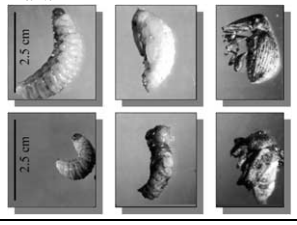
Brac1, *Brassica* Rac1, is Rac-like small GTP binding protein and can activate PKC-dependent PLD synergistically in the presence of GTPγS.

Phytochemistry, 2004, **65**, 81

Effects of soybean Kunitz trypsin inhibitor on the cotton boll weevil (*Anthonomus grandis*)

Octávio L. Franco[a,b,c], Simoni C. Dias[a,b], Claudio P. Magalhães[d], Ana C. S. Monteiro[a], Carlos Bloch Jr[a], Francislete R. Melo[b,e], Osmundo B. Oliveira-Neto[a,b], Rose G. Monnerat[a], Maria Fátima Grossi-de-Sá[a]

[a]*Embrapa Recursos Genéticos e Biotecnologia, S.A.I.N. Parque Rural, Final W5, Asa Norte, 70770-900, Brasilia-DF, Brazil*
[b]*Departamento de Biologia Celular, UnB, Brasília-DF, Brazil*
[c]*Universidade Católica de Brasília, Brasília-DF, Brazil*
[d]*Faculdade de Ciências Farmacêuticas, USP, São Paulo, Brazil*
[e]*União Pioneira de Integração Social, Brasília-DF, Brazil*



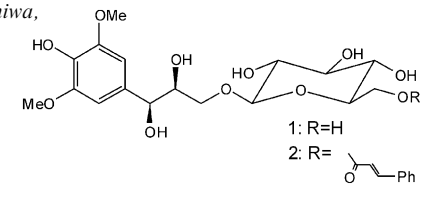
A Kunitz inhibitor purified from soybean seeds showed an inhibitory activity against digestive proteinases from the cotton boll weevil, *Anthonomus grandis*, causing a reduction in larval growth and an increase in mortality and deformity ratio.

Phytochemistry, 2004, **65**, 91

Isolation of α-glusosidase inhibitors from hyssop (*Hyssopus officinalis*)

Hideyuki Matsuura[a], Hiroyuki Miyazaki[a], Chikako Asakawa[a], Midori Amano[a], Teruhiko Yoshihara[b], Junya Mizutani[c]

[a]*Northern Advancement Center for Science and Technology, Kita-21, Nishi-12, Sapporo, Hokkaido 001-0021, Japan*
[b]*Division of Applied Bioscience, Graduate School of Agriculture, Hokkaido University, Sapporo, Hokkaido 060-8589, Japan*
[c]*Plant Ecochemicals Research Center, R&BP Center Bldg. 3F, E-310, 3-1-1, Megumino-kita, Eniwa, Hokkaido 061-1374, Japan*



(7*S*, 8*S*)-Syringoylglycerol 9-*O*-β-D-glucopyranoside (**1**) and (7*S*, 8*S*)-syringoylglycerol 9-*O*-(6′-*O*-cinnamoyl)-β-D-glucopyranoside (**2**) were isolated from hyssop (*Hyssopus officinalis*) as α-glucosidase inhibitor.

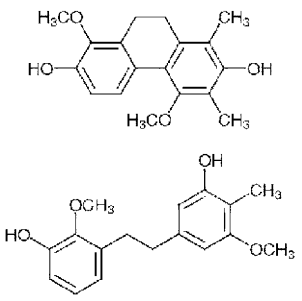
Phytochemistry, 2004, **65**, 99

Dihydrophenanthrenes and other antifungal stilbenoids from *Stemona* cf. *pierrei*

Katharina Kostecki[a], Doris Engelmeier[a], Thomas Pacher[a], Otmar Hofer[b], Srunya Vajrodaya[c], Harald Greger[a]

[a]*Comparative and Ecological Phytochemistry Department, Institute of Botany, University of Vienna, Rennweg 14, A-1030 Wien, Austria*
[b]*Institute of Organic Chemistry, University of Vienna, Währingerstrasse 38, A-1090 Wien, Austria*
[c]*Department of Botany, Faculty of Science, Kasetsart University, Bangkok 10900, Thailand*

Three new dihydrophenanthrenes and one dihydrostilbene were isolated from *Stemona* cf. *pierrei* together with six known stilbenoids and two pyrroloazepine alkaloids. Antifungal activities of the stilbenoids were compared by bioautography and germ tube inhibition in microwells.



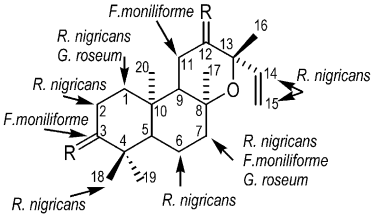
Phytochemistry, 2004, **65**, 107

Biotransformation of *ent*-13-*epi*-manoyl oxides difunctionalized at C-3 and C-12 by filamentous fungi

Andrés García-Granados[a], Antonia Fernández[a], María C. Gutiérrez[a], Antonio Martínez[a], Raquel Quirós[a], Francisco Rivas[a], José M. Arias[b]

[a]*Departamento de Química Orgánica, Facultad de Ciencias, Universidad de Granada, E-18071 Granada, Spain*
[b]*Departamento de Microbiología, Facultad de Ciencias, Universidad de Granada, E-18071 Granada, Spain*

Several biotransformations of *ent*-13-*epi*-manoyl oxides diterpenes with filamentous fungi are described. Biohydroxylations at remote non-activated carbon centres of the molecule have taken place (C-1, C-2, C-6, C-7, C-11, C-18 and C-20). Also, epoxidations of the double bond and regioselective oxidations of some hydroxyl groups have arisen.



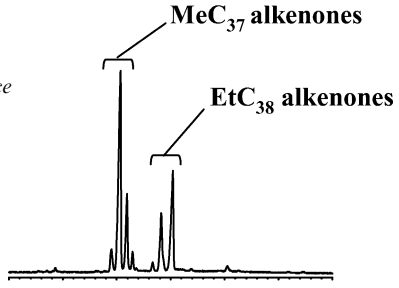
Phytochemistry, 2004, **65**, 117

Long-chain alkenones and related compounds in the benthic haptophyte *Chrysotila lamellosa* Anand HAP 17

Jean-François Rontani[a], Béatriz Beker[b], John K. Volkman[c]

[a]*Laboratoire d'Océanographie et de Biogéochimie (UMR CNRS 6535), Centre d'Océanologie de Marseille (OSU), Campus de Luminy, case 901, F-13288 Marseille, France*
[b]*Centre d'Océanologie de Marseille (OSU), Station marine d'Endoume, F-13007 Marseille, France*
[c]*CSIRO Marine Research, GPO Box 1538, Hobart, Tasmania 7001, Australia*

This species contains a suite of very long-chain alkenones, alkenes, alkenoates and alkenols. Haptophytes appear to be possible sources of the alkenols found in some marine sediments.



Phytochemistry, 2004, **65**, 127

ent-Clerodane diterpenes and other constituents from the liverwort *Adelanthus lindenbergianus* (Lehm.) Mitt.

Barbara Bläs, Josef Zapp, Hans Becker

FR 8.7, Pharmakognosie und Analytische Phytochemie, Universität des Saarlandes, Postfach 151150, D-66041 Saarbrücken, Germany

Eleven new clerodane diterpenes, together with three eudesmanes, a *seco*-lupane and an unusual spiroketal acetophenone were isolated from *Adelanthus lindenbergianus*.