Phytochemistry, 2004, **65**, 249

Horseradish peroxidase: a modern view of a classic enzyme

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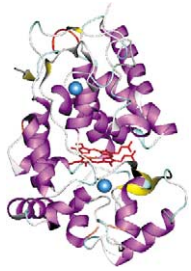
Horseradish peroxidase is one of the most important enzymes obtained from a plant source. It continues to attract the attention of researchers from a variety of disciplines because of its practical and commercial applications. Advances in understanding the structure and catalytic mechanism of horseradish peroxidase have been made using protein engineering and other techniques. The physiological role of the enzyme is now being investigated in the context of new information on the plant peroxidase gene family of *Arabidopsis thaliana*.



Phytochemistry, 2004, **65**, 261

On the origins of triterpenoid skeletal diversity

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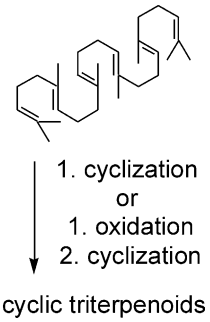
Department of Chemistry and Department of Biochemistry and Cell Biology, Rice University, 6100 S. Main Street, Houston, TX 77005, USA

The triterpenoids are a large group of natural products derived from C_{30} precursors. Nearly 200 different triterpene skeletons are known from natural sources or enzymatic reactions that are structurally consistent with being cyclization products of squalene, oxidosqualene, or bis-oxidosqualene. This review categorizes each of these structures and provides mechanisms for their formation.



Phytochemistry, 2004, **65**, 293

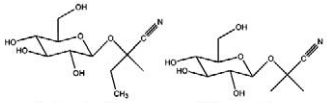
Cyanogenic glucosides and plant-insect interactions

Mika Zagrobelny[a], Søren Bak[a], Anne Vinther Rasmussen[a], Bodil Jørgensen[b], Clas M. Naumann[c], Birger Lindberg Møller[a]

[a]*Plant Biochemistry Laboratory, Department of Plant Biology and Center of Molecular Plant Physiology (PlaCe), Danish Institute of Agricultural Sciences, Royal Veterinary and Agricultural University, 40 Thorvaldsensvej, DK-1871 Frederiksberg C, Copenhagen, Denmark*
[b]*Biotechnology Group, Danish Institute of Agricultural Sciences, Royal Veterinary and Agricultural University, 40 Thorvaldsensvej, DK-1871 Frederiksberg C, Copenhagen, Denmark*
[c]*Alexander Koenig Research Institute and Museum of Zoology, Leibniz Institute for Research in Terrestrial Biodiversity, 160 Adenauerallee, D-53113 Bonn, Germany*

Cyanogenic glucosides are phytoanticipins important in plant defense against herbivory. Some specialized herbivores are able to degrade, de novo synthesize, and/or sequester cyanogenic glucosides from host plants. Co-evolutionary aspects of these complex interactions are discussed.

Zygaena transalpiina



Lotaustralin Linamarin

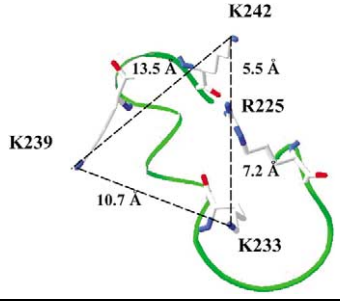
Phytochemistry, 2004, **65**, 307

Purification and identification of a Ca^{2+}-pectate binding peroxidase from *Arabidopsis* leaves

Kavita Shah, Claude Penel, Jean Gagnon, Christophe Dunand

Laboratoire de Physiologie Végétale, Université de Genève, Quai Ernest-Ansermet 30, CH-1211 Genève 4, Switzerland

AtPrx34 peroxidase obtained from *Arabidopsis* leaf extract was purified by affinity chromatography through a Ca^{2+}-pectate/polyacrylamide gel and microsequenced. *Atprx34* transcripts accumulated in root, stem, flower and leaf. Recombinant Atprx34 exhibited an affinity for Ca^{2+}-pectate, possibly through an amino acid motif consisting in K233, R225 and K242.



Phytochemistry, 2004, **65**, 313

Signatures of cinnamyl alcohol dehydrogenase deficiency in poplar lignins

Catherine Lapierre[a], Gilles Pilate[b], Brigitte Pollet[a], Isabelle Mila[a], Jean-Charles Leplé[b], Lise Jouanin[c], Hoon Kim[d,e], John Ralph[d,e]

[a]*UMR 206 INRA-INAPG Chimie Biologique, Institut National Agronomique, F-78850 Thiverval-Grignon, France*
[b]*Amélioration, Génétique et Physiologie Forestières, INRA, F-45160 Ardon, France*
[c]*Biologie Cellulaire, INRA, F-78026 Versailles Cedex, France*
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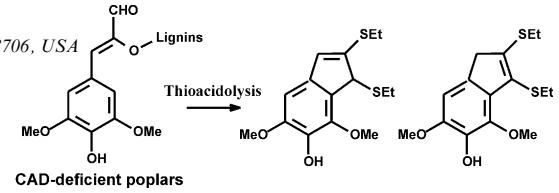
[e]*Department of Forestry, University of Wisconsin, Madison, WI 53706, USA*

Thioacidolysis produces marker compounds revealing the incorporation of sinapaldehyde into lignins of CAD-deficient poplars, the marker level reflecting the degree of CAD-suppression. The most severely depressed lines had ca. 50% of their lignins soluble in alkali at 37 °C.



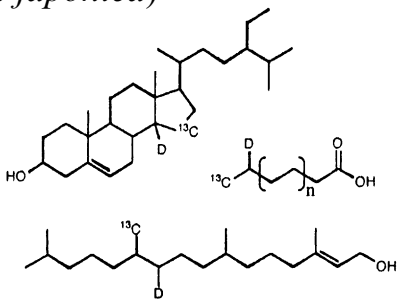
Phytochemistry, 2004, **65**, 323

Carbon and hydrogen isotopic fractionation during lipid biosynthesis in a higher plant (*Cryptomeria japonica*)

Yoshito Chikaraishi[a], Hiroshi Naraoka[a], Simon R. Poulson[b]

[a]*Department of Chemistry, Tokyo Metropolitan University, 1-1, Minami-Ohsawa, Hachioji, Tokyo 192-0397, Japan*
[b]*Department of Geological Science, MS-172, University of Nevada-Reno. Reno, Nevada 89557-0138, USA*

Compound-specific carbon and hydrogen isotopic compositions of lipid biomolecules (*n*-alkanes, *n*-alkanoic acids, *n*-alkanols, sesquiterpenes, diterpenes, phytol, diterpenols and β-sitosterol) have been dtermined in *Cryptomeria japonica* (C3-gymnosperm cedar) leaves.



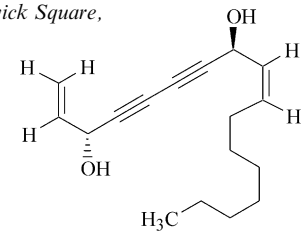
Phytochemistry, 2004, **65**, 331

The anti-staphylococcal activity of *Angelica dahurica* (Bai Zhi)

Doris Lechner[a], Michael Stavri[a], Moyosoluwa Oluwatuyi[a], Rogelio Pereda-Miranda[b], Simon Gibbons[a]

[a]*Centre for Pharmacognosy and Phytotherapy, The School of Pharmacy, University of London, 29–39 Brunswick Square, London WC1N 1AX, UK*
[b]*Departmento de Farmacia, Facultad de Química, Universidad Nacional Autónoma de México, D.F. 04510, Mexico*

Bioassay-guided isolation of a hexane extract of the roots of *Angelica dahurica* (Apiaceae) led to the isolation of 3(*R*), 8(*S*)-falcarindiol as the active anti-bacterial principle. This compound displayed minimum inhibitory concentrations of 8–32 μg/ml against multidrug-resistant (MDR) and methicillin-resistant *Staphylococcus aureus* (MRSA).



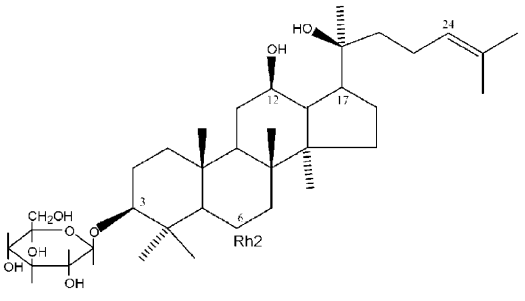
Phytochemistry, 2004, **65**, 337

Generation of ginsenosides Rg3 and Rh2 from North American ginseng

David G. Popovich, David D. Kitts

Food, Nutrition and Health, Faculty of Agricultural Science, University of British Columbia, 6650 N.W. Marine Drive, Vancouver, BC, Canada V6T 1Z4

Ginsenoside Rh2 is formed as a result of thermal extraction of North American ginseng (*Panax quinquefolius*).

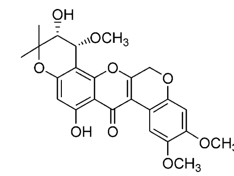


Phytochemistry, 2004, **65**, 345

Potential cancer chemopreventive constituents of the leaves of *Macaranga triloba*

Dae Sik Jang[a], Muriel Cuendet[a], Alison D. Pawlus[a], Leonardus B.S. Kardono[b], Kazuko Kawanishi[c], Norman R. Farnsworth[a], Harry H.S. Fong[a], John M. Pezzuto[a,d], A. Douglas Kinghorn[a]

[a]*Program for Collaborative Research in the Pharmaceutical Sciences and Department of Medicinal Chemistry and Pharmacognosy, College of Pharmacy, University of Illinois at Chicago, 833 South Wood Street, Chicago, IL 60612, USA*
[b]*Research Center for Chemistry, Indonesian Institute of Science, Serpong, 15310 Tangerang, Indonesia*
[c]*Kobe Pharmaceutical University, 4-19-1, Motoyamakitamachi, Higashinadaku, Kobe, 658-8558, Japan*
[d]*Present address: Heine Pharmacy Building, Purdue University, West Lafayette, Indiana 47907, USA*



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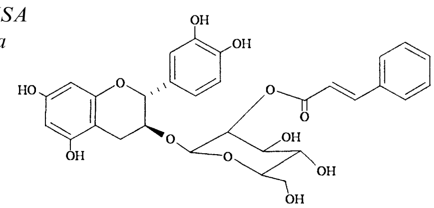
A new rotenoid, 4,5-dihydro-5′α-hydroxy-4′α-methoxy-6a,12a-dehydro-α-toxicarol (**1**), together with twelve known compounds, was isolated from the leaves of *Macaranga triloba* by in vitro bioassay-guided fractionation based on the inhibition of cyclooxygenase-2.

Phytochemistry, 2004, **65**, 351

Cinnamoyl glucosides of catechin and dimeric procyanidins from young leaves of *Inga umbellifera* (Fabaceae)

John Lokvam[a], Phyllis D. Coley[a,b], Thomas A. Kursar[a,b]

[a]*Department of Biology, University of Utah, 257 S 1400 E, Salt Lake City, UT 84112-0840, USA*
[b]*Smithsonian Tropical Research Institute, Apartado 2072, Balboa Ancón, Republica de Panama*



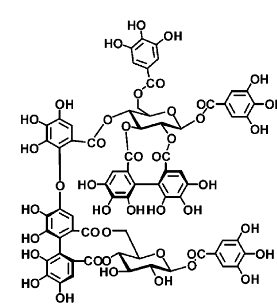
The young leaves of *Inga umbellifera* express high concentrations of 3-*O*-(cinnamoyl)glucosides of catechin and epicatechin.

Phytochemistry, 2004, **65**, 359

Oligomeric hydrolyzable tannins from *Monochaetum multiflorum*

J.H. Isaza, Hideyuki Ito, Takashi Yoshida

Faculty of Pharmaceutical Sciences, Okayama University, Tsushima, Okayama 700-8530, Japan



Nobotanin Q

From leaves of *Monochaetum multiflorum* (Melastomataceae), four ellagitannin oligomers, nobotanins Q, R, S and, T were isolated and their structures were determined by detailed NMR analyses.