Modification of flavonoid biosynthesis in crop plants

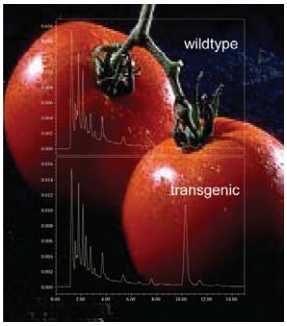
Phytochemistry, 2004, **65**, 2631

Elio G.W.M. Schijlen [a], C.H. Ric de Vos [a], Arjen J. van Tunen [b] Arnaud G. Bovy [a]

[a] *Plant Research International, Business Unit Bioscience, P.O. Box 16, 6700 AA Wageningen, The Netherlands*

[b] *Swammerdam Institute for Life Sciences, P.O. Box 19268, 1000 GG Amsterdam, The Netherlands*

This review describes the current knowledge of the molecular regulation of flavonoid biosynthesis and the state of the art with respect to metabolic engineering of this pathway in crop plants.

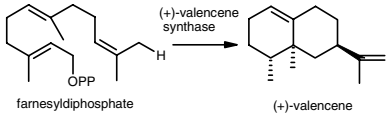


Vitis vinifera terpenoid cyclases: functional identification of two sesquiterpene synthase cDNAs encoding (+)-valencene synthase and (−)-germacrene D synthase and expression of mono- and sesquiterpene synthases in grapevine flowers and berries

Phytochemistry, 2004, **65**, 2649

Joost Lücker, Pat Bowen, Jörg Bohlmann

Terpenoids are important for a variety of quality traits in the grapevine, *Vitis vinifera*.



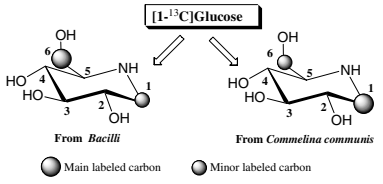
Biosynthesis of 1-deoxynojirimycin in *Commelina communis*: a difference between the microorganisms and plants

Phytochemistry, 2004, **65**, 2661

Makio Shibano, Yuka Fujimoto, Keiko Kushino, Genjiro Kusano, Kimiye Baba

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

The labeling pattern of DNJ found in the dayflower, *Commelina communis* (Commelinaceae), after administration and metabolism of [1-^{13}C] glucose is reported.



The biosynthetic pathway to abscisic acid via ionylideneethane in the fungus *Botrytis cinerea*

Phytochemistry, 2004, **65**, 2667

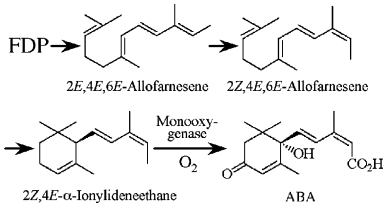
Masahiro Inomata [a], Nobuhiro Hirai [b], Ryuji Yoshida [c], Hajime Ohigashi [a]

[a] *Division of Food Science and Biotechnology, Graduate School of Agriculture, Kyoto University, Kyoto 606-8502, Japan*

[b] *International Innovation Center, Kyoto University, Kyoto 606-8501, Japan*

[c] *Department of Agriculture Technology, Toyama Prefectural University, Toyama 939-0311, Japan*

For biosynthesis of abscisic acid in the fungus, we propose a direct pathway via allofarnesene and ionylideneethane based on results of labeling experiments with $^{18}O_2$, $H_2{}^{18}O$, and ^{13}C-labeled compounds.



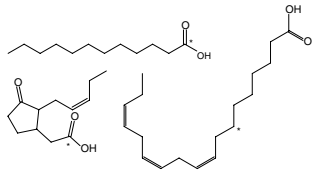
Labeling of major plant lipids and jasmonic acid using [1-^{14}C] lauric acid

Phytochemistry, 2004, **65**, 2679

Meshack M. Afitlhile, Hirotada Fukushige, David Hildebrand

Department of Agronomy, University of Kentucky, 403 Plant Science Building, 1405 Veterans Drive, Lexington, KY 40546-0312, USA

[1-^{14}C] Lauric acid is elongated and desaturated into linolenic acid, as well as being further metabolized into jasmonic acid and methyl jasmonate.



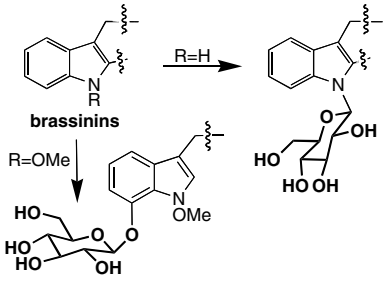
Detoxification of the cruciferous phytoalexin brassinin in *Sclerotinia sclerotiorum* requires an inducible glucosyltransferase

Phytochemistry, 2004, **65**, 2685

M. Soledade C. Pedras, Pearson W.K. Ahiahonu, Mohammad Hossain

Department of Chemistry, University of Saskatchewan, 110 Science Place, Saskatoon, Canada SK S7N 5C9

The phytoalexins brassinin, 1-methoxybrassinin, and cyclobrassinin were metabolized to β-D-glucopyranosyl derivatives displaying no detectable antifungal activity. Brassinin glucosyltransferase activity was induced by the phytoalexin camalexin, and brassinin analogs.



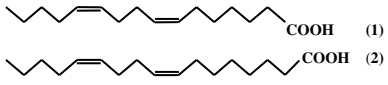
Identification of unusual fatty acids of four alpine plant species from the Pamirs

Phytochemistry, 2004, **65**, 2695

Vladimir D. Tsydendambaev [a], William W. Christie [b], Elizabeth Y. Brechany [c], Andrei G. Vereshchagin [a]

[a] *Laboratory of Lipid Metabolism, Institute of Plant Physiology, Russian Academy of Sciences, Botanicheskaya 35, Moscow 127276, Russia*
[b] *Scottish Crop Research Institute, Invergowrie, Dundee DD2 5DA, Scotland, UK*
[c] *Hannah Research Institute, Ayr KA6 5HL, Scotland, UK*

Among 55 fatty acids found in four alpine plants, 9 fatty acid species were identified for the first time in higher plants and 2 species, 16:2ω5 (**1**), and 17:2ω5 (**2**), may be new to science.



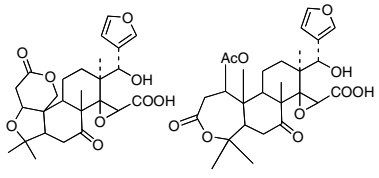
Isolation and characterization of limonoate and nomilinoate A-ring lactones

Phytochemistry, 2004, **65**, 2705

Audrius A. Zukas, Andrew P. Breksa III, Gary D. Manners

United States Department of Agriculture, Western Regional Research Center, Agricultural Research Service, 800 Buchanan Street, Albany, CA 94710, USA

Limonoate and nomilinoate A-ring lactones, the two key metabolites in the limonoid biosynthetic pathway critical to citrus quality, were isolated by a method combining solid-phase extraction and reversed-phase high-performance liquid chromatography.



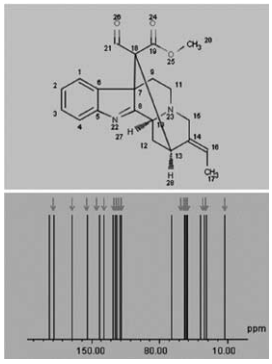
NMRShiftDB – compound identification and structure elucidation support through a free community-built web database

Phytochemistry, 2004, **65**, 2711

Christoph Steinbeck, Stefan Kuhn

Max-Planck-Institute of Chemical Ecology, Hans-Knöll-Str. 8, D-07745 Jena, Germany
Cologne University Bioinformatics Center, Zülpicher Str. 47, D-50674, Köln, Germany

Compound identification and support for computer-assisted structure elucidation via a free community build web database for organic structures and their NMR data is described. The new database NMRShiftDB is available at http://www.nmrshiftdb.org.



Antioxidant dehydrotocopherols as a new chemical character of *Stemona* species

Phytochemistry, 2004, **65**, 2719

Brigitte Brem, Christoph Seger, Thomas Pacher, Markus Hartl, Franz Hadacek, Otmar Hofer, Srunya Vajrodaya, Harald Greger

Four dehydrotocopherols were isolated from the roots of various *Stemona* species and their structures and stereochemistries elucidated by spectroscopic methods. Various accumulation trends towards α-, β-, γ-, or δ-form were in line with present species delimitations. Antioxidant activities tested with the free radical DPPH on TLC and microplate assays were comparable with that of α-tocopherol