

Amino acid sequence of the 26 kDa subunit of legumin-type seed storage protein of common buckwheat (*Fagopyrum esculentum* Moench): molecular characterization and phylogenetic analysis

Sangeeta Bharali, Nikhil K. Chrungoo

Molecular Plant Physiology Laboratory, Department of Botany, North Eastern Hill University
Shillong 793 022, India

The amino acid sequence of a lysine and methionine rich subunit of legumin-type seed storage protein from common buckwheat (*Fagopyrum esculentum* Moench) is reported. The protein has 6.7% lysine and 1.54% methionine. Sequence homology analysis revealed more than 90% homology with *Coffea arabica* 11S globulin.

Phytochemistry, 2003, 63, 1

Buckheat legumin

↓
**purification of
26 kDa basic
subunit**

↓
**Amino acid
sequence**

↓
Sequence analysis

Differences in nucleotide-binding site of isoapyrases deduced from tryptophan fluorescence

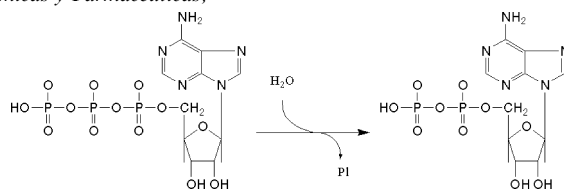
V. Espinosa^a, A.M. Kettlun^a, A. Zanicco^b, E. Cardemil^c, M.A. Valenzuela^a

^aDepartamento de Bioquímica y Biología Molecular, Facultad de Ciencias Químicas y Farmacéuticas, Universidad de Chile, Santiago, Chile

^bDepartamento de Química Orgánica y Fisicoquímica, Facultad de Ciencias Químicas y Farmacéuticas, Universidad de Chile, Santiago, Chile

^cDepartamento de Ciencias Químicas, Facultad de Química y Biología, Universidad de Santiago de Chile, Santiago, Chile

Isoapyrases hydrolyse ATP and ADP with different ATPase/ADPase ratio. Trp residues are located close to the nucleotide binding site, presenting differences in fluorescent quencher accessibility.



Phytochemistry, 2003, 63, 7

A rationale for the shift in colour towards blue in transgenic carnation flowers expressing the flavonoid 3',5'-hydroxylase gene

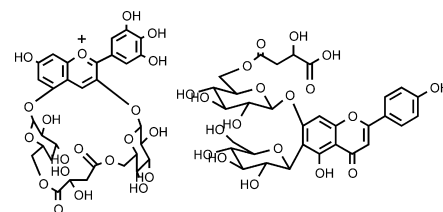
Yuko Fukui^a, Yoshikazu Tanaka^a, Takaaki Kusumi^a, Takashi Iwashita^b, Kyosuke Nomoto^c

^aPlant Biotechnology Laboratory, Suntory Ltd., 1-1-1 Wakayamadai, Shimamoto, Mishima, Osaka 618-8503, Japan

^bSuntory Institute for Bioorganic Research, 1-1-1 Wakayamadai, Shimamoto, Mishima, Osaka 618-8503, Japan

^cFaculty of Life Sciences, Toyo University, 1-1-1 Izumino, Itakura, Gunma 374-0193, Japan

Delphinidin-type anthocyanin produced by transformation and a strong co-pigment flavone were isolated from transgenic carnation petal.



Phytochemistry, 2003, 63, 15

Biosynthesis of the sesquiterpene hodgeonox from the New Zealand liverwort *Lepidolaena hodgeoniae*

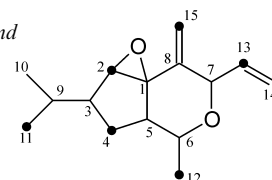
Anna J. Barlow^a, Stephen D. Lorimer^b, Ed R. Morgan^c, Rex T. Weavers^a

^aDepartment of Chemistry, University of Otago, PO Box 56, Dunedin, New Zealand

^bPlant Extracts Research Unit, New Zealand Institute for Crop and Food Research Limited, Department of Chemistry, University of Otago, PO Box 56, Dunedin, New Zealand

^cNew Zealand Institute for Crop and Food Research Limited, Private Bag 11600, Palmerston North, New Zealand

Results from a labelling experiment incorporating [1-¹³C]glucose showed the isoprenoids units of hodgeonox to be derived exclusively from the MEP pathway.



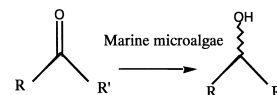
Phytochemistry, 2003, 63, 25

Biotransformation of aliphatic and aromatic ketones, including several monoterpenoid ketones and their derivatives by five species of marine microalgae

Ingrid. L. Hook, Shane Ryan, Helen Sheridan

Department of Pharmacognosy, School of Pharmacy, Trinity College, Dublin 2, Ireland

A series of five marine microalgae demonstrate substrate specificity and stereoselectivity in the reduction, oxidation and hydrolysis of test substrates.



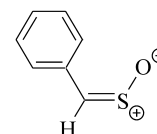
Phytochemistry, 2003, **63**, 31

The lachrymatory principle of *Petiveria alliacea*

Roman Kubec, Seokwon Kim, Rabi A. Musah

Department of Chemistry, State University of New York at Albany, Albany, NY 12222, USA

Isolation of (*Z*)-thiobenzaldehyde *S*-oxide from a fresh homogenate of the root of *Petiveria alliacea* L. is described. This unique compound represents only the third naturally occurring sulfine (thiocarbonyl *S*-oxide) to be reported. Its formation and possible subsequent rearrangements are discussed. Its antibacterial and antifungal activities are also reported.



Phytochemistry, 2003, **63**, 37

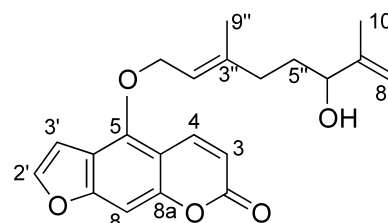
Insect antifeedant furanocoumarins from *Tetradium daniellii*

Philip C. Stevenson^a, Monique S.J. Simmonds^a, Marianne A. Yule^a, Nigel C. Veitch^a, Geoffrey C. Kite^a, Dianne Irwin^b, Mike Legg^b

^a*Royal Botanic Gardens, Richmond, Kew, Surrey, TW9 3AB, UK*

^b*Syngenta, Jealott's Hill International Research Centre, Bracknell, Berkshire, RG42 6EY, UK*

Dried fruits of *Tetradium daniellii* yielded a new linear furanocoumarin, 5-(6-hydroxy-3,7-dimethylocta-2,7-dienyloxy)psoralen and six other structurally related furanocoumarins. Four of the compounds were potent feeding deterrents to larvae of *Spodoptera littoralis* and *Heliothis virescens*.



Phytochemistry, 2003, **63**, 41

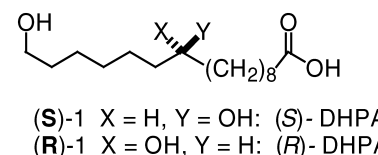
Synthesis of (*R*)- and (*S*)-10,16-dihydroxyhexadecanoic acid: cutin stereochemistry and fungal activation

Aqeel Ahmed^a, Stephenie Gould^a, Terry Crawford^a, Y.S. Ha^b, Monica Hollrah^a, Farhana Noor-E-Ain^a, Martin B. Dickman^b, Patrick H. Dussault^a

^a*Department of Chemistry, University of Nebraska-Lincoln, Lincoln, NE 68588, USA*

^b*Department of Plant Pathology, University of Nebraska-Lincoln, Lincoln, NE 68588, USA*

We report the asymmetric synthesis of (*S*)(+) and (*R*)(–)-10,16-dihydroxyhexadecanoic acid (DHPA) and the stereochemical correlation of the *S*-enantiomer with 10,16-DHPA derived from tomato cutin. The two DHPA enantiomers had different activity in terms of relative ability to induce a cutinase and kinase from the plant pathogen *Colletotrichum trifolii*.



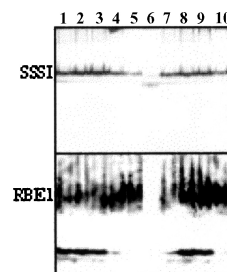
Phytochemistry, 2003, **63**, 47

Effect of high temperature on fine structure of amylopectin in rice endosperm by reducing the activity of the starch branching enzyme

Huawu Jiang, Weimin Dian, Ping Wu

State Key Laboratory of Plant Physiology and Biochemistry, College of Life Sciences, Zhejiang University, Hangzhou, 310029, PR China

At higher temperatures the activities of SSSI were increased in rice endosperms, whereas activities of GBSS, RBE1 and RBE3 decreased.



Phytochemistry, 2003, **63**, 53

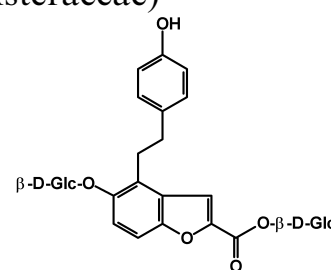
Tyrolobibenzyls E and F from *Scorzonera humilis* and distribution of caffeic acid derivatives, lignans and tyrolobibenzyls in European taxa of the subtribe Scorzonerinae (Lactuceae, Asteraceae)

Christian Zidorn^a, Ernst P. Ellmerer^b, Sonja Sturm^a, Hermann Stuppner^a

^aInstitut für Pharmazie der Universität Innsbruck, Abteilung Pharmakognosie, Josef-Moeller-Haus, Innrain 52, A-6020 Innsbruck, Austria

^bInstitut für Organische Chemie der Universität Innsbruck, Innrain 52a, A-6020 Innsbruck, Austria

A chemosystematic study of seventeen taxa of the Scorzonerinae revealed that tyrolobibenzyls are restricted to *Scorzonera humilis*. In addition to known compounds two new tyrolobibenzyls were isolated. The structures were established by mass spectrometry and 1D and 2D NMR spectroscopy.



Phytochemistry, 2003, **63**, 61

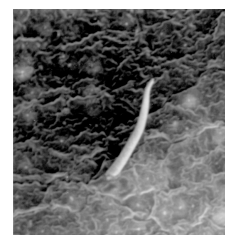
Glucosinolates, flea beetle resistance, and leaf pubescence as taxonomic characters in the genus *Barbarea* (Brassicaceae)

Niels Agerbirk^a, Marian Ørgaard^b, Jens Kvist Nielsen^a

^aChemistry Department, Royal Veterinary and Agricultural University, Thorvaldsensvej 40, DK-1871 Frederiksberg C, Denmark

^bDepartment of Ecology, Royal Veterinary and Agricultural University, Thorvaldsensvej 40, DK-1871 Frederiksberg C, Denmark

The pubescent P-type of *Barbarea vulgaris* differed in flea beetle resistance and in several glucosinolate biosynthetic characters from the glabrous G-type. The variation in these characters among other members of the genus was examined. The taxonomic status of the P-type should be reconsidered.



Hairs predict chemistry

Phytochemistry, 2003, **63**, 69

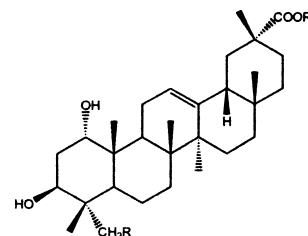
Antimicrobial activity of pentacyclic triterpenes isolated from African Combretaceae

David R. Katerere^a, Alexander I. Gray^a, Robert J. Nash^b, Roger D. Waigh^a

^aDepartment of Pharmaceutical Sciences, Strathclyde Institute for Biomedical Sciences, University of Strathclyde, 27 Taylor Street, Glasgow G4 0NR, Scotland, UK

^bMolecular Nature Ltd, IGER, Plas Gogerddan, Aberystwyth, Dyfed SY23 3EB, Wales, UK

Imberbic acid and four rhamnosides, three of which are new, have been isolated from two species of Combretaceae. Imberbic acid has potent activity against *Mycobacterium fortuitum*.



Phytochemistry, 2003, **63**, 81

Screening of oxylipins for control of oilseed rape (*Brassica napus*) fungal pathogens

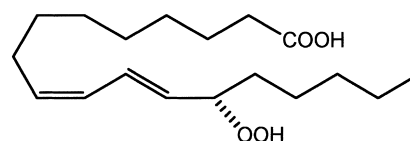
Georg Granér^a, Mats Hamberg^b, Johan Meijer^a

^aDepartment of Plant Biology, Genetics Center, PO Box 7080, Swedish University of Agricultural Sciences, SE-750 07 Uppsala, Sweden

^bDepartment of Medical Biochemistry and Biophysics, Division of Physiological Chemistry II, Karolinska Institutet, SE-171 77 Stockholm, Sweden

Several naturally occurring oxylipins were tested for their ability to control *Brassica* fungal pathogens.

Phytochemistry, 2003, **63**, 89



13(S)-Hydroperoxy-9(Z),11(E)-octadecadienoic acid

Comparative antioxidant activity of individual herbal components used in Ayurvedic medicine

G.H. Naik^a, K.I. Priyadarsini^a, J.G. Satav^b, M.M. Banavalikar^c, D.P. Sohoni^c, M.K. Biyani^c, H. Mohan^a

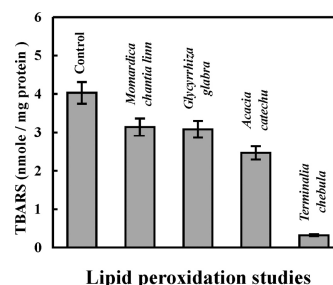
^aRadiation Chemistry and Chemical Dynamics Division, Bhabha Atomic Research Centre, Trombay, Mumbai-400085, India

^bRadiation Biology Division, Bhabha Atomic Research Centre, Trombay, Mumbai-400085, India

^cAjanta Pharma Ltd, Kandivili, Mumbai-400067, India

Antioxidant potential of four different aqueous ayurvedic herbal extracts have been evaluated.

Phytochemistry, 2003, **63**, 97



A pregeijerene isomer from *Juniperus erectopatens* foliage

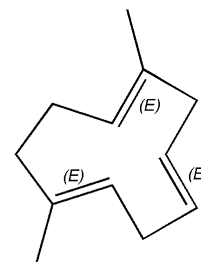
Laurence G. Cool^a, Robert P. Adams^b

^aUniversity of California Forest Products Laboratory, 1301 S. 46th St., Richmond, CA 94804, USA

^bBiology Department, Baylor University, PO Box 97388, Waco, TX 76798, USA

(*E,E,E*)-1,7-Dimethylcyclodeca-1,4,7-triene (pregeijerene B) was identified in foliage of *Juniperus erectopatens*. This *trisinor*-sesquiterpene, with a rather strained structure, is apparently biosynthetically related to a co-occurring germacrene sesquiterpenoid, 8 α -acetoxyhedycaryol.

Phytochemistry, 2003, **63**, 105



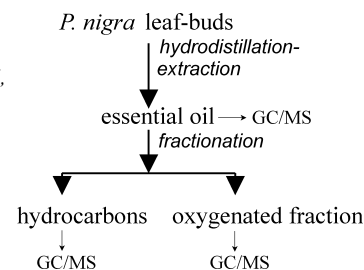
Volatile compounds from leaf-buds of *Populus nigra* L. (Salicaceae)

Igor Jerković, Josip Mastelić

Department of Organic Chemistry, Faculty of Chemical Technology, University of Split, N. Tesle 10/V, HR-21 000 Split, Croatia

Sesquiterpene alcohols and hydrocarbons were the most abundant volatiles of *Populus nigra* leaf-buds (up to 76%). α/β -Eudesmols were the main oil constituents (up to 28%). Other major compounds were γ -selinene, δ -cadinene, α -elemene and γ -cadinene accompanied with minor quantity of hemiterpenes, monoterpenes and other compounds.

Phytochemistry, 2003, **63**, 109



New class of steroidal alkaloids from *Fritillaria imperialis*Phytochemistry, 2003, **63**, 115M. Nadeem Akhtar^a, Atta-ur-Rahman^a, M. Iqbal Choudhary^a, Bilge Sener^b, Ilkay Erdogan^b, Yoshisuke Tsuda^a^aInternational Center for Chemical Sciences, H. E. J. Research Institute of Chemistry, University of Karachi, Karachi-75270, Pakistan^bDepartment of Pharmacognosy, Faculty of Pharmacy, Gazi University, Ankara-06330, Turkey

Two members of a new class of C-nor-D-homo steroidal alkaloids, impranine (**1**) and dihydroimpranine (**2**) along with a new pyridyl-pregnane-type steroidal alkaloid, fetisinine (**3**) and a known base, korsevine (**4**) were isolated from the bulbs of *Fritillaria imperialis*. The structures of the compounds were established on the basis of spectroscopic techniques and some chemical transformations.

Compounds **1** and **2** form a new class of steroidal alkaloids, named as “impranane.”

