

Phytochemistry Vol. 66, No. 12, 2005

Contents

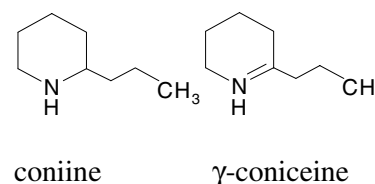
MOLECULES OF INTEREST

Hemlock alkaloids from Socrates to poison aloes

pp 1399–1406

Tom Reynolds*

The toxicity of hemlock (*Conium maculatum* L.) is due to a group of simple piperidine alkaloids represented by coniine and γ -coniceine. Levels of the various compounds depend very much on variety, environmental conditions and provenance of the plants. Surprisingly the alkaloids turned up in a quite unrelated genus, *Aloe* but only in a very few species, the rest not being thought of as poisonous. They have also been found in other unrelated plants. The compounds are neurotoxins and the acute effect is death by respiratory failure. Chronic non-lethal ingestion by pregnant livestock leads to foetal malformations. It has been suggested that they may function in respiratory dinucleotides. Many aspects of their physiology and biochemistry invite new research.



FULL PAPERS

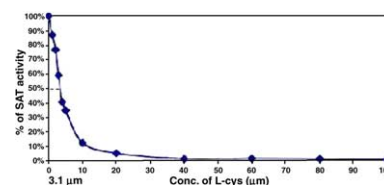
PROTEIN BIOCHEMISTRY

Molecular and biochemical characterisation of a serine acetyltransferase of onion, *Allium cepa* (L.)

pp 1407–1416

Michael T. McManus*, Susanna Leung, Anya Lambert, Richard W. Scott, Meeghan Pither-Joyce, Balance Chen, John McCallum

The *SAT1* gene of *Allium cepa* has been mapped to chromosome 7, and northern analysis has shown that expression of the gene is responsive to S-supply. The recombinant SAT1 protein has a K_m for L-serine of 0.72 mM, and 92 μ M for acetyl-CoA, and an IC_{50} value of 3.1 μ M for L-cysteine.



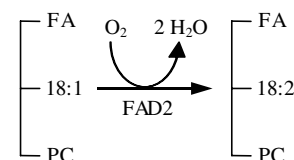
MOLECULAR GENETICS AND GENOMICS

Molecular cloning and characterization of genes encoding two microsomal oleate desaturases (*FAD2*) from olive

pp 1417–1426

M. Luisa Hernández, Manuel Mancha, José M. Martínez-Rivas*

Linoleic acid content greatly affects technological properties and nutritional characteristics of vegetable oils. We report the first cDNA isolation and characterization of two microsomal oleate desaturases (*FAD2*) from an oil fruit (*Olea europaea*).

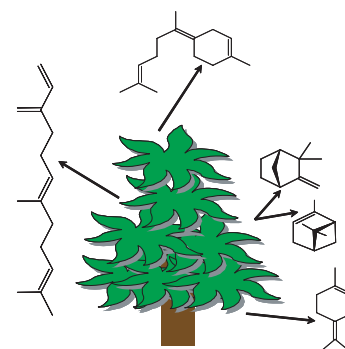


Characterization of four terpene synthase cDNAs from methyl jasmonate-induced Douglas-fir, *Pseudotsuga menziesii*

pp 1427–1439

Dezene P.W. Huber, Ryan N. Philippe, Kimberley-Ann Godard,
Rona N. Sturrock, Jörg Bohlmann*

Terpenoids play a vital role in conifer resistance to pests. We report the first cDNA isolation and characterization of terpene synthases from Douglas-fir.



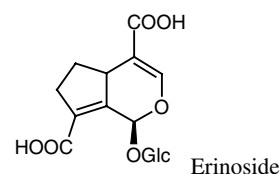
CHEMOTAXONOMY

Chemotaxonomic markers in Digitalideae (Plantaginaceae)

pp 1440–1447

Rilka Mladenova Taskova, Charlotte Held Gotfredsen,
Søren Rosendal Jensen*

Members of the genera *Digitalis*, *Isoplexis*, *Erinus* and *Lafuentea* were studied for iridoids, caffeoyl phenylethanoid glycosides and main carbohydrates. Among the isolated compounds were the tyrosol mannoside (sceptroside) and the iridoid glucoside erinoside. The chemosystematic significance of the isolated compounds was discussed.

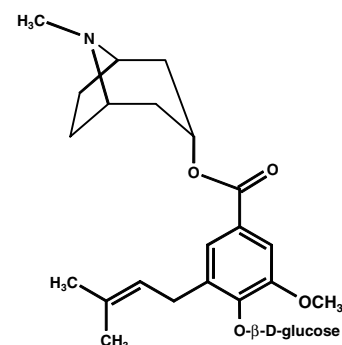


Chemotaxonomy of the pantropical genus *Merremia* (Convolvulaceae) based on the distribution of tropane alkaloids

pp 1448–1464

Kristina Jenett-Siems, Robert Weigl, Anke Böhm, Petra Mann,
Britta Tofern-Reblin, Sonja C. Ott, Azar Ghomian, Maki Kaloga,
Karsten Siems, Ludger Witte, Monika Hilker, Frank Müller, Eckart Eich*

A comprehensive GC–MS analysis of 18 spp. revealed altogether 74 tropanes and 13 pyrrolidines, respectively. Four aromatic 3 α -acyloxytropanes (merresectines A–D) of chemotaxonomic relevance as well as 3 α , 6 β -di-(4-methoxybenzoyloxy)tropane (merredissine) have been isolated and structurally elucidated.

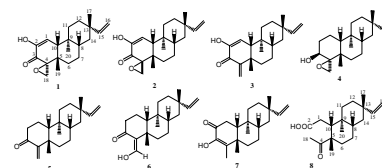


Tagalsins A–H, dolabrane-type diterpenes from the mangrove plant, *Ceriops tagal*

pp 1465–1471

Yan Zhang, Zhiwei Deng, Tianxiang Gao, Peter Proksch, Wenhan Lin*

From the stems and twigs of the mangrove plant, *Ceriops tagal*, seven dolabrane-type diterpenes, namely tagalsins A–G (**1**–**7**), and the norditerpenetagalsin H (**8**) were isolated. Their structures were established on the basis of extensive spectroscopic analysis.



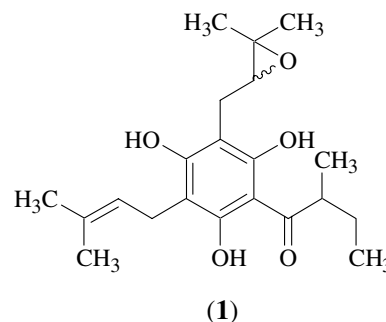
BIOACTIVE PRODUCTS

An anti-staphylococcal acylphloroglucinol from *Hypericum foliosum*

pp 1472–1475

Simon Gibbons*, Elisabeth Moser, Sebastian Hausmann, Michael Stavri, Eileen Smith, Christopher Clennett

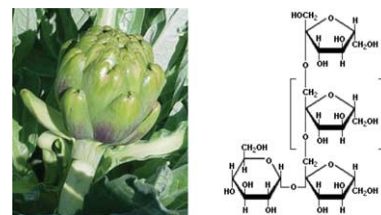
Bioassay-guided isolation of a hexane extract of *Hypericum foliosum* (Guttiferae) led to the characterisation of the acylphloroglucinol (**1**) as the major anti-staphylococcal principle. Minimum inhibitory concentration values ranged from 16–32 µg/ml against methicillin and multidrug-resistant *Staphylococcus aureus* strains.

Molecular properties and prebiotic effect of inulin obtained from artichoke (*Cynara scolymus* L.)

pp 1476–1484

Dorotea López-Molina, María Dolores Navarro-Martínez, Francisco Rojas Melgarejo, Alexander N.P. Hiner, Soledad Chazarra, José Neptuno Rodríguez-López*

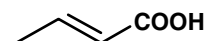
A high molecular weight inulin has been prepared from artichoke (*Cynara scolymus* L.) agroindustrial wastes using environmentally benign aqueous extraction procedures.

Crotonic acid as a bioactive factor in carrot seeds (*Daucus carota* L.)

pp 1485–1491

Izabela Jasicka-Misiak*, Piotr P. Wiczorek, Paweł Kafarski

E-2-Butenoic acid (crotonic acid), not previously reported from plant seeds, is a common herbicidal and autotoxic metabolite.



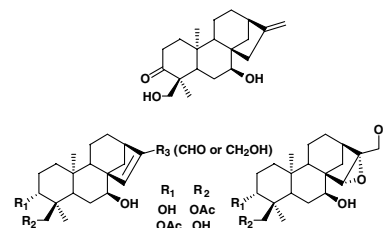
CHEMISTRY

ent-Kauranoid derivatives from *Sideritis moorei*

pp 1492–1498

Hanae Ghoumari, Mohamed-Hassan Benajiba, Amina Azmani, Andrés García-Granados, Antonio Martínez*, Andrés Parra, Francisco Rivas, Oswaldo Socorro

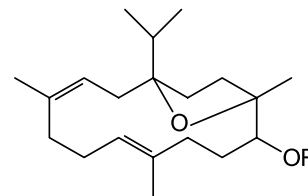
The natural compounds *ent*-7 α 18-dihydroxykaur-16-en-3-one and *ent*-18-acetoxy-3 β ,7 α -dihydroxykaur-15-en-17-al, *ent*-18-acetoxy-3 β ,7 α ,17-trihydroxykaur-15-ene, *ent*-18-acetoxy-3 β ,7 α ,17-trihydroxy-15 β ,16 β -epoxykaurane, besides their *ent*-3 β -acetoxy-18-hydroxy derivatives, have been isolated from *Sideritis moorei*.



A chemical investigation by headspace SPME and GC–MS of volatile and semi-volatile terpenes in various olibanum samples**pp 1499–1514**

Sandrine Hamm*, Jean Bleton, Jacques Connan, Alain Tchapla

Six different olibanum samples with certified botanical origin (two *Boswellia carteri*, and *Boswellia sacra*, *Boswellia frereana*, *Boswellia papyrifera*, *Boswellia serrata*) were analyzed by headspace SPME–GC/MS in order to define their mono-, sesqui- and diterpenic composition, as pertinent criteria of identification. The chemical composition of olibanum, which is demonstrated to be different for each *Boswellia* species allowed the determination of the taxonomic origin of frankincense samples purchased on various markets, of olibanum used in traditional incense mixtures and of an archaeological frankincense sample.



Incensole: R=H

Incensole acetate: R=COCH₃**OTHER CONTENTS****Announcement: Phytochemical Society of North America****Author Index****Guide for Authors**

* Corresponding author

p I
p III
pp V–VI

The Editors encourage the submission of articles online, thus reducing publication times. For further information and to submit your manuscript, please visit the journal homepage at <http://www.elsevier.com/locate/phytochem>



ELSEVIER

ISSN 0031-9422

INDEXED/ABSTRACTED IN: *Current Awareness in Biological Sciences (CABS)*, *Curr Cont ASCA*, *Chem. Abstr.*, *BIOSIS Data*, *PASCAL-CNRS Data*, *CAB Inter*, *Cam Sci Abstr*, *Curr Cont/Agri Bio Env Sci*, *Curr Cont/Life Sci*, *Curr Cont Sci Cit Ind*, *Curr Cont SCISEARCH Data*, *Bio Agri Ind*

Also available on

SCIENCE @ DIRECT®www.sciencedirect.com