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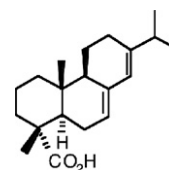
MOLECULES OF INTEREST

Diterpene resin acids in conifers

pp 2415–2423

Christopher I. Keeling, Jörg Bohlmann*

A short review of the recent developments in understanding the genomics, molecular biology, biochemistry, and biological importance of diterpene resin acids in conifers.



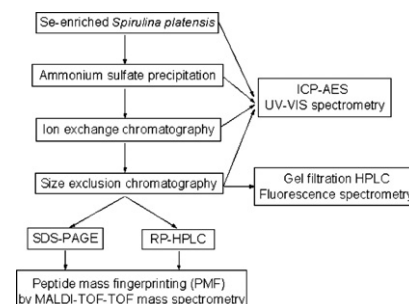
PROTEIN BIOCHEMISTRY

Purification and characterization of selenium-containing phycocyanin from selenium-enriched *Spirulina platensis*

pp 2424–2430

Tianfeng Chen, Yum-Shing Wong*, Wenjie Zheng

Selenium-containing phycocyanin was purified from selenium-enriched *Spirulina platensis* by fast protein liquid chromatography and characterized by UV–VIS and fluorescence spectrometry, SDS–PAGE, HPLC, MALDI-TOF-TOF mass spectrometry and ICP-AES analysis.

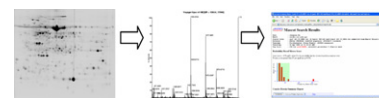


Separation and identification of soybean leaf proteins by two-dimensional gel electrophoresis and mass spectrometry

pp 2431–2440

Chenping Xu, Wesley M. Garrett, Joseph Sullivan, Thomas J. Caperna, Savithiry Natarajan*

Soybean leaf proteins were separated by 2D gel electrophoresis and identified using MALDI-TOF-MS and LC-MS.



MOLECULAR GENETICS AND GENOMICS

Molecular cloning and functional identification of a ribosome inactivating/antiviral protein from leaves of post-flowering stage of *Celosia cristata* and its expression in *E. coli*

pp 2441–2449

Mehbuba Begam, Sushil Kumar, Sribash Roy, James J. Campanella, H.C. Kapoor*

A full-length cDNA clone of 1015 nucleotides was isolated from the cDNA library of post-flowering stage of *Celosia cristata* leaves. When it was expressed in *Escherichia coli*, the purified product showed *N*-glycosidase activity towards tobacco ribosomes and antiviral activity towards tobacco mosaic virus (TMV) and sunnhemp rosette virus (SRV).



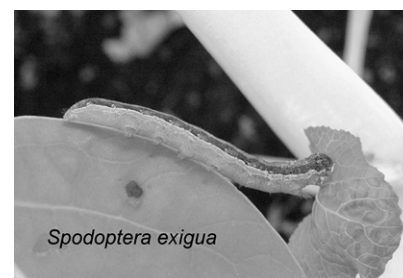
ECOLOGICAL BIOCHEMISTRY

Gene expression and glucosinolate accumulation in *Arabidopsis thaliana* in response to generalist and specialist herbivores of different feeding guilds and the role of defense signaling pathways

pp 2450–2462

Inga Mewis*, James G. Tokuhisa, Jack C. Schultz, Heidi M. Appel, Christian Ulrichs, Jonathan Gershenzon

Herbivory by various insect species on *Arabidopsis* elicited different types of changes in glucosinolate levels and transcripts of glucosinolate biosynthetic genes. Experiments with signaling mutants suggested involvement of jasmonate, salicylate and ethylene signaling in these responses.



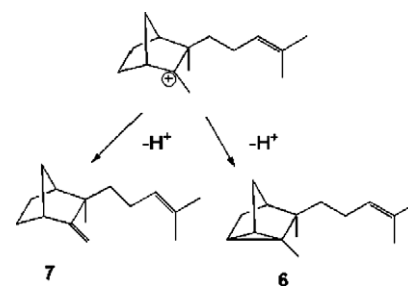
CHEMOTAXONOMY

Quantitative co-occurrence of sesquiterpenes; a tool for elucidating their biosynthesis in Indian sandalwood, *Santalum album*

pp 2463–2468

Christopher G. Jones*, Emilio L. Ghisalberti, Julie A. Plummer, Elizabeth L. Barbour

Striking quantitative co-occurrence patterns exist between the sesquiterpenes of Indian sandalwood (*Santalum album*) oil. The biosynthesis of α - and β -santalene being derived from a common carbocation intermediate is evidenced by the strong linear correlation between these two compounds.



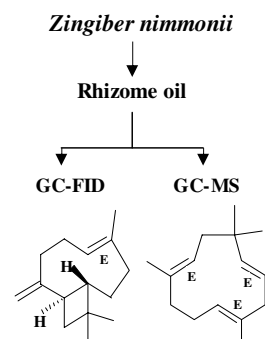
BIOACTIVE PRODUCTS

Caryophyllene-rich rhizome oil of *Zingiber nimmonii* from South India: Chemical characterization and antimicrobial activity

pp 2469–2473

Baby Sabulal, Mathew Dan, Anil John J, Rajani Kurup, Nediamparambu Sukumaran Pradeep, Renju Krishna Valsamma, Varughese George*

Zingiber nimmonii rhizome oil was characterized by GC-FID and GC-MS. It is a unique natural source of isomeric caryophyllenes, β -caryophyllene (42.2%), α -caryophyllene (27.7%) and isocaryophyllene (trace). The oil showed significant activities against *Candida glabrata*, *C. albicans*, *Aspergillus niger* and *Bacillus subtilis*.

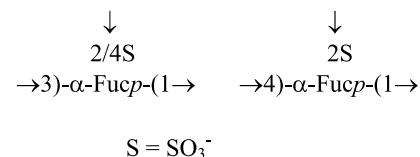


Structure and antiviral activity of sulfated fucans from *Stoechospermum marginatum*

pp 2474–2482

Utpal Adhikari, Cecilia G. Mateu, Kausik Chattopadhyay, Carlos A. Pujol, Elsa B. Damonte, Bimalendu Ray*

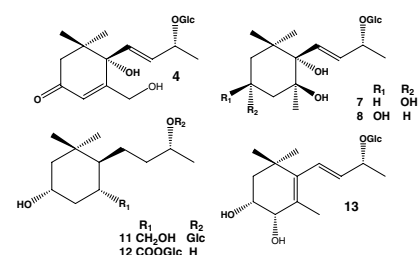
Isolation, structural features and antiherpetic activity of a purified sulfated fucan from *Stoechospermum marginatum*. The following are the major structural features of the fucan sulfate having antiviral activity.

**CHEMISTRY****Bridelionosides A–F: Megastigmane glucosides from *Bridelia glauca* f. *balansae***

pp 2483–2493

Etsuko Sueyoshi, Hui Liu, Katsuyoshi Matsunami, Hideaki Otsuka*, Takakazu Shinzato, Mitsunori Aramoto, Yoshio Takeda

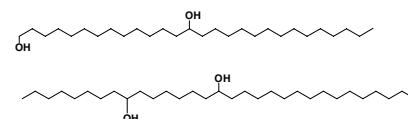
From *Bridelia glauca* f. *balansae* Bridelionosides A (4), B (7), C (8), D (11), E (12) and F (13) were isolated. Their structures were elucidated by spectroscopic analyses and the modified Mosher's method.

**Very-long-chain secondary alcohols and alkanediols in cuticular waxes of *Pisum sativum* leaves**

pp 2494–2502

Miao Wen, Jason Au, Franka Gniwotta, Reinhard Jetter*

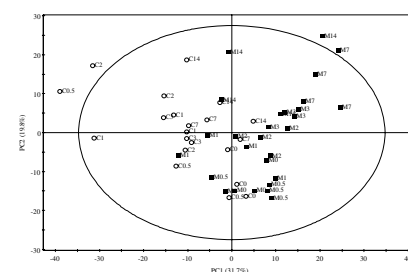
Very-long-chain aliphatic components with secondary functional groups were detected in the leaf wax of *Pisum sativum*. Using various chemical transformations and product elucidation by GC–MS, homologous series of secondary alcohols, primary/secondary alkanediols and secondary/secondary alkanediols were identified.

**Metabolomic analysis of methyl jasmonate treated *Brassica rapa* leaves by 2-dimensional NMR spectroscopy**

pp 2503–2511

Yun-Sa Liang, Young Hae Choi, Hye Kyong Kim*, Huub J.M. Linthorst, Robert Verpoorte

The principal component analysis of the J-resolved NMR spectra showed discrimination between control plants and methyl jasmonate treated plants. Methyl jasmonate treatment resulted in a long term accumulation of indole glucosinolate, indole-3-acetic acid and malate conjugated hydroxycinnamates up to 14 days after treatment, which might be important compounds in plant defence responses.



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