

Phytochemistry Vol. 66, No. 9, 2005

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EDITORIAL

Global phytochemistry: The Turkish frame pp 956–960

Makust Coşkun and A. Mine Gençler Özkan

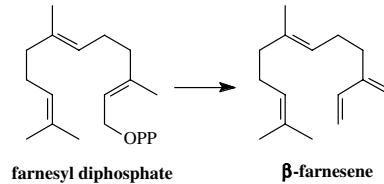
FULL PAPERS

PROTEIN BIOCHEMISTRY

Expression, purification and characterization of recombinant (E)- β -farnesene synthase from *Artemisia annua* pp 961–967

Sarah Picaud, Maria Brodelius and Peter E. Brodelius*

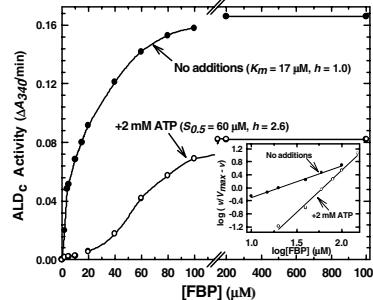
A cDNA clone encoding the sesquiterpene synthase (E)- β -farnesene synthase has been isolated from *Artemisia annua* L. The recombinant enzyme produced in *Escherichia coli* has been characterized.



Purification and characterization of an allosteric fructose-1,6-bisphosphate aldolase from germinating mung beans (*Vigna radiata*) pp 968–974

Ashish Lal, William C. Plaxton and Arvind M. Kayastha*

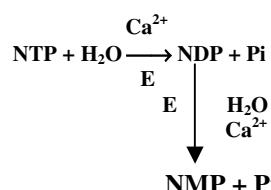
Potent allosteric inhibition of cytosolic aldolase by ATP is suggested to help balance cellular ATP demands with the control of cytosolic glycolysis and respiration in germinated mung beans.



Potato tuber isoapyrases: Substrate specificity, affinity labeling, and proteolytic susceptibility pp 975–982

A.M. Kettlun, V. Espinosa, L. García and M.A. Valenzuela*

Potato isoapyrases from Desirée (low ATPase/ADPase ratio) and Pimpernel (high ATPase/ADPase ratio) show broad specificities towards dNTP and fluorescent nucleotides. Pimpernel enzyme shows higher k_{cat} towards all triphosphate derivatives and lower proteolytic susceptibility as compared with Desirée. Unlike animal apyrases, labeling with azido-nucleotides and FSBA was not achieved with these plant enzymes.



Grifolisin, a member of the sedolisin family produced by the fungus *Grifola frondosa*

pp 983–990

Norio Suzuki, Kohzoh Nishibori, Yasuo Oodaira, Shin-ichi Kitamura, Kenji Michigami, Keiko Nagata, Yota Tatara, Byung Rho Lee and Eiji Ichishima*

Molecular and enzymatic properties of grifolisin, a member of the sedolisin family produced by the fungus *Grifola frondosa*, were characterized. The coding region of the grifolisin gene (*gfrF*) has 1960-base pair cDNA. The predicted mature grifolisin protein consisted of 365 residues and was 26% identical to that of sedolisin.



MOLECULAR GENETICS AND GENOMICS

A comparison of two strategies to modify the hydroxylation of condensed tannin polymers in *Lotus corniculatus* L.

Mark P. Robbins*, Adrian D. Bavage, Gordon Allison, Teri Davies, Barbara Hauck and Phillip Morris

pp 991–999



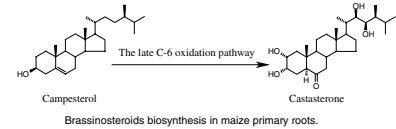
METABOLISM

Brassinosteroids are inherently biosynthesized in the primary roots of maize, *Zea mays* L.

pp 1000–1006

Young-Soo Kim, Tae-Wuk Kim and Seong-Ki Kim*

Identification and enzymatic conversions of brassinosteroids indicate that primary roots of maize possess a complete set of enzymes involved in the late C6-oxidation pathway to generate castasterone, demonstrating the operation of the biosynthetic pathway in the roots.

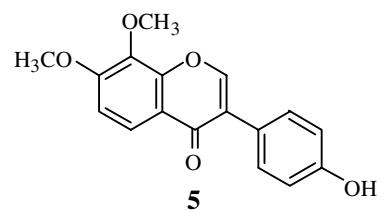


Metabolism of daidzein by *Nocardia* species NRRL 5646 and *Mortierella isabellina* ATCC 38063

pp 1007–1011

Galal T. Maatooq* and John P.N. Rosazza

The phytoestrogen daidzein was metabolized by *Nocardia* species NRRL 5646 to give two metabolites obtained by hydroxylation and methylation. These metabolites were spectrally characterized as 7-methoxy-4'-hydroxyisoflavone (isoformononetin) and 7,8-dimethoxy-4'-hydroxyisoflavone. *Mortierella isabellina* ATCC 38063 was able to metabolize daidzein to the unusual metabolite daidzein-4'-rhamnopyranoside.



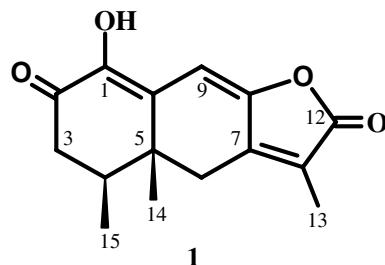
ECOLOGICAL BIOCHEMISTRY

Phytotoxins from the fungus *Malbranchea aurantiaca*

pp 1012–1016

Sergio Martínez-Luis, María C. González, Miguel Ulloa and Rachel Mata*

Bioassay-directed fractionation of an ethyl acetate extract of the micelial and broth combined extracts of *Malbranchea aurantiaca* led to the isolation of two phytotoxins, namely, 1-hydroxy-2-oxoeremophil-1(10),7(11),8(9)-trien-12(8)-olide (**1**) and penicillic acid (**2**). The structure of compound **1** was established by spectroscopic and X-ray analyses. Metabolites **1** and **2** caused significant inhibition of radicle growth of *Amaranthus hypochondriacus* with IC₅₀ values of 170.9 and 65.7 µM, respectively. In addition, **1** inhibited the activation of the calmodulin-dependent enzyme cAMP phosphodiesterase.

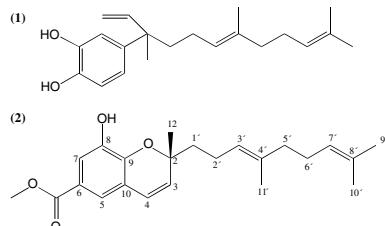


BIOACTIVE PRODUCTS

Inhibitory effects of *Piper umbellatum* and *Piper peltatum* extracts towards myotoxic phospholipases A₂ from *Bothrops* snake venoms: Isolation of 4-nerolidylcatechol as active principle

pp 1017–1025

Vitelbina Núñez, Víctor Castro, Renato Murillo, Luis A. Ponce-Soto, Irmgard Merfort and Bruno Lomonte*



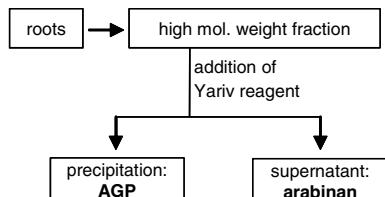
Piper umbellatum and *Piper peltatum*, plants utilized in traditional medicine, demonstrated moderate inhibitory ability towards enzymatic and toxic activities of purified phospholipase A₂ myotoxins of *Bothrops* snake venoms. Two compounds were isolated: compound **1** (4-nerolidylcatechol) inhibited catalytic and toxic activities of these proteins; while compound **2**, a newly described molecule, was not inhibitory.

CHEMISTRY

High molecular weight constituents from roots of *Echinacea pallida*: An arabinogalactan-protein and an arabinan

pp 1026–1032

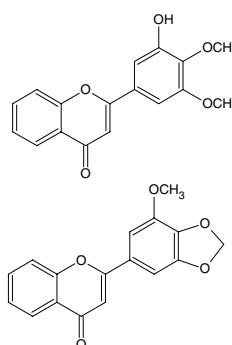
Sebastian Thude* and Birgit Classen

Lipophilic flavones of *Primula veris* L. from field cultivation and in vitro cultures

pp 1033–1039

Jaromir Budzianowski*, Maria Morozowska and Maria Wesołowska

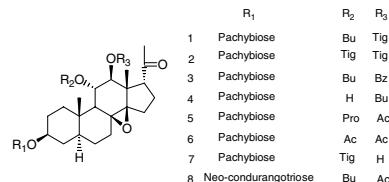
Ten lipophilic flavones, including the new natural products 3'-hydroxy-4',5'-dimethoxyflavone, 3'-methoxy-4',5'-methylenedioxyflavone, 2',5'-dimethoxyflavone and 3',4'-dimethoxyflavone, were found in the leaves of *Primula veris* L. (Primulaceae).



Marsdenosides A–H, polyoxypregnane glycosides from *Marsdenia tenacissima***pp 1040–1051**

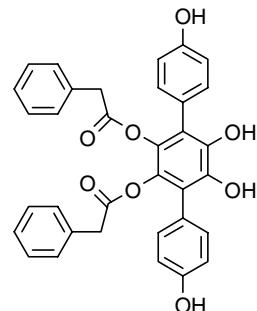
Jun Deng, Zhixin Liao and Daofeng Chen*

From the CHCl_3 extract of the stem of *Marsdenia tenacissima*, eight polyoxypregnane glycosides were isolated. The structures were elucidated by spectroscopic analysis and chemical evidence.

**Terrestrins A–G: *p*-Terphenyl derivatives from the inedible mushroom *Thelephora terrestris*****pp 1052–1059**

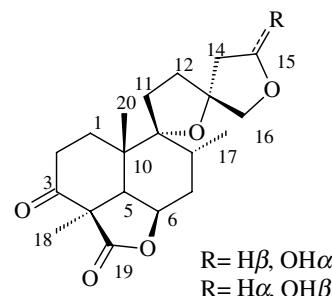
Niko Radulović, Dang Ngoc Quang, Toshihiro Hashimoto, Makiko Nukada and Yoshinori Asakawa*

Seven *p*-terphenyl derivatives named terrestrins A–G together with three known ganbjunin B, thelephantins F and H, were isolated from the methanol extract of fruiting bodies of the Japanese inedible mushroom *Thelephora terrestris* (Thelephoraceae).

**Labdane diterpenes from *Marrubium velutinum* and *Marrubium cyllellum*****pp 1060–1066**

Anastasia Karioti, Jörg Heilmann and Helen Skaltsa*

From the aerial parts of *Marrubium velutinum* and *Marrubium cyllellum* seven labdane diterpenes have been isolated together with five known diterpenes and four known flavones. The structures of the isolated compounds were established by means of NMR and MS spectral analyses.

**Characterization of cell wall polysaccharides from the medicinal plant *Panax notoginseng*****pp 1067–1076**

Ying Zhu, Filomena Pettolino, Shaio-Lim Mau and Antony Bacic*

The alcohol insoluble residue of *P. notoginseng* root (pictured) was fractionated and the polysaccharide and protein composition of the root cell walls was deduced by compositional analysis of the fractions.



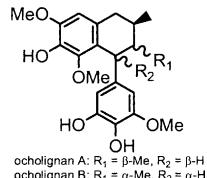
Photo by Ying Zhu

Cyclolignans from *Scyphocephalium ochocoa* via high-throughput natural product chemistry methods

pp 1077–1082

Jin-Feng Hu*, Eliane Garo, Hye-Dong Yoo, Peadar A. Cremin, Matt G. Goering, Mark O'Neil-Johnson and Gary R. Eldridge

Two 2,7'-cyclolignans, ocholignans A and B, were obtained as mass-limited samples from *Scyphocephalium ochocoa* via high-throughput natural product chemistry methods. The rapid structure elucidation of each compound was primarily facilitated by NMR data acquisition using a capillary-scale NMR probe. Ocholignan A was found to possess significant in vitro antibacterial activity.



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* Corresponding author

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