

Phytochemistry Vol. 67, No. 2, 2006

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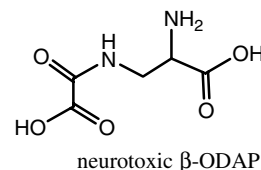
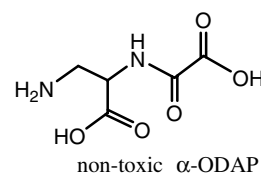
REVIEW

Lathyrus sativus (grass pea) and its neurotoxin ODAP

pp 107–121

Ze-Yi Yan, Peter S. Spencer, Zhi-Xiao Li *, Yong-Min Liang, Ya-Fu Wang, Chun-Ying Wang, Fen-Min Li

Lathyrus sativus is a high-yielding, drought-resistant legume, whose development into an important food legume has been hindered by the presence of the neurotoxin – β -N-oxalyl-L- α,β -diaminopropionic acid (β -ODAP). The paper provides an overview of *Lathyrus sativus* and its neurotoxin ODAP in taxonomy, genetics, ecology, chemistry, nutrition, medicine, biology and animal nutrition.



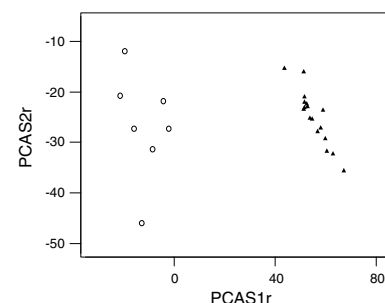
MOLECULAR GENETICS AND GENOMICS

Comparative molecular and phytochemical investigation of *Leontodon autumnalis* (Asteraceae, Lactuceae) populations from Central Europe

pp 122–131

Sandra Grass, Christian Zidorn, Frank R. Blattner, Hermann Stuppner *

Phytochemical methods and RAPD analyses were combined to investigate the chemical and molecular variation in *Leontodon autumnalis* L. in Central Europe.



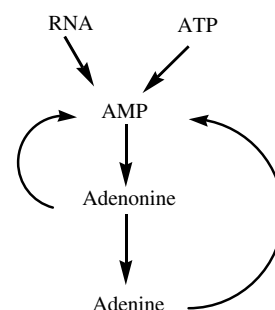
METABOLISM

Effect of long-term phosphate starvation on the levels and metabolism of purine nucleotides in suspension-cultured *Catharanthus roseus* cells

pp 132–141

Fusako Shimano, Hiroshi Ashihara *

Effect of phosphate starvation on the purine metabolism was investigated using cultured plant cells.

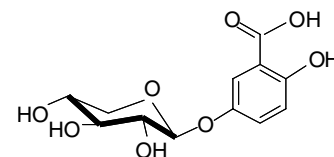


Induction of gentisic acid 5-*O*- β -D-xylopyranoside in tomato and cucumber plants infected by different pathogens

pp 142–148

Joaquín Fayos, José María Bellés, M. Pilar López-Gresa, Jaime Primo, Vicente Conejero *

Gentisic acid 5-*O*- β -D-xylopyranoside has been isolated in tomato and cucumber plants infected by citrus exocortis viroid and prunus necrotic ringspot virus, respectively.

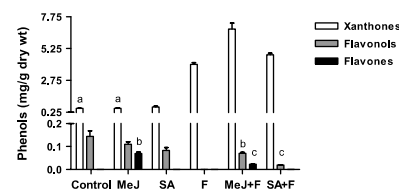


Induction of phenolic compounds in *Hypericum perforatum* L. cells by *Colletotrichum gloeosporioides* elicitation

pp 149–155

Luis F.R. Conceição, Federico Ferreres, Rui M. Tavares, Alberto C.P. Dias *

Hypericum perforatum (HP) cultures were used to study the plant defence against the fungal pathogen *Colletotrichum gloeosporioides* (CG). A significant increase in xanthone accumulation was observed in HP cells elicited with CG. Priming of HP cells with methyl-jasmonate or salicylic acid prior to CG elicitation led to a xanthone burst.



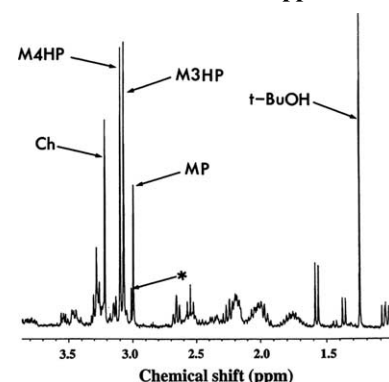
ECOLOGICAL BIOCHEMISTRY

Occurrence and stress response of *N*-methylproline compounds in *Tamarix* species

pp 156–160

Graham P. Jones *, Bodapati P. Naidu, Yoav Waisel, Aaron Solomon, Leslie G. Paleg

A number of *N*-methylproline analogues have been found to accumulate in different species of *Tamarix*. These include *N*-methyl-L-proline (MP), *trans*-4-hydroxy-*N*-methyl-L-proline (M4HP) and *trans*-3-hydroxy-*N*-methyl-L-proline (M3HP). The three compounds appeared in all species but their relative and absolute levels depend upon species, ecotype and level of applied salt stress.

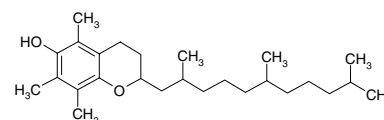


Ontogenetic variation in chemical and physical characteristics of adaxial apple leaf surfaces

pp 161–170

Katja Bringe *, Christina F.A. Schumacher, Michaela Schmitz-Eiberger, Ulrike Steiner, Erich-Christian Oerke

The chemical composition of cuticular waxes, the micromorphology and the hydrophobicity of the adaxial side of apple leaves were examined during ontogenesis of apple plantlets grown under controlled environmental conditions. For the first time, α -tocopherol was detected in the epicuticular wax layer of apple leaves.



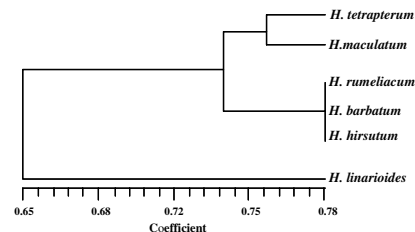
CHEMOTAXONOMY

Phytochemical analysis and genetic characterization of six *Hypericum* species from Serbia

pp 171–177

Andrija Smelcerovic, Vijeshwar Verma, Michael Spiteller^{*}, Syed Mudasir Ahmad, Satish Chander Puri, Ghulam Nabi Qazi

The secondary metabolite contents and genetic profiles of six *Hypericum* species (*H. barbatum*, *H. hirsutum*, *H. linarioides*, *H. maculatum*, *H. rumeliacum* and *H. tetrapterum*), collected from different locations in Serbia, were analyzed. There exists a strong correlation of secondary metabolite contents and RAPD data among the species under study.

RAPD dendrogram of six *Hypericum* species

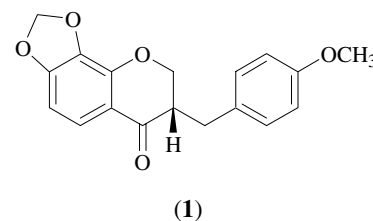
BIOACTIVE PRODUCTS

Phytochemistry and antimycobacterial activity of *Chlorophytum inornatum*

pp 178–182

Gemma O'Donnell, Franz Bucar, Simon Gibbons^{*}

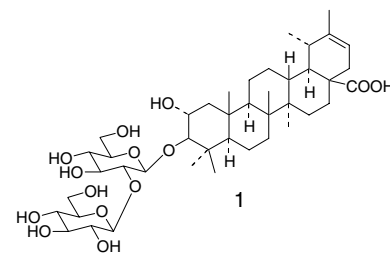
Bioassay-guided isolation of a hexane extract of *Chlorophytum inornatum* (Liliaceae) led to the characterisation of a new homoisoflavanone (**1**) as the major antimycobacterial compound. Minimum inhibitory concentration (MIC) values were moderate and ranged from 16 to 256 µg/ml against fast-growing *Mycobacterium* species.

A triterpenoid saponin possessing antileishmanial activity from the leaves of *Careya arborea*

pp 183–190

Debayan Mandal, Nilendu Panda, Shrabanti Kumar, Sukdeb Banerjee, Nirup B. Mandal, Niranjan P. Sahu^{*}

A triterpenoid saponin, arborenin, possessing antileishmanial activity against *Leishmania donovani* was isolated from *Careya arborea* leaves. The structure and relative stereochemistry was determined by 2D NMR, HRFAB MS and chemical transformations.



CHEMISTRY

Flavonols and an indole alkaloid skeleton bearing identical acylated glycosidic groups from yellow petals of *Papaver nudicaule*

pp 191–201

Willibald Schliemann^{*}, Bernd Schneider, Victor Wray, Jürgen Schmidt, Manfred Nimtz, Andrea Porzel, Hartmut Böhm

The nudicaulins from yellow petals of Iceland poppy consist of four pairs of isomeric glycosidic compounds differing in the malonylation pattern. The structure of a pentacyclic indole alkaloid skeleton was proposed for the aglyca of the major nudicaulins **VII** and **VIII** by combining 2D NMR, MS and CD data. In addition, kaempferol derivatives having identical acylated glycoside moieties were identified.

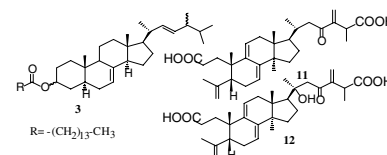


Secondary metabolites from *Ganoderma lucidum* and *Spongiporus leucomallellus*

pp 202–211

Fernando Campos Ziegenbein^{*}, Hans-Peter Hanssen, Wilfried A. König

Ganoderma lucidum contains the steroidester ergosta-7,22-diene-3 β -yl pentadecanoate (**3**) while *Spongiporus leucomallellus* contains the two triterpene acids named spongiporic acids A (**11**) and B (**12**). Antimicrobial activities of spongiporic acid A and cytotoxic activities of 5,8-*epi*-dioxy-24-methylcholesta-6,9(11),22-triene-3 β -ol were investigated.



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^{*} Corresponding author

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