

Phytochemistry Vol. 66, No. 20, 2005

Contents

FULL PAPERS

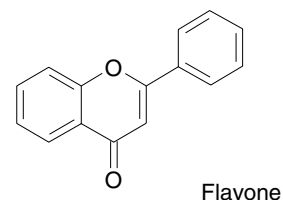
MOLECULES OF INTEREST

Flavones and flavone synthases

pp 2399–2407

Stefan Martens, Axel Mithöfer*

Flavones represent one of the largest subgroups within the flavonoids. Two independently evolved and mechanistically different enzymes can convert the precursors, flavanones, into flavones. Various biological activities of flavones in plants and in human nutrition and health make them valuable targets for metabolic engineering.



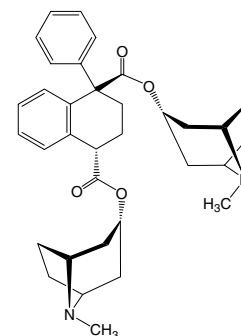
REVIEW

Substances isolated from *Mandragora* species

pp 2408–2417

Lumír O. Hanuš, Tomáš Řezanka*, Jaroslav Spížek, Valery M. Dembitsky

The present state of knowledge in the chemistry of mandragora plant is reviewed. Isolations and identifications of the compounds were done from all parts of this plant. Up-to-date more than 80 substances were identified in different species of the genus *Mandragora*.



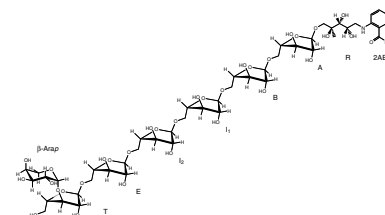
PROTEIN BIOCHEMISTRY

A β -(1 \rightarrow 3)-arabinopyranosyltransferase that transfers a single arabinopyranose onto arabino-oligosaccharides in mung bean (*Vigna radiate*) hypocotyls

pp 2418–2425

Tadashi Ishii*, Teruko Konishi, Yuki Ito, Hiroshi Ono, Mayumi Ohnishi-Kameyama, Ikuko Maeda

A β -(1 \rightarrow 3)-arabinopyranosyltransferase that transfers a single arabinopyranose onto arabino-oligosaccharides was characterized.



An antimicrobial peptide Ar-AMP from amaranth (*Amaranthus retroflexus* L.) seeds

pp 2426–2431

Aleksey Lipkin, Veronika Anisimova, Aleksandra Nikonorova,
Aleksey Babakov, Eberhardt Krause, Mikhael Bienert, Eugene Grishin,
Tsezi Egorov*

AGECVQGRCPSGMCC
SQFGYCGRGPKYCGR

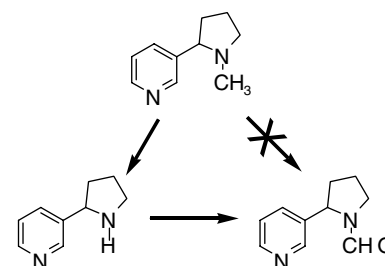
A 30-residue antimicrobial peptide Ar-AMP with six cysteine residues was isolated from the seeds of amaranth *Amaranthus retroflexus* L. In spite of the fact that seeds were collected in 1967 and lost their germination capacity, Ar-AMP retained its biological activities.

METABOLISM**Nicotine demethylation in *Nicotiana* cell suspension cultures:
N'-formylnornicotine is not involved**

pp 2432–2440

Trixie Ann Bartholomeusz, Ramneek K. Bhogal, Roland Molinié,
François-Xavier Felpin, Monique Mathé-Allainmat, Anna-Carolin Meier,
Birgit Dräger, Jacques Lebreton, Albrecht Roscher, Richard J. Robins*,
François Mesnard*

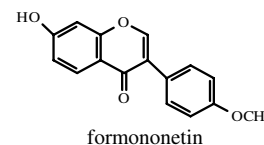
Label from [¹³C,²H₃-methyl]nicotine fed to *Nicotiana plumbaginifolia* suspension cell cultures is incorporated into cotinine but to a much lesser extent into *N'*-formylnornicotine. This labelling pattern directly shows that *N'*-formylnornicotine is not intermediate in the demethylation mechanism, but is formed by the condensation of nornicotine with formaldehyde.

**Amplified fragment length polymorphism and metabolomic profiles of hairy roots of *Psoralea corylifolia* L.**

pp 2441–2457

Gauri Abhyankar, V.D. Reddy*, C.C. Giri, K.V. Rao, V.V.S. Lakshmi,
S. Prabhakar, M. Vairamani, B.S. Thippeswamy, P.S. Bhattacharya

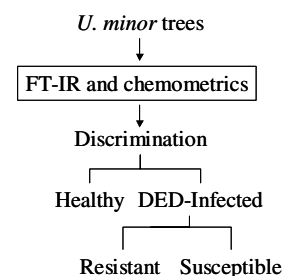
Hairy root cultures of *Psoralea corylifolia* were developed. AFLP and Metabolomic profiles showed striking variations between the clones. An Isoflavonoid, formononetin and its glycoside were identified for the first time from hairy root cultures of *P. corylifolia*.

**ECOLOGICAL BIOCHEMISTRY****Metabolic distinction of *Ulmus minor* xylem tissues after inoculation with *Ophiostoma novo-ulmi***

pp 2458–2467

Juan A. Martín, Alejandro Solla, Manuel A. Coimbra, Luis Gil*

Changes in the major chemical components of xylem are investigated in susceptible and resistant *Ulmus minor* trees, after inoculation with *Ophiostoma novo-ulmi*, using FT-IR spectroscopy and principal component analysis.

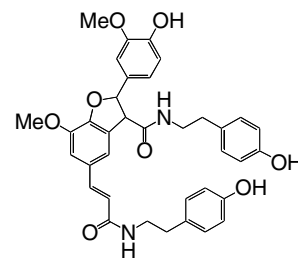


Characterization of cross-linked hydroxycinnamic acid amides isolated from potato common scab lesions

pp 2468–2473

Russell R. King*, Larry A. Calhoun

Four feruloyl amides and two cross-linked feruloyl dimers were isolated from potato common scab lesions and characterized by NMR techniques.

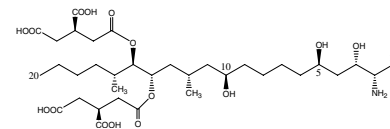


Identification and heritability of fumonisin insensitivity in *Zea mays*

pp 2474–2480

Anne E. Desjardins*, Ronald D. Plattner, Richard J. Stessman, Susan P. McCormick, Mark J. Millard

Most domesticated maize and wild teosintes (*Zea mays* species) are highly sensitive to fumonisin B₁, a phytotoxic polyketide produced by fungi pathogenic to maize. In a survey of genetically diverse maize landraces, high insensitivity to fumonisin B₁ was identified and shown to be an inheritable trait.



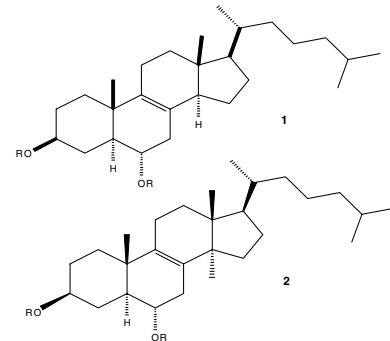
BIOACTIVE PRODUCTS

Insect growth regulatory effects of some extracts and sterols from *Myrtillocactus geometrizans* (Cactaceae) against *Spodoptera frugiperda* and *Tenebrio molitor*

pp 2481–2493

Carlos L. Céspedes*, J. Rodrigo Salazar, Mariano Martínez, Eduardo Aranda

Peniocerol **1** (R=H), macdougallin **2** (R=H), as well as mixtures and extracts, showed insecticidal and insect growth regulatory activities against *Spodoptera frugiperda* and *Tenebrio molitor*.



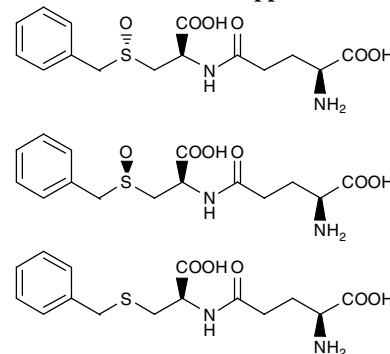
CHEMISTRY

γ -Glutamyl dipeptides in *Petiveria alliacea*

pp 2494–2497

Roman Kubec, Rabi A. Musah*

Isolation and identification of three γ -glutamyl dipeptides from *Petiveria alliacea* L. roots is reported. These include (*S*_{C2}*R*_{C7})- γ -glutamyl-*S*-benzylcysteine together with both diastereomers of the corresponding *S*-oxide.



OTHER CONTENTS

Book reviews	pp 2498–2499
Erratum	pp 2500–2520
Announcement: Phytochemical Society of North America	p I
Author Index	p II
Guide for Authors	pp III–IV
* Corresponding author	

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