

Phytochemistry Vol. 67, No. 18, 2006

Contents

Obituary

pp 1975–1976

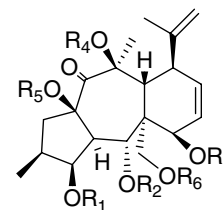
REVIEWS

Chemistry and biological activity of secondary metabolites in *Euphorbia* from Iran

pp 1977–1984

Amir Reza Jassbi\*

The secondary metabolites isolated from different plants of *Euphorbia* have attracted attention because of their unique biological activities. In this article the chemical constituents and biological activities of *Euphorbia* plants of Iran are reported. The review covers the major works on this genus presented in the literature containing 64 references.

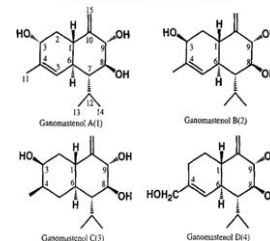


*Ganoderma* – A therapeutic fungal biofactory

pp 1985–2001

R. Russell M. Paterson\*

The fungus *Ganoderma* produces many bioactive compounds which have a wide-range of the most important biomedical activities. These are predominantly terpenoids and polysaccharides. Effects range from anti-cancer to anti-HIV. Metabolites are being produced increasingly in artificial culture which may assist in discovering effective medical treatments.



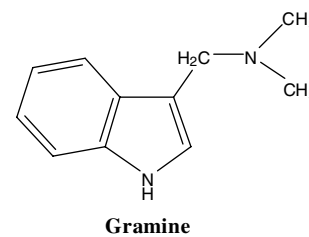
PROTEIN BIOCHEMISTRY

*N*-Methyltransferase involved in gramine biosynthesis in barley: Cloning and characterization

pp 2002–2008

Kristina A.E. Larsson, Ingvor Zetterlund, Gabriele Delp, Lisbeth M.V. Jonsson\*

An *O*-methyltransferase (EC 2.1.1.6, GenBank accession **U54767**) was absent in barley genotypes lacking gramine. The recombinant purified protein methylated two substrates in the pathway to gramine: 3-aminomethylindole (AMI) and *N*-methyl-3-aminomethylindole (MAMI) but not the earlier suggested substrate, caffeic acid. We propose that **U54767** is an *N*-methyltransferase acting in gramine biosynthesis.



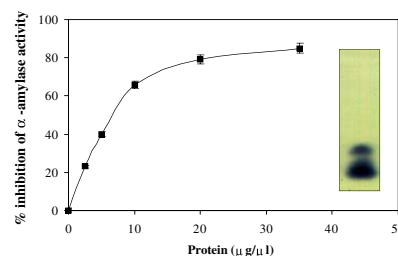
## MOLECULAR GENETICS AND GENOMICS

### An $\alpha$ -amylase inhibitor gene from *Phaseolus coccineus* encodes a protein with potential for control of coffee berry borer (*Hypothenemus hampei*)

pp 2009–2016

Railene de Azevedo Pereira, João Aguiar Nogueira Batista, Maria Cristina Mattar da Silva, Osmundo Brilhante de Oliveira Neto, Edson Luiz Zangrando Figueira, Arnubio Valencia Jiménez, Maria Fátima Grossi-de-Sa\*

$\alpha$ AI-Pc1 has similar inhibitory efficiency at much lower concentrations than  $\alpha$ AI-1 from *Phaseolus vulgaris*. A provisional explanation could be that *P. coccineus* seeds contain not only a higher concentration of  $\alpha$ AIs than *P. vulgaris*, but also major iso-inhibitors. This could result in a different inhibitor potency when they are purified.



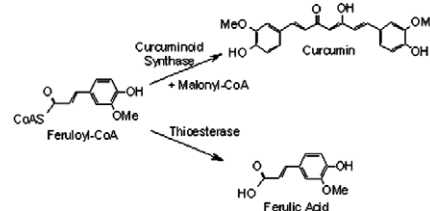
## METABOLISM

### Biosynthesis of curcuminoids and gingerols in turmeric (*Curcuma longa*) and ginger (*Zingiber officinale*): Identification of curcuminoid synthase and hydroxycinnamoyl-CoA thioesterases

pp 2017–2029

Maria del Carmen Ramirez-Ahumada, Barbara N. Timmermann, David R. Gang\*

Curcuminoid synthase activity in turmeric (*Curcuma longa*) crude protein extracts converts feruloyl-CoA into curcumin, whereas a thioesterase activity in ginger (*Zingiber officinale*) crude protein extracts hydrolyzes this precursor, preventing identification of gingerol synthase activity.

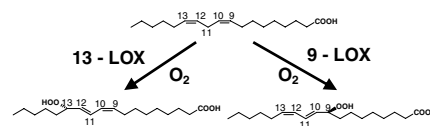


### Lipoxygenases during *Brassica napus* seed germination

pp 2030–2040

Nina Terp, Cornelia Göbel, Anders Brandt, Ivo Feussner\*

Analyses of two lipoxygenase cDNAs and fatty acid and lipidperoxide patterns in seedlings of *B. napus* revealed a contribution of a plastidic 13-LOX to elevated levels of free oxylipins during germination.

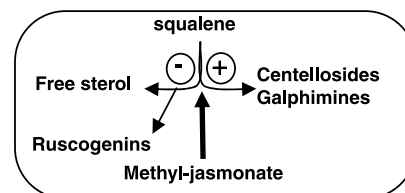


### The effect of methyl jasmonate on triterpene and sterol metabolisms of *Centella asiatica*, *Ruscus aculeatus* and *Galphimia glauca* cultured plants

pp 2041–2049

Susana Mangas, Mercè Bonfill, Lidia Osuna, Elisabeth Moyano, Jaime Tortoriello, Rosa M. Cusido, M. Teresa Piñol, Javier Palazón\*

In this work we have studied the effect of treatment with the elicitor methyl jasmonate on the biosynthesis of bioactive terpenoids and free sterols of *C. asiatica*, *R. aculeatus* and *G. glauca* plantlets.



*In vitro* plant cultures of *C. asiatica*, *R. aculeatus* and *G. glauca*

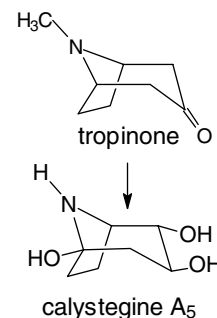
## CHEMOTAXONOMY

## Brassicaceae contain nortropane alkaloids

pp 2050–2057

Andrea Brock, Tobias Herzfeld, Reinhard Paschke, Marcus Koch, Birgit Dräger\*

Calystegines deriving from tropane alkaloid biosynthesis were identified in ten *Cochlearia* species. Other Brassicaceae species of all major lineages of the family accumulated calystegines of various structures.



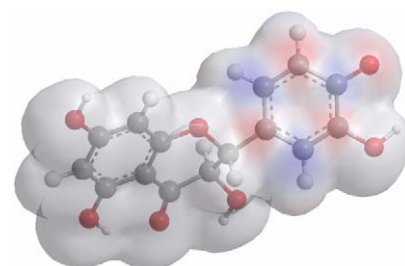
## BIOACTIVE PRODUCTS

## Structure–radical scavenging activity relationships of flavonoids

pp 2058–2070

Ameha Seyoum, Kaleab Asres\*, Fathy Kandeel El-Fiky

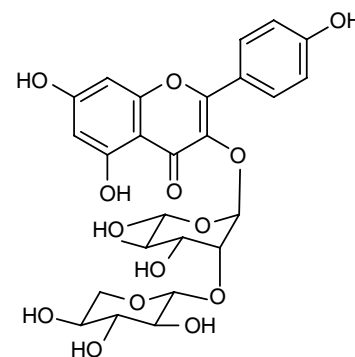
The structural requirements for appreciable radical-scavenging activity of flavonoids were established. The radical-scavenging properties of flavonoids could be mapped to one of their ring systems and the underlying molecular phenomena could be explained by the ease of hydrogen atom abstraction and also termination of the flavonoidal aroxyl radicals.

The antileishmanial activity assessment of unusual flavonoids from *Kalanchoe pinnata*

pp 2071–2077

Michelle F. Muzitano, Luzineide W. Tinoco, Catherine Guette, Carlos R. Kaiser, Bartira Rossi-Bergmann, Sônia S. Costa\*

The present study reports the identification and the antileishmanial profile of unusual flavonoids from *Kalanchoe pinnata*: kaempferol 3-*O*- $\alpha$ -L-arabinopyranosyl (1  $\rightarrow$  2)  $\alpha$ -L-rhamnopyranoside (**1**), quercetin 3-*O*- $\alpha$ -L-arabinopyranosyl (1  $\rightarrow$  2)  $\alpha$ -L-rhamnopyranoside (**2**) and 4',5-dihydroxy-3',8-dimethoxyflavone 7-*O*- $\beta$ -D-glucopyranoside (**3**).

Deterrent activity of plant lectins on cowpea weevil *Callosobruchus maculatus* (F.) oviposition

pp 2078–2084

Amin Sadeghi, Els J.M. Van Damme, Willy J. Peumans, Guy Smagghe\*

It has been shown that some plant lectins possess insecticidal activity because they exert toxic or detrimental effects on insects. Here we describe the inhibitory activity of a panel of 14 plant lectins on cowpea weevil *Callosobruchus maculatus* (F.) oviposition.



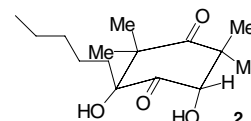
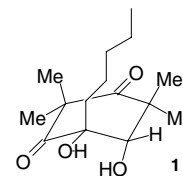
## CHEMISTRY

**Triumphalone, a diketone from the volatile oil of the leaves of *Melaleuca triumphalis*, and its spontaneous conversion into isotriumphalone**

pp 2085–2089

Joseph J. Brophy, Donald C. Craig, Robert J. Goldsack, Christopher J.R. Fookes, David N. Leach, Peter G. Waterman \*

The major component of the volatile oil from the leaves of *Melaleuca triumphalis* was identified as (*rel*)-1 $\beta$ -pentyl-1 $\alpha$ ,6 $\alpha$ -dihydroxy-3,3,5,5-tetramethyl-cyclohexa-2,4-dione (trivial name triumphalone **1**). Relative stereochemistry was established by nuclear Overhauser experiments and X-ray studies on the 3,5-dinitrobenzoic acid ester. On prolonged standing the presence of a rearrangement product was observed which was characterized as (*rel*)-1 $\beta$ -pentyl-1 $\alpha$ ,3 $\alpha$ -dihydroxy-4,4,6,6-tetramethylcyclohexa-2,5-dione (trivial name isotriumphalone **2**), presumably arising from an acid catalyzed shift of the pentyl group from C-1 to C-2.



## OTHER CONTENTS

## Erratum

p 2090

## Announcement: Phytochemical Society of North America

p I

## Author Index

p II

\* Corresponding author

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