

Phytochemistry Vol. 66, No. 24, 2005

Contents

FULL PAPERS

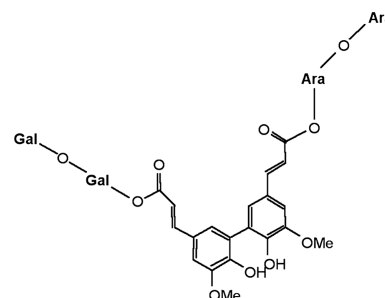
MOLECULES OF INTEREST

**Sugar beet (*Beta vulgaris*) pectins are covalently cross-linked through diferulic bridges in the cell wall**

pp 2800–2814

Marie-Christine Ralet\*, Gwénaëlle André-Leroux, Bernard Quémener, Jean-François Thibault

After acid and enzymatic degradation of sugar beet cell walls and fractionation of the solubilized products by hydrophobic interaction chromatography, three dehydrodiferulate-rich fractions were isolated. The present work combines for the first time intensive mass spectrometry data and molecular modeling to give structural relevance of a molecular cohesion between arabinan and galactan side chains through diferulic bridges.



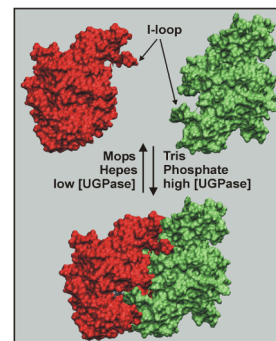
PROTEIN BIOCHEMISTRY

**Factors affecting oligomerization status of UDP-glucose pyrophosphorylase**

pp 2815–2821

Leszek A. Kleczkowski\*, Françoise Martz, Malgorzata Wilczynska

Certain buffers and molecular crowding conditions had strong effects on oligomerization status of purified recombinant barley UDP-glucose pyrophosphorylase (UGPase). This in turn could affect the activity of the protein which is active only as monomer. The data are discussed with respect to molecular determinants of structure/function properties of UGPase.



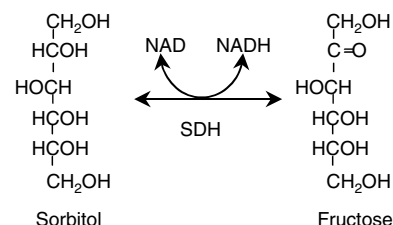
MOLECULAR GENETICS AND GENOMICS

**Molecular evidence of sorbitol dehydrogenase in tomato, a non-Rosaceae plant**

pp 2822–2828

Kazuhiro Ohta, Ryo Moriguchi, Koki Kanahama, Shohei Yamaki, Yoshinori Kanayama\*

A NAD-dependent sorbitol dehydrogenase (SDH)-like cDNA was cloned from tomato (*Lycopersicon esculentum* Mill.) to provide molecular evidence of SDH in non-Rosaceae species that do not synthesize sorbitol as the primary photosynthetic product.



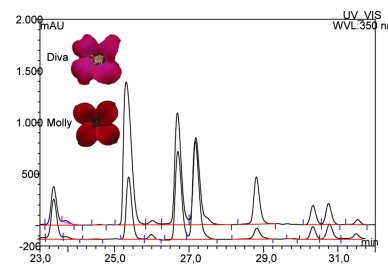
## METABOLISM

### Flavonoids in flowers of 16 *Kalanchoë blossfeldiana* varieties

pp 2829–2835

Allan Holm Nielsen, Carl Erik Olsen, Birger Lindberg Møller\*

*Kalanchoë blossfeldiana* flowers were found to contain 3,5-*O*- $\beta$ -diglucosides of pelargonidin, cyanidin, peonidin, delphinidin, petunidin and malvidin, along with at least 7 distinct flavonol glycosides based on quercetin or kaempferol, including quercetin 3-(2''-*O*- $\beta$ -D-glucopyranosyl- $\alpha$ -L-rhamnopyranoside), a flavonol previously found in *Ginkgo biloba*. Based on flavonoid findings, approaches for molecular breeding towards blue flower colour are discussed.



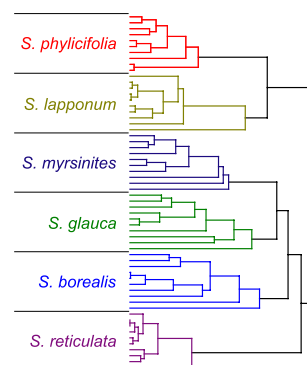
## CHEMOTAXONOMY

### Chemical variation within and among six northern willow species

pp 2836–2843

Tommi Nyman\*, Riitta Julkunen-Tiitto

Concentrations of phenolic compounds were measured in six *Salix* species. Multivariate analyses show that interspecific chemical variation exceeds the variability within species, but among-species similarities depend on data analysis methods and the chemical class under study. The implications for herbivory and chemosystematics are discussed.



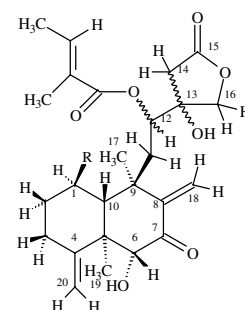
## BIOACTIVE PRODUCTS

### Cytotoxic clerodane diterpenes from *Glossocarya calcicola*

pp 2844–2850

Heidi L. Rasikari\*, David N. Leach, Peter G. Waterman, Robert N. Spooner-Hart, Albert H. Basta, Linda K. Banbury, Kelly M. Winter, Paul I. Forster

Three novel compounds were isolated from *Glossocarya calcicola* Domin. Calcicolin-A (**1**), was characterised as (*rel*)-10 $\beta$ H-*trans*-12 $\xi$ -(2-methylbut-2(*E*)-enoyl)-1 $\beta$ -(isobutanoyl)-6 $\alpha$ ,13 $\xi$ -dihydrocycloclerodan-4(20),8(18)-dien-7,15-dione-15,16-oxide. Calcicolin-B (**2**) and -C (**3**) possessed the same skeletal structure but differed in the C-1 esterifying group. In **2**, the C-1 group becomes 2-methylbut-2(*E*)-enoic acid and in **3** it becomes 2-methylbutanoic acid. Compounds **2** and **3** showed greatest cytotoxic activities against insect and mammalian cell lines.

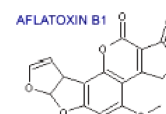


### Chemoprevention by thyme oils of *Aspergillus parasiticus* growth and aflatoxin production

pp 2851–2856

Iraj Rasooli\*, Parviz Owlia

Antifungal activities of *Thymus eriocalyx* and *Thymus X-porlock* essential oils were inhibitory to *Aspergillus parasiticus* growth and its aflatoxin production. The oils brought about irreversible damage to cell wall, cell membrane, and cellular organelles of the fungus. Low concentrations of essential oils could act as food preservatives.



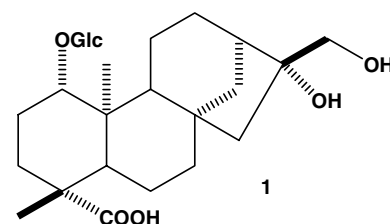
## CHEMISTRY

**Tricalysiosides H–O: *Ent*-kaurane glucosides from the leaves of *Tricalysia dubia***

pp 2857–2864

Dong-Hui He, Katsuyoshi Matsunami, Hideaki Otsuka\*, Takakazu Shinzato, Mitsunori Aramoto, Masahiko Bando, Yoshio Takeda

From the leaves of *Tricalysia dubia*, eight *ent*-kaurane glucosides were isolated. The structure of tricalysioside H (**1**) was established by X-ray crystallography and those of tricalysiosides I–O (**2–8**) were elucidated by analysis of spectroscopic evidence.



## OTHER CONTENTS

**Announcement: Phytochemical Society of North America**

**Author Index**

**Index for Volume 66, 2005**

**Guide for Authors**

\*Corresponding Author

p I  
p II  
pp III–LII  
pp LIII–LIV

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