

## GRAPHICAL ABSTRACTS

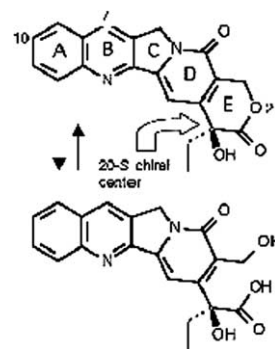
### Camptothecin, over four decades of surprising findings

Argelia Lorence, Craig L. Nessler

Department of Plant Pathology, Physiology and Weed Science, Virginia Polytechnic Institute and State University, 417 Price Hall, Blacksburg, VA 24061, USA

Here we describe the distribution of camptothecin (CPT) and its metabolites, the present understanding of its mechanism of action, the biosynthetic route leading to CPT formation in plants and we conclude with strategies that might aid in the development of alternative and more sustainable sources of this family of outstanding antitumor agents.

*Phytochemistry*, 2004, **65**, 2735



### Selection of high ginsenoside producing ginseng hairy root lines using targeted metabolic analysis

Sung-Sick Woo <sup>a</sup>, Ji-Sook Song <sup>a</sup>, Ji-Yeon Lee <sup>a</sup>, Dong Su In <sup>b</sup>,  
Hwa-Jee Chung <sup>b,c</sup>, Jang Ryol Liu <sup>b,c</sup>, Dong-Woog Choi <sup>b</sup>

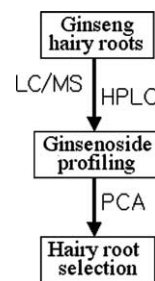
<sup>a</sup> Unigen Inc. San 80, SongJungLee, ByengCheon, Chungnam 330-863, Korea

<sup>b</sup> Eugentech Inc. 52-Oun Dong, Yusong, Daejeon 305-333, Korea

<sup>c</sup> Korea Research Institute of Bioscience and Biotechnology (KRIBB), Daejeon 305-333, Korea

Ginseng hairy root lines which varied significantly in ginsenoside production were selected by principal component analysis and ginsenoside profiling using LC/MS and HPLC-UV analyses.

*Phytochemistry*, 2004, **65**, 2751



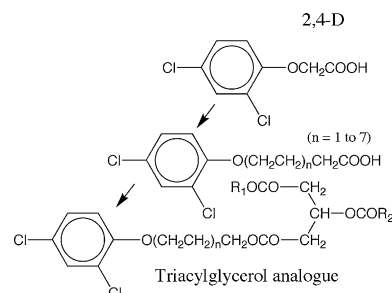
### Hydrophobic metabolites of 2,4-dichlorophenoxyacetic acid (2,4-D) in cultured coconut tissue

Arturo López-Villalobos, Roland Hornung, Peter F. Dodds

Department of Agricultural Sciences, Imperial College London, Wye campus, Wye, Ashford, Kent TN25 5AH, UK

Metabolites of 2,4-D, synthesised by coconut plumules cultured in vitro, included lipophilic chain-elongated forms with aliphatic chains of up to 16 carbons esterified to form triacylglycerol analogues.

*Phytochemistry*, 2004, **65**, 2763



### Chemical forms of aluminum in xylem sap of tea plants (*Camellia sinensis* L.)

Akio Morita <sup>a</sup>, Hideki Horie <sup>b</sup>, Yousuke Fujii <sup>a</sup>, Satoshi Takatsu <sup>a</sup>,  
Naoharu Watanabe <sup>a</sup>, Akihito Yagi <sup>a</sup>, Hiromi Yokota <sup>a</sup>

<sup>a</sup> Faculty of Agriculture, Shizuoka University, 836 Ohya, Shizuoka 422-8529, Japan

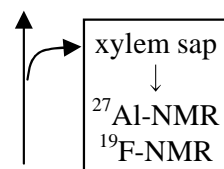
<sup>b</sup> National Institute of Vegetable and Tea Science, 360 Kusao, Ano-cho, Aki-gun, Mie 514-2392, Japan

Identification of the chemical forms of aluminum (Al) transported from roots to shoots, e.g., in the xylem sap, of tea plants (*Camellia sinensis* L.) by using <sup>27</sup>Al NMR and <sup>19</sup>F NMR was reported.

*Phytochemistry*, 2004, **65**, 2775

*Camellia sinensis*  
(Al accumulating plant)

Leaves



Al complexes  
Roots

## Carotenoid composition in petals of chrysanthemum (*Dendranthema grandiflorum* (Ramat.) Kitamura)

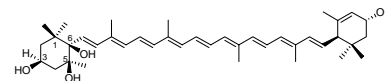
Sanea Kishimoto <sup>a</sup>, Takashi Maoka <sup>b</sup>, Masayoshi Nakayama <sup>a</sup>, Akemi Ohmiya <sup>a</sup>

<sup>a</sup> National Institute of Floricultural Science, Fujimoto 2-1, Tsukuba, Ibaraki 305-8519, Japan

<sup>b</sup> Research Institute for Production Development, 15 Shimogamo-morimoto-cho, Kyoto 606-0805, Japan

Sixteen xanthophylls which contained (3*S*,5*S*,6*R*,3'*R*,6'*R*)-5,6-dihydro-5,6-dihydroxylutein and five di-*Z* geometrical isomers of lutein-5,6-epoxide were isolated from the petals of chrysanthemum (*Dendranthema grandiflorum* (Ramat.) Kitamura).

Phytochemistry, 2004, **65**, 2781

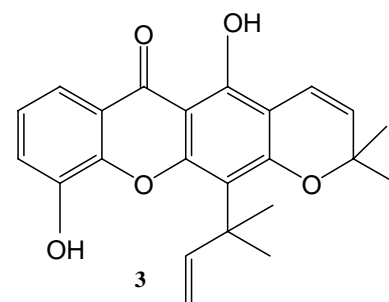


## Antimicrobial and cytotoxic agents from *Calophyllum inophyllum*

Marie C. Yimdjo, Anatole G. Azebaze, Augustin E. Nkengfack, A. Michele Meyer, Bernard Bodo, Zacharias T. Fomum

The study of the chemical constituents of the nut and root bark of *Calophyllum inophyllum* has led to the isolation of a xanthone derivative, inoxanthone, **3**, along with 12 known compounds. The structures of these compounds were determined by spectroscopic methods. The isolates were evaluated for their antimicrobial and cytotoxic activities.

Phytochemistry, 2004, **65**, 2789

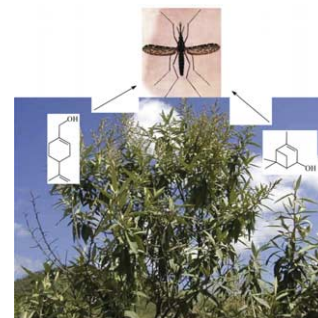


## Repellency of essential oils of some Kenyan plants against *Anopheles gambiae*

Maurice O. Omolo, Denis Okinyo, Isaiah O. Ndiege, Wilber Lwande, Ahmed Hassanali

Five mosquito repellents have been identified from the essential oils of 6 plants growing in Kenya. These include (*S*)-(-)-*cis*-perillyl alcohol, (*S*)-(-)-*cis*-verbenol, (*S*)-(-)-*cis*-carveol, (*S*)-(-)-perillaldehyde, caryophyllene oxide and (*S*)-(-)-*cis*-perillyl alcohol. (*S*)-(-)-*cis*-perillyl alcohol and (*S*)-(-)-*cis*-verbenol were the most potent.

Phytochemistry, 2004, **65**, 2797



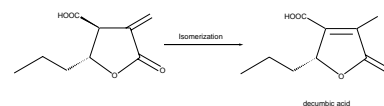
## Isolation of an $\alpha$ -methylene- $\gamma$ -butyrolactone derivative, a toxin from the plant pathogen *Lasiodiplodia theobromae*

Guochun He, Hideyuki Matsuura, Teruhiko Yoshihara

Division of Applied Bioscience, Graduate School of Agriculture, Hokkaido University, Kita-ku, Kita-9 Nishi 9, Sapporo 060-8589, Japan

An  $\alpha$ -methylene- $\gamma$ -butyrolactone derivative, (3*S*,4*R*)-3-carboxy-2-methylene-heptan-4-olide (**1**), having a toxic effect on inducing fruit rot was isolated from *Lasiodiplodia theobromae*. This compound tends to isomerize at the double bond to afford inactive decumbic acid (**1**).

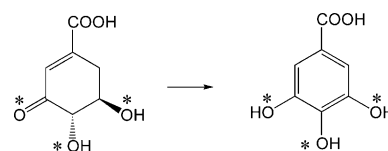
Phytochemistry, 2004, **65**, 2803



## Biosynthesis of gallic acid in *Rhus typhina*: discrimination between alternative pathways from natural oxygen isotope abundance

Roland A. Werner, Andreas Rossmann, Christine Schwarz, Adelbert Bacher, Hanns-Ludwig Schmidt, Wolfgang Eisenreich

Studies on the  $^{18}\text{O}$  natural abundance of the phenolic oxygen atoms in gallic acid from *Rhus typhina* support its direct formation from dehydroshikimate.



*Phytochemistry*, 2004, **65**, 2809

## The fellowship of natural abundance $^2\text{H}$ -isotopomers of monoterpenes

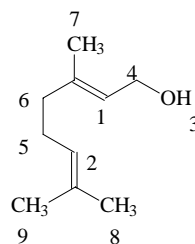
G rard J. Martin <sup>a</sup>, Sophie Lavoine-Hanneguelle <sup>b</sup>, Francoise Mabon <sup>c</sup>, Maryvonne L. Martin <sup>a</sup>

<sup>a</sup> Eurofins Scientific, BP 42301, 44323 Nantes cedex 3, France

<sup>b</sup> Albert Vieille SA BP217, 06227 Vallauris cedex, France

<sup>c</sup> Universit  de Nantes, BP 92208, 44323 Nantes cedex 3, France

NMR investigation of site specific natural isotope fractionation (SNIF-NMR) is used for investigating stereochemical affiliation of monoterpenes to their precursors, in the light of the new DOXP biosynthetic pathway ( $^2\text{H}$  NMR sites of geraniol).

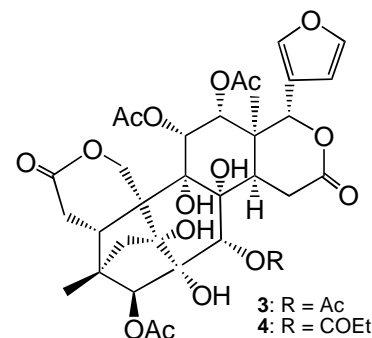


*Phytochemistry*, 2004, **65**, 2815

## Phragmalin limonoids from *Chukrasia tabularis*

Munehiro Nakatani, Samir A.M. Abdelgaleil, Mona M.G. Saad, Ruo C. Huang, Matsumi Doe, Tetsuo Iwagawa

The structures of six phragmalin limonoids were elucidated by spectroscopic methods and their antifeedant activity was evaluated.



*Phytochemistry*, 2004, **65**, 2833