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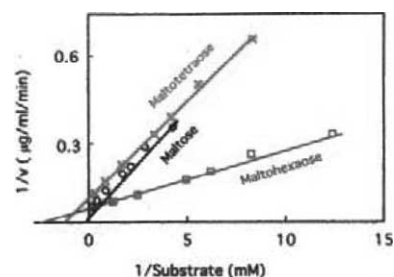
PROTEIN BIOCHEMISTRY

Purification and characterization of an  $\alpha$ -glucosidase from germinating millet seeds

pp 851–857

Yoshiki Yamasaki\*, Mikio Fujimoto, Junji Kariya and Haruyoshi Konno

An  $\alpha$ -glucosidase from millet increased binding affinity as the molecular weight of substrates increased.



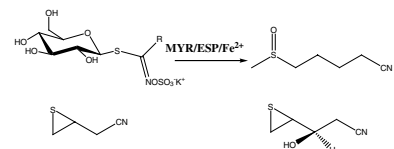
MOLECULAR GENETICS AND GENOMICS

Characterisation of recombinant epithiospecifier protein and its over-expression in *Arabidopsis thaliana*

pp 859–867

Marta de Torres Zabala, Murray Grant, Atle M. Bones, Richard Bennett, Yin Sze Lim, Ralph Kissen and John T. Rossiter\*

Epithiospecifier protein (ESP) together with myrosinase (MYR) and ferrous ions ( $\text{Fe}^{2+}$ ) catalyses formation of epithionitriles. Ectopic expression of ESP in *A. thaliana* altered the glucosinolate (4-methylsulfinylbutylglucosinolate) product profile from 1-isothiocyanato-4-(methylsulfinyl)butane towards the 5-(methylsulfinyl)pentanenitrile. Recombinant ESP was used to examine the formation of 3-hydroxy-3-(thiiran-2-yl)propanenitrile, 2-(thiiran-2-yl)acetonitrile and 5-(methylsulfinyl)pentanenitrile from their respective glucosinolates.

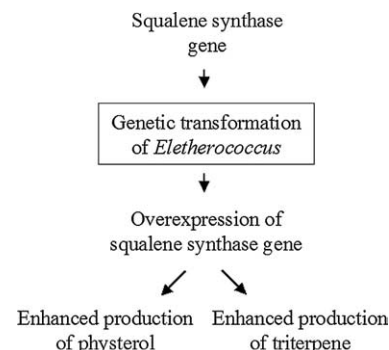


Overexpression of squalene synthase in *Eleutherococcus senticosus* increases phytosterol and triterpene accumulation

pp 869–877

Jin-Wook Seo, Jae-Hun Jeong, Cha-Gyun Shin, Seog-Cho Lo, Seong-Soo Han, Ki-Won Yu, Emiko Harada, Jeong-Yeon Han and Yong-Eui Choi\*

Squalene synthase catalyzes the first enzymatic step from the central isoprenoid pathway towards sterol and triterpenoid biosyntheses. The metabolic engineering of *E. senticosus* for enhanced production of phytosterols and triterpenoids by introducing the *PgSSI* gene was successfully achieved by *Agrobacterium*-mediated genetic transformation.



### Cloning and immunolocalization of an antifungal chitinase in jelly fig (*Ficus awkeotsang*) achenes

pp 879–886

Yu-Ching Li, Yuan-Chang Yang, Joyce S.F. Hsu, Den-Jen Wu, Hei-Hu Wu and Jason T.C. Tzen\*

A cDNA cloned from *Ficus awkeotsang* encodes an antifungal chitinase in the pericarp of achene.



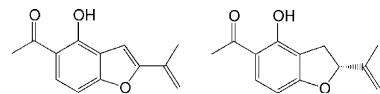
## METABOLISM

### Biosynthesis of benzofuran derivatives in root cultures of *Tagetes patula* via phenylalanine and 1-deoxy-D-xylulose 5-phosphate

pp 887–899

Lilla Margl, Christian Ettenhuber, István Gyurján, Meinhard H. Zenk, Adelbert Bacher and Wolfgang Eisenreich\*

*Tagetes patula* root cultures were supplied with [U-<sup>13</sup>C<sub>6</sub>]glucose or [1-<sup>13</sup>C<sub>1</sub>]glucose. The building blocks of isoeuparin and (–)-4-hydroxytremetone were determined by retrobiosynthetic NMR analysis.

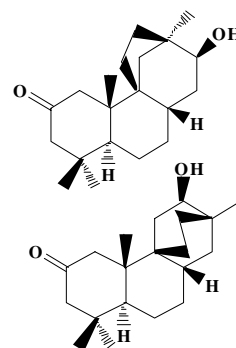


### Stemodane skeletal rearrangement: chemistry and microbial transformation

pp 901–909

Glenroy D.A. Martin, William F. Reynolds and Paul B. Reese\*

Solvolysis of stemodinone yielded two rearranged diterpenoids. The incubation of these compounds with *Rhizopus oryzae* afforded metabolites.

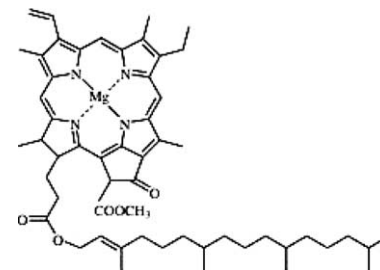


### Hydrogen, carbon and nitrogen isotopic fractionations during chlorophyll biosynthesis in C3 higher plants

pp 911–920

Yoshito Chikaraishi\*, Kohei Matsumoto, Nanako O. Ogawa, Hisami Suga, Hiroshi Kitazato and Naohiko Ohkouchi

We determined hydrogen, carbon and nitrogen isotopic compositions of chlorophylls *a* and *b* isolated from leaves of five C3 higher plant species (*Benthamidia japonica*, *Prunus japonica*, *Acer carpinifolium*, *Acer argutum* and *Querus mongloica*), and hydrogen and carbon isotopic compositions of phytol and chlorophyllides in the chlorophylls to understand isotopic fractionations associated with chlorophyll biosynthesis in these species.



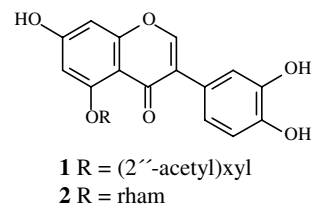
## CHEMOTAXONOMY

Comparative phytochemical analysis of four Mexican *Nymphaea* species

pp 921–927

Silvia Marquina, Jaime Bonilla-Barbosa and Laura Alvarez\*

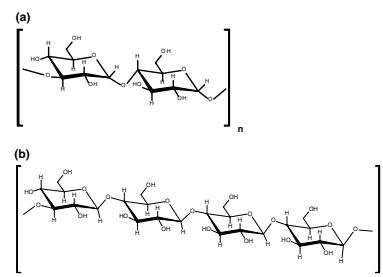
Four 3-glycosyl flavones and two 5-glycosyl isoflavones were isolated from *N. pulchella*, *N. ampla*, *N. gracilis* and *N. elegans*. These results confirmed that *N. pulchella* is a different species than *N. ampla*.

Glucans of lichenized fungi: significance for taxonomy of the genera *Parmotrema* and *Rimelia*

pp 929–934

Elaine R. Carbonero, Anderson V. Montai, Caroline G. Mellinger, Sionara Eliasaro, Guilherme L. Sassaki, Philip A.J. Gorin and Marcello Iacomini\*

Nigeran (a) and lichenan-type (b) glucans of species of *Parmotrema* and *Rimelia* were characterized, suggesting that the glucan chemistry does not support the separation of *Rimelia* from *Parmotrema*.



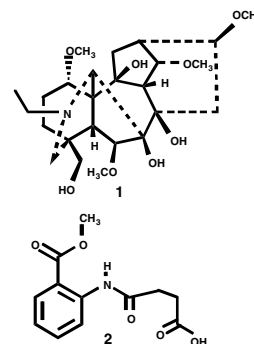
## BIOACTIVE PRODUCTS

Alkaloids of *Aconitum laeve* and their anti-inflammatory, antioxidant and tyrosinase inhibition activities

pp 935–940

Farzana Shaheen\*, Manzoor Ahmad, Muhmud Tareq Hassan Khan, Saima Jalil, Asma Ejaz, Mukhlis N. Sultankhodjaev, Muhammad Arfan, Muhammad Iqbal Choudhary and Atta-ur-Rahman

A lycoctonine-type norditerpenoid alkaloid, swatinine (1), along with four known norditerpenoid alkaloids, and a benzene derivative 4-[2-(methoxycarbonyl)-anilino]-4-oxobutanoic acid (2), were isolated from the aerial parts of *Aconitum laeve* Royle.



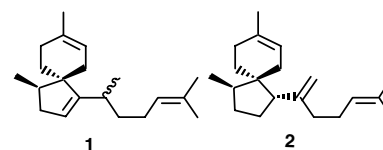
## CHEMISTRY

Composition of the essential oil of the liverwort *Radula perrottetii* of Japanese origin

pp 941–949

Hailemichael Tesso\*, Wilfried A. König and Yoshinori Asakawa

The isolation and structural elucidation of viscida-3,9,14-triene (1), viscida-3,11(18), 14-triene (2), and a number of bisabolane sesquiterpenes from the liverwort *Radula perrottetii* are reported.



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\* Corresponding author

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