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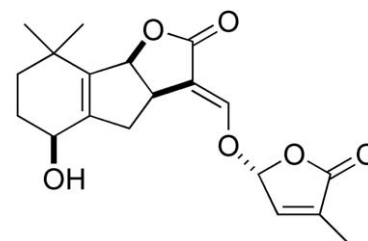
MOLECULES OF INTEREST

Strigol: Biogenesis and physiological activity

pp 636–640

Andrew J. Humphrey, Michael H. Beale *

A brief survey of recent discoveries on the biosynthetic origin and mode of action of the strigolactone germination stimulants.



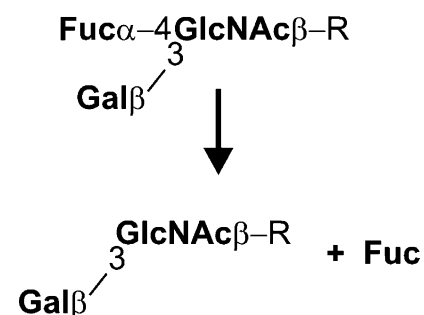
MOLECULAR GENETICS AND GENOMICS

Molecular cloning and characterization of a plant α 1,3/4-fucosidase based on sequence tags from almond fucosidase I

pp 641–648

Reinhard Zeleny, Renaud Leonard, Georg Dorfner, Thomas Dalik, Daniel Kolarich, Friedrich Altmann *

A fucosidase capable of hydrolyzing α 1,3- and α 1,4-linkages of fucose in Lewis type oligosaccharides has been purified from almonds. According to sequence information from the almond enzyme, the respective α 1,3/4-fucosidase from *Arabidopsis* could be cloned and expressed in *Pichia pastoris*.

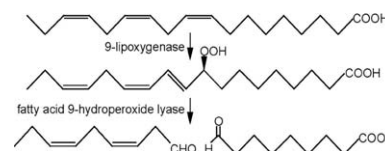


Biosynthesis of fatty acid derived aldehydes is induced upon mechanical wounding and its products show fungicidal activities in cucumber

pp 649–657

Kenji Matsui *, Akari Minami, Ellen Hornung, Hidetoshi Shibata, Kyutaro Kishimoto, Volker Ahnert, Helmut Kindl, Tadahiko Kajiwar, Ivo Feussner

Cucumber fatty acid 9-hydroperoxide lyase was developmentally regulated, and its activity was high in the hypocotyls, female flowers and mature fruits. It was induced by mechanical wounding. The products, C9-aldehydes, were formed rapidly after disruption of the tissues and showed fungicidal activities against fungal pathogens, *Botrytis cinerea* and *Fusarium oxysporum*.

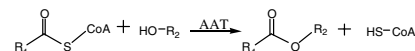


Molecular cloning and expression of a gene encoding alcohol acyltransferase (*MdAAT2*) from apple (cv. Golden Delicious)

pp 658–667

Dapeng Li, Yunfeng Xu, Gangming Xu, Lingkun Gu,
Dequan Li^{*}, Huairui Shu

Immunoblot and immunolocalization analysis identified a 47.9 kDa alcohol acyltransferase from apple, encoded by the *MdAAT2* gene, and localized mainly in peel tissue. The regulatory mechanism of *MdAAT2* in ester biosynthesis was also investigated at mRNA, protein and enzyme activity levels.

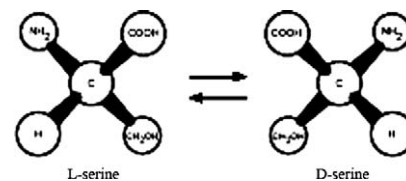


Molecular and biochemical characterization of a serine racemase from *Arabidopsis thaliana*

pp 668–674

Yoshiyuki Fujitani, Nobuyoshi Nakajima, Koji Ishihara, Tadao Oikawa,
Kazutoshi Ito, Manabu Sugimoto^{*}

A cDNA encoding the homolog of mammalian serine racemase was isolated from *Arabidopsis thaliana* and expressed in *Escherichia coli* cells. The gene product catalyzes not only the racemization of serine but also the dehydration of serine to pyruvate in the presence of pyridoxal 5'-phosphate and divalent cation at alkaline pH.

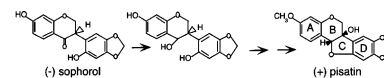


Studies on the late steps of (+) pisatin biosynthesis: Evidence for (–) enantiomeric intermediates

pp 675–683

Gregory L. DiCenzo, Hans D. VanEtten^{*}

The (–) enantiomer of sophorol was more efficiently converted into (+) pisatin than its (+) antipode. Additionally, (–) sophorol reductase (*Sor*), expressed during synthesis of (+) pisatin, was cloned from pea. The results indicate that intermediates with a (–) chirality are involved in (+) pisatin biosynthesis.

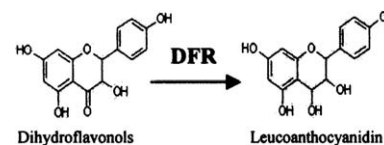


Gene characterization, analysis of expression and in vitro synthesis of dihydroflavonol 4-reductase from *Citrus sinensis* (L.) Osbeck

pp 684–695

Angela Roberta Lo Piero, Ivana Puglisi, Goffredo Petrone^{*}

A different expression pattern of the DFR gene in the flesh of both blood and blonde oranges was reported. *Dfr* genomic homologues as well as the promoter regions have also been isolated to find possible sequence modifications that could explain the differences noticed in *dfr* expression. Finally an active DFR has been expressed, this being the first report of an in vitro expression of DFR from fruit tissues.



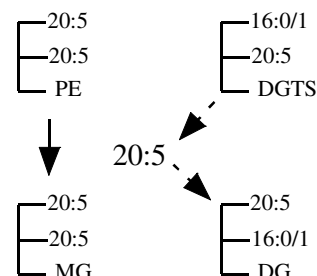
METABOLISM

The effect of phosphate starvation on the lipid and fatty acid composition of the fresh water euglenophyte *Monodus subterraneus*

pp 696–701

Inna Khozin-Goldberg, Zvi Cohen *

Phosphate starvation of the euglenophyte *Monodus subterraneus* results in a decrease in the proportion of PE and MGDG and an increase in DGTS and DGDG, supporting the hypothesized two-pathway biosynthesis of EPA-containing molecular species of galactolipids.



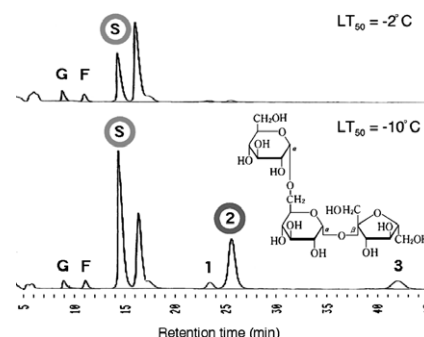
ECOLOGICAL BIOCHEMISTRY

Accumulation of theandrose in association with development of freezing tolerance in the moss *Physcomitrella patens*

pp 702–709

Manabu Nagao, Kazuyuki Oku, Anzu Minami, Kaoru Mizuno, Minoru Sakurai, Keita Arakawa, Seizo Fujikawa, Daisuke Takezawa *

Mosses are known to have cells with high degrees of stress tolerance. The moss *Physcomitrella patens* accumulates a trisaccharide theandrose in close association with development of freezing tolerance induced by cold, osmotic stress, and treatment with abscisic acid.

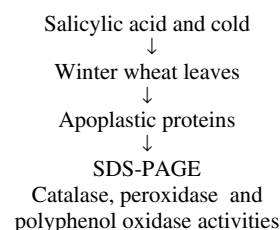


Effects of salicylic acid and cold treatments on protein levels and on the activities of antioxidant enzymes in the apoplast of winter wheat leaves

pp 710–715

Esen Taşgün, Ökkeş Atıcı, Barbaros Nalbantoğlu *, Losanka Petrova Popova

Accumulation of apoplastic polypeptides and activities of apoplastic peroxidase and polyphenol oxidase were increased by both SA and cold while activity of apoplastic catalase was decreased.



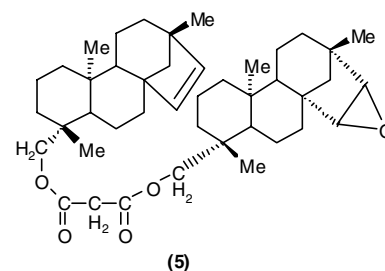
BIOACTIVE PRODUCTS

Antimicrobial monomeric and dimeric diterpenes from the leaves of *Helichrysum tenax* var *tenax*

pp 716–722

Siegfried E. Drewes *, K. Esther Mudau, Sandy F. van Vuuren, Alvaro M. Viljoen

A dimeric diterpene (5) was isolated from the sticky leaves of *Helichrysum tenax* together with known diterpenes showing high antimicrobial activity.

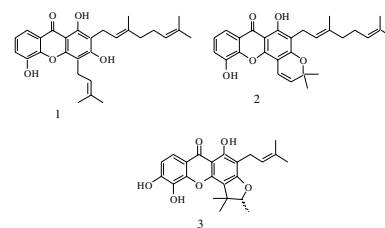


Antibacterial and cytotoxic xanthenes from the roots of *Cratoxylum formosum*

pp 723–727

Sompong Boonsri, Chatchanok Karalai ^{*}, Chanita Ponglimanont,
Akkharawit Kanjana-opas, Kan Chantrapromma

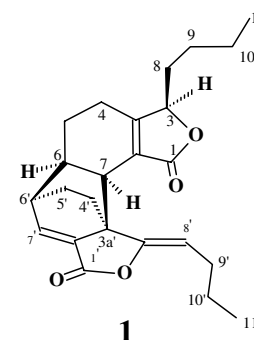
Formoxanthone A–C (**1–3**) together with six known compounds were isolated from the hexane extract of the roots of *Cratoxylum formosum*. In addition, antibacterial and cytotoxic activities of the isolates were also evaluated.

**Dimeric progestins from rhizomes of *Ligusticum chuanxiong***

pp 728–734

L.S. Lim, P. Shen, Y.H. Gong, E.L. Yong ^{*}

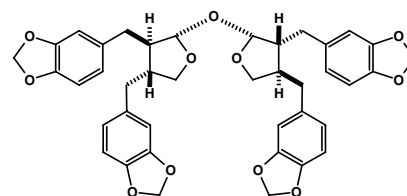
(3Z')-(3a'R,6'R,3R,6R,7R)-3,8-dihydro-6,6',7,3a'-diligustilide was isolated from rhizomes of the “utero-tonic” Chinese medicinal plant *Ligusticum chuanxiong*. This dimeric phthalide strongly (EC_{50} 90 nM) and specifically activated the progesterone receptor.

**CHEMISTRY****Configurational analysis of cubebins and bicubebin from *Aristolochia lagesiana* and *Aristolochia pubescens***

pp 735–742

Inara C. de Pascoli, Isabele R. Nascimento, Lucia M.X. Lopes ^{*}

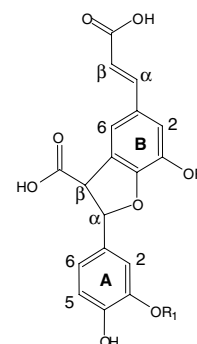
(8*S*,8'*R*,9*S*)-, (8*R*,8'*R*,9*R*)-, and (8*R*,8'*R*,9*S*)-cubebins, together with (8*R*,8'*R*,8''*R*,8*R*,9*R*,9''*S*) bicubebin, were isolated from *Aristolochia lagesiana* and *Aristolochia pubescens*. Their structures were determined by spectroscopic methods, including ¹H and ¹³C NMR spectroscopy at low temperatures, and by chemical transformations.

**Modeling suberization with peroxidase-catalyzed polymerization of hydroxycinnamic acids: Cross-coupling and dimerization reactions**

pp 743–753

Daniel Arrieta-Baez, Ruth E. Stark ^{*}

Peroxidase-catalyzed polymerization of hydroxycinnamic acid mixtures occurred most readily for caffeic acid with ferulic and sinapic acids, leading to the formation of β-β'-γ-lactone, β-5 benzofuran, and β-O-4 dehydrodimers.



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* Corresponding author	

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