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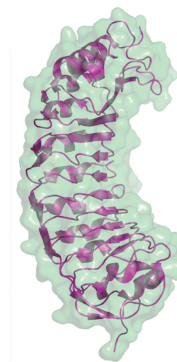
MOLECULES OF INTEREST

Polygalacturonase-inhibiting protein (PGIP) in plant defence: a structural view

pp 528–533

Adele Di Matteo, Daniele Bonivento, Demetrius Tsernoglou, Luca Federici, Felice Cervone*

Polygalacturonase-inhibiting proteins are produced by plants to counteract the activity of pathogen-derived polygalacturonases and limit the aggressive potential of phytopathogenic microorganisms. Here, we describe the structure of the inhibitor and focus on our current understanding of its interaction with polygalacturonases.



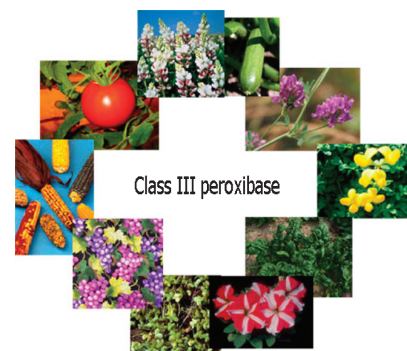
UPDATE IN BIOINFORMATICS

PeroxiBase: A class III plant peroxidase database

pp 534–539

Nenad Bakalovic, Filippo Passardi, Vassilios Ioannidis, Claudia Cosio, Claude Penel, Laurent Falquet, Christophe Dunand*

PeroxiBase is a database entirely devoted to the class III plant peroxidase and accessible through a web server <http://peroxidase.isb-sib.ch>. An exhaustive data mining performed from various EST projects has allowed drawing up the evolution of the class III across land plants evolution.



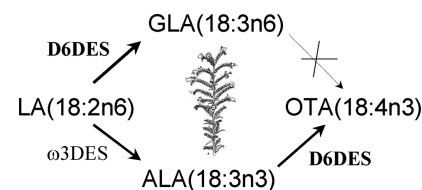
PROTEIN BIOCHEMISTRY

Substrate specificity of acyl- Δ^6 -desaturases from Continental versus Macaronesian *Echium* species

pp 540–544

Federico García-Maroto, Aurora Mañas-Fernández, José A. Garrido-Cárdenas, Diego López Alonso*

Biased substrate specificity of the acyl- Δ^6 -desaturases was found to be one of the determinants of the different fatty acid profiles exhibited by Macaronesian versus Continental *Echium* (Boraginaceae) species.



Purification and primary structure determination of two Bowman–Birk type trypsin isoinhibitors from *Cratylia mollis* seeds

pp 545–552

P.M.G. Paiva, M.L.V. Oliva^{*}, H. Fritz, L.C.B.B. Coelho, C.A.M. Sampaio

The separation of isoinhibitors from *Cratylia mollis* seeds (CmTI₁ and CmTI₂) by reverse phase chromatography allowed sequence determination and characterization of structural heterogeneity.

CmTI₁: C-T-Y-S-M-P-G-M-C

CmTI₂: C-T-L-S-F-P-A-Q-C

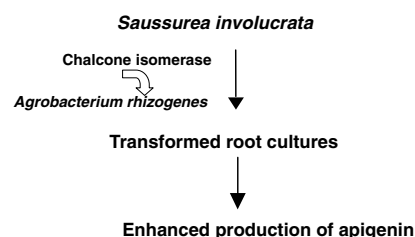
MOLECULAR GENETICS AND GENOMICS

Overexpression of the *Saussurea medusa* chalcone isomerase gene in *S. involucrata* hairy root cultures enhances their biosynthesis of apigenin

pp 553–560

Feng-Xia Li, Zhi-Ping Jin, De-Xiu Zhao^{*}, Li-Qin Cheng, Chun-Xiang Fu, Fengshan Ma

Chalcone isomerase (CHI) is a key enzyme of the flavonoid biosynthesis pathway. The *chi* gene from *Saussurea medusa* was introduced into hairy roots of *Saussurea involucrata* using *Agrobacterium rhizogenes*. Transgenic hairy root lines produced significantly higher levels of total flavonoids as well as apigenin.



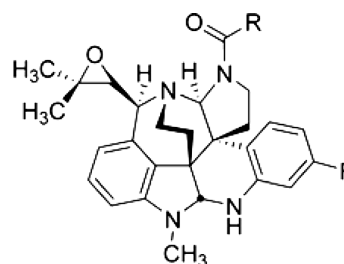
METABOLISM

Natural and directed biosynthesis of communesin alkaloids

pp 561–569

Lucy J. Wigley, Peter G. Mantle^{*}, David A. Perry

Roles for acetate, mevalonate, methionine, tryptophan and tryptamine have been established for natural communesins, containing two indole moieties, but addition of DL-6-fluorotryptophan directed biosynthesis only to monofluorinated analogues.

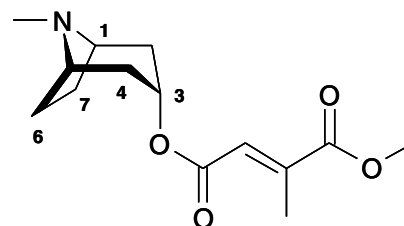


In vitro shoot and root organogenesis, plant regeneration and production of tropane alkaloids in some species of *Schizanthus*

pp 570–578

Miguel Jordan^{*}, Munir Humam, Stefan Bieri, Philippe Christen, Estrella Poblete, Orlando Muñoz

Ten alkaloids ranging from simple pyrrolidine derivatives to tropane esters derived from angelic, tiglic, senecioic or methylmesaconic acids were obtained from in vitro regenerated plantlets *Schizanthus hookeri* Gill. (Solanaceae), an endemic Chilean plant. One of them, 3 α -methylmesaconyloxytropane, is hitherto unknown.



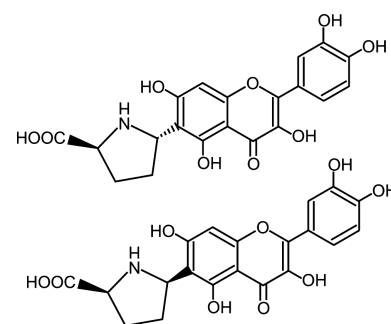
ECOLOGICAL BIOCHEMISTRY

C-prolinylquercetins from the yellow cocoon shell of the silkworm, *Bombyx mori*

pp 579–583

Chikara Hirayama ^{*}, Hiroshi Ono, Yasumori Tamura, Masatoshi Nakamura

Two C-prolinylquercetins, prolinalin A and B, were isolated from the cocoon shell of the silkworm, *Bombyx mori*. Their structures were elucidated by spectroscopic methods and chemical evidence.

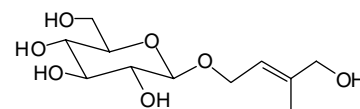


A hemiterpene glucoside as a probing deterrent of the bean aphid, *Megoura crassicauda*, from a non-host vetch, *Vicia hirsuta*

pp 584–588

Naohiro Ohta, Naoki Mori, Yasumasa Kuwahara, Ritsuo Nishida ^{*}

A specific probing deterrent for the bean aphid, *Megoura crassicauda*, was isolated from a non-host tiny vetch, *Vicia hirsuta*, and identified as (*E*)-2-methyl-2-butene-1,4-diol 4-*O*- β -D-glucopyranoside.

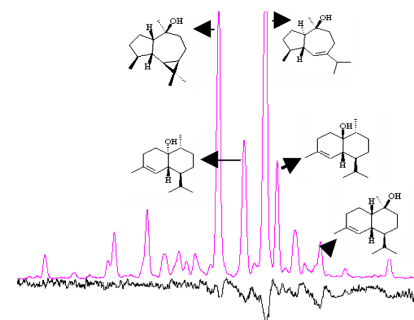


Volatile oil from *Guarea macrophylla* ssp. *tuberculata*: Seasonal variation and electroantennographic detection by *Hypsipyla grandella*

pp 589–594

João Henrique G. Lago ^{*}, Marisi G. Soares, Luciane G. Batista-Pereira, M. Fátima G.F. Silva, Arlene G. Corrêa, João B. Fernandes, Paulo C. Vieira, Nídia F. Roque

Leaf oil of *Guarea macrophylla* (Meliaceae) is composed mainly of sesquiterpenes, whose degree of oxygenation is seasonally dependent. Analysis of the oil by GC-electroantennographic detection employing antennae of *Hypsipyla grandella* females revealed five components that could be responsible for the attraction of this insect pest to the plant.



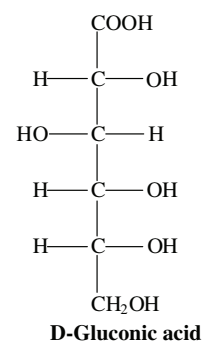
BIOACTIVE PRODUCTS

Gluconic acid: An antifungal agent produced by *Pseudomonas* species in biological control of take-all

pp 595–604

Rajvinder Kaur, John Macleod, William Foley, Murali Nayudu ^{*}

Pseudomonas strain AN5 produces D-gluconic acid which acts as an antifungal agent in suppressing the take-all fungal pathogen, both on potato dextrose media and in the wheat rhizosphere. Transposon mutants which have lost biocontrol do not produce gluconic acid, but restoration of gluconic acid production by complementation restores take-all biocontrol.

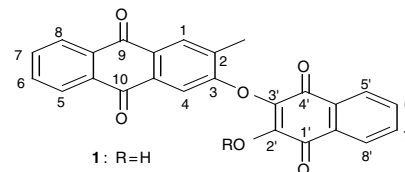


Newbouldiaquinone A: A naphthoquinone–anthraquinone ether coupled pigment, as a potential antimicrobial and antimalarial agent from *Newbouldia laevis*

pp 605–609

Kenneth Oben Eyong, Gabriel Ngosong Folefoc^{*}, Victor Kuete, Veronique Penlap Beng, Karsten Krohn^{*}, Hidayat Hussain, Augustin Ephram Nkengfack, Michael Saftel, Salem Ramadan Sarite, Achim Hoerauf

A naphthoquinone–anthraquinone ether-coupled pigment, Newbouldiaquinone A, a potential antimicrobial and antimalarial agent, was isolated from *Newbouldia laevis* together with 14 known compounds.

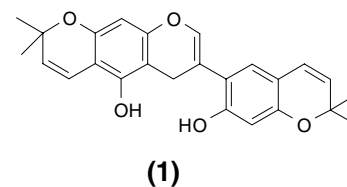


Vasodilatory and hypoglycaemic effects of two pyrano-isoflavone extractives from *Eriosema kraussianum* N. E. Br. [Fabaceae] rootstock in experimental rat models

pp 610–617

John A.O. Ojewole^{*}, Siegfried E. Drewes, Fatima Khan

Two pyrano-isoflavones (e.g., 1) produced dose-related initial transient contractions followed by secondary longer-lasting significant relaxation of rat isolated portal veins. The two compounds also caused dose-dependent hypoglycaemia in rats.

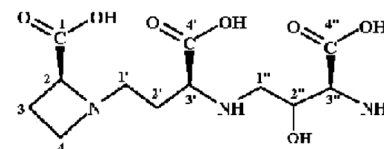


An angiotensin-I converting enzyme inhibitor from buckwheat (*Fagopyrum esculentum* Moench) flour

pp 618–621

Yasuo Aoyagi^{*}

A potent angiotensin-I converting enzyme inhibitor 2''-hydroxynicotianamine was isolated from buckwheat (*Fagopyrum esculentum* Moench) flour.



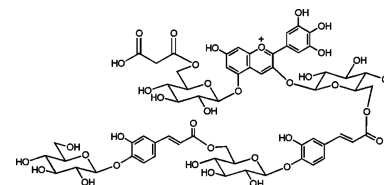
CHEMISTRY

Structure of anthocyanin from the blue petals of *Phacelia campanularia* and its blue flower color development

pp 622–629

Mihoko Mori, Tadao Kondo, Kenjiro Toki, Kumi Yoshida^{*}

The dicaffeoyl anthocyanin, phacelianin, was isolated from the blue petals of *Phacelia campanularia* and its structure was determined. Phacelianin may take both an inter- and intramolecular stacking form and shows the blue petal color by molecular association and the co-existence of a small amount of metal ions.



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* Corresponding author

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