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Obituary

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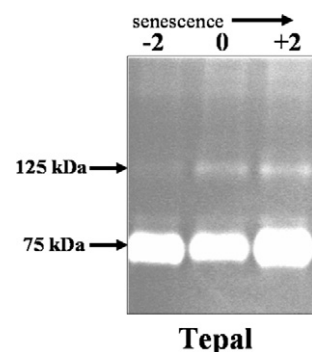
PROTEIN BIOCHEMISTRY

Enhanced expression of serine proteases during floral senescence in *Gladiolus*

pp 1352–1357

Abdul Azeez, Aniruddha P. Sane, D. Bhatnagar, Pravendra Nath*

Proteolysis in floral organs of *Gladiolus* is associated predominantly with serine proteases. The enhanced expression of two serine proteases of sizes of 75 kDa and 125 kDa is observed.

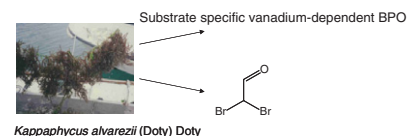


A vanadium-dependent bromoperoxidase in the marine red alga *Kappaphycus alvarezii* (Doty) Doty displays clear substrate specificity

pp 1358–1366

Zornitsa Kamenarska, Tomokazu Taniguchi, Noboru Ohsawa, Masanori Hiraoka, Nobuya Itoh*

Bromoperoxidase (BPO) activity was initially detected in marine macroalgae belonging to the Solieriaceae family (Gigartinales, Rhodophyta). The enzyme from *Kappaphycus alvarezii* (Doty) Doty was dependent on the vanadate ion, and displayed a distinct substrate spectrum from previously reported vanadium-dependent BPOs of marine macroalgae. The halogenated product, dibromoacetaldehyde, that accumulated in *K. alvarezii* was additionally determined.



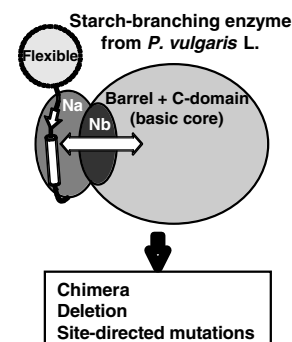
MOLECULAR GENETICS AND GENOMICS

The N-terminal region of the starch-branching enzyme from *Phaseolus vulgaris* L. is essential for optimal catalysis and structural stability

pp 1367–1375

Shigeki Hamada, Hiroyuki Ito*, Hiroshi Ueno, Yasuhito Takeda, Hirokazu Matsui

The present study provides insight into the relationships between the N-terminal region and enzyme activity of the starch-branching enzyme through the enzymatic analyses of the chimeric, truncated, and site-directed mutant enzymes. We also identified the crucial residues in the N-terminal region for optimal catalysis and structural stability.

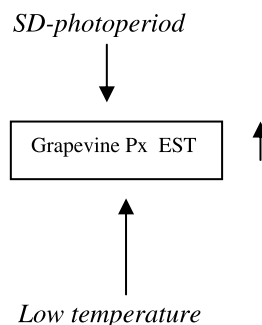


Short day-photoperiod triggers and low temperatures increase expression of peroxidase RNA transcripts and basic peroxidase isoenzyme activity in grapevine buds

pp 1376–1383

Ximena Noriega, Bárbara Burgos, Francisco J. Pérez*

Only one of the three-reported peroxidase ESTs for *Vitis vinifera* L. is expressed in the buds of Thompson seedless grapevine. The expressed RNA transcript is triggered by a short-day photoperiod and its abundance is increased by low temperature.



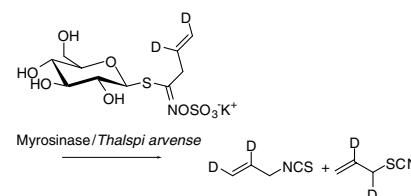
METABOLISM

The synthesis and enzymic hydrolysis of (*E*)-2-[2,3-²H₂]propenyl glucosinolate: Confirmation of the rearrangement of the thiohydroximate moiety

pp 1384–1390

J.T. Rossiter*, J.A. Pickett, M.H. Bennett, A.M. Bones, G. Powell, J. Cobb

(*E*)-2-[2,3-²H₂]propenyl glucosinolate was synthesised and fully characterized in terms of its structure and enzymic degradation. The rearrangement of the aglycone was examined by deuterium NMR spectroscopy.

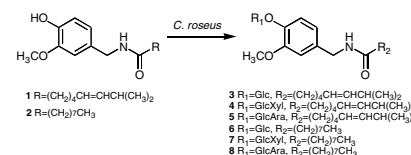


Glycosylation of capsaicin and 8-nordihydrocapsaicin by cultured cells of *Catharanthus roseus*

pp 1391–1396

Kei Shimoda, Soonil Kwon, Akiko Utsuki, Shingo Ohiwa, Hisashi Katsuragi, Naoko Yonemoto, Hatsuyuki Hamada, Hiroki Hamada*

In addition to glucosides **3** and **6**, four disaccharides **4**, **5**, **7**, and **8** were isolated from the cell suspension of *Catharanthus roseus* after incubation with capsaicin (**1**) and 8-nordihydrocapsaicin (**2**).

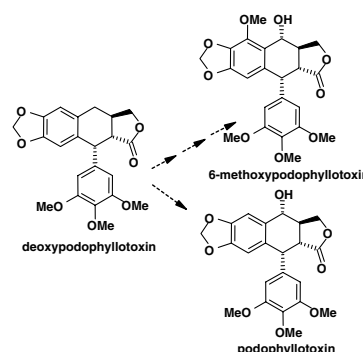


Aryltetralin-lignan formation in two different cell suspension cultures of *Linum album*: Deoxypodophyllotoxin 6-hydroxylase, a key enzyme for the formation of 6-methoxypodophyllotoxin

pp 1397–1406

Katja Federolf, A. Wilhelm Alfermann, Elisabeth Fuss*

Suspension cultures initiated from two different *Linum album* seedlings accumulate either podophyllotoxin or 6-methoxypodophyllotoxin as main lignans due to the different activity of the enzyme deoxypodophyllotoxin 6-hydroxylase. Data about the enzyme activity during a subculture period on the enzyme characteristics as well as concerning the biosynthetic pathway are discussed.



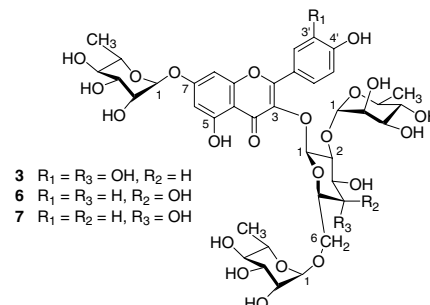
CHEMOTAXONOMY

Flavonol tetraglycosides and other constituents from leaves of *Styphnolobium japonicum* (Leguminosae) and related taxa

pp 1407–1416

Geoffrey C. Kite*, Charlotte A. Stoneham, Nigel C. Veitch

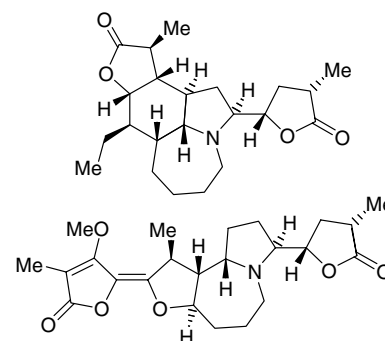
Analysis of foliar flavonoids in *Styphnolobium japonicum* revealed two new flavonol tetraglycosides (**3** and **7**) and a known example unrecorded in this species (**6**). A maltol derivative, 3-hydroxy-2-methyl-4*H*-pyran-4-one 3-*O*-(4'-*O*-*p*-coumaroyl-6'-*O*-(3-hydroxy-3-methylglutaroyl))- β -glucopyranoside, was also obtained. The distribution of flavonol tetra- and other glycosides in species of *Styphnolobium* and the related taxon *Cladrastis kentukea* is of phylogenetic interest.

Pyrrolo- and pyridoazepine alkaloids as chemical markers in *Stemona* species

pp 1417–1427

Johann Schinnerl, Brigitte Brem, Paul Pui-Hay But, Srunya Vajrodaya, Otmar Hofer, Harald Greger*

Structural divergence of *Stemona* alkaloids into tuberostemonine or protostemonine related derivatives suggested a taxonomic segregation of the complex *Stemona tuberosa* group from the other species. Different accumulation tendencies towards pyrrolo- or pyridoazepine derivatives represented an additional chemical marker.



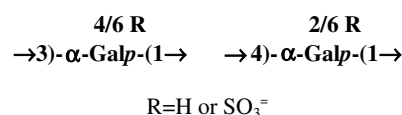
BIOACTIVE PRODUCTS

Galactan sulfate of *Grateloupia indica*: Isolation, structural features and antiviral activity

pp 1428–1435

Kausik Chattopadhyay, Cecilia G. Mateu, Pinaki Mandal, Carlos A. Pujol, Elsa B. Damonte, Bimalendu Ray*

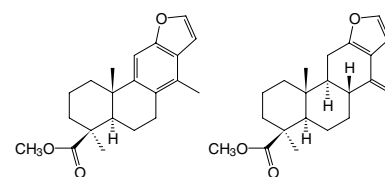
A α -(1 \rightarrow 3)- and α -(1 \rightarrow 4)-linked sulfated galactan with a variable sulfation pattern was found in *Grateloupia indica*. This galactan sulfate is inhibitor of Herpes simplex virus types 1 and 2.

Antibacterial and antioxidant cassane diterpenoids from *Caesalpinia benthamiana*

pp 1436–1441

Rita A. Dickson, Peter J. Houghton*, Peter J. Hylands

Two cassane-type diterpenoids possessing antibacterial and antioxidant properties have been isolated from *Caesalpinia benthamiana*.

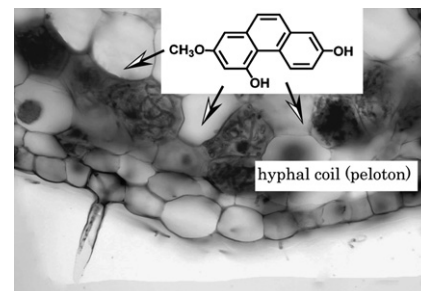


An antifungal compound involved in symbiotic germination of *Cypripedium macranthos* var. *rebunense* (Orchidaceae)

pp 1442–1447

Hanako Shimura, Mayumi Matsuura, Noboru Takada, Yasunori Koda*

Germination of orchid seeds fully depends on a symbiotic association with soil-borne fungi. In contrast to the peaceful symbiotic associations between other plants and mycorrhizal fungi, this association is a life-and-death struggle. Germinating seeds of an orchid (*Cypripedium macranthos* var. *rebunense*) produce lusianthrin to regulate the growth of fungi and prevail in this struggle.

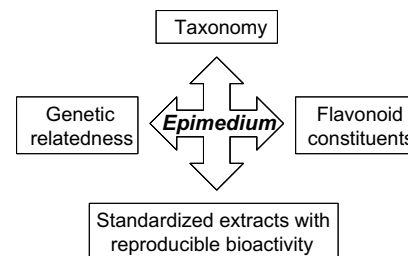


Taxonomic, genetic, chemical and estrogenic characteristics of *Epimedium* species

pp 1448–1458

P. Shen, B.L. Guo, Y. Gong, Deborah Y.Q. Hong, Y. Hong, E.L. Yong*

Characterization of 37 specimens from 19 species of the genus *Epimedium* L. (Berberidaceae) indicated reproducible relationships between genetic polymorphisms, component flavonoids, and estrogen receptor (ER α and ER β) bioactivity.



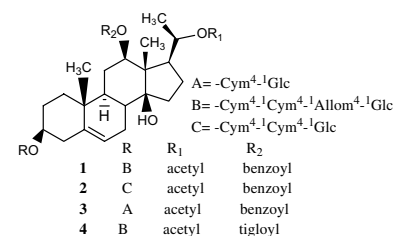
CHEMISTRY

Acylated pregnane glycosides from *Caralluma russeliana*

pp 1459–1463

Essam Abdel-Sattar*, Ahmed A. Ahmed, Mohamed-Elamir F. Hegazy, Mohamed A. Farag, Mohammad Abdul-Aziz Al-Yahya

The chloroform extract of the aerial parts of *Caralluma russeliana* yielded four acylated pregnane glycosides, namely russeliosides E–H, three of which had not been found before. The structures of the compounds were elucidated using spectral means.

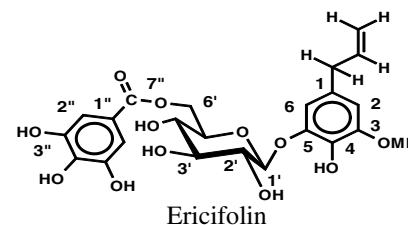


Ericifolin: An eugenol 5-*O*-galloylglucoside and other phenolics from *Melaleuca ericifolia*

pp 1464–1470

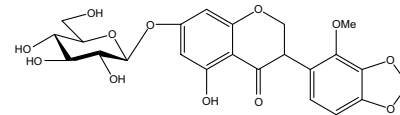
S.A.M. Hussein, A.N.M. Hashim, R.T. El-Sharawy, M.A. Seliem, M. Linscheid, U. Lindequist, M.A.M. Nawwar*

Ericifolin, eugenol 5-*O*- β -(6'-*O*-galloylglucopyranoside); 3-methoxyellagic acid 4-*O*-rhamnopyranoside; 2-*O*-*p*-hydroxybenzoyl-6-*O*-galloyl-glucose have been isolated from the antibacterial leaves extract of *Melaleuca ericifolia*.



Isoflavanones and their *O*-glycosides from *Desmodium styracifolium***pp 1471–1479**Ming Zhao, Jin-Ao Duan, Chun-Tao Che^{*}

Two isoflavanones, four isoflavanone *O*-glycosides, and a coumaronochromone derivative, were isolated from *Desmodium styracifolium*. This is the first report of the isolation of isoflavanone *O*-glycosides from a natural source.

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