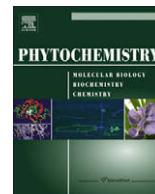




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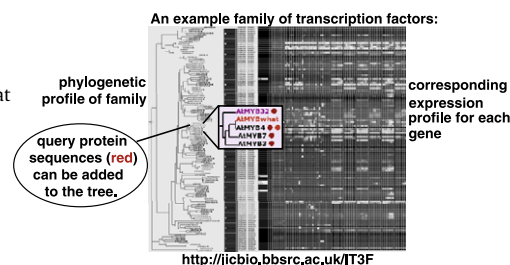
UPDATE IN BIOINFORMATICS

IT3F: A web-based tool for functional analysis of transcription factors in plants

pp 2417–2425

Paul C. Bailey*, Jo Dicks, Trevor L. Wang, Cathie Martin

A website has been developed to display both evolutionary gene relationships and expression data for plant transcription factors. One key feature of the website is an interrogative phylogenetic tree that allows submission of sequences corresponding to a family of transcription factors and places them onto an 'existing' tree.



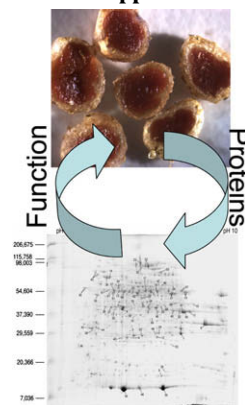
PROTEIN BIOCHEMISTRY AND PROTEOMICS

Proteomic analysis of soybean nodule cytosol

pp 2426–2438

Nathan W. Oehrlé, Annamraju D. Sarma, James K. Waters, David W. Emerich*

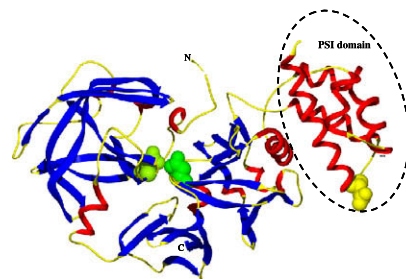
Proteins isolated from soybean root nodules and identified via mass spectrometry elucidate nodule function.

Expression and characterization of the recombinant aspartic proteinase A1 from *Arabidopsis thaliana*

pp 2439–2448

Miguel A. Mazorra-Manzano, Rickey Y. Yada*

The recombinant aspartic proteinase A1 from *Arabidopsis thaliana* (AtAP A1) was expressed in the heterologous system *Pichia pastoris* in a functional soluble form. The protein consists of two chains linked by disulfide bridges and retains most of the plant specific insert (PSI) after activation.

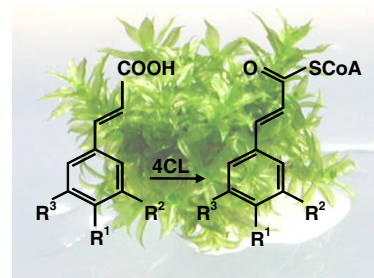


Identification of a 4-coumarate:CoA ligase gene family in the moss, *Physcomitrella patens*

pp 2449–2456

Martina V. Silber, Harald Meimberg, Jürgen Ebel*

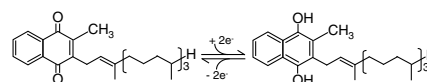
Coenzyme A thioesters of differently substituted cinnamic acids, synthesized by 4-coumarate:CoA ligase (4CL), are central intermediates in the biosynthesis of many plant phenylpropanoid compounds. In the moss, *Physcomitrella patens*, a 4CL gene family of four members was identified and the encoded isoenzymes were characterized.

**METABOLISM****Detection and quantification of vitamin K₁ quinol in leaf tissues**

pp 2457–2462

Chloë van Oostende, Joshua R. Widhalm, Gilles J.C. Basset*

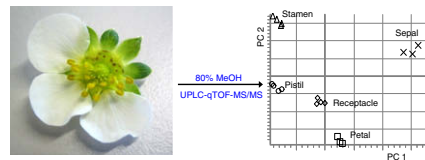
Using HPLC–fluorometry, we showed that leaves of various plant species contain the quinol form of vitamin K₁. Subcellular fractionation experiments in pea indicated that this quinol form occurs in the chloroplasts. The vitamin K₁ quinone/quinol ratio of *Arabidopsis* leaves was found to decrease in the dark and during senescence.

**Non-targeted analysis of spatial metabolite composition in strawberry (*Fragaria* × *ananassa*) flowers**

pp 2463–2481

Kati Hanhineva, Ilana Rogachev, Harri Kokko, Shira Mintz-Oron, Ilya Venger, Sirpa Kärenlampi, Asaph Aharoni*

The metabolite composition of strawberry floral organs (i.e. sepals, petals, stamen, pistil and receptacle) has been studied by UPLC–qTOF–MS and MS/MS analysis. Various classes of metabolites, including ellagitannins, proanthocyanidins, flavonols, terpenoids, and spermidine derivatives were detected that showed differential accumulation between the floral organs. These results allude to spatially-restricted production of secondary metabolite classes and specialized derivatives in flowers that take part in implementing the unique program of individual organs in the floral life cycle.

**CHEMOTAXONOMY****Serine proteinase inhibitors in seeds of *Cycas siamensis* and other gymnosperms**

pp 2482–2489

Alexander V. Konarev*, Alison Lovegrove, Peter R. Shewry

Proteinase inhibitors have been identified in seeds of two groups of gymnosperms, the economically important conifers and the ancient cycads. Detailed studies of *Cycas siamensis* seeds showed that inhibitors of chymotrypsin, subtilisin and trypsin are related to Kunitz-type inhibitors. Analyses of EST databases confirmed the presence of related inhibitors in the Cycadales, Coniferales and Ginkgoales.



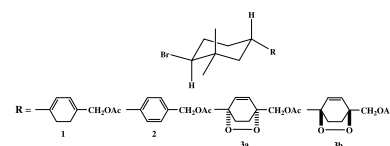
BIOACTIVE PRODUCTS

Antibacterial activity of halogenated sesquiterpenes from Malaysian *Laurencia* spp.

pp 2490–2494

Charles Santhanaraju Vairappan*, Minoru Suzuki, Takahiro Ishii, Tatsufumi Okino, Tsuyoshi Abe, Michio Masuda

Three brominated metabolites, tiomanene (**1**), acetylmajapolene B (**2**), and acetylmajapolene A (**3a** and **3b**), were isolated from an unrecorded species along with known majapolene B and majapolene A. Three known halogenated sesquiterpenes and two halogenated C₁₅ acetogenins were found from two unrecorded species. These compounds showed antibacterial activities.

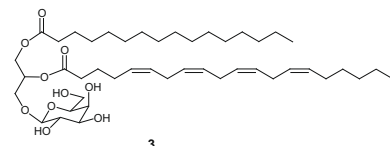


Antineoplastic unsaturated fatty acids from Fijian macroalgae

pp 2495–2500

Ren-Wang Jiang, Mark E. Hay, Craig R. Fairchild, Jacques Prudhomme, Karine Le Roch, William Aalbersberg, Julia Kubanek*

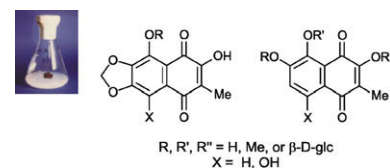
From the Fijian green alga *Tydemania expeditionis*, two unsaturated fatty acids (**1–2**) were isolated plus one known fatty acid (**4**). A glycolipid, lithonoside (**3**) and five known natural products were also identified from the red alga *Hydrolithon reinboldii*. Compounds **1**, **2**, and **4** demonstrated moderate inhibitory activity against tumor cell lines with IC₅₀s of 1.3–14.4 μM.

Antitumoral and antileishmanial dioncoquinones and ancistroquinones from cell cultures of *Triphyophyllum peltatum* (Dioncophyllaceae) and *Ancistrocladus abbreviatus* (Ancistrocladaceae)

pp 2501–2509

Gerhard Bringmann*, Stefan Rüdenauer, Andreas Irmer, Torsten Bruhn, Reto Brun, Tanja Heimberger, Thorsten Stühmer, Ralf Bargou, Manik Chatterjee

Seven natural, highly oxygenated 1,4-naphthoquinones were isolated from solid callus cultures of *Triphyophyllum peltatum* and *Ancistrocladus abbreviatus*, along with the already known natural products plumbagin, droserone, malvone A, and nepenthone A.



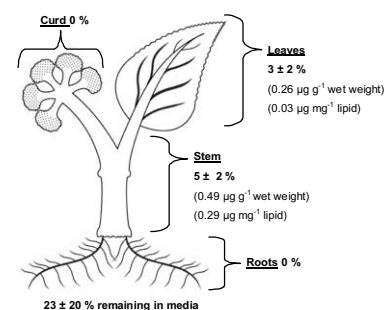
CHEMISTRY

Uptake of the pharmaceutical Fluoxetine Hydrochloride from growth medium by *Brassicaceae*

pp 2510–2516

Clare H. Redshaw, Victoria G. Wootton, Steven J. Rowland*

Concern has been expressed regarding the presence of pharmaceuticals in the environment, but relatively little is known, especially in terrestrial environments. Results of a preliminary study into the uptake of Fluoxetine HCl (Prozac®) from tissue culture media by *Brassicaceae* indicate that uptake is a potential environmental transport route.

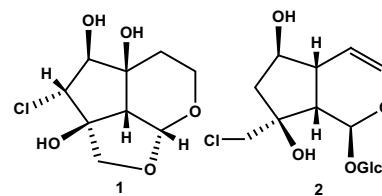


Chlorine-containing iridoid and iridoid glucoside, and other glucosides from leaves of *Myoporum bontioides*

pp 2517–2522

Moe Kanemoto, Katsuyoshi Matsunami, Hideaki Otsuka*, Takakazu Shinzato, Choken Ishigaki, Yoshio Takeda

From leaves of *Myoporum bontioides*, the chlorinated derivatives myopochlorin (**1**), myobontioside A (**2**), together with other three additional glucosides were isolated.

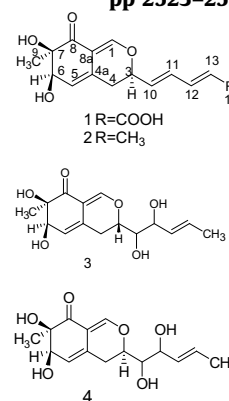


Phomoeuphorbins A–D, azaphilones from the fungus *Phomopsis euphorbiae*

pp 2523–2526

Bu-Zhu Yu, Gao-Hong Zhang, Zhi-Zhi Du*, Yong-Tang Zheng, Jian-Chu Xu, Xiao-Dong Luo

Four azaphilones named phomoeuphorbins **A–D** (**1–4**) were isolated from cultures of *Phomopsis euphorbiae*, an endophytic fungus isolated from *Trewia nudiflora*. Structures of **1–4** were established on the basis of spectroscopic analyses, including application of 2D NMR spectroscopic techniques. Phomoeuphorbins A and C exhibited very weak inhibitory activities against HIV replication in C8166 cells *in vitro*.



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* Corresponding author

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