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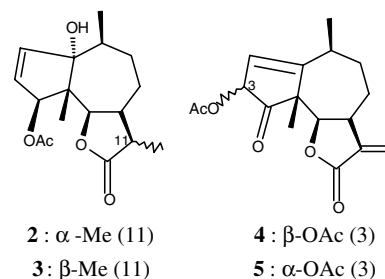
MOLECULES OF INTEREST

Acetylated pseudoguaianolides from *Parthenium hysterophorus* and their cytotoxic activity

pp 2029–2034

Biswanath Das*, V. Saidi Reddy, M. Krishnaiah, A.V.S. Sharma,
K. Ravi Kumar, J. Venkateswara Rao, V. Sridhar

Chemical investigation on the flowers of *Parthenium hysterophorus* yielded four acetylated pseudoguaianolides together with several known constituents including parthenin. The cytotoxicity of the constituents and parthenin was evaluated.



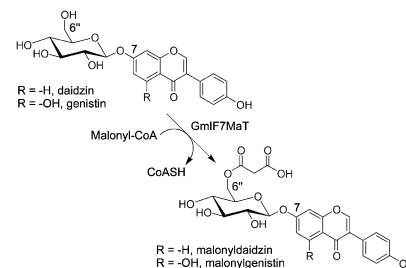
MOLECULAR GENETICS AND GENOMICS

cDNA cloning of a BAHD acyltransferase from soybean (*Glycine max*): Isoflavone 7-*O*-glucoside-6''-*O*-malonyltransferase

pp 2035–2042

Hirokazu Suzuki, Tokuzo Nishino, Toru Nakayama*

A cDNA from soybean (*Glycine max*), *GmIF7MaT*, was cloned and characterized. The cDNA encoded malonyl-CoA:isoflavone 7-*O*-glucoside-6''-*O*-malonyltransferase, which is responsible for the malonylation of isoflavone 7-*O*- β -D-glucosides to produce the corresponding isoflavone 7-*O*-(6''-*O*-malonyl- β -D-glucosides) in *G. max*. This protein is a member of flavonoid glucoside-specific acyltransferases in the BAHD family.

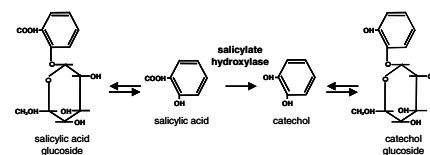


Salicylate and catechol levels are maintained in *nahG* transgenic poplar

pp 2043–2052

Alison M. Morse*, Timothy J. Tschaplinski, Christopher Dervinis,
Paula M. Pijut, Eric A. Schmelz, Wendy Day, John M. Davis

Poplar transgenic lines expressing *nahG*, a bacterial gene encoding salicylate hydroxylase that converts salicylic acid to catechol, had stable foliar levels of salicylic acid and catechol but statistically significant alterations in the levels of other secondary metabolites.



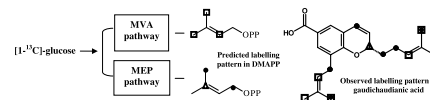
METABOLISM

Biosynthetic origins of the isoprene units of gaudichaudianic acid in *Piper gaudichaudianum* (Piperaceae)

pp 2053–2058

Adriana A. Lopes, Debora C. Baldoqui, Silvia N. López, Massuo J. Kato, Vanderlan da S. Bolzani, Maysa Furlan*

The incorporation of [1-¹³C]-D-glucose indicates that the biosynthesis of gaudichaudianic acid (**1**) [(2*S*)-2-methyl-2-(4'-methyl-3'-pentenyl)-8-(3''-methyl-2-butenyl)-2*H*-1-benzopyran-6-carboxylic acid], the main metabolite accumulating in *Piper gaudichaudianum* (Piperaceae), involves both mevalonic acid and the 2-*C*-methyl-D-erythritol-4-phosphate pathways.



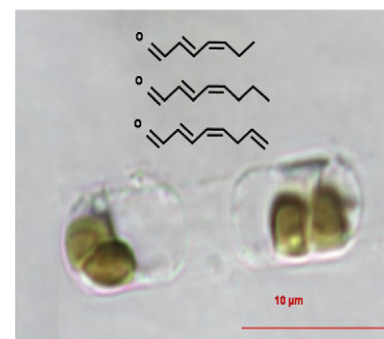
ECOLOGICAL BIOCHEMISTRY

Age and nutrient limitation enhance polyunsaturated aldehyde production in marine diatoms

pp 2059–2067

François Ribalet, Thomas Wichard, Georg Pohnert, Adrianna Ianora, Antonio Miralto, Raffaella Casotti*

Production of potentially defensive polyunsaturated aldehydes in marine diatoms is modulated by physiological state of the cells as related to age and nutrient status. This explains high variability in feeding experiments and also implies that diatoms at the end of a bloom are more chemically defended than at its onset.

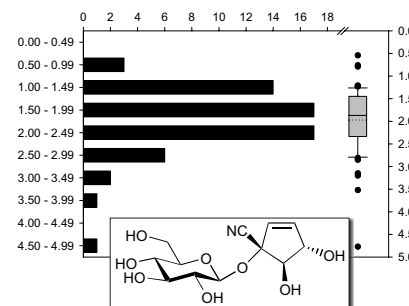


Constitutive polymorphic cyanogenesis in the Australian rainforest tree, *Ryparosa kurrangii* (Achariaceae)

pp 2068–2074

Bruce L. Webber*, Rebecca E. Miller, Ian E. Woodrow

Gynocardin was the only cyanogenic glycoside detected in the foliage of the Australian endemic rainforest tree, *Ryparosa kurrangii* (Achariaceae). Foliar cyanogens are a constitutive plant chemical defence trait and cyanogenesis was quantitatively polymorphic in mature leaves at a population level.



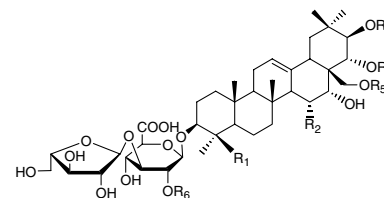
BIOACTIVE PRODUCTS

Cytotoxic triterpenoid saponins from the fruits of *Aesculus pavia* L.

pp 2075–2086

Zhizhen Zhang, Shiyu Li*

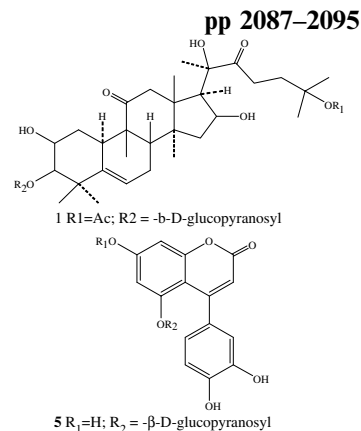
The isolation and structure elucidation of 13 triterpenoid saponins, named aesculiosides IIe–IIk and IIIa–IIIf from the fruits of *Aesculus pavia* L. are reported. Some saponins from this plant showed cytotoxic activity against 59 cell lines from nine different human cancers.



Antidiabetic properties of selected Mexican copalchis of the Rubiaceae family

José Guerrero-Analco, Omar Medina-Campos, Fernando Brindis, Robert Bye, José Pedraza-Chaverri, Andrés Navarrete, Rachel Mata*

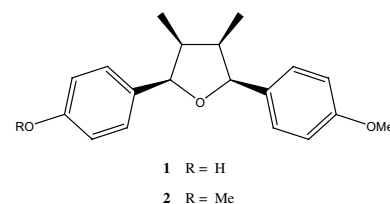
The extracts prepared from the stem barks of several Mexican copalchis (*Hintonia latiflora*, *Exostema caribaeum* and a commercial mixture of *Hintonia standleyana* and *E. caribaeum*) showed significant ($p < 0.05$) antihyperglycemic effects. From *H. latiflora*, the cucurbitacin **1**, and several other known compounds, were isolated. Oral administration of *H. latiflora* extract [100 mg/kg] and **5** (30 mg/kg) to STZ-diabetic rats over a 30 day duration restored normal blood glucose levels. It was also demonstrated that the extract of *H. latiflora* regulated hepatic glycogen and plasma insulin levels.



α-Glucosidase inhibitory constituents from stem bark of *Terminalia superba* (Combretaceae)

Jean Duplex Wansi*, Marie-Christine Lallemand, David Daco Chiozem, Flavien Aristide A. Toze, Luc Meva'a Mbaze, Shamsun Naharkhan, Muhammad Choudhary Iqbal, François Tillequin, Jean Wandji, Zacharias Tanee Fomum

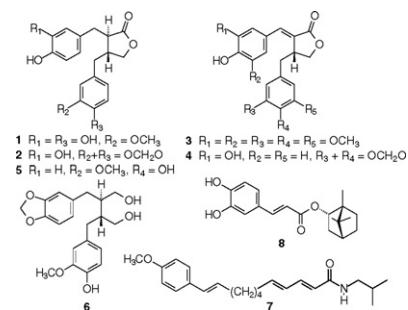
The CH₂Cl₂/CH₃OH (1/1) extract of the stem bark of *Terminalia superba* afforded two compounds, (7*S*,8*R*,7'*R*,8'*S*)-4'-hydroxy-4-methoxy-7,7'-epoxylignan **1** and *meso*-(rel 7*S*,8*R*,7'*R*,8'*S*)-4,4'-dimethoxy-7,7'-epoxylignan **2**. All the isolated compounds were evaluated for their glucosidase inhibition activities. Gallic acid and methylgallate showed significant α-glucosidase inhibition activity.



Lignans, an amide and anti-platelet activities from *Piper philippinum*

Yu-Chang Chen, Chang-Hui Liao, Ih-Sheng Chen*

Investigation of the stem extract of *Piper philippinum* led to isolation of eight compounds, piperphilippinins I–VI (**1**–**6**), philippinamide (**7**) and (+)-bornyl caffeate (**8**) together with 26 known compounds. Among the isolates, (–)-3',4'-*O*,*O*-demethylenephinokinin (**10**) and 3,4-methylenedioxcinnamaldehyde (**23**) showed anti-platelet activities *in vitro*.

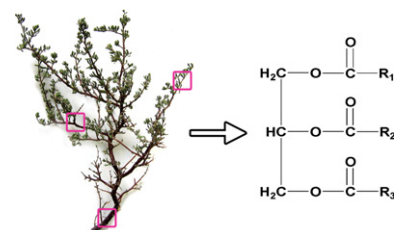


CHEMISTRY

Tetraena mongolica Maxim can accumulate large amounts of triacylglycerol in phloem cells and xylem parenchyma of stems

Geliang Wang, Qingqing Lin, Yinong Xu*

The triacylglycerol content and the oleosome distribution in different stem tissues of *Tetraena mongolica* were investigated. Phloem cells and xylem parenchyma contained large amount of oleosomes indicating that these cells have the high ability to accumulate triacylglycerols in *T. mongolica*.

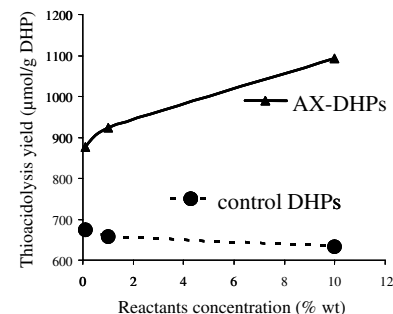


Effect of reaction media concentration on the solubility and the chemical structure of lignin model compounds

pp 2118–2125

Abdellatif Barakat, Brigitte Chabbert, Bernard Cathala*

In order to investigate the impact of the concentration reaction medium on the structure of lignin model compounds (DHPs = dehydrogenation polymers), we synthesized lignin model compounds with and without xylans at various concentrations. Results indicate that the frequency of β -alkyl aryl ether bonds, molecular weight and solubility of DHP increase with the concentration of the reaction medium in presence of xylans.

**OTHER CONTENTS****Announcement: The Phytochemical Society of Europe**

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