Editorial

Increasing our Impact

Alison J. Green


Developments at Australian Journal of Chemistry—an International Journal for Chemical Science cooked up over the past few years have come to the boil in 2004 and we look forward to serving you a banquet in 2005. We invite you to dine on our increased impact factor and feast on our enhanced electronic features.

Review

Olefin Metathesis: Catalyst Development, Microwave Catalysis, and Domino Applications

Steven G. Aitken, Andrew D. Abell


Olefin metathesis is reviewed, with reference to the historical development of functional catalysts (such as the one shown) and improved reaction conditions. These developments can be applied to ‘atom economic’ and ‘green’ approaches to complex and difficult to prepare synthetic targets.

Rapid Communications

Whole-Cell Biotransformation of m-Ethyltoluene into 1S,6R-5-Ethyl-1,6-dihydroxycyclohexa-2,4-diene-1-carboxylic Acid as an Approach to the C-Ring of the Binary Indole–Indoline Alkaloid Vinblastine

Martin G. Banwell, Alison J. Edwards, David W. Lupton, Gregg Whited


The microorganism Pseudomonas putida BGXM1 biotransforms m-ethyltoluene (right structure) in the metabolite shown (left), the absolute stereochemistry of which has been established through single-crystal X-ray analysis of a derivative incorporating a heavy atom.

Spongosoritin A: A New Polyketide from a Fijian Marine Sponge, Spongosorites sp.

Robert J. Capon, Sachin Singh, Sadaquat Ali, Subramaniam Sotheeswaran


Spongosoritin A (shown), isolated from the title sponge species, is a rare α,β-unsaturated γ-lactone. This differs markedly from the bis-indole alkaloids more typically associated with the genus Spongosorites.
Enhanced Anti-Fungal Activity of the Organo-Soluble Borate Ester, Tetra-n-butylammonium Bis(ortho-hydroxymethylphenolate)borate

Jenny M. Carr, Peter J. Duggan, David G. Humphrey, Edward M. Tyndall


Functional and Highly Spatially Resolved ESR Imaging

Malte Drescher


Full Papers

Synthesis, Characterization, and Non-Linear Optical Properties of Two New Symmetrical Two-Photon Photopolymerization Initiators

Yunxing Yan, Xutang Tao, Guibao Xu, Huaping Zhao, Yuanhong Sun, Chuankui Wang, Jiaxiang Yang, Xiaoqiang Yu, Xian Zhao, Minhua Jiang


A Scalable Stereoselective Synthesis of Scymnol

Raju Adhikari, Darren J. Cundy, Craig L. Francis, Mariana Gebara-Coghlan, Beata Krywult, Carolyn Lubin, Gregory W. Simpson, Qi Yan


Secondary Metabolites from the Marine Alga Caulerpa brownii (Chlorophyta)

Jackie T. Handley, Adrian J. Blackman


The anti-fungal activity of the title borate ester, prepared here for the first time, is substantially higher than that of Na[B(o-hmp)2] and the reactants used in its preparation—boric acid, the phenol (o-hmpH2), and simple NBu4 salts (o-hmp = ortho-hydroxymethylphenolate).

ESR imaging is technically demanding but the number of applications is growing steadily, such as for functional imaging of biological objects or spatially resolved detection of reactions. Described here is a method to increase the resolution of ESR imaging to 10 µm by means of back-projection reconstruction. Shown is an ESR image of two crystals separated by a thin polymeric film.

Two new symmetrical two-photon photopolymerization initiators (pictured) were synthesized from triphosphonium chloride by a Wittig and Pd(II)-catalyzed Heck coupling methodology. One- and two-photon fluorescence were investigated. Two-photon polymerization microfabrication experiments were carried out using the initiators and a possible photopolymerization mechanism is discussed.

Scymnol (shown), a derivative of which was isolated from the gall bladder of the shark Scymnus borealis, has been found to be biologically active against various skin conditions and liver dysfunction. Described here is a stereoselective and high-yielding synthesis of scymnol from cholic acid that is amenable to large-scale processing.

Caulerpa species, found worldwide, yield terpenoid metabolites with aldehyde or enol acetate functional groups and these compounds have been shown to exhibit significant biological (cytotoxic, ichthyotoxic, antimicrobial) properties. Reported here is the isolation and structural elucidation of a number of secondary metabolites from C. brownii, such as the terpenoid ester shown.
5-Nitrosalicylic Acid and its Proton-Transfer Compounds with Aliphatic Lewis Bases

Graham Smith, Andy W. Hartono, Urs D. Wermuth, Peter C. Healy, Jonathan M. White, A. David Rae


A New Two-Armed Colorimetric Chemosensor for Fluoride

Jin-Long Wu, Yong-Bing He, Lan-Hua Wei, Ling-Zhi Meng, Ting-Xian Yang, Xin Liu


Short Communications

1-Ribose: an Easily Prepared Rare Sugar

Stephen J. Angyal


Novel and Disparate Hydrogen-Bonding Associations in 13-Amino-6-hydroxy-13-methyl-1,4,8,11-tetraazacyclotetradecane Tetrahydrochloride Monohydrate

Jack M. Harrowfield, Yang Kim, Young Hoon Lee, Gareth L. Nealon, Brian W. Skelton, Allan H. White


Cyclic α-Amino Acids via Enantioselective Metal-Catalyzed Cascade Reactions of Dienamides in Supercritical Carbon Dioxide

Euneace Teoh, W. Roy Jackson, Andrea J. Robinson

Focus

Chain Transfer Agents for RAFT Polymerization: Molecules to Design Functionalized Polymers

Pittaya Takolpuckdee


A succinct overview of the development and use of reversible addition fragmentation chain transfer agents (an example is shown) is given. A particular focus is on their use to generate amphiphilic block copolymers or biodegradable block copolymers and for grafting polymers onto cotton.

Book Reviews

Michael H. Benn p. 67

Uta Wille p. 68

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