

AUSTRALIAN JOURNAL OF CHEMISTRY

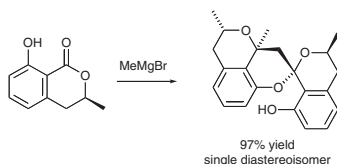
AN INTERNATIONAL JOURNAL FOR CHEMICAL SCIENCE

Communications

A Serendipitous Synthesis of the Novel Spiroacetal Core of Cynandione B

Leonie M. Tewierik, Christopher D. Donner, Jonathan M. White, Melvyn Gill

Aust. J. Chem. **2007**, *60*, 89–92.



The spiroacetal core of cynandione B is prepared from the isochromenone (*S*)-mellein. Interestingly the expected lactol product dimerizes to form the spiroacetal shown as a single diastereoisomer.

Structural Characterization of a Pentapeptide Derived from a Novel Carbohydrate α -Amino Acid

Adrian Scaffidi, Brian W. Skelton, Robert V. Stick, Allan H. White

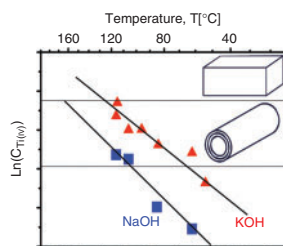
Aust. J. Chem. **2007**, *60*, 93–94.

Carbohydrate amino acids are interesting hybrids of two important classes of biomolecules. This article reports the structure of a protected carbohydrate α -amino acid pentapeptide, found to be stabilized by inter-residue hydrogen-bonds.

Low-Temperature Synthesis of Titanate Nanotubes in Aqueous KOH

Dmitry V. Bavykin, Barbara A. Cressey, Frank C. Walsh

Aust. J. Chem. **2007**, *60*, 95–98.



The alkaline hydrothermal treatment of TiO_2 results in formation of either nanotubes or nanofibres. The nanotubes are formed at 100–160°C in NaOH or at lower temperatures ca. (55–115°C) in KOH. In both cases, the concentration of dissolved titanium(IV) is in a similar range.

Full Papers

Kinetic Studies on the Synthesis of Hydroxyapatite Nanowires by Solvothermal Methods

Shiying Zhang, Chen Lai, Kun Wei, Yingjun Wang

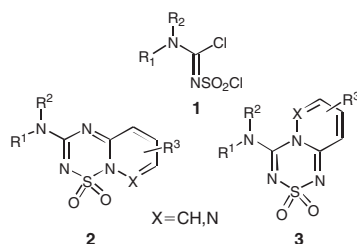
Aust. J. Chem. **2007**, *60*, 99–104.

Hydroxyapatite (HA) is a biocompatible implant material that can induce the growth of bones. Here the kinetics of the reaction and growth of HA nanowires synthesized by solvothermal methods is investigated. The overall reaction rate is controlled by the rate of reverse micelle diffusion and the rate of the actual reaction, the former being rate determining at lower temperatures. The mechanism of growth is shown to be surfactant controlled and follows a one-dimensional model.

***N,N*-Dialkyl-*N'*-Chlorosulfonyl Chloroformamidines in Heterocyclic Synthesis. III. Pyrido- and Pyridazo-Fused [1,2,4,6]Thiatriazine Dioxides**

Teresa Cablewski, Erin J. Carter,
Craig L. Francis, Andris J. Liepa,
Michael V. Perkins

Aust. J. Chem. **2007**, 60, 105–112.



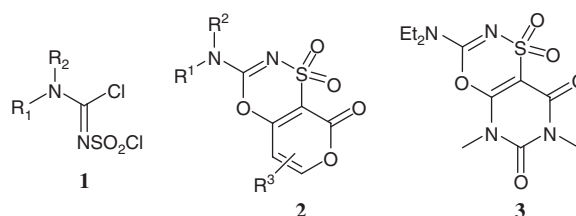
N,N-dialkyl-*N'*-chlorosulfonylchloroformamidines **1** are versatile 1,3-dielectrophilic intermediates for the synthesis of new heterocyclic compounds. This paper reports the preparation and characterization of a series of novel, fused [1,2,4,6]thiatriazine dioxides **2** and **3** by the reaction of **1** with 2-aminopyridines or 3-aminopyridazines. The regioselectivity of the reactions and properties of the products are discussed.

***N,N*-Dialkyl-*N'*-Chlorosulfonyl Chloroformamidines in Heterocyclic Synthesis. IV. 3-Dialkylamino-1,1,8-trioxo-1*H*-1 λ ⁶-pyrano[3,4-*e*][1,4,3]oxathiazines**

Teresa Cablewski, Craig L. Francis,
Andris J. Liepa

Aust. J. Chem. **2007**, 60, 113–119.

In an extension of the use of *N,N*-dialkyl-*N'*-chlorosulfonylchloroformamidines **1** for the synthesis of new heterocyclic compounds, the preparation and characterization of some pyrano[3,4-*e*][1,4,3]oxathiazine trioxides **2** by the reaction of **1** with 4-hydroxy-2-pyrone derivatives is reported. A pyrimido[5,4-*e*][1,4,3]oxathiazine tetraoxide **3** was similarly prepared from 1,3-dimethylbarbituric acid. Both **2** and **3** are derivatives of hitherto unknown ring systems.

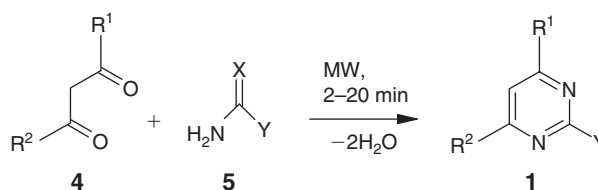


Microwave-Expedited One-Pot, Two-Component, Solvent-Free Synthesis of Functionalized Pyrimidines

Shyamaprosad Goswami, Subrata Jana,
Swapan Dey, Avijit Kumar Adak

Aust. J. Chem. **2007**, 60, 120–123.

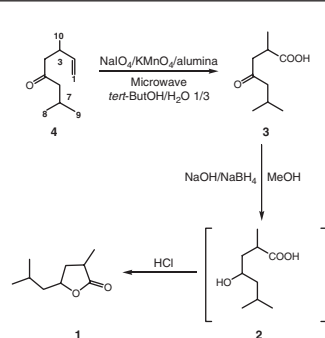
A simple, efficient, solvent- and catalyst-free synthesis of alkyl/aryl substituted functionalized pyrimidines is described. Nucleophilic substrates including β -dicarbonyl compounds, ethyl cyanoacetate, malononitrile, and chalcones were irradiated with microwaves, and N-C-N unit they contain was cyclized to give pyrimidines. Microwave irradiation reduces the reaction time from hours to minutes.



Microwave-Assisted Mild Conversion of Natural Dihydrotagetone into 5-Isobutyl-3-methyl-4,5-dihydro-2(3*H*)-furanone, an Analogue of Whisky Lactone

Arun K. Sinha, Bhupendra P. Joshi,
Anuj Sharma, Vinod Kumar,
Ruchi Acharya

Aust. J. Chem. **2007**, 60, 124–127.



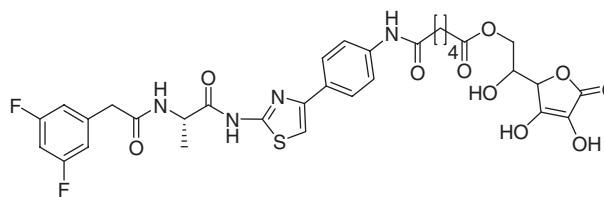
A microwave assisted protocol for the synthesis of coconut-flavoured 5-isobutyl-3-methyl-4,5-dihydro-2(3*H*)-furanone, an analogue of FEMA approved whisky lactone, is developed. The methodology is simple, mild, and utilizes abundantly available natural dihydrotagetone obtained from *Tagetes minuta*. The synthesized product has significant potential for exploration as a flavoring agent in food and beverages.

Thiazolamide–Ascorbic Acid Conjugate: a γ -Secretase Inhibitor with Enhanced Blood–Brain Barrier Permeation

Younes Laras, Mahmoud Sheha,
Nicolas Pietrancosta, Jean-Louis Kraus

Aust. J. Chem. **2007**, *60*, 128–132.

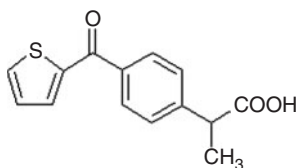
A major problem of current brain disease therapy is the delivery of drugs to the central nervous system. Here, a γ -secretase inhibitor bearing an ascorbic acid moiety is designed that allows specific delivery of the drug to the brain. A β -peptide production measurements and pharmacokinetic studies reveal a good pharmacokinetic profile, as well as potent γ -secretase inhibitory activity in vitro.



Structural and Thermal Characterization of Cyclodextrin–Suprofen Complexes

Pamela M. Dean

Aust. J. Chem. **2007**, *60*, 133–138.



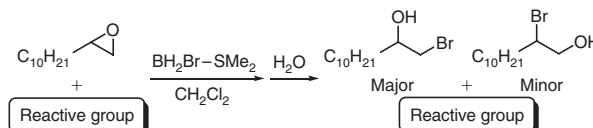
The inclusion of pharmaceuticals within cyclodextrins is a traditional method of solubility enhancement, whereby the physico-chemical properties of the drug is altered due to the supramolecular construction. In this study the inclusion of the non-steroidal anti-inflammatory drug Suprofen with β -cyclodextrin and trimethylated cyclodextrin is crystallographically and thermally characterized.

Monobromoborane–Dimethyl Sulfide—a Highly Promising Reagent for the Regio- and Chemoselective Brominative Cleavage of Terminal Epoxides into Vicinal Bromohydrins

Chandra D. Roy, Herbert C. Brown

Aust. J. Chem. **2007**, *60*, 139–145.

Halohydrins are highly useful intermediates in the synthesis of marine natural products and pharmaceuticals. A highly practical method for the regio- and chemoselective preparation of bromohydrins from epoxides utilizing the commercially available reagent is described. This new procedure is simple, convenient and high yielding that should find applications in organic synthesis.



Communication

A Green and Efficient Synthesis of 9-Aryl-3,4,5,6,7,9-hexahydroxanthene-1,8-dione using a Task-Specific Ionic Liquid as Dual Catalyst and Solvent

Jingjun Ma, Xin Zhou, Xiaohuan Zang,
Chun Wang, Zhi Wang, Jingci Li,
Qing Li

Aust. J. Chem. **2007**, *60*, 146–148.

There has been a growing interest in using ionic liquids as green media in organic synthesis. An efficient method for the preparation of 9-aryl-3,4,5,6,7,9-hexahydro-1*H*-xanthene-1,8(2*H*)-dione was developed using functionalized ionic liquids [bmim]HSO₄ as catalyst and reaction media. This is a novel green approach for the synthesis of xanthenedione derivatives.

