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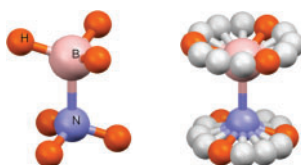
AN INTERNATIONAL JOURNAL FOR CHEMICAL SCIENCE

Full Papers

Room-Temperature Structure of Ammonia Borane

Mark E. Bowden, Graeme J. Gainsford,
Ward T. Robinson

Aust. J. Chem. **2007**, *60*, 149–153.

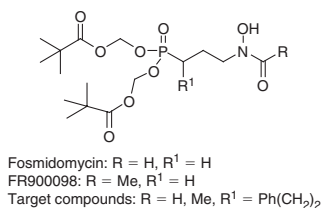


Ammonia borane (BH_3NH_3) is an option for hydrogen storage, yet the H atom positions in the room-temperature crystal structure are not determined. X-Ray measurements show that H atoms are in halos around B and N atoms, with either random or freely-rotating orientation. H atoms on adjacent molecules approach within 1.9 Å of one another, and may contribute to hydrogen evolution from the solid state below 100°C.

α -Phenylethyl Substituted Bis(pivaloyloxymethyl) Ester Analogues of Fosmidomycin and FR900098

Thomas Kurz, Christoph Behrendt,
Uwe Kaula, Bärbel Bergmann,
Rolf D. Walter

Aust. J. Chem. **2007**, *60*, 154–158.

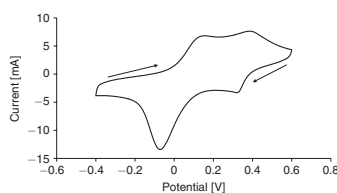


α -Phenylethyl substituted analogues of Fosmidomycin and FR900098 were synthesized and their in vitro antimalarial activity was determined. Due to their hygroscopicity, all phosphonic acids were converted into stable, non-hygroscopic bis(pivaloyloxymethyl) esters. The new analogues are significantly less active than the lead compounds.

Poly(2-methoxyaniline-5-sulfonic Acid)-Surfactant Complexes and Their Redox and Solvatochromic Behaviour

Simon E. Moulton, Yingpit Pornputtkul,
Leon A. P. Kane-Maguire,
Gordon G. Wallace

Aust. J. Chem. **2007**, *60*, 159–166.



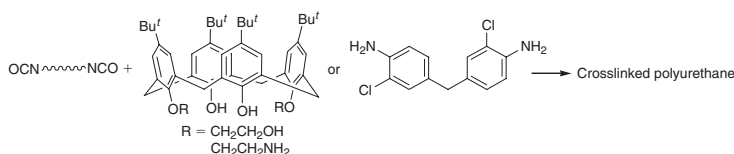
There is much current interest in self-assembled, amphiphilic polyelectrolyte-surfactant complexes based on biopolymer polyelectrolytes or synthetic polymers. This report describes the first examples of such surfactant complexes in which the polyelectrolyte, PMAS, is an anionic, electrically conducting polymer. The complexes exhibit fascinating solvatochromism related to changes in the PMAS conformation, while their electrical conductivity and reversible redox switching properties open up new potential uses.

Calix[4]arenes Used as a New Type of Chain Extender in the Preparation of Polyurethanes

Qin Zheng, Shuling Gong,
Haiqing Dong, Yuanyin Chen

Aust. J. Chem. **2007**, *60*, 167–172.

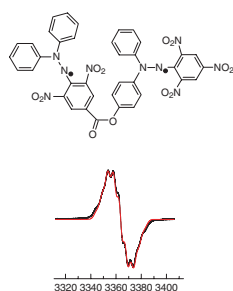
Calixarene-containing polyurethanes (PUs) are useful as metal ion sequestrants and encapsulants. Here, novel PUs that employ calixarene derivatives as the chain extender are synthesized. As a result of their structure and residual hydroxy groups, the presence of the calixarene moieties improves the thermal resistance and mechanical properties of the PU.



Synthesis and Characterization of Some Novel Homo- and Hetero-Diradicals of Hydrazyl and Nitroxide Type

Petre Ionita, Floriana Tuna,
Marius Andruh, Titus Constantinescu,
Alexandru T. Balaban

Aust. J. Chem. **2007**, 60, 173–179.

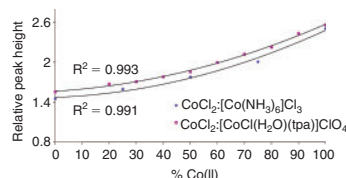


Stable biradicals are compounds with very attractive properties. Homo- and hetero-stable biradicals of hydrazyl and nitroxide type were synthesized and characterized. These new compounds have multifunctional properties (acid–base, redox, and magnetic) that are easily monitored by different spectroscopic techniques.

Using XANES to Monitor the Oxidation State of Cobalt Complexes

Matthew D. Hall, Clare K. Underwood,
Timothy W. Failes, Garry J. Foran,
Trevor W. Hambley

Aust. J. Chem. **2007**, 60, 180–183.



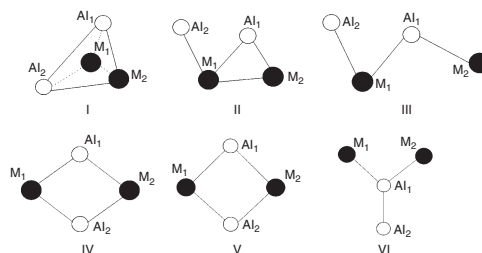
Cobalt(III) complexes are of interest in cancer drug design as chaperones for bioactive ligands, yet the fate of Co^{III} complexes in biological systems is poorly understood. XANES was used to discern between Co^{II} and Co^{III} , and monitor reactions with biological reductants. The pharmacokinetic robustness of Co^{III} can be investigated using XANES to improve drug design.

Ab Initio Study of the Structure and Stability of M_2Al_2 ($\text{M} = \text{Cu}, \text{Ag}, \text{and Au}$) Clusters

FengLi Liu, YongFang Zhao, XinYing Li,
FengYou Hao

Aust. J. Chem. **2007**, 60, 184–189.

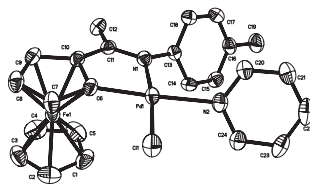
Ab initio calculations were carried out at the Hartree–Fock and second-order Møller–Plesset perturbation theory levels with pseudopotentials on M_2Al_2 ($\text{M} = \text{Cu}, \text{Ag}, \text{and Au}$) clusters. The butterfly structure with C_{2v} (1A_1) symmetry is more stable than the planar structure, and the Au_2Al_2 cluster is the most stable of the title species.



Synthesis, Characterization, and Crystal Structures of Three *cis/trans* Pyridine–Cyclopalladated Ferrocenylimine Complexes, and their Catalysis in Suzuki Reactions

Chen Xu, Jun-Fang Gong,
Yan-Hui Zhang, Yu Zhu, Yang-Jie Wu

Aust. J. Chem. **2007**, 60, 190–195.

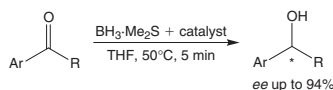


Palladacycles have wide applications in various fields such as organic synthesis. Here, three new pyridine–cyclopalladated ferrocenylimine complexes **2a–c** are reported. Palladacycles **2b** and **2c** adopt the expected *trans* configuration of the coordinated pyridine to the imino nitrogen while **2a** is *cis*. The utility of the complexes for Suzuki reactions is investigated.

Syntheses of 1,2-Amino Alcohols and Their Applications for Oxazaborolidine Catalyzed Enantioselective Reduction of Aromatic Ketones

Namdev S. Vatmurge, Braja G. Hazra,
Vandana S. Pore

Aust. J. Chem. **2007**, 60, 196–204.

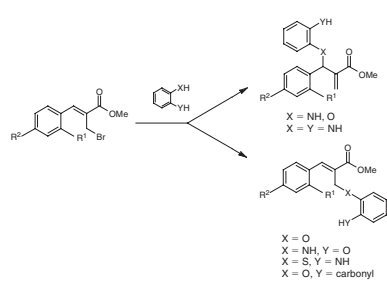


The design of an asymmetric transformation reaction is a great challenge in organic chemistry. This paper describes the oxazaborolidine-catalyzed enantioselective reduction of aromatic ketones with the title amino alcohols. The secondary alcohols were obtained in fair to excellent enantiomeric excess (up to 94%).

Functionalization of Baylis–Hillman Bromides with Symmetric and Asymmetric Bifunctional Aromatics

Yusuf Zulykama,
Paramsasivan T. Perumal

Aust. J. Chem. **2007**, 60, 205–210.



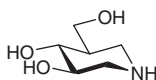
Multifunctional molecules are useful tools for organic chemists. Synthesis of densely functionalized molecules by the nucleophilic substitution of Baylis–Hillman bromides with symmetric and unsymmetric bifunctional aromatics is reported. These densely functionalized substitution products are good synthetic intermediates for a variety of further chemical transformations.

Communications

An Expedient Synthesis of Isofagomine

Ethan D. Goddard-Borger, Robert V. Stick

Aust. J. Chem. **2007**, 60, 211–213.

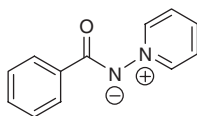


Isofagomine has attracted considerable synthetic attention over the years owing to its strong inhibition of a range of glycoside hydrolases. Currently, the most expedient synthesis of isofagomine begins with expensive L-xylose and involves two inefficient reactions, problems the authors have circumvented by starting with inexpensive D-arabinose. This procedure allows for the rapid preparation of isofagomine on a multigram scale in high overall yields, potentially improving the availability of this important inhibitor.

The First Aminimide Synthesis from Benzoyl Azide and Pyridine

Ben Capuano, Ian T. Crosby,
Edward J. Lloyd, Juliette E. Neve

Aust. J. Chem. **2007**, 60, 214–217.

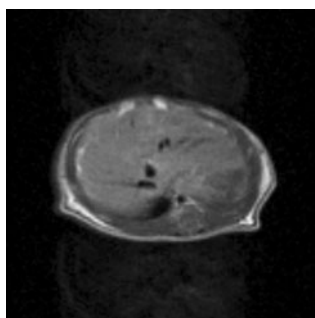


This paper describes a new method for making an important class of compounds (pictured). The reaction of benzoyl azide and pyridine affords an aminimide; a type of compound whose inner salt nature makes them of interest in a variety of applications. This represents a new synthetic approach to this family of zwitterionic compounds.

Synthesis, Relaxivity, and T_1 Relaxation Enhancement of Binuclear Gadolinium(III) Complexes Based on DTPA or EDTA and Long-Chain Alkyl Esters of L-Lysine

Kaichao Yu, Yousef Hamdan,
Fuxian Wan, Yinxia Li, Kaixun Huang,
Jinlan Zhou

Aust. J. Chem. **2007**, 60, 218–222

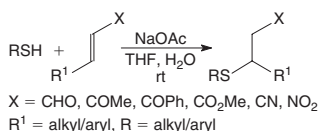


Eight novel long-chain alkyl esters of L-lysine ligands and the corresponding dimeric Gd^{III} complexes were synthesized and characterized. All complexes showed higher longitudinal relaxivity (R_1) than Magnevist. Determination of the acute toxicity and compared T_1 -weighted imaging of some prepared complexes and Magnevist on a live rat was carried out.

A Simple, Efficient, and Green Procedure for the 1,4-Addition of Thiols to Conjugated Alkenes and Alkynes Catalyzed by Sodium Acetate in Aqueous Medium

Brindaban C. Ranu, Tanmay Mandal

Aust. J. Chem. **2006**, 60, 223–227.



The 1,4-addition of thiols to conjugated alkenes leads to the synthesis of compounds with promising biological activities. Many of these syntheses use catalysts and solvents that are not environmentally friendly. The title procedure provides very high yields of products and thus presents a practical green alternative to the existing procedures.