

AUSTRALIAN JOURNAL OF CHEMISTRY

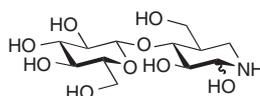
AN INTERNATIONAL JOURNAL FOR CHEMICAL SCIENCE

Full Papers

D-Glucosylated Derivatives of Isofagomine and Noeuromycin and Their Potential as Inhibitors of β -Glycoside Hydrolases

Peter J. Meloncelli, Tracey M. Gloster, Victoria A. Money, Chris A. Tarling, Gideon J. Davies, Stephen G. Withers, Robert V. Stick

Aust. J. Chem. **2007**, *60*, 549–565.



Disaccharide-like 3- and 4-*O*- β -D-glucopyranosylisofagomines are strong inhibitors of *endo*-glycosidases, whereas isofagomine and noeuromycin are only weakly so. To emulate the success of the former, 3- and 4-*O*- β -D-glucopyranosylnoeuromycin have been prepared. Their complexation and inhibition of a range of enzymes is evaluated. The ability of these compounds to harness the adjacent sub-sites on the enzymes contributes to their enhanced affinities.

A Study of the Heck Reaction in Non-Polar Hydrocarbon Solvents and in Supercritical Carbon Dioxide

Jin-Kyun Lee, Rachel M. Williamson, Andrew B. Holmes, Edward J. Bush, Ian F. McConvey

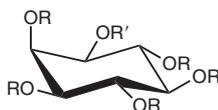
Aust. J. Chem. **2007**, *60*, 566–571.

Electronic and steric properties of phosphorus ligands for Heck reactions of halobenzenes with acrylate esters in *sc*CO₂ and non-polar hydrocarbon solvents are studied. Higher yields are obtained with less electron-rich phosphine ligands and with the electron-poor triphenyl phosphite. High yielding Heck reactions in *sc*CO₂ are also achieved with a selection of biphenyl-containing phosphite ligands.

Inositols: The Effect of Bulky Substituents on Conformations

Stephen J. Angyal, J. Edgar Anderson, Donald C. Craig

Aust. J. Chem. **2007**, *60*, 572–577.

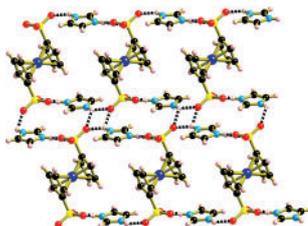


Large axial substituents on cyclohexane stabilize the normal chair conformation. However, if they are very large, they may have the opposite effect. Inositols substituted by triphenylsilyl groups have been studied. Only five of these groups could be introduced. In two cases, the resulting substituted inositols were fully in the inverted chair form. Two others were in the normal chair form.

Ferrocene Mono- and Di-Sulfonates as Building Blocks in Hydrogen-Bonded Networks

Jingli Xie, Brendan F. Abrahams, Tobias J. Zimmermann, Arindam Mukherjee, Anthony G. Wedd

Aust. J. Chem. **2007**, *60*, 578–582.



The influence of a variety of hydrogen-bonding cations on the arrangement of ferrocene mono- and di-sulfonate anions within the crystalline state has been investigated. In three of four cases, the cations encourage the generation of layer-type structures.

Stereochemical Study of 2-Substituted *N*-Vinylpyrroles

Leonid B. Krivdin, Yury Yu. Rusakov,
Elena Yu. Schmidt,
Al'bina I. Mikhaleva,
Boris A. Trofimov

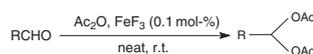
Aust. J. Chem. **2007**, *60*, 583–589.

Stereochemical study of the *N*-vinylpyrroles obtained via the Trofimov reaction has been carried out by means of NMR and high-level *ab initio* calculations. The title compounds were shown to adopt a predominantly skewed *s-trans* conformer with a noticeable population of the higher-energy skewed *s-cis* conformation. Conformational behaviour of the functionalized *N*-vinylpyrroles plays an important role in their reactivity and practical properties.

A Facile and Efficient Conversion of Aldehydes into 1,1-Diacetates (Acylals) using Iron(III) Fluoride as a Novel Catalyst

V. T. Kamble, R. A. Tayade,
B. S. Davane, K. R. Kadam

Aust. J. Chem. **2007**, *60*, 590–594.

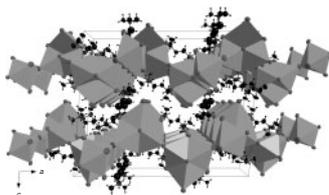


Aldehydes are smoothly converted into the corresponding 1,1-diacetate (acylals) in high yields in the presence of a catalytic amount (0.1 mol-%) of iron(III) fluoride at room temperature. The activity, selectivity, reusability, and low cost of the catalyst lends itself to use for chemoselective protection in large-scale syntheses.

Synthesis, Characterization, and Electronic Structures of Organically Templated Lead Halides with One- and Two-Dimensional Hybrid Structures, [(nbq)(PbI₃)]_n and {[(CH₃)₃NC₂H₄N(CH₃)₃]₃(Pb₆I₁₈)_n}

Hao-Hong Li, Zhi-Rong Chen,
Liang-Qia Guo, Kai-Ning Ding,
Jun-Qian Li, Chang-Cang Huang,
Zeng-Liang Cai

Aust. J. Chem. **2007**, *60*, 595–602.



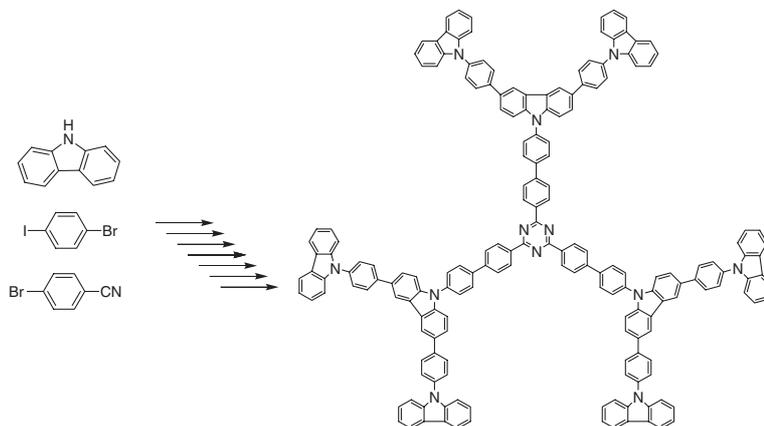
Two new organically templated lead(II) iodide complexes have been synthesized with aromatic and aliphatic quaternary ammonium compounds as structure-directing agents. These two compounds present one- and two-dimensional arrangements constructed from vertex, edge or face-sharing of distorted PbI₆ tetrahedra. DFT calculations indicate that they exhibit semiconductor or conductive properties tuned by different structure-directing agents.

Synthesis and Functional Properties of Star-Burst Dendrimers that Contain Carbazole as Peripheral Edges and Triazine as a Central Core

Mo Jun Xiong, Zhong Hui Li,
Man Shing Wong

Aust. J. Chem. **2007**, *60*, 603–607.

Two novel star-burst dendrimers **1** and **2**, constructed with carbazole as peripheral edges and triazine as a central core, have been synthesized by a convergent approach using palladium-catalyzed Suzuki cross-coupling as a key reaction. Their functional properties (which may lead to applications as electron-transporting materials) have also been investigated.

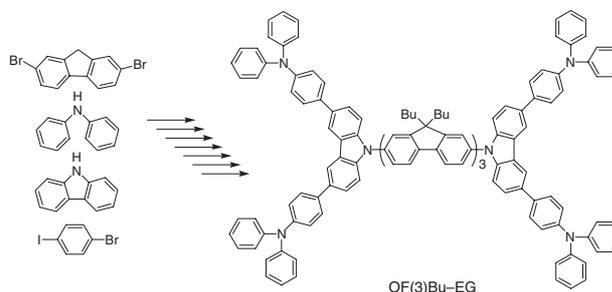


End-Capped Terfluorene Derivatives: Synthesis and Structure–Functional Property Relationships

Mo Jun Xiong, Zhong Hui Li,
Man Shing Wong

Aust. J. Chem. **2007**, *60*, 608–614.

A series of monodisperse symmetric terfluorenes end-capped with diphenylamino groups or dendrons based on triarylamino and carbazole moieties (see Fig.) have been synthesized by a convergent approach using palladium-catalyzed Suzuki cross-coupling or copper-catalyzed Buchwald's amination as the key reaction. The functional properties of these terfluorene derivatives have also been investigated and discussed.

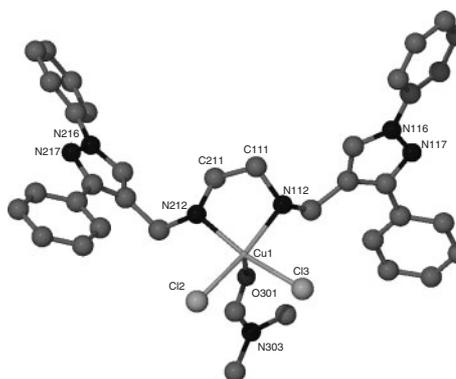


Copper(II) Complexes with Reduced Schiff Base: Synthesis, Spectroscopic, Thermal, X-Ray, and Cytotoxic Studies of Novel Copper(II) Complexes with an Arylpyrazole Ligand

Vukadin M. Leovac, Petra Bombicz,
Katalin Mészáros Szécsényi,
Milan D. Joksović

Aust. J. Chem. **2007**, *60*, 615–620.

In an effort to produce pyrazole-based complexes, many of which show useful biological activity, an interesting new arylpyrazole-derived ligand, 1,2-bis[(1,3-diphenylpyrazol-4-yl)methyl] diaminoethane (Ph₄Pz₂mde), and its copper(II) complexes are synthesized. The compounds are fully characterized, and a crystal structure of [Cu(Ph₄Pz₂mde)Cl₂(DMF)] is given (see Fig.). The antiproliferative potential of the synthesized compounds is also determined in vitro against several human tumour cell lines.



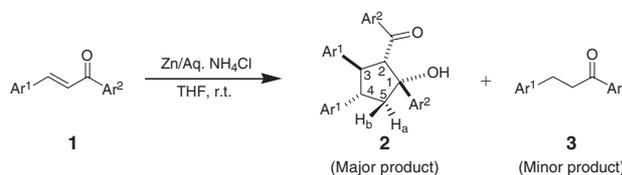
Communications

Zinc-Mediated Reductive Cyclodimerization of α,β -Unsaturated Aryl Ketones Under Aqueous Conditions

Anil Kumar, Satish Kumar,
Kamal K. Kapoor

Aust. J. Chem. **2007**, *60*, 621–623.

In the search for an eco-friendly alternative to conventional organometallic reactions in anhydrous organic solvents the authors report the reductive cyclodimerization of α,β -unsaturated aryl ketones by using zinc metal in the presence of (non-toxic) aqueous NH₄Cl. 3,4-*trans*-Diarylcyclopentanols **2** are produced regio- and stereoselectively in good yields.



Synthesis of 5-Phenyl 2-Functionalized Pyrroles by Amino Heck and Tandem Amino Heck Carbonylation Reactions

Shazia Zaman, Mitsuru Kitamura,
Andrew D. Abell

Aust. J. Chem. **2007**, *60*, 624–626.

The amino Heck cyclization and tandem amino Heck carbonylation of an alkynyl oxime *O*-pentafluorobenzoate is reported for the first time. The C–N/C–C tandem sequence provides an attractive route to 5-phenyl 2-functionalized pyrroles in one-pot reaction from easily available substrates under mild conditions.

