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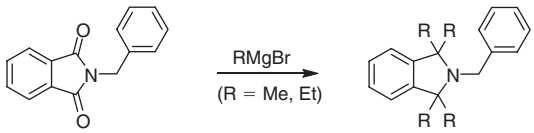
Opinion Essay

Focussing on the concept of intrinsic radical stability, it is argued that chemical concepts are not reducible to quantum mechanics. Even though the concept of intrinsic radical stability makes little or no sense in quantum mechanical terms, we argue that it is nonetheless possible to define measures of it that are of great practical use, so long as they are used with careful attention to their limitations.

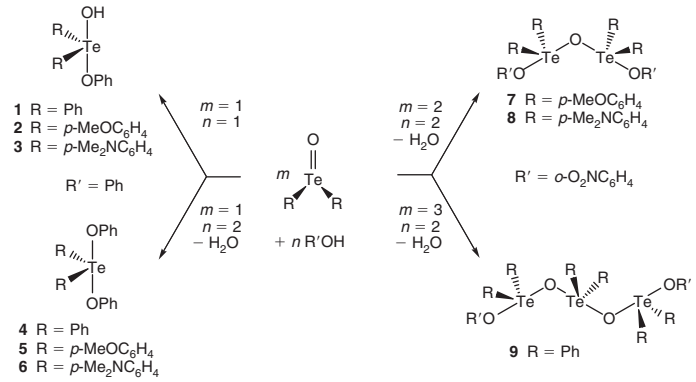
Rapid Communication

1,1,3,3-Tetraalkylisoindolines are important intermediates in the preparation of stable nitroxides such as 1,1,3,3-tetramethylisoindolin-2-oxyl and 1,1,3,3-tetraethylisoindolin-2-oxyl. The limiting step in their preparation is the Grignard reaction between *N*-benzylphthalimide and an alkyl magnesium halide, which has been optimized to give improved yields and reduced reaction times.



Full Papers

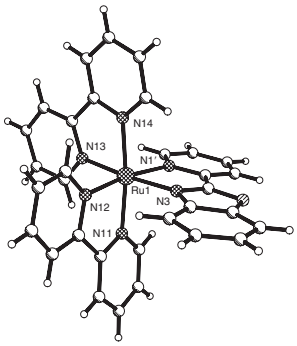
The reaction of diorganotellurium oxides with phenol and *o*-nitrophenol is surprisingly diverse and provides four different classes of hypervalent products **1**–**9**. The di- and trinuclear compounds **7**–**9** are associated by secondary Te···O contacts in the solid-state. The Te–O bonds are kinetically labile in solution.



Ruthenium(II) Complexes of Chelating Ligands Containing Benzoxazole and Benzothiazole Subunits: Synthesis, X-Ray Crystallography, Spectroscopy, and Electrochemistry

Chris Richardson, F. Richard Keene, Peter J. Steel

Aust. J. Chem. **2008**, *61*, 183–188.

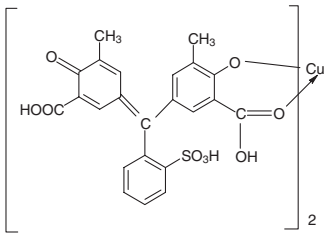


Despite their ease of synthesis, benzoxazoles and benzothiazoles have been curiously ignored as coordinating subunits in ruthenium complexes. Here, bis(2,2′-bipyridyl)ruthenium(II) complexes of four chelating ligands that contain benzoxazole or benzothiazole rings have been prepared and fully characterized. The incorporation of these ring systems has a marked effect on the electronic properties of the resulting complexes.

Evaluation of Copper(II) Eriochrome Cyanine R (ECR) Complex Immobilized in Anion Exchange Membrane as a Potential Nitric Oxide Optical Sensor

Helen Dacres, Ramaier Narayanaswamy

Aust. J. Chem. **2008**, *61*, 189–196.



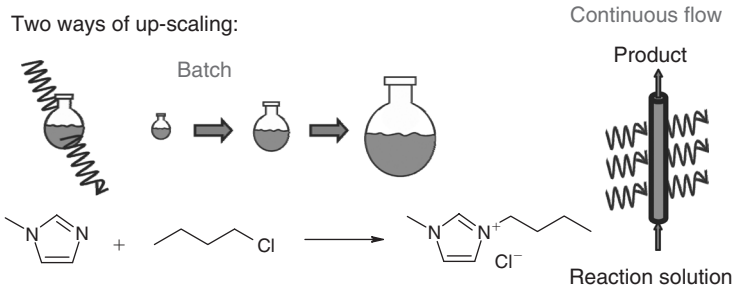
A new optical chemical sensor for detection of biologically derived nitric oxide (NO) is described here. The excellent sensitivity and selectivity demonstrated by a copper(II) complex-based sensor for NO would be useful for detection of levels of NO produced in various disease states. This sensor has potential medical applications in disease diagnosis and monitoring.

Scaling-up the Synthesis of 1-Butyl-3-methylimidazolium Chloride under Microwave Irradiation

Tina Erdmenger, Renzo M. Paulus, Richard Hoogenboom, Ulrich S. Schubert

Aust. J. Chem. **2008**, *61*, 197–203.

Ionic liquids have a broad field of applications, and the development of fast and simple methods for their synthesis is required. The synthesis of ionic liquids under microwave irradiation is known to produce ionic liquids with high purity in short times on a small scale. The reaction conditions for the small-scale synthesis were optimized and subsequently transferred to various microwave reactors, both batch and continuous flow, as well as mono-mode and multi-mode, for the direct up-scaling of the synthesis.



Formation of the C6–N–C20 Bridge for Entry into the Hetisane Skeleton

Oliver E. Hutt, Lewis N. Mander

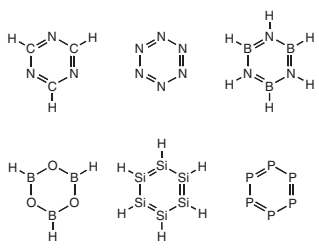
Aust. J. Chem. **2008**, *61*, 204–208.

Potent selective small molecules to probe the function of target proteins in the brain and central nervous system are in high demand for the study of neurological disorders. The C_{20}-diterpene alkaloids are one such class of small molecules, but to date their structural complexity has limited the full exploration of their potential. We now report a synthetic strategy that enables access to a potential pharmacophore, which meets some of the above need.

Aromaticity in Heterocyclic and Inorganic Benzene Analogues

Simon C. A. H. Pierrefixe, F. Matthias Bickelhaupt

Aust. J. Chem. **2008**, *61*, 209–215.

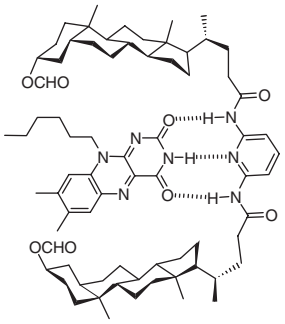


Are heterocyclic and inorganic benzene analogues highly symmetric six-membered rings because the π electrons prefer delocalized over localized double bonds? The answer is no, as follows from our quantitative Kohn–Sham molecular orbital analyses, which trace the driving force for adopting delocalized, partial double bonds to the σ-electron system. This finding nicely confirms and extends earlier work on the archetypal parent compound, benzene.

Recognition Properties of Flavin Analogues with Bile Acid-Based Receptors: Role of Steric Effects in Hydrogen Bond Based Molecular Recognition

Prosenjit Chattopadhyay, Rekha Nagpal, Pramod S. Pandey

Aust. J. Chem. **2008**, *61*, 216–222.

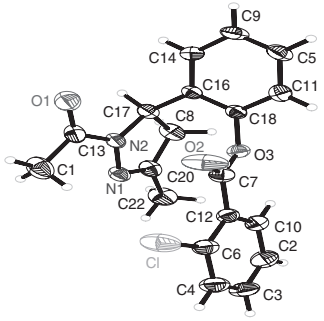


This paper describes the efficient synthetic procedures for 7,8-dimethyl flavin analogues and bile acid-based acyclic and cyclic receptors that contain a 2,6-diaminopyridine unit. The binding ability of these bile acid-based receptors for different flavin analogues has been studied. Binding studies highlight the importance of steric effects in the interaction of flavins with steroidal receptors.

Synthesis, Structure, and Antibacterial Activity of Novel 5-Arylpyrazole Derivatives

Xin-Hua Liu, Peng-Cheng Lv, Bo Li, Hai-Liang Zhu, Bao-An Song

Aust. J. Chem. **2008**, *61*, 223–230.



A series of novel 1-(acetyl,carboxamide, carbothioamide)substituted-5-(substituted-phenyl)-3-methy-4,5-dihydropyrazole derivatives are synthesized and screened for their antibacterial potential in vitro. Potent activity is observed for two compounds with MIC values of 1.562 $\mu g\,mL^{-1}$ against *B. subtilis* ATCC 6633, which is comparable to penicillin. Structural analysis has indicated that the 1-acetyl-4,5-dihydro-3-methyl-(5-(2-substitued-phenyl)-1*H*-pyrazole moiety has potential antibacterial activity.

Short Communication

Cyanuric Chloride: an Efficient Catalyst for Ring Opening of Epoxides with Thiols Under Solvent-Free Conditions

Babasaheb P. Bandgar, Neeta S. Joshi, Vinod T. Kamble, Sanjay S. Sawant

Aust. J. Chem. **2008**, *61*, 231–234.

A convenient and efficient ring opening of epoxides with thiols catalyzed by 2,4,6-trichloro-1,3,5-triazine under solvent-free conditions is reported. This methodology has the advantages of short reaction time, mild reaction conditions, inexpensive and readily available catalyst, and excellent yields of the products.