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Full Papers

Surface-Enhanced Raman Scattering Spectroscopy of Resveratrol

Jitraporn Vongsvivut, Evan G. Robertson,
Don McNaughton

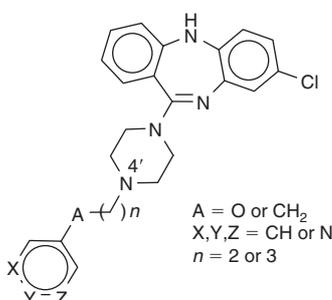
Aust. J. Chem. **2008**, *61*, 921–929.

Resveratrol, commonly found in grape skins and other plant extracts in low concentration, acts as an antioxidant and is a potential cancer preventative. We show that resveratrol can be detected at the low concentrations of its natural environment using a laser scattering technique where the signal is enhanced through surface interactions with metal nanoparticles.

Synthesis and Preliminary Pharmacological Evaluation of 4'-Arylalkyl Analogues of Clozapine. IV. The Effects of Aromaticity and Isosteric Replacement

Ben Capuano, Ian T. Crosby,
Edward J. Lloyd, Anna Podlouwka,
David A. Taylor

Aust. J. Chem. **2008**, *61*, 930–940.



This paper describes the synthesis and pharmacological evaluation of a series of novel chain-extended analogues of clozapine, for the potential treatment of schizophrenia. The synthesized compounds exhibited a favourable receptor binding affinity profile for the target receptors of interest. From the subsequent behavioural evaluation, three analogues have emerged as potential lead compounds for further evaluation as prospective antipsychotics.

Theoretical Study of the Adsorption of Carbon Monoxide on Pristine and Silicon-Doped Boron Nitride Nanotubes

Ruoxi Wang, Dongju Zhang

Aust. J. Chem. **2008**, *61*, 941–945.

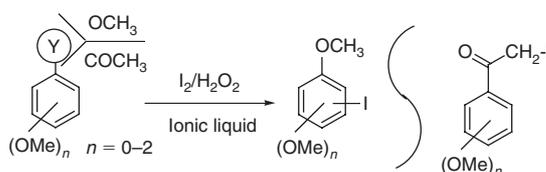
To explore the novel application of boron nitride nanotubes (BNNTs), reactivities of the pristine and silicon-doped (Si-doped) (8,0) single-walled BNNTs towards the CO molecule were investigated by performing density functional theory calculations. Compared with weak physisorption on the pristine BNNT, the CO molecule presents strong chemical interaction with the Si-doped BNNT. It is suggested that doping BNNTs with silicon is expected to be suitable strategy for adjusting the properties of BNNTs, and that Si-doped BNNTs are expected to find novel applications in nanotechnology.

Iodination of Organic Compounds with Elemental Iodine in the Presence of Hydrogen Peroxide in Ionic Liquid Media

Jasminka Pavlinac, Kenneth K. Laali,
Marko Zupan, Stojan Stavber

Aust. J. Chem. **2008**, *61*, 946–955.

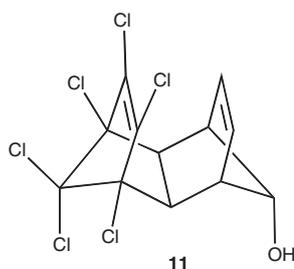
The efficiency, selectivity, mechanism, and the 'green' aspects of iodo-transformations using the reagent system I₂/H₂O₂ (where H₂O₂ is in two different forms, namely 30% aq. H₂O₂ and urea-H₂O₂ in solid form) are studied in ionic liquid. Both water-miscible 1-butyl-3-methyl imidazolium tetrafluoroborate (bmimBF₄) and water-immiscible 1-butyl-3-methyl imidazolium hexafluorophosphate (bmimPF₆) are used. The reusability/recycling of the latter is also explored.



X-Ray Structural Analysis of Ester and Ether Derivatives of 4,5-endo,endo-9,10-Dimethanonaphthalene-11-ol: Evidence for $\pi-\sigma_{CO}^*$ Participation in the Ground State

Wesley Jackson, Jonathan M. White

Aust. J. Chem. **2008**, *61*, 956–961.



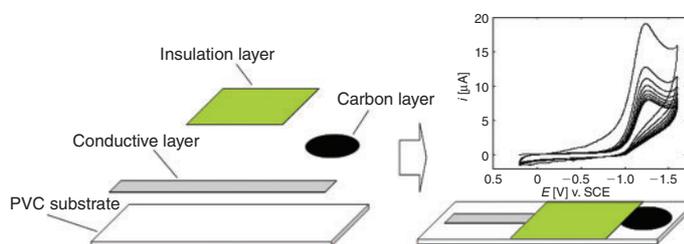
Application of the variable oxygen probe to the polycyclic alcohol **11** and its crystalline ester and ether derivatives, provides evidence for a weak interaction between the neighbouring homo-allylic π -system and the C–OR bond.

Electrochemical Detection of Short DNA Sequences Related to the *Escherichia coli* Pathogen Using a Zirconia-Modified Screen-Printed DNA Biosensor

Shao-Hua Zuo, Ling-Fan Zhang, Yan-Hui Zhao, Hui-Hui Yuan, Min-Bo Lan, Geoffrey A. Lawrance, Gang Wei

Aust. J. Chem. **2008**, *61*, 962–967.

Achieving fast and simple identification of pathogens in the environment or food samples is important. An electrochemical DNA biosensor is a highly appropriate approach to meeting this aim; however, practical fabrication of applicable electrochemical DNA biosensors is still a major challenge. This work reports the development of a simple and efficient solution through fabrication of a disposable, inexpensive electrochemical DNA biosensor based on a zirconia-modified thin film screen-printed electrode, employing methylene blue as indicator, for detecting short DNA sequences from the *Escherichia coli* pathogen.



Dynamics and Orientation of Parathion Dissolved in a Discotic Nematic Lyomesophase

Alejandra Vera, Hernán Ahumada, Victor Bahamonde, Rodrigo Montecinos, Ramiro Araya-Maturana, Daniel Muñoz, Boris E. Weiss-López

Aust. J. Chem. **2008**, *61*, 968–974.

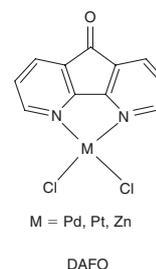
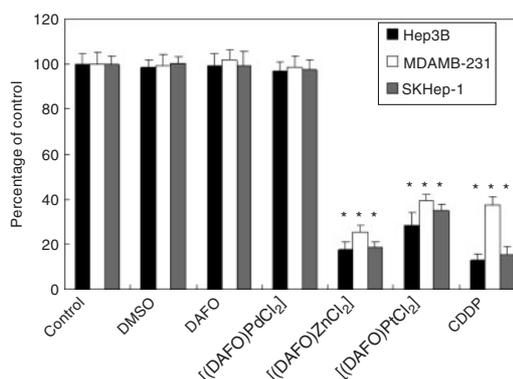
Parathion, a common pesticide, decreases the mobility of interface bilayer components. Results here imply the existence of an electrostatic interaction between the nitro group of parathion and trimethylammonium groups of TTAC at the interface. A similar interaction with choline groups, present in phospholipids, must be responsible for the effects observed in natural membranes.

Synthesis and Characterization of Some Metal Complexes of 4,5-Diazafluoren-9-one and their Biological Effects on Human Carcinoma Cells

Guo-Liang Lu, Cheuk-Lam Ho, Qiwei Wang, Wai-Yeung Wong, Chung-Hin Chui, Raymond Siu-Ming Wong, Roberto Gambari, Fung-Yi Lau, Marcus Chun-Wah Yuen, Cindy Sze-Wai Tong, Andrew Kit-Wah Chan, Johnny Cheuk-On Tang, Kwok-Ping Ho, Gregory Yin-Ming Cheng

Aust. J. Chem. **2008**, *61*, 975–980.

Three new transition metal complexes of 4,5-diazafluoren-9-one, [(DAFO)PdCl₂], [(DAFO)PtCl₂], and [(DAFO)ZnCl₂], were prepared in good yields. Their spectroscopic properties and biological activities towards three human cancer cell lines including Hep3B, MDAMB-231, and SKHep-1 were investigated.

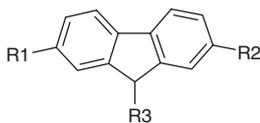


Why are Fluorene-Containing Materials so Versatile? An Electronic Structure Perspective

Igor Novak, Branka Kovač

Aust. J. Chem. **2008**, *61*, 981–985.

Photoelectron spectroscopy



Fluorenes are incorporated into metallo-organic polymers, which are used in optoelectronic materials. This usefulness comes from the ability of fluorenes to be part of charge transfer complexes being formed in metallo-organic polymers. This property critically depends on the electronic structure of fluorenes, which is investigated in this work.

Vault Isomerization and its Application to the Synthesis of a Dideoxydisoxysulfone Precursor

Christopher G. Andrews,
Richard F. Langler

Aust. J. Chem. **2008**, *61*, 986–990.

Convenient assembly of three-carbon/three-sulfur synthons shown in the figure, in which the penultimate sulfur bears two oxygen atoms, can be achieved by means of a new vault isomerization. It is hoped that application of this chemistry will provide access to new, efficacious anticancer disulfides.

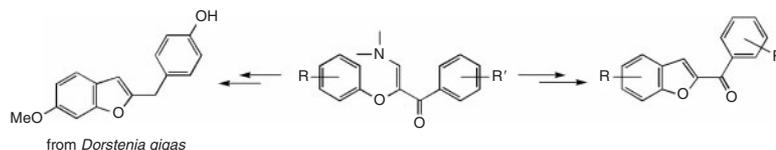


A New Synthetic Route of 2-Aroyl- and 2-Benzyl-Benzofurans and their Application in the Total Synthesis of a Metabolite Isolated from *Dorstenia gigas*

Christian Correa,
María del Carmen Cruz,
Fabiola Jiménez, L. Gerardo Zepeda,
Joaquín Tamariz

Aust. J. Chem. **2008**, *61*, 991–999.

The first synthesis of the natural metabolite 2-(4-hydroxybenzyl)-6-methoxybenzofuran has been achieved. This compound was isolated from the tropical plant *Dorstenia gigas*, and displays an uncommon 2-benzylbenzofuran framework. The key feature of the synthesis is a cyclization of a suitably functionalized enaminone. This methodology is also applied to the synthesis of 2-aroylbenzofurans and 2-benzylbenzofurans.

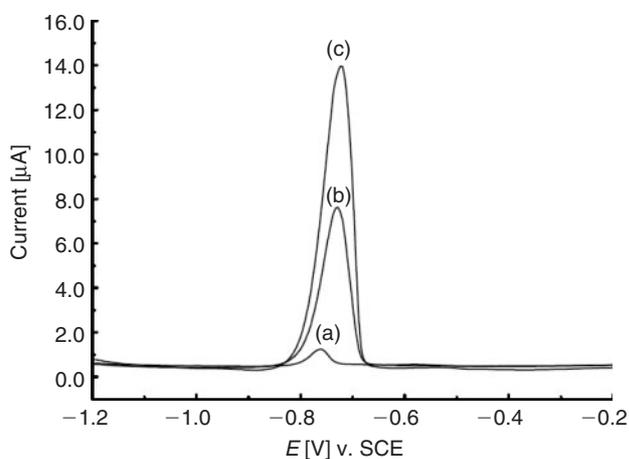


Differential Pulse Anodic Stripping Voltammetric Determination of Cadmium(II) at a Glassy Carbon Electrode Modified With a Nano-TiO₂/Chitosan Composite Film

Zhimin Xie, Junjie Fei,
Meihua Huang

Aust. J. Chem. **2008**, *61*, 1000–1005.

A novel electrochemical method for the determination of cadmium based on the combination of nano-TiO₂ and chitosan was achieved. This procedure possesses high sensitivity and was applied to the assay of Cd^{II} in real water samples. The results indicate that it is attractive for the development of disposable metal sensors.



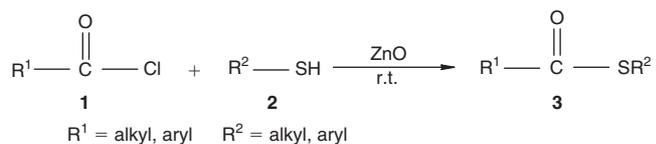
Short Communication

Convenient and Efficient Synthesis of Thiol Esters using Zinc Oxide as a Heterogeneous and Eco-Friendly Catalyst

*Babasaheb Pandurang Bandgar,
Parmeshwar Eknath More,
Vinod Tribhuvannathji Kamble,
Sanjay Suresh Sawant*

Aust. J. Chem. **2008**, *61*, 1006–1010.

Thiol esters were synthesized from acyl chlorides and thiols using zinc oxide as a catalyst under solvent-free conditions at room temperature. This method features mild reaction conditions, a short reaction time, excellent yields of products and a recyclable catalyst.



Focus

Non-Selective Stereoablation for the Synthesis of Enantioenriched Compounds

Muneer Ahamed

Aust. J. Chem. **2008**, *61*, 1011.

The selective synthesis of stereogenic centres is of central importance in organic chemistry. Stereoablative synthesis of chiral compounds utilizes the destruction of stereogenic centres. Recent developments in stereoablative methods are described.
