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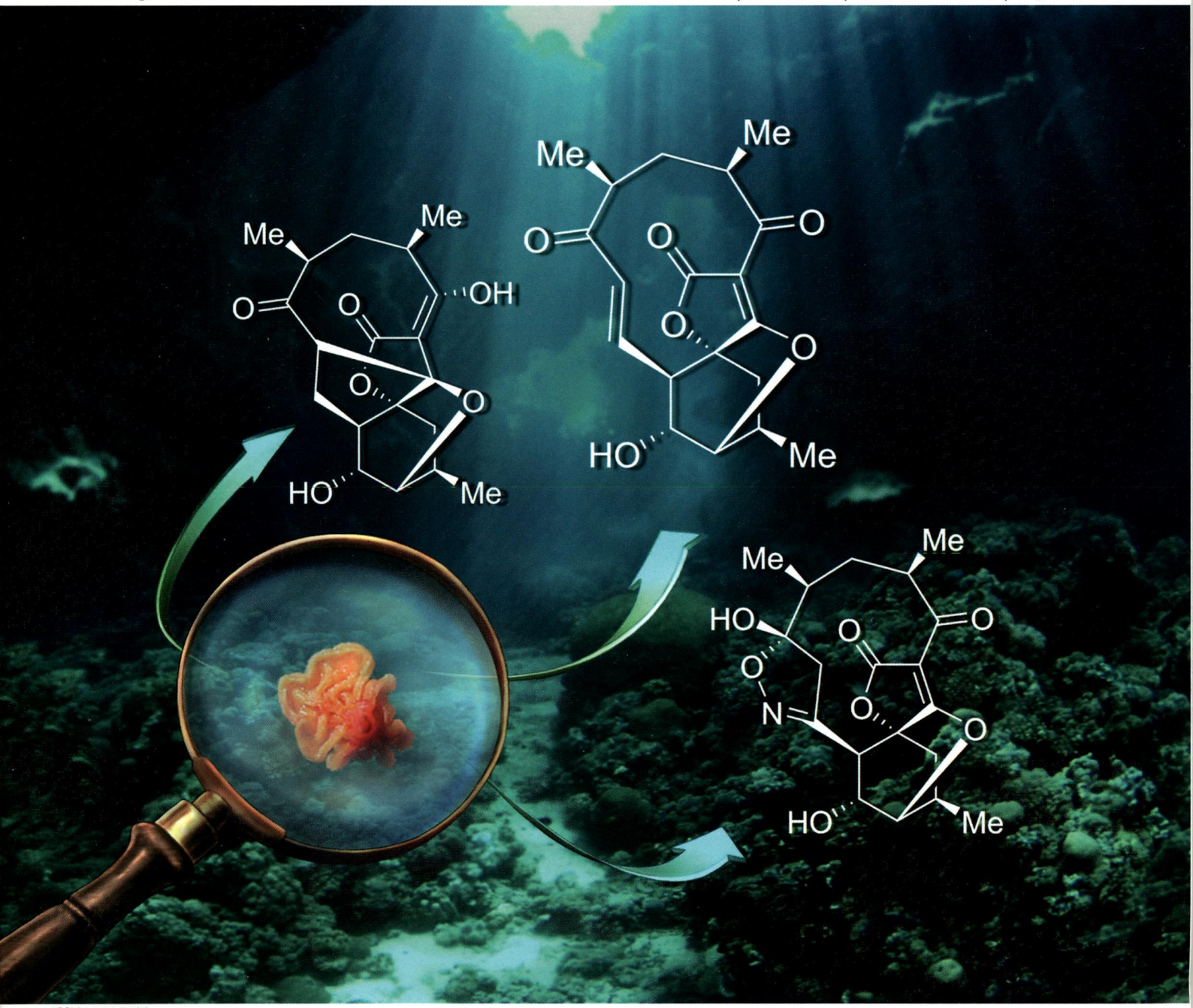

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PAPER

Filip Bihelovic, Radomir N. Saicic *et al.*

Total synthesis and biological evaluation of (–)-atrop–abyssomicin C

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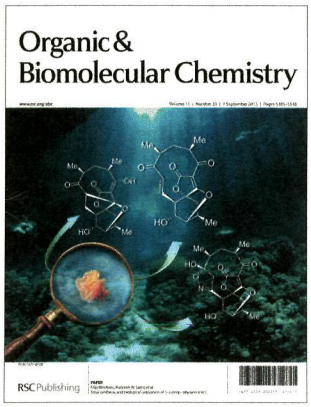

Cover
See Filip Bihelovic, Radomir N. Saicic *et al.*, pp. 5413–5424.

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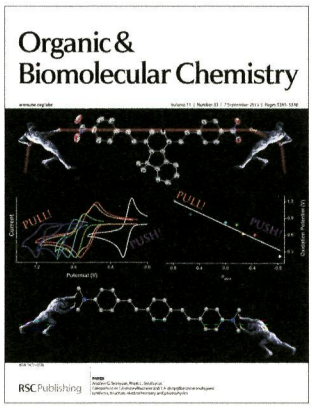


Inside cover
See Andrew G. Tennyson, Rhett C. Smith *et al.*, pp. 5425–5434.

Image reproduced by permission of Rhett C. Smith from *Org. Biomol. Chem.*, 2013, **11**, 5425.

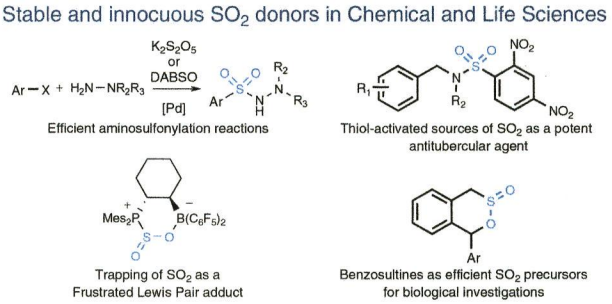
EMERGING AREA

5393

Taming sulfur dioxide: a breakthrough for its wide utilization in chemistry and biology

Philippe Bisseret* and Nicolas Blanchard*

The development of bench-stable and reliable SO_2 donors is gaining prominence in synthetic organic chemistry as well as in life sciences.



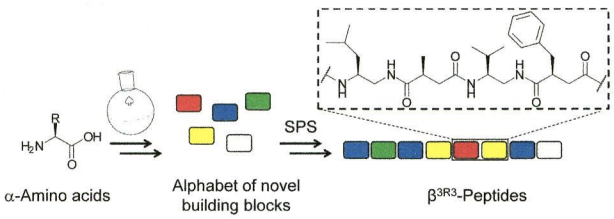
COMMUNICATIONS

5399

β^{3R3}-Peptides: design and synthesis of novel peptidomimetics and their self-assembling properties at the air–water interface

Simone Mosca, Claudia Dannehl, Uwe Möginger, Gerald Brezesinski and Laura Hartmann*

A novel class of peptidomimetics with proteinaceous side chains, the β^{3R3}-peptides, has been introduced. The design concept, synthetic approach and first physico- and biochemical results for potential biomedical applications are presented.

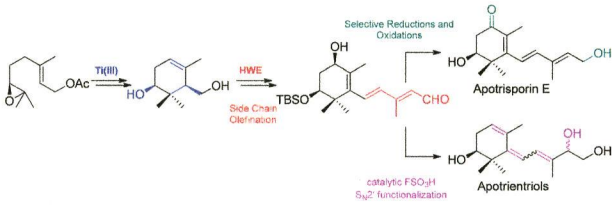


5404

First total synthesis of (+)-apotrisporin E and (+)-apotrientriols A–B: a cyclization approach to apocarotenoids

José A. González-Delgado, Jesús F. Arteaga,* M. Mar Herrador and Alejandro F. Barrero*

First total synthesis of (+)-apotrisporin E and (+)-apotrientriols A and B. Confirmation of their structure, relative stereochemistry and the assignation of the absolute configuration.



5409

Regioselective silylation of pyranosides using a boronic acid/Lewis base co-catalyst system

Doris Lee and Mark S. Taylor*

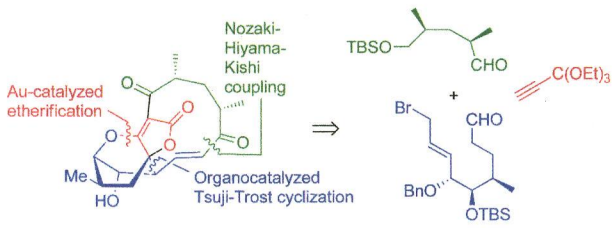
A co-catalyst system composed of a boronic acid and a Lewis base enables the regioselective silylation of *cis*-diol groups in alkylpyranoside substrates.

5413

Total synthesis and biological evaluation of (–)-atrop–abyssomicin C

Filip Bihelovic,* Ivanka Karadzic, Radomir Matovic and Radomir N. Saicic*

Total synthesis of marine antibiotic (–)-atrop–abyssomicin is achieved in twenty-one steps. The analogues of the natural product show strong antibacterial and cytotoxic activity.

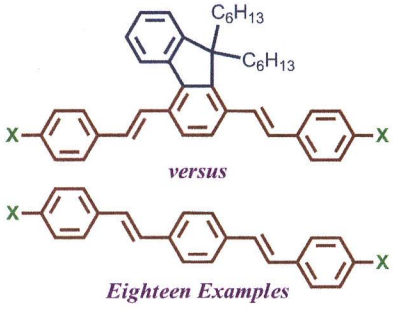


5425

Comparison of 1,4-distyrylfluorene and 1,4-distyrylbenzene analogues: synthesis, structure, electrochemistry and photophysics

Brynna J. Laughlin, Tyler L. Duniho, Samantha J. El Homsi, Benjamin E. Levy, Nihal Deligonul, Joshua R. Gaffen, John D. Protasiewicz, Andrew G. Tennyson* and Rhett C. Smith*

A series of nine 1,4-distyrylfluorene derivatives (**2**) functionalized with substituents of variable electron-donating or -accepting capabilities was synthesised.



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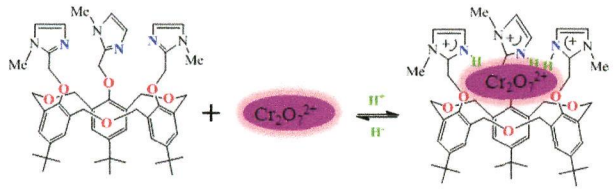
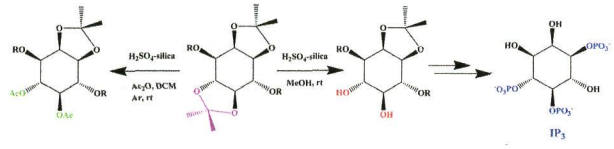


Tri-substituted hexahomotrioxacalix[3]arene derivatives bearing imidazole units: synthesis and extraction properties for cations and chromate anions

Xin-Long Ni, Cheng-Cheng Jin, Xue-Kai Jiang, Masashi Takimoto, Shofiur Rahman, Xi Zeng, David L. Hughes, Carl Redshaw and Takehiko Yamato*

cone-Homooxacalix[3]arenes bearing imidazole groups at the lower-rim can extract various anions and cations depending on the pH of the solvent.

5443

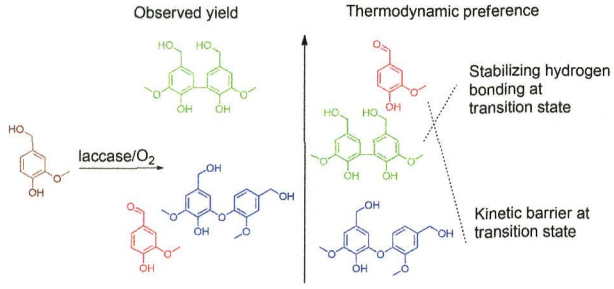


Chemoselective alcoholysis/acetolysis of *trans*-ketals over *cis*-ketals and its application in the total synthesis of the cellular second messenger, D-*myo*-inositol-1,4,5-trisphosphate

Adiyala Vidyasagar, Atchutarao Pathigoolla and Kana M. Sureshan*

We report mild, efficient chemoselective alcoholysis/acetolysis of ketals of *anti*-diols in the presence of that of *syn*-diols of cyclitols using H_2SO_4–silica as the catalyst. The utility of this methodology is illustrated by the efficient synthesis of IP_3.

5454

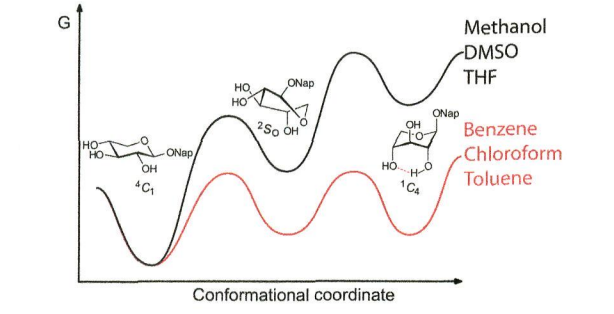


On the factors affecting product distribution in laccase-catalyzed oxidation of a lignin model compound vanillyl alcohol: experimental and computational evaluation

Maarit Lahtinen,* Petri Heinonen, Mikko Oivanen, Pirkko Karhunen, Kristiina Kruus and Jussi Sipilä

Based on oxidation under varying reaction conditions, the observed predominant product was the biphenylic dimer (5-5′), although vanillin was thermodynamically favoured.

5465



Exploration of conformational flexibility and hydrogen bonding of xylosides in different solvents, as a model system for enzyme active site interactions

Jerk Rönnols, Sophie Manner, Anna Siegbahn, Ulf Ellervik and Göran Widmalm*

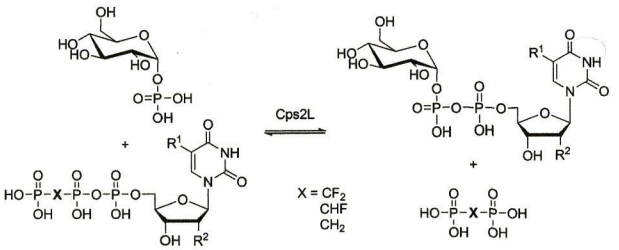
Equilibria comprising chair and skew conformations of naphthyl xylosides show a strong dependence on the hydrogen bonding ability of the solvent.

5473

The effect of bisphosphonate acidity on the activity of a thymidylyltransferase

Stephen A. Beaton, Patricia M. Jiang, Jonathan C. Melong, Matthew W. Loranger, Samy Mohamady, Thomas I. Veinot and David L. Jakeman*

Thymidylyltransferases play key roles in the biosynthesis of carbohydrates within cell walls and in the biosynthesis of glycosylated natural products. Chemical approaches were explored to enhance rates of reaction.

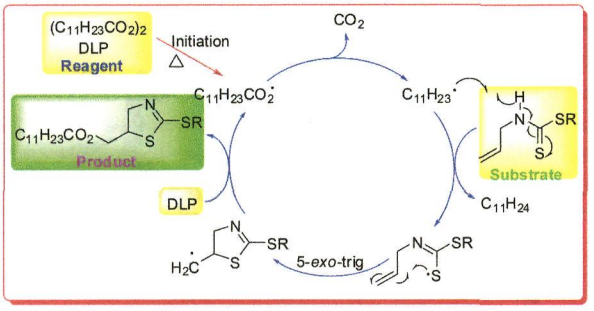


5481

Synthesis of (2-alkylthiothiazolin-5-yl)methyl dodecanoates *via* tandem radical reaction

Saeed Kakaei and Jiaxi Xu*

An efficient synthesis of (2-alkylthiothiazolin-5-yl)methyl dodecanoates *via* tandem radical abstraction–5-*exo*-trig cyclization–substitution reaction.

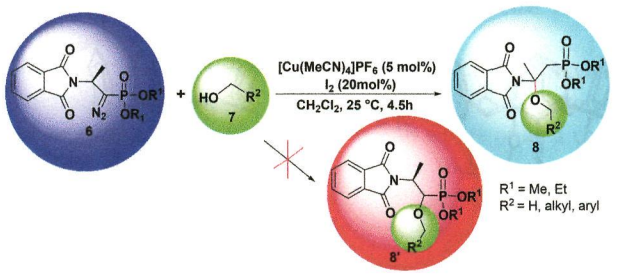


5491

Combined C–H functionalization/O–H insertion reaction to form tertiary β-alkoxy substituted β-aminophosphonates catalyzed by $[Cu(MeCN)_4]PF_6$

Yan Cai, Yuchen Lu, Chengbin Yu, Hairong Lyu and Zhiwei Miao*

The tertiary β-alkoxy substituted β-aminophosphonate derivatives have been synthesized through a novel copper-catalyzed C–H functionalization/O–H insertion reaction of α-diazophosphonates with alcohols in moderate to good yields.

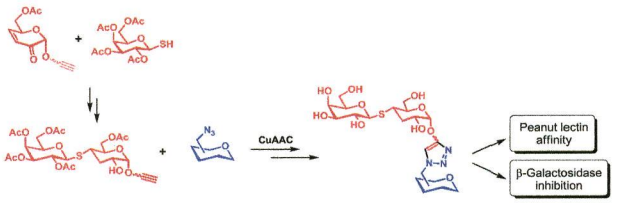


5500

Synthesis and biological activity of divalent ligands based on 3-deoxy-4-thiolactose, an isosteric analogue of lactose

Alejandro J. Cagnoni, Oscar Varela, José Kovensky* and María Laura Uhrig*

The synthesis of mono- and divalent glycoclusters exposing residues of 3-deoxy-4-thiolactose is reported. Their behavior as inhibitors of β-galactosidase of *E. coli* and their affinity to peanut lectin was studied.



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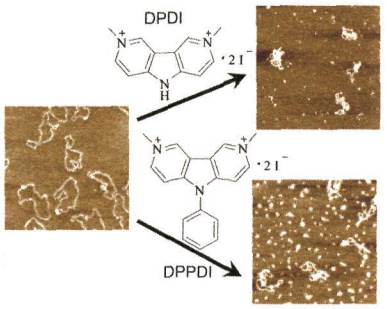
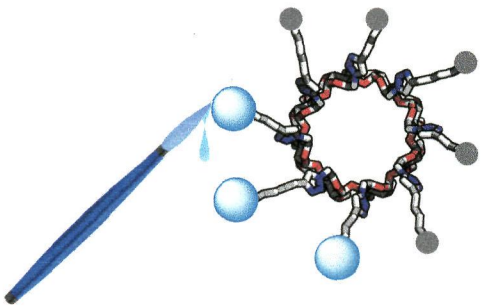


Interactions of newly designed dicationic carbazole derivatives with double-stranded DNA: syntheses, binding studies and AFM imaging

Tao Jia,* Jin Xiang, Jing Wang, Peng Guo and Junping Yu*

Dicationic carbazoles have strong interactions with DNA by different interaction preferences due to the similarity and difference in the structures.

5521

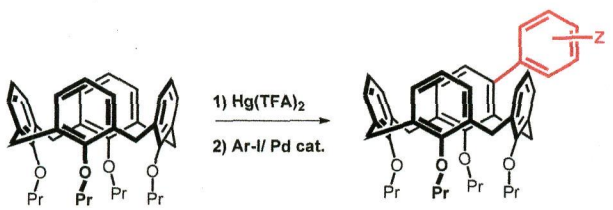


Efficient microwave-assisted synthetic protocols and *in silico* behaviour prediction of *per*-substituted β-cyclodextrins

K. Martina, G. Cravotto,* M. Caporaso, L. Rinaldi, C. Villalonga-Barber and G. Ermondi

Highly efficient microwave-assisted synthetic decoration of *per*-substituted β-cyclodextrins supported by computational analyses.

5528

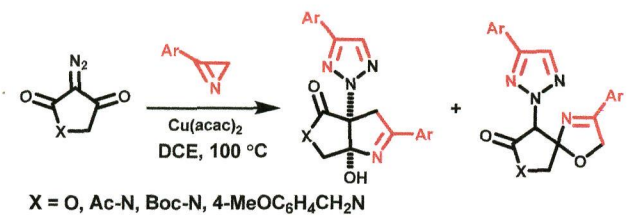


***Meta*-arylation of calixarenes using organomercurial chemistry**

Petr Slavík, Karolína Flídrová, Hana Dvořáková, Václav Eigner and Pavel Lhoták*

The unusual substitution pattern in calix[4]arene chemistry (*meta*-arylated derivatives) is easily accessible using organomercurial intermediates.

5535



Cu(II)-catalyzed domino reaction of 2*H*-azirines with diazotetramic and diazotetronic acids. Synthesis of 2-substituted 2*H*-1,2,3-triazoles

Nikolai V. Rostovskii, Mikhail S. Novikov,* Alexander F. Khlebnikov, Sergei M. Korneev and Dmitry S. Yufit

The Cu(II)-catalyzed reaction of 3-aryl-2*H*-azirines with diazotetramic or diazotetronic acids provides a novel access to 2-substituted 1,2,3-triazoles from (N–N) and (C–C–N) building blocks.