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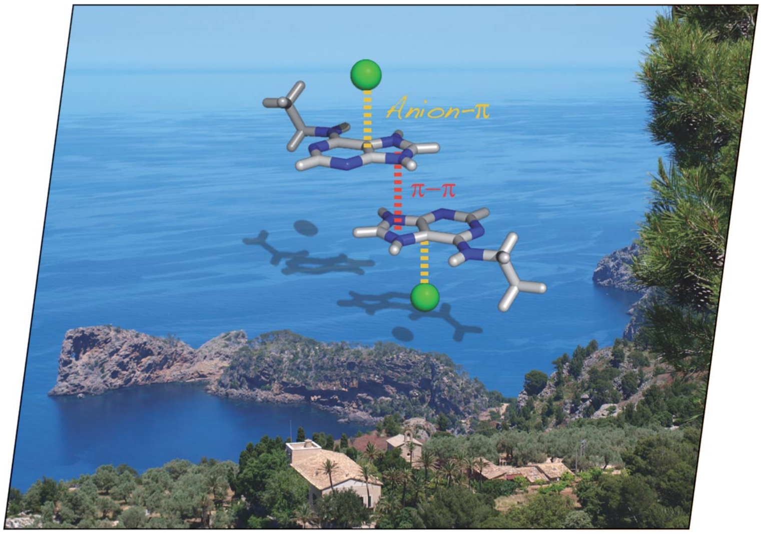
COVER PICTURE

The cover picture shows the interesting anion−π/π−π/anion−π assembly that is found in the solid-state architecture of an adenine derivative hydrochloride salt. The adenine has been decorated with a long alkyl chain (C_{10}) in order to have a predefined ordering in the crystal due to hydrophobic effects. The influence of anion−π and π−π interactions on the final structure has been studied both experimentally and theoretically. Details are discussed in the article by A. García-Raso et al. on p. 5171ff. The background picture depicts the scientific tradition of the Balearic Islands that springs from Ramon Llull, a 13th century philosopher, who founded a college in Miramar that is located in the northwest of the island of Majorca.



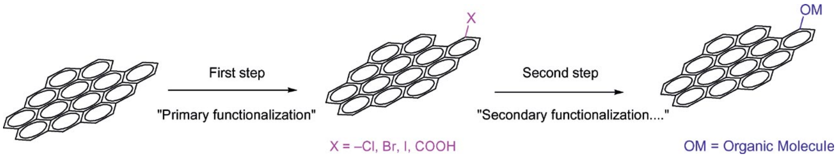
MICROREVIEW

Activated Carbon Supports

M. D. López de la Torre,*
M. Melguizo Guijarro **5147–5154**

Covalent Bonds on Activated Carbon

Keywords: Carbon / Activated carbon / Carbon functionalization / Surface chemistry / Supported catalysts



We highlight the synthetic strategies that have been undertaken to prepare activated-carbon supports or activated-carbon hybrids, with a special focus on the different procedures that have been employed to provide them. A study of the principal uses of supported activated carbons is also presented.

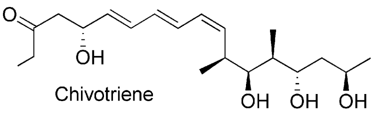
SHORT COMMUNICATIONS

Natural Products

T. Brodmann, D. Janssen, F. Sasse,
H. Irschik, R. Jansen, R. Müller,
M. Kalesse* **5155–5159**

Isolation and Synthesis of Chivotriene, a Chivosazole Shunt Product from *Sorangium cellulosum*

Keywords: Natural products / Biosynthesis / Structure elucidation / Chirality



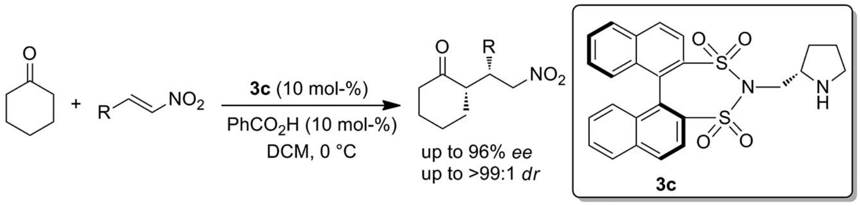
Chivotriene, a natural product related to chivosazole, was isolated from myxobacteria. The configuration was analyzed by NMR spectroscopic methods and confirmed by synthesis. Remarkably, the first biological experiments unraveled the mode of action to be different than that of chivosazole

Sulfonimide Organocatalysts

S. Ban, D.-M. Du,* H. Liu,
W. Yang **5160–5164**

Synthesis of Binaphthyl Sulfonimides and Their Application in the Enantioselective Michael Addition of Ketones to Nitroalkenes

Keywords: Sulfonamides / Organocatalysis / Enantioselectivity / Michael addition / Alkenes

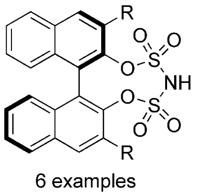


Novel types of chiral L-proline-based binaphthyl sulfonimides and sulfonamides have been synthesized that catalyze the asymmetric Michael addition of ketones to nitroalkenes to afford the corresponding synthetically valuable γ-nitroketones in moderate to good yields with high levels of diastereo- and enantioselectivities (up to >99:1 *dr* and 96% *ee*, respectively).

FULL PAPERS

Chiral Brønsted Acids

The new chiral Brønsted acids 1,1′-binaphthyl-2,2′-bis(sulfuryl)imides (JINGLEs) are accessible in one step from BINOLs and imidobis(sulfuryl chloride). X-ray crystallography proved their acidic character (imidazolium salt formation) and revealed distinct hydrogen bonding patterns.



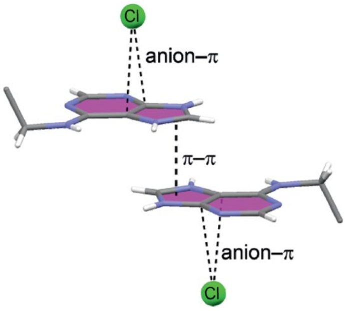
A. Berkessel,* P. Christ, N. Leconte, J.-M. Neudörfl, M. Schäfer ... 5165–5170

Synthesis and Structural Characterization of a New Class of Strong Chiral Brønsted Acids: 1,1′-Binaphthyl-2,2′-bis(sulfuryl)imides (JINGLEs)

Keywords: Brønsted acids / Organocatalysis / Chirality / Sulfonamides / Biaryls

Anion–π Interactions

The synthesis and X-ray characterization of N^9- and N^6-decyladenine hydrochloride salts is reported. The latter exhibits interesting anion–π interactions, which are responsible for crystal packing. The former does not present any anion–π interactions; instead, it is stabilized by hydrogen-bonding interactions. Both structures are compared and analyzed by theoretical calculations.

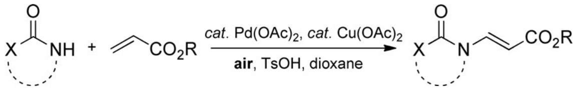


A. Garcia-Raso, F. M. Albertí,* J. J. Fiol, Y. Lagos, M. Torres, E. Molins, I. Mata, C. Estarellas, A. Frontera,* D. Quiñonero, P. M. Deyà 5171–5180

A Combined Experimental and Theoretical Study of Anion–π Interactions in *N*^{6}- and *N*^{9}-Decyladenine Salts

Keywords: Molecular recognition / Noncovalent interactions / Ab initio calculations / Pi interactions

Oxidative Amidation



A new "chloride-free" protocol was developed for oxidative amidation reactions between cyclic and acyclic amides and carbamates with electron-deficient olefins, conducted under Pd/Cu catalysis, using air as oxidant. The products can be easily hydrogenated to afford the saturated products in high yields.

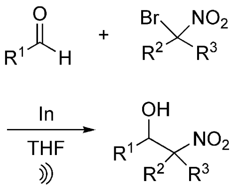
X. Liu, K. K. Hii* 5181–5189

Oxidative Amidation of Activated Alkenes Using $Pd(OAc)_2$ as a Catalyst Precursor

Keywords: Homogeneous catalysis / Palladium / Amides / Alkenes / Enamines

Henry Reaction

2-Nitroalkan-1-ols were obtained by indium-promoted reaction of bromonitromethane with aldehydes. The reaction was also performed with 2-bromo-2-nitropropanes to afford 2,2-dialkyl-2-nitroalkan-1-ols. Chiral sugar-derived aldehydes furnished the corresponding 2-nitroalkan-1-ols with excellent stereoselectivity, and these 2-nitroalkan-1-ols were used to prepare azepane derivatives.



R. G. Soengas,* A. M. Estévez 5190–5196

Indium-Mediated Reaction of 1-Bromo-1-nitroalkanes with Aldehydes: Access to 2-Nitroalkan-1-ols

Keywords: Indium / Nucleophilic addition / Aldehydes / Aldol reactions / Iminosugars

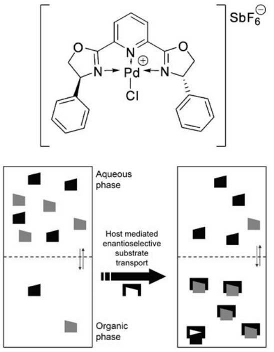
CONTENTS

Enantioselective Extraction

B. J. V. Verkuijl, A. K. Schoonen,
A. J. Minnaard,* J. G. de Vries,*
B. L. Feringa* 5197–5202

The Use of *N*-Type Ligands in the Enantioselective Liquid–Liquid Extraction of Underivatized Amino Acids

Keywords: Separation science / Extraction / Enantioselective liquid–liquid extraction / Amino acids



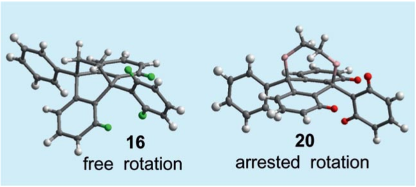
The first use of chiral bis(oxazoline)palladium in the enantioselective extraction of amino acids shows the highest thusfar reported selectivity in the extraction of methionine using metal complexes. Furthermore, the association of the complexes with tryptophan enantiomers were determined.

Double Trouble

K. Nikitin,* C. Fleming, H. Müller-Bunz,
Y. Ortin, M. J. McGlinchey* 5203–5216

Severe Energy Costs of Double Steric Interactions: Towards a Molecular Clamp

Keywords: Rotational barrier / Steric hindrance / Strained molecules / Molecular machinery / Molecular devices



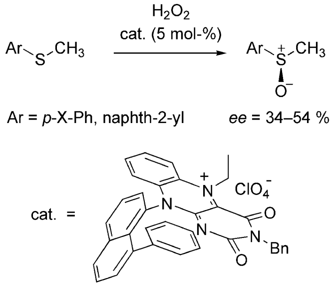
Rotation about a single bond connecting an aromatic group, e.g. phenyl, to another flat aromatic, or three-bladed paddlewheel fragment, is arrested if simultaneous close approach of two pairs of hydrogen atoms would occur. Thus, double interaction of the red hydrogens in the dibenzobicyclo-[2.2.4]dioxadecane derivative **20** leads to a much higher barrier than is found for the hydrogen atoms (printed in green) in the corresponding dibenzobicyclo[2.2.2]octane **16**.

Enantioselective Sulfoxidation

R. Jurok, R. Cibulka,* H. Dvořáková,
F. Hampl, J. Hodačová 5217–5224

Planar Chiral Flavinium Salts – Prospective Catalysts for Enantioselective Sulfoxidation Reactions

Keywords: Organocatalysis / Asymmetric catalysis / Sulfoxidation / Flavinium salts / Peroxides



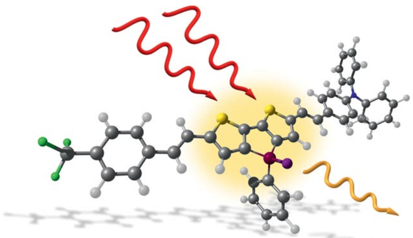
A novel planar chiral flavinium salt has been designed and prepared as a catalyst for enantioselective oxidation reactions with hydrogen peroxide. The flavinium salt (5 mol-%) catalyses the oxidation of model aryl methyl sulfides to sulfoxides with *ee* values up to 54%.

Phospholes

C. Romero-Nieto, K. Kamada,
D. T. Cramb, S. Merino,
J. Rodríguez-López,*
T. Baumgartner* 5225–5231

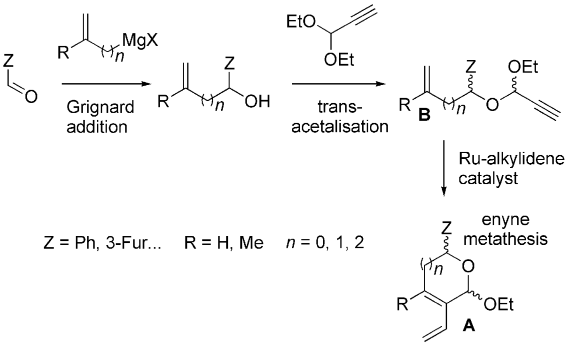
Synthesis and Photophysical Properties of Donor–Acceptor Dithienophospholes

Keywords: Phosphorus heterocycles / Donor-acceptor systems / Conjugation / Solvatochromism / Two-photon absorption



The synthesis of donor–acceptor functionalized asymmetric dithieno[3,2-*b*:2′,3′-*d*]-phospholes provides powerful orange-red chromophores with large Stokes shifts as well as desirable two-photon absorption properties for biological applications.

Ring-Closing Metathesis



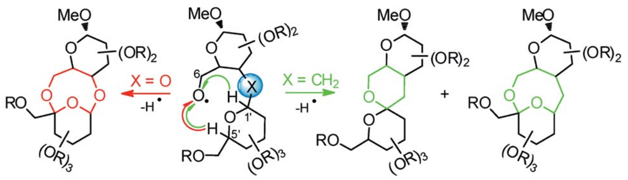
Ring-closing metathesis of acyclic 1,7- and 1,8-enynes with the alkyne moiety directly linked to the asymmetric carbon of an ethyl acetal gave the corresponding six- and seven-membered cyclic 1,3-dienes in moderate-to-excellent yields. A competitive ethylene insertion into the alkyne moiety leading to trienes was observed for some substrates depending on their structure and relative configuration.

D. A. Lanfranchi, C. Bour, B. Boff, G. Hanquet* 5232–5247

Ring-Closing of 1,7- and 1,8-Enynes of Propargylic *O*,*O*-Acetals by Ruthenium-Catalysed Intramolecular Metathesis

Keywords: Metathesis / Cyclization / Ruthenium / Enynes / Acetals

Conformations of Disaccharides



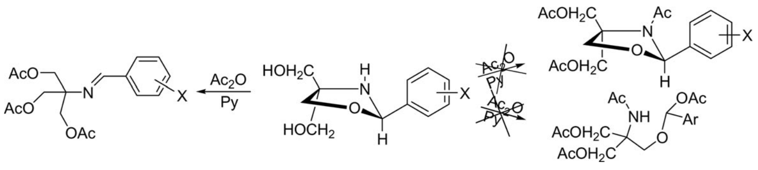
Long-range hydrogen atom transfer (HAT) reactions promoted by alkoxyl radicals serve to highlight the conformational differences between *O*- and *C*-disaccharides. In *O*-disaccharides the 6-*O*-yl radical abstracts exclusively the hydrogen at C-5′ via a 1,8-HAT reaction. On the contrary, very little regioselectivity is observed in *C*-disaccharides and the abstraction of the hydrogen at C-1′, via a 1,6-HAT reaction, competes favourably.

E. I. León, A. Martín,* I. Peréz-Martín, L. M. Quintanal, E. Suárez* 5248–5262

Hydrogen Atom Transfer Experiments Provide Chemical Evidence for the Conformational Differences between *C*- and *O*-Disaccharides

Keywords: Carbohydrates / Disaccharides / Conformation analysis / Radical reactions / Hydrogen transfer

Heterocyclic Anomeric Effect



Not the expected path! Oxazolidines derived from TRIS are converted into *O*-protected imines as a result of a strong anomeric effect.

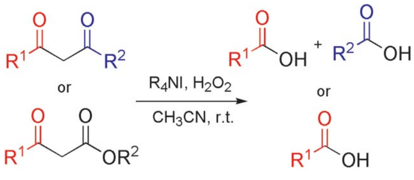
R. F. Martínez,* M. Ávalos, R. Babiano, P. Cintas, J. L. Jiménez, M. E. Light, J. C. Palacios, E. M. S. Pérez 5263–5273

An Anomeric Effect Drives the Regiospecific Ring-Opening of 1,3-Oxazolidines under Acetylating Conditions

Keywords: Heterocycles / Acylation / Regioselectivity / Anomeric effect

Metal-Free Oxidative Cleavage

A metal-free, mild, and environmentally friendly method for the conversion of diketones and keto esters into carboxylic acids with H_2O_2 in high yields (up to 98%) is reported.



Y. Yuan,* X. Ji, D. Zhao* 5274–5278

Efficient Oxidative Cleavage of 1,3-Dicarbonyl Derivatives with Hydrogen Peroxide Catalyzed by Quaternary Ammonium Iodide

Keywords: Cleavage reactions / Oxidation / Sustainable chemistry / Ketones

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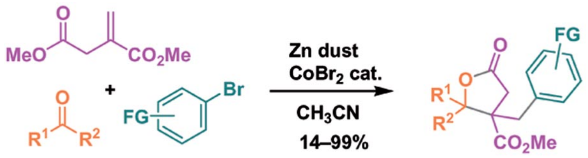
Multicomponent Synthesis

C. Le Floch, E. Le Gall,* E. Léonel, J. Koubaa, T. Martens, P. Retailleau 5279–5286

A Cobalt-Catalyzed Multicomponent Approach to Novel 2,3-Di- and 2,2,3-Trisubstituted 3-Methoxycarbonyl-γ-butyrolactones

Keywords: Lactones / Multicomponent reactions / Domino reactions / Cobalt / Zinc



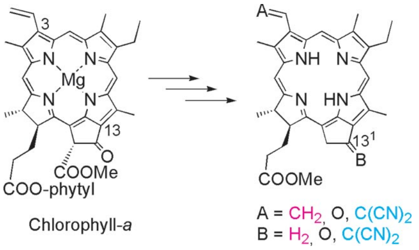
2,3-Polysubstituted γ-butyrolactones can be obtained through a straightforward cobalt-catalyzed multicomponent reaction of aryl bromides, dimethyl itaconate, and carbonyl compounds.

Chlorophyll Modifications

S.-i. Sasaki, M. Yoshizato, M. Kunieda, H. Tamiaki* 5287–5291

Cooperative C3- and C13-Substituent Effects on Synthetic Chlorophyll Derivatives

Keywords: Porphyrinoids / Macrocycles / Photosynthesis / UV/Vis spectroscopy



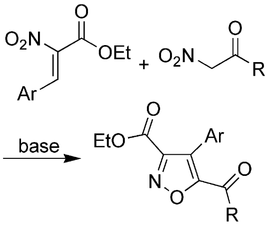
C3- and C13-functional groups of chlorophyll-*a* were systematically modified and the substituent effects along the *y*-axis of chlorin macrocycles were investigated by both optical and electrochemical methods.

One-Pot Synthesis of Isoxazoles

K.-P. Chen, Y.-J. Chen, C.-P. Chuang* 5292–5300

Ethyl α-Nitrocinnamates in the Synthesis of Highly Functionalized Isoxazoles

Keywords: Nitrogen heterocycles / Michael addition / Alkylation / Multicomponent reactions



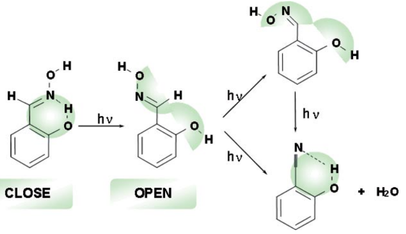
Ethyl α-nitrocinnamates react smoothly with α-nitro carbonyl compounds or pyridinium salts to produce isoxazoles in good yields. The one-pot multicomponent process was also developed. Isoxazoles can be produced directly from readily available aromatic aldehydes, ethyl nitroacetate, and pyridinium salts.

Photochemistry of Oximes

J. Grzegorzek, Z. Mielke* 5301–5309

Photochemistry of Salicylaldoxime in Solid Argon: An Experimental and Theoretical Study

Keywords: Oximes / Photochemistry / Isomerization / Matrix isolation / Density functional calculations

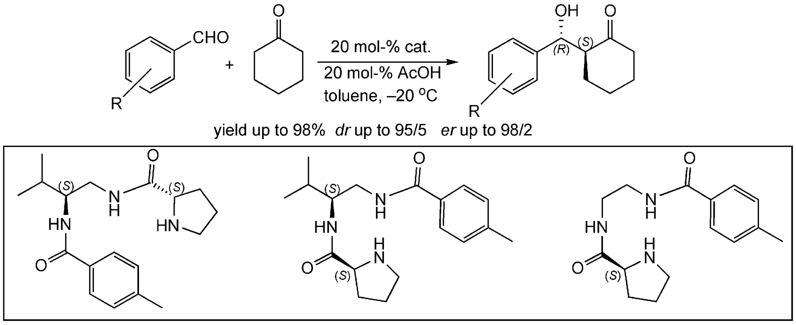


Irradiation of the most stable salicylaldoxime *syn* conformer, isolated in solid argon, leads to breakage of its intramolecular hydrogen bond and conversion into another, less stable *syn* conformer. The secondary reactions involve *syn*–*anti* isomerization and photodissociation into 2-cyanophenol and water of the *syn* conformer induced in the primary reaction.

Organocatalysis

R. Pedrosa,* J. M. Andrés,* R. Manzano, P. Rodríguez 5310–5319

L-Prolinamides Derived from Chiral and Achiral 1,2-Diamines as Useful Bifunctional Organocatalysts for Direct Diastereo- and Enantioselective Aldol Reaction



Novel prolinamides derived from diamines prepared from valine are used as organocatalysts in the direct cross-aldol reaction. Easily accessible and cheap prolinamide derived from 1,2-ethylenediamine acts as an excellent organocatalyst in terms of both stereo- and enantioselection.

Keywords: Aldol reactions / Amides / Amines / Asymmetric catalysis / Enantioselectivity / Organocatalysis

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* Author to whom correspondence should be addressed.

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