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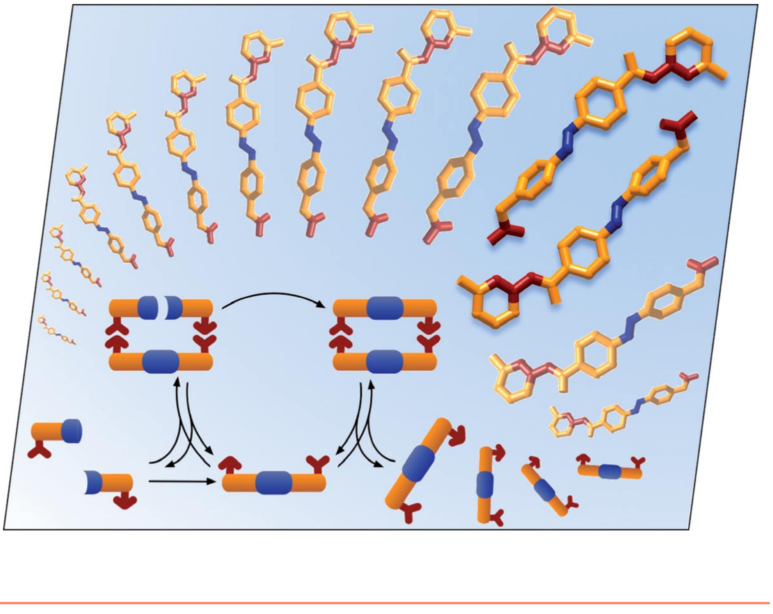
A union formed by chemical societies in Europe (ChemPubSoc Europe) has taken the significant step into the future by merging their traditional journals, to form two leading chemistry journals, the *European Journal of Inorganic Chemistry* and the *European Journal of Organic Chemistry*. Three further members of ChemPubSoc Europe (Austria, Czech Republic and Sweden) are Associates of the two journals.

COVER PICTURE

The cover picture shows in the lower left corner the schematic representation of a recognition-mediated autocatalytic cycle that is capable of producing multiple copies of a single molecule in a template-directed manner. The molecular recognition inherent in this cycle (red) leads to the accelerated formation of an imine bond (blue) between two building blocks through a ternary complex that renders the reaction between them pseudointramolecular. After bond formation, the product duplex dissociates and returns two molecules to the start of the autocatalytic cycle. The structure in the upper right corner represents the product duplex as determined by single-crystal X-ray diffraction ([**18·18**], taken from ref.[28]). The multiple copies of the reaction product shown highlight the exponential increase in the concentration of the product inherent in self-replicating systems. Details are presented in the Microreview by A. Vidonne and D. Philp on p. 593ff.



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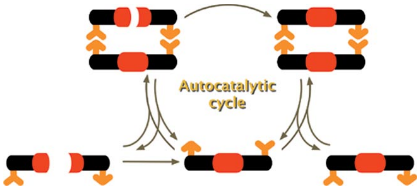
MICROREVIEW

Self-Replication

A. Vidonne, D. Philp* **593–610**

Making Molecules Make Themselves – the Chemistry of Artificial Replicators

Keywords: Hydrogen bonds / Molecular recognition / Self-replication / Supramolecular chemistry / Systems chemistry / Template synthesis



"Is the structural complexity of nucleic acids necessary to store and transmit information at a molecular level?". In this Microreview, we describe the design and implementation of systems based on small, synthetic organic molecules that can reproduce themselves.

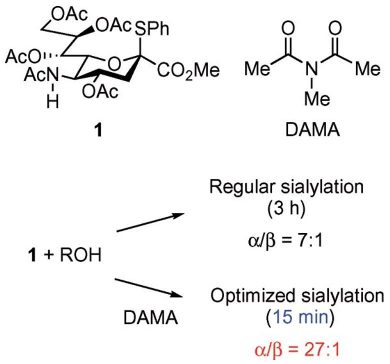
SHORT COMMUNICATION

Stereoselectivity

L. O. Kononov,* N. N. Malysheva,
A. V. Orlova **611–616**

Stereoselectivity of Glycosylation May Change During the Reaction Course: Highly α-Stereoselective Sialylation Achieved by Supramer Approach

Keywords: Glycosylation / Stereoselectivity / Sialic acids / Hydrogen bonds / Amides



Highly α-stereoselective sialylation of 1,2;3,4-di-*O*-isopropylidene-α-D-galactopyranose (ROH) with sialic acid thioglycoside **1** was achieved by very simple means: (a) addition of non-reacting compound (DAMA), (b) decrease of reaction time (from 3 h to 15 min).

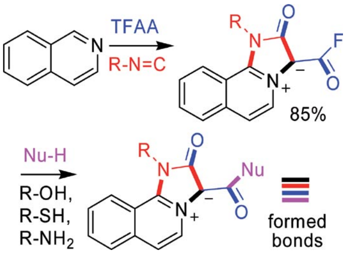
FULL PAPERS

Multicomponent Reactions

M. J. Arévalo, N. Kielland, C. Masdeu,
M. Miguel, N. Isambert,
R. Lavilla* **617–625**

Multicomponent Access to Functionalized Mesoionic Structures Based on TFAA Activation of Isocyanides: Novel Domino Reactions

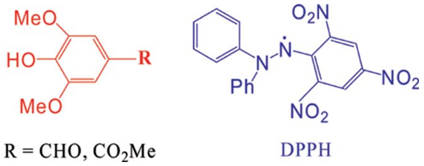
Keywords: Multicomponent reactions / Domino reactions / Isocyanides / Nitrogen heterocycles / Mesoionic compounds



Teamwork! Each component cooperatively participates in these new domino processes thereby allowing the formation of five to seven bonds. Unexpected reaction pathways become feasible thanks to the manifold roles played by the three distinct reagents in a precise sequence. Functionalized dipolar compounds are prepared in a single operation that requires only the mixing of the substrates.

Scavenging Phenolic Antioxidants

Syringaldehyde or methyl syringate substitute the 4-nitro group of 2,2-diphenyl-1-picrylhydrazyl (DPPH). By contrast, the complexed sodium salt of syringaldehyde substitutes one of the phenyl groups of DPPH yielding another product.

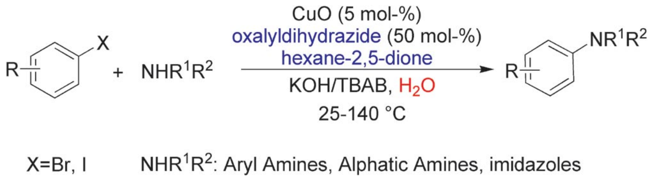


E. N. Hristea,* I. C. Covaci-Cĭmpeanu, G. Ioniţă, P. Ioniţă, C. Draghici, M. T. Căproiu, M. Hillebrand, T. Constantinescu, A. T. Balaban* **626–634**

Reactions of 2,2-Diphenyl-1-picrylhydrazyl (DPPH) with Two Syringylic Phenols or One Aroxide Derivative

Keywords: Radical reactions / Hydrazyls / Aroxyls / EPR spectroscopy / Reaction mechanisms

Synthetic Methods



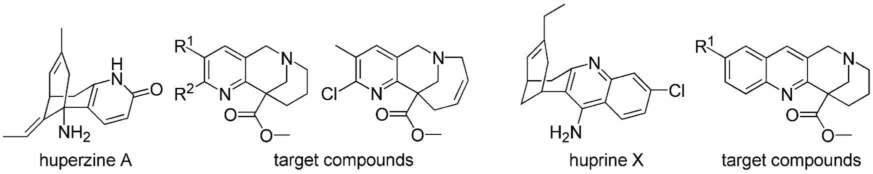
Copper catalysis in water: Aryl bromides and aryl iodides could be aminated in water by a variety of amines and imidazoles under catalysis of a novel CuO/oxalyldihydrazide/hexane-2,5-dione system at room temperature or with heating to afford very good isolated yields.

X. Zhu, L. Su, L. Huang, G. Chen, J. Wang, H. Song, Y. Wan* **635–642**

A Facile and Efficient Oxalyldihydrazide/Ketone-Promoted Copper-Catalyzed Amination of Aryl Halides in Water

Keywords: Amination / Cross-coupling / Copper / Water chemistry / Sustainable chemistry

Bridged Tetrahydro-1,6-naphthyridines



6,8-Bridged tetrahydro-1,6-naphthyridines were synthesised and evaluated as inhibitors of acetylcholinesterase. In a first approach, C$_3$-bridged naphthyridines were constructed from 2-chloro-3-(1-piperidinylmethyl)pyridine precursors. Alternatively, ring-closing metathesis was applied to construct an unsaturated C$_4$ bridge. Inhibition activities could be rationalised by comparative docking simulation studies based on the crystal structure of the acetylcholinesterase–huperzine A complex.

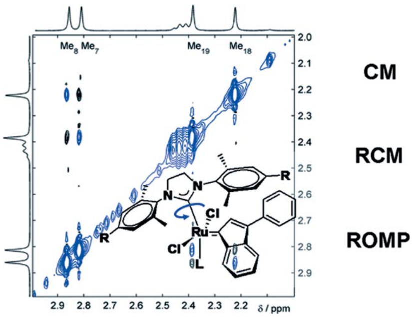
S. Vanlaer, A. Voet, C. Gielens, M. De Maeyer, F. Compernolle* **643–654**

Bridged 5,6,7,8-Tetrahydro-1,6-naphthyridines, Analogues of Huperzine A: Synthesis, Modelling Studies and Evaluation as Inhibitors of Acetylcholinesterase

Keywords: Tetrahydro-1,6-naphthyridines / Nucleophilic substitution / Ring-closing metathesis / Pyridines / Acetylcholinesterase / Inhibitors

Olefin Metathesis

The performance of six 2nd-generation indenylidene catalysts with formula Cl$_2$Ru(NHC)(L)(3-phenylinden-1-ylidene), where NHC is SIMes (R = Me) or SIMe (R = H) and L is PCy$_3$, PPh$_3$ or Py is reported, with complete NMR assignments and characterization of the rotameric behavior in solution. The results highlight the influence of *N*-aryl substitution patterns on the catalytic activity.



S. Monsaert, E. De Canck, R. Drozdzak, P. Van Der Voort, F. Verpoort,* J. C. Martins,* P. M. S. Hendrickx **655–665**

Indenylidene Complexes of Ruthenium Bearing NHC Ligands – Structure Elucidation and Performance as Catalysts for Olefin Metathesis

Keywords: Ruthenium / Olefin metathesis / Conformation analysis / Homogeneous catalysis / Indenylidene

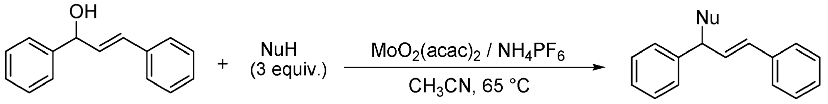
CONTENTS

Nucleophilic Substitution

H. Yang, L. Fang, M. Zhang, C. Zhu* **666–672**

An Efficient Molybdenum(VI)-Catalyzed Direct Substitution of Allylic Alcohols with Nitrogen, Oxygen, and Carbon Nucleo-philes

Keywords: Molybdenum / Nucleophilic substitution / Allylic compounds / Alcohols



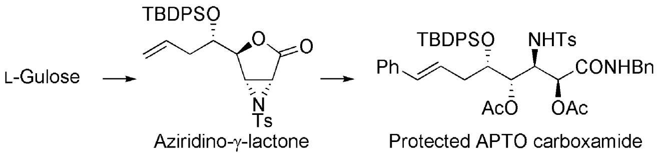
Readily available $MoO_2(acac)_2$ is a highly effective catalyst for the nucleophilic substitution of allylic alcohols, which provides a practical protocol for C–C, C–N, and C–O bond formation.

Natural Amino Acid Synthesis

A. Tarrade-Matha, M. S. Valle, P. Tercinier, P. Dauban,* R. H. Dodd* **673–686**

Enantiospecific Synthesis of a Protected Equivalent of APTO, the β-Amino Acid Fragment of Microsclerodermins C and D, by Aziridino-γ-lactone Methodology

Keywords: Microsclerodermins / Amino acids / Aziridines / Synthesis design / Nucleophilic ring-opening



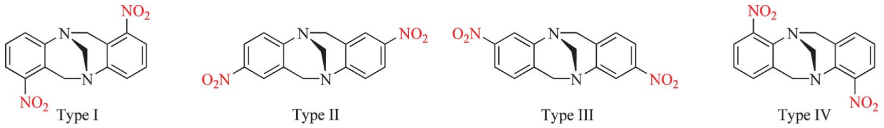
The efficient synthesis of a protected form of APTO, the α-hydroxy β-amino acid component of microsclerodermins C and D, starting from L-gulose is reported. The strategy is based on treatment of aziridino-γ-lactones with soft nucleophiles, which regioselectively affords α-substituted β-amino acids.

Dinitro Tröger's Bases

M. D. H. Bhuiyan, A. B. Mahon, P. Jensen, J. K. Clegg, A. C. Try* **687–698**

Synthesis of Symmetric Dinitro-Functionalised Tröger's Base Analogues

Keywords: Tröger's base / Chirality / Aromatic substitution / Nitroanilines



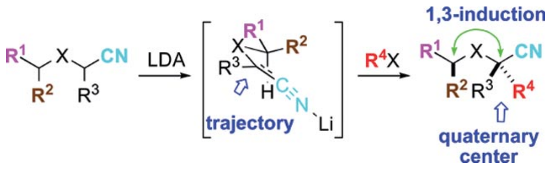
More than 20 nitroanilines were converted into dinitro Tröger's base analogues for the first time.

1,3-Asymmetric Induction

F. F. Fleming,* W. Liu **699–708**

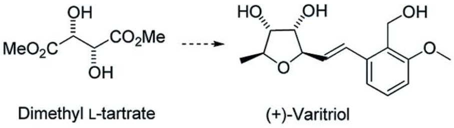
Metalated Nitriles: Internal 1,3-Asymmetric Induction

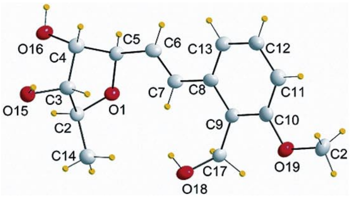
Keywords: Nitrile / Conformation analysis / Alkylation / Diastereoselectivity



Stereoselective alkylations of substituted pentanenitriles reveal the fundamental requirements for 1,3-asymmetric induction and provide a predictive model based on the more stable diamond lattice conformation. Using this strategy, metalated pentanenitriles selectively intercept a diverse range of electrophiles to install new quaternary centers in flexible metalated nitriles having a defined shape.

Natural Product Synthesis





The total synthesis of natural (+)-varitriol was accomplished by starting from dimethyl L-tartrate. The absolute configuration of the target was confirmed by single-crystal X-ray analysis for the first time.

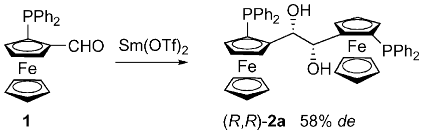
M. Palík, O. Karlubíková, A. Lásiková, J. Kožíšek, T. Gracza* 709–715

Total Synthesis of (+)-Varitriol

Keywords: Natural products / Total synthesis / Homogeneous catalysis / Palladium

Pinacol Coupling Reactions

The pinacol coupling reaction of ferrocenecarbaldehyde **1** was smoothly mediated by $Sm(OTf)_2$ to give (*R*,*R*)-diol **2a** predominantly (58%*de*), whereas the use of SmI_2 resulted in low selectivity. The rhodium complexes of **2a** were good catalysts for the asymmetric hydrogenation of α-acetamidocinnamic acid, and the product was obtained quantitatively with up to 92%*ee*.

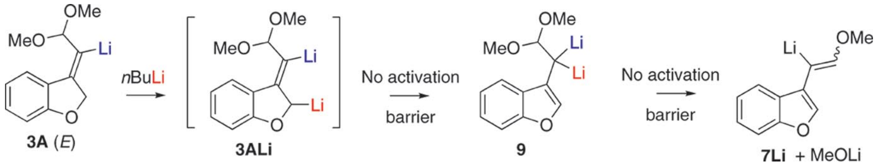


S.-i. Fukuzawa,* I. Oura, K. Shimizu, M. Kato, K.-i. Ogata 716–720

Divalent Samarium Triflate Mediated Stereoselective Pinacol Coupling of Planar Chiral Phosphanyl and Phosphoryl Ferrocenecarbaldehyde

Keywords: Samarium / Sandwich complexes / Radical reactions / Phosphanes / P ligands

Reaction Mechanism Elucidation



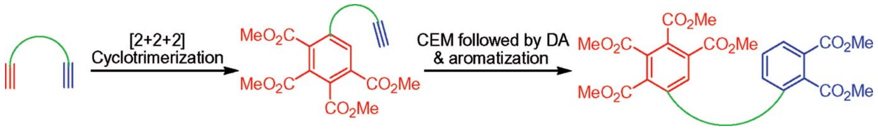
The elimination of a lithium methoxide from β-lithiated acetal **3A** most likely takes place through a second deprotonation with an excess of *n*BuLi. The resulting 1,3-dilithio intermediate **3ALi** is transformed into *gem*-dilithio **9**, which undergoes spontaneous β-elimination of a lithium methoxide.

C. Fressigné,* A.-L. Girard, M. Durandetti, J. Maddaluno* 721–729

Is the Elimination of Lithium Alkoxide Easier from a Vinyllithium or from an Alkyllithium? A DFT Study of the Aromatization of 3-Vinylidene-2,3-dihydrobenzofurans to Benzofurans

Keywords: Reaction mechanism / Density functional calculations / Elimination / Aromatization / Lithium / Acetals

Polysubstituted Diphenylalkanes



The two acetylenic ends of untethered α,ω-diyne scaffold have been functionalized in a stepwise manner to construct polysubstituted diphenylalkane derivatives by a strategic utilization of [2+2+2] cyclotrimerization, cross-enyne metathesis and Diels–Alder reaction as key steps.

S. Kotha,* P. Khedkar 730–738

A Diversity-Oriented Approach to Diphenylalkanes by Strategic Utilization of [2+2+2] Cyclotrimerization, Cross-Enyne Metathesis and Diels–Alder Reaction

Keywords: Cyclotrimerization / Diels–Alder reaction / Diphenylalkanes / Diversity-oriented approach / Metathesis

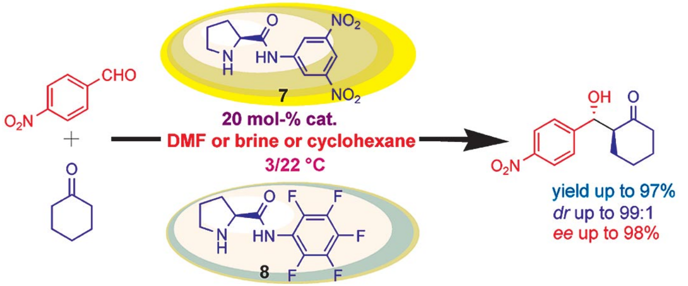
CONTENTS

Organocatalysis

J. N. Moorthy,* S. Saha 739–748

Highly Diastereo- and Enantioselective Aldol Reactions in Common Organic Solvents Using *N*-Arylprolinamides as Organocatalysts with Enhanced Acidity

Keywords: Asymmetric synthesis / Aldol reactions / Organocatalysis / Proline / Amides / C–C bond formation



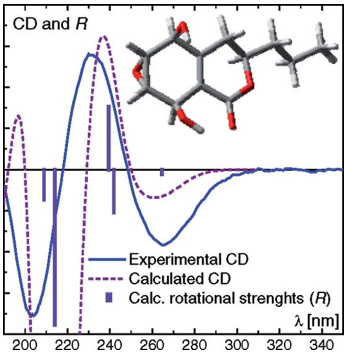
Among a variety of *N*-arylamides, *N*-(pentafluorophenyl)prolinamide (**8**) is found to catalyze aldol reactions in highly nonpolar as well as polar solvents including brine to afford high yields of aldols with excellent diastereo- as well as enantioselectivity. The molecular structures of **8** and its 3,5-dinitrophenyl analog **7**, determined by X-ray crystallography, reveal that the former may bind the electrophilic aldehydes better in the transition state via hydrogen bonding.

Natural Products

H. Hussain, N. Akhtar,
S. Draeger, B. Schulz, G. Pescitelli,
P. Salvadori, S. Antus, T. Kurtán,
K. Krohn* 749–756

New Bioactive 2,3-Epoxycyclohexenes and Isocoumarins from the Endophytic Fungus *Phomopsis* sp. from *Laurus Azorica*

Keywords: Endophytic fungi / *Phomopsis* sp. / Biological activity / Natural products / Cycloepoxylactone / Cycloepoxytriol / Phomolactones / Circular dichroism / TDDFT calculations



The relative configuration of new biologically active epoxycyclohexenediols and isocoumarins, isolated from the endophytic fungus *Phomopsis* sp., were elucidated by extensive NMR spectroscopy. Their absolute configurations were determined by circular dichroism and comparison of solution CD spectra with TDDFT-calculated ones.

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* Author to whom correspondence should be addressed.

Supporting information on the WWW (see article for access details).