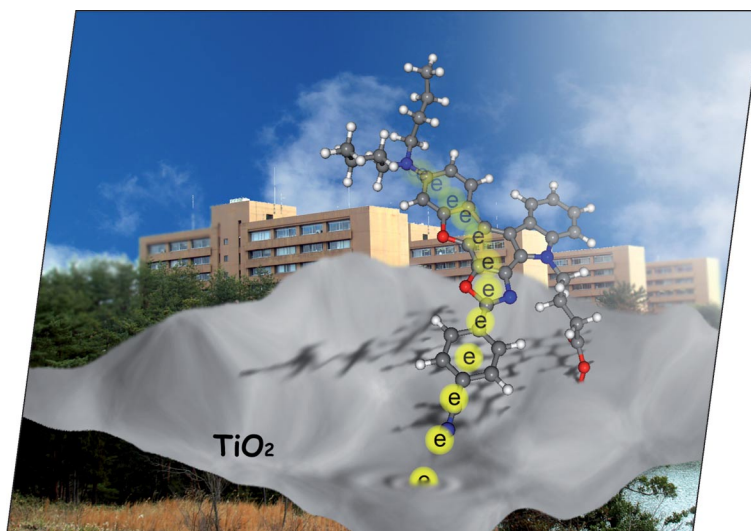


A union formed by chemical societies in Europe (ChemPubSoc Europe) has taken the significant step into the future by merging their traditional journals, to form two leading chemistry journals, the *European Journal of Inorganic Chemistry* and the *European Journal of Organic Chemistry*. Three further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

COVER PICTURE

The cover picture shows dye-sensitized solar cells (DSSCs) based on organic dyes adsorbed on a nanocrystalline TiO_2 electrode. DSSCs have received considerable attention because of their high incident solar-light-to-electricity conversion efficiency and low cost of production. To create high-performance DSSCs, it is necessary to design and synthesize new and efficient organic dye photosensitizers with effective chromophores and substituents for the performance of DSSCs, which will be made possible by the exquisite molecular design and synthetic strategy of organic chemists. The background shows the architecture of the Department of Engineering, Hiroshima University, which is associated with the arrangement of organic dyes adsorbed on TiO_2 electrodes. The designs and synthesis of organic dyes for DSSCs are presented in the Microreview by Y. Ooyama and Y. Harima on p. 2903ff.



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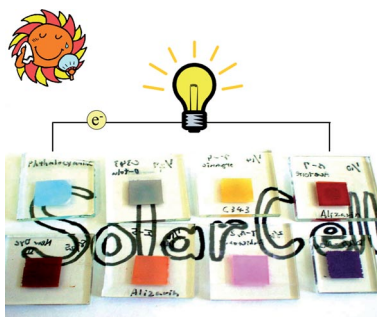
MICROREVIEW

Dye-Sensitized Solar Cells

Y. Ooyama,* Y. Harima* 2903–2934

Molecular Designs and Syntheses of Organic Dyes for Dye-Sensitized Solar Cells

Keywords: Dye-sensitized solar cells / Dyes/pigments / Energy conversion / Photochemistry / Photosensitizers / Photovoltaic performances



Dye-sensitized solar cells (DSSCs) based on organic dyes adsorbed on nanocrystalline TiO₂ electrodes have received considerable attention because of their high incident solar light-to-electricity conversion efficiencies and low costs of production. The aim of this microreview is to highlight the designs and syntheses of organic dyes for DSSCs based on recent work of organic chemists.

SHORT COMMUNICATIONS

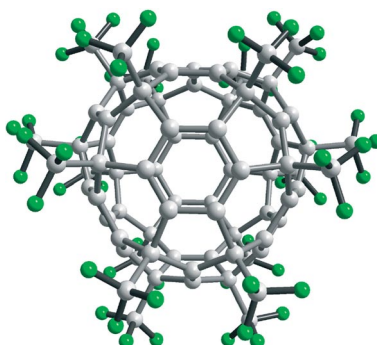
Trifluoromethylated Fullerene

N. A. Samokhvalova, P. A. Khavrel,
V. Yu. Markov, P. S. Samokhvalov,
A. A. Goruynkov, E. Kemnitz,
L. N. Sidorov, S. I. Troyanov* ... 2935–2938



Isolation and Structural Characterization of the Most Stable, Highly Symmetric Isomer of C₆₀(CF₃)₁₈

Keywords: Fullerenes / Trifluoromethylation / NMR spectroscopy / Structure elucidation



The energetically most stable isomer of C₆₀(CF₃)₁₈ with molecular C_{3v} symmetry has been obtained by isolation from a complex C₆₀(CF₃)_n isomer mixture and characterized by means of ¹⁹F NMR spectroscopy and single-crystal X-ray crystallography.

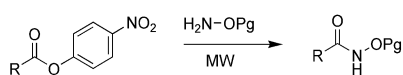
Hydroxamic Acid Synthesis

T. Kurz,* M. K. Pein, L. Marek,
C. T. Behrendt, L. Spanier, K. Kuna,
K. Brücher 2939–2942



Microwave-Assisted Conversion of 4-Nitrophenyl Esters into *O*-Protected Hydroxamic Acids

Keywords: Acylation / 4-Nitrophenyl esters / Hydroxamic acids / Microwave-assisted synthesis



Reactions of 4-nitrophenyl esters with differently *O*-protected hydroxylamines under microwave irradiation led to the corresponding *O*-protected hydroxamic acids in good yields and short reaction times.

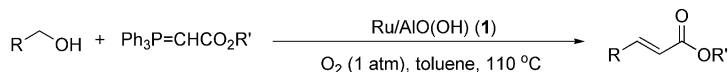
One-Pot Oxidation–Wittig Reaction

E. Y. Lee, Y. Kim, J. S. Lee,
J. Park* 2943–2946



Ruthenium-Catalyzed, One-Pot Alcohol Oxidation–Wittig Reaction Producing α,β -Unsaturated Esters

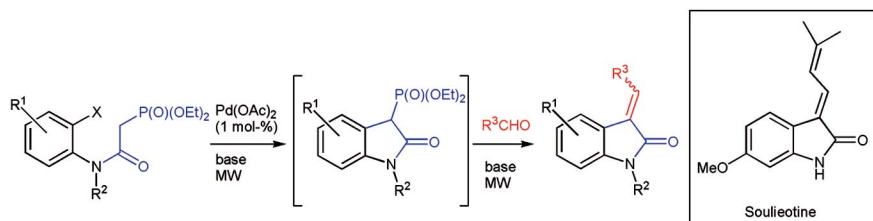
Keywords: Heterogeneous catalysis / Wittig reactions / Ruthenium / Oxidation



By a one-pot process, α,β -unsaturated esters were synthesized in high yield through the Ru-catalyzed oxidation of primary alcohols and the coupling of the resulting aldehydes and stabilized Wittig reagents. The

ruthenium catalyst is composed of ruthenium nanoparticles embedded in aluminum oxyhydroxide and can be recovered simply by filtration or decantation.

Telescoped Alkenyl-Oxindole Synthesis



A one-pot enolate arylation/HWE procedure has been developed to provide rapid access to a range of 3-alkenyl-oxindoles

and employed to achieve the first synthesis of Soulieotine, a constituent of a traditional Chinese medicine.

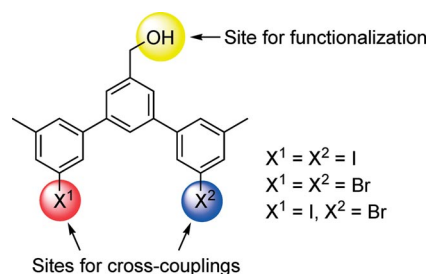
A. Millemaggi, A. Perry, A. C. Whitwood, R. J. K. Taylor* 2947–2952

Telescoped Enolate Arylation/HWE Procedure for the Preparation of 3-Alkenyl-Oxindoles: The First Synthesis of Soulieotine

Keywords: Horner–Wadsworth–Emmons olefination / Phosphonates / Enolate arylation / Palladium catalysis / Oxindoles / Telescoped reactions

Versatile *m*-Terphenylenes

According to the increasing interest in oligo- and polyphenylene-based nanostructures, a set of versatile *m*-terphenylenes has been designed. Their easy and multigram-scale syntheses are described. These compounds are considered key building blocks for the synthesis of new macrocycles, foldamers as well as other polymers using transition-metal mediated cross-coupling reactions.

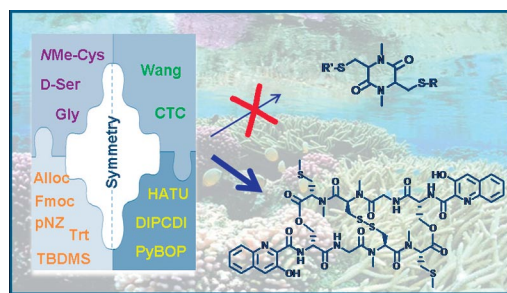


P. Kissel, S. Breitler, V. Reinmüller, P. Lanz, L. Federer, A. D. Schlüter, J. Sakamoto* 2953–2955

An Easy and Multigram-Scale Synthesis of Versatile AA- and AB-Type *m*-Terphenylenes as Building Blocks for Kinked Polyphenylenes

Keywords: Cross-coupling / Masking / Macrocycles / Foldamers / Polymers

FULL PAPERS



Investigations into the synthesis of oxathiocoraline revealed a number of unexpected side-reactions that could not be circumvented by classical or standard means. General points that should be addressed

when attempting the synthesis of a cyclo-depsipeptide – such as strategies to prevent or minimize diketopiperazine formation, β -elimination and oxidation byproducts – are described.

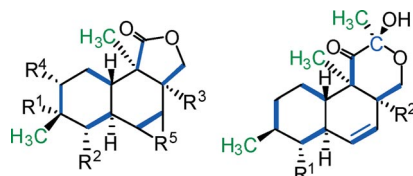
Waking Up from a DKP Nightmare!

N. Bayó-Puxan, J. Tulla-Puche,* F. Albericio* 2957–2974

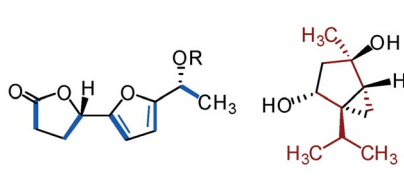
Oxathiocoraline: Lessons to be Learned from the Synthesis of Complex *N*-Methylated Depsipeptides

Keywords: Thiocoraline / Peptides / Solid-phase synthesis / Cysteine / Diketopiperazines / Synthesis design

Natural Products



Eleven new metabolites, including nine lovastatin analogues, one linear furanopolyketide and a monoterpene named dihydroxy-sabinane were isolated from the endophytic fungal strain *Phomopsis* sp. XZ-26 of



Camptotheca acuminata. Their structures were elucidated by spectroscopic methods and X-ray single-crystal analysis. A hypothetical biosynthetic pathway is proposed for oblongolides.

T. Lin, X. Lin, C. Lu, Z. Hu, W. Huang, Y. Huang, Y. Shen* 2975–2982

Secondary Metabolites of *Phomopsis* sp. XZ-26, an Endophytic Fungus from *Camptotheca acuminata*

Keywords: Camptotheca acuminata / Phomopsis sp. / Polyketides / Natural products / Oblongolide

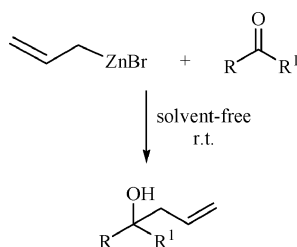
CONTENTS

Homoallylation of Carbonyls

Y. Zhang, X. Jia, J.-X. Wang* ... 2983–2986

The Solvent-Free Addition Reaction of Allylzinc Bromide and Carbonyl Compounds

Keywords: Green chemistry / Allylic compounds / Zinc / Alcohols / Carbonyl compounds



A variety of homoallylic alcohols were prepared in good to excellent yield under catalyst- and solvent-free conditions by the addition of allylzinc bromide to carbonyl compounds in an open atmosphere at room temperature.

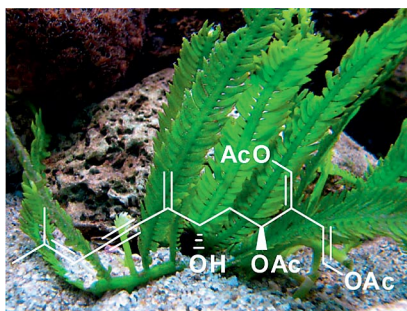
Toxic Sesquiterpenoids

L. Commeiras,* J. Thibonnet,
J.-L. Parrain* 2987–2997



Studies towards the Total Synthesis of (–)-Caulerpenynol, a Toxic Sesquiterpenoid of the Green Seaweed *Caulerpa taxifolia*

Keywords: Natural products / Total synthesis / Biological activity / Terpenoids



The first diastereoselective synthesis of the antimicrobial and cytotoxic agent (–)-caulerpenynol (**2**) was achieved in relatively few steps from commercially available (S)-malic acid. Highlights of this synthesis include the nonracemization of the sensitive α -hydroxy ketone moiety and the correct choice of protecting groups for the critical last deprotection step.

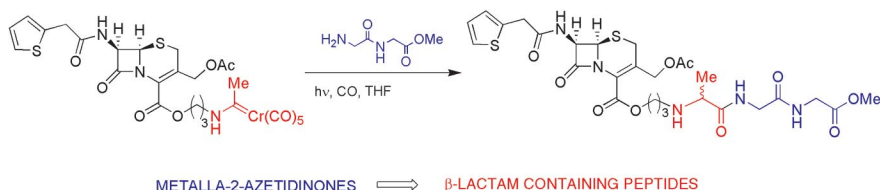
Metalla-Antibiotics

M. A. Sierra,* M. Rodríguez-Fernández,
L. Casarrubios, M. Gómez-Gallego,
M. J. Mancheño* 2998–3005



Synthesis of 2-Azetidinones Incorporating Carbenchromium(0) Moieties and Their Use in the Preparation of Penicillin- and Cephalosporin-Containing Peptides

Keywords: Chromium / Peptides / Lactams / Photochemistry / Carbonylation / Carbenes



β -Lactams incorporating a carbenchromium(0) moiety in their structures are suitable precursors for the preparation of α -amino esters, dipeptides and tripeptides

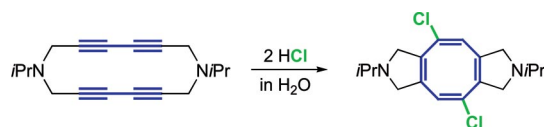
tethered to a 2-azetidinone ring. Penicillin and cephalosporin derivatives are also available by this approach.

Transannular Reactions

R. Gleiter,* K. Hövermann, B. Esser,
A. Bandyopadhyay 3006–3010

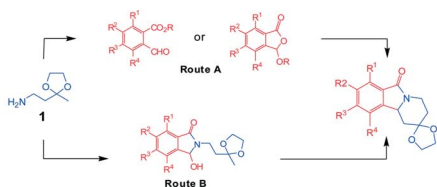
Transannular Ring Closure of a 1,8-Diazacyclotetradeca-3,5,10,12-tetrayne to a Tricyclic System with a Central Cyclooctatetraene Ring

Keywords: Alkynes / Butadiynes / Cyclization / Medium-ring compounds / Structure elucidation / Transannular reactions



On treatment with aqueous HCl the two butadiyne units in 14-membered cyclic systems perform a transannular reaction leading to 5-8-5 patterned tricyclic systems.

The positioning of the chlorine atoms depends on the number of nitrogen atoms in the cycle.



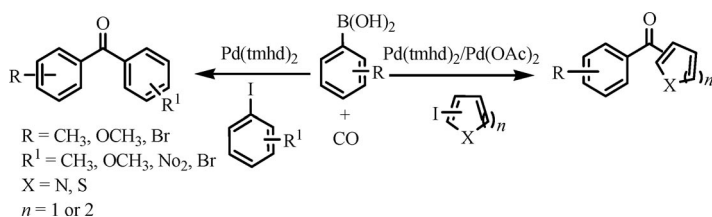
Two different methods have been employed to prepare the hexahydropyrido[2,1-*a*]isoindolone framework in good overall yield.

**M. Chiurato, S. Routier,* Y. Troin,*
G. Guillaumet 3011–3021**

New Efficient Route to Fused Aryltetrahydroindolizinones via *N*-Acyliminium Intermediates

Keywords: Iminium / Indolizinones / Carbonylation / Lithiation / Nitrogen heterocycles

Carbonylative Suzuki Couplings



A facile protocol was developed for the synthesis of biaryl ketones through a carbonylative Suzuki coupling reaction with the use of Pd(tmhd)₂/Pd(OAc)₂ as a phos-

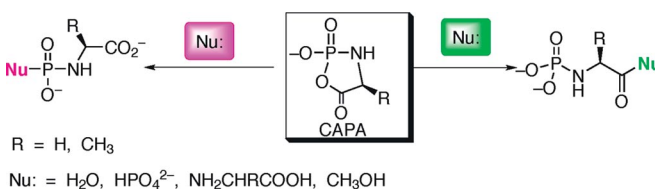
phine-free catalyst. The catalytic system is applicable to carbonylative couplings of both aromatic and heteroaromatic aryl iodides with various phenylboronic acids.

**P. J. Tambade, Y. P. Patil, A. G. Panda,
B. M. Bhanage* 3022–3025**

Phosphane-Free Palladium-Catalyzed Carbonylative Suzuki Coupling Reaction of Aryl and Heteroaryl Iodides

Keywords: Carbonylation / Cross-coupling / Palladium / Boron

Cyclic Acylphosphoramidates



The bielectrophilicity of α-CAPAs, phosphomimics of α-NCAs, was identified by isotopic analysis (¹⁸O, ¹⁵N) and further proved by trapping α-CAPA with nucleo-

philes such as water, amino acids, phosphate and methanol in alkaline media, which yielded interesting phosphorylated products.

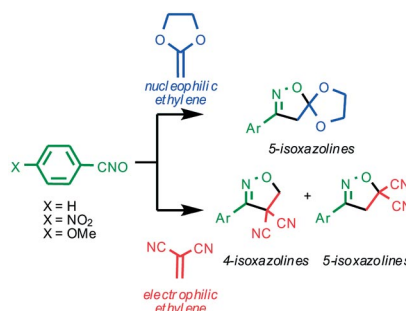
**F. Ni, X. Gao, Z. X. Zhao, C. Huang,
Y. F. Zhao* 3026–3035**

On the Electrophilicity of Cyclic Acylphosphoramidates (CAPAs) Postulated as Intermediates

Keywords: Amino acids / Bielectrophilicity / NMR spectroscopy / Phosphorus

1,3-Dipolar Cycloadditions

Whereas the cycloaddition reactions of benzonitrile *N*-oxides with electron-rich ethylenes are completely regioselective, yielding 5-isoxazolines, the reactions with electron-deficient ethylenes give a mixture of 4- and 5-isoxazolines.



**L. R. Domingo,* E. Chamorro,
P. Pérez 3036–3044**

An Analysis of the Regioselectivity of 1,3-Dipolar Cycloaddition Reactions of Benzonitrile *N*-Oxides Based on Global and Local Electrophilicity and Nucleophilicity Indices

Keywords: Nitrile *N*-oxides / Cycloaddition / Regioselectivity / Electrophilicity / Nucleophilicity / Heterocycles

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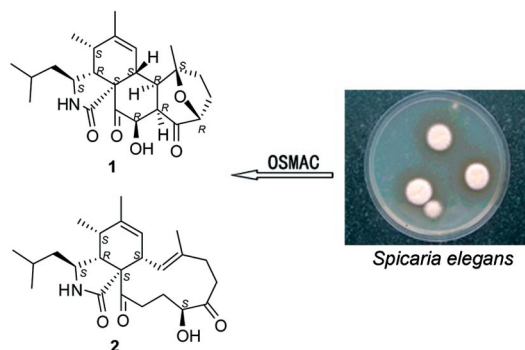
Natural Products Chemistry

Z. Lin, T. Zhu, H. Wei, G. Zhang,
H. Wang, Q. Gu* 3045–3051



Spicochalasin A and New Aspochalasins
from the Marine-Derived Fungus *Spicaria*
elegans

Keywords: Spicochalasin A / Cytochalasins / Antibiotics / Natural products / Marine fungi / Antitumor agents



Different culture conditions directed by the OSMAC (one strain-many compounds) approach yielded a novel spicochalasin A (1) and five new aspochalasins M–Q (2–6). Their absolute configurations were determined by X-ray diffraction and the Mosher

ester method. Spicochalasin A (1) has a unique pentacyclic system and was found to be moderately cytotoxic towards human leukemic HL-60 cells with an IC_{50} value of 19.9 μM .

Xanthene Derivatives

L. E. Luna, R. M. Cravero* R. Faccio,
H. Pardo, Á. W. Mombrú,
G. Seoane 3052–3057



Synthesis of 9-Substituted-1,8-Dioxooctahydroxanthenes by an Efficient Iodine-Catalyzed Cyclization

Keywords: Oxygen heterocycles / Iodine / Cyclization / Alkynes / Fused-ring systems



A simple, practical, and efficient method for the synthesis of 1,8-dioxooctahydroxanthenes with substituents in the 2-, 3-, and 9-positions was developed by employing a sequential tandem Michael–iodine-cata-

lyzed cyclization. The isolation and the X-ray molecular structure of the 4a-hydroxyxanthene intermediate verify the proposed mechanistic pathways.

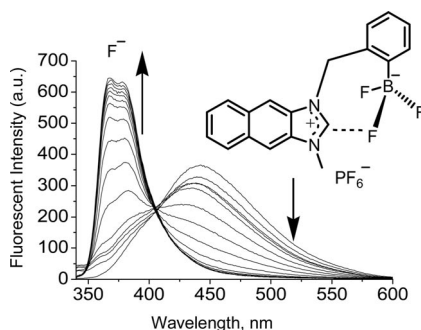
Ratiometric Fluoride Probe

Z. Xu, S. K. Kim, S. J. Han, C. Lee,
G. Kociok-Kohn, T. D. James,*
J. Yoon* 3058–3065



Ratiometric Fluorescence Sensing of Fluoride Ions by an Asymmetric Bidentate Receptor Containing a Boronic Acid and Imidazolium Group

Keywords: Anions / Fluorides / Boron / Heterocycles / Fluorescence



An asymmetric bidentate receptor containing boronic acid and an imidazolium group can recognize F^- , as evidenced by ratiometric fluorescence responses in aqueous solution.

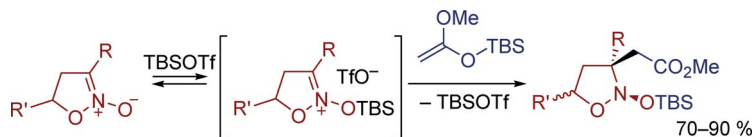
Bis(oxy)iminium Ion Chemistry

V. O. Smirnov, A. S. Sidorenkov,
Y. A. Khomutova, S. L. Ioffe,*
V. A. Tartakovskiy 3066–3074



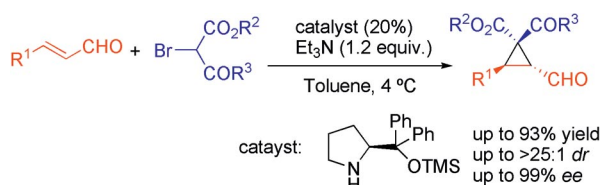
Five-Membered Cyclic Nitronates in C–C Coupling with 1-(*tert*-Butyldimethylsilyloxy)-1-methoxyethylene

Keywords: Nitronates / C–C coupling / Acetals / Heterocycles / Iminium ions



Five-membered cyclic nitronates undergo C–C coupling reactions with a silyl ketene acetal in the presence of trialkylsilyl triflate to give isoxazolidines that are inaccessible by conventional methods. The reaction

proceeds via a bis(oxy)iminium ion as intermediate. Some transformations of the obtained *N*-silyloxyisoxazolidines have been examined.



Chiral cyclopropanes with three stereocenters are easily synthesized from α,β -unsaturated aldehydes and 2-bromo keto esters in

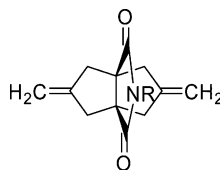
high yields and good to excellent diastereo- and enantioselectivities.

X. Companyó, A.-N. Alba, F. Cárdenas, A. Moyano, R. Rios* 3075–3080


Asymmetric Organocatalytic Cyclopropanation – Highly Stereocontrolled Synthesis of Chiral Cyclopropanes with Quaternary Stereocenters

Keywords: Cyclopropanation / Organocatalysis / Enantioselectivity / Diastereoselectivity / Quaternary centers

An easy access to *cis*-3,7-dimethylenecyclo[3.3.0]octane-1,5-dicarboximides by double methylenecyclopentane annulation of *N*-substituted succinimides is described. Ozonization of these compounds gave the corresponding 3,7-dioxo derivatives; these kinds of compounds have never been obtained through the Bertz–Weiss–Cook reaction.



P. Camps,* J. A. Fernández, J. Rull, S. Vázquez 3081–3087

Double Methylenecyclopentane Annulation of Succinimides: Easy Access to 3,7-Dioxobicyclo[3.3.0]octane-1,5-dicarboximides 

Keywords: Alkylation / Annulation / Carbocycles / Lithiation / Ozonolysis

* Author to whom correspondence should be addressed.

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