



Contents lists available at ScienceDirect

Tetrahedron

journal homepage: www.elsevier.com/locate/tet

Tetrahedron Vol. 65, Issue 31, 2009

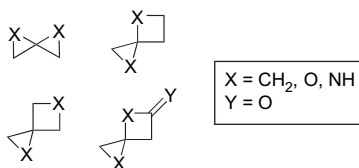
Contents

REPORT

Synthesis of unusually strained spiroheterocyclic ring systems and their exploits in synthesis

pp 5879–5892

Richard J. Duffy, Kay A. Morris, Daniel Romo*

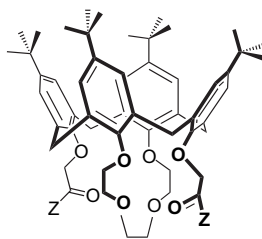


ARTICLES

Di-ionizable *p*-tert-butylcalix[4]arene-1,3-crown-4 ligands: synthesis and alkaline earth metal cation extraction

pp 5893–5898

Xiaodong Liu, Kazimierz Surowiec, Richard A. Bartsch*

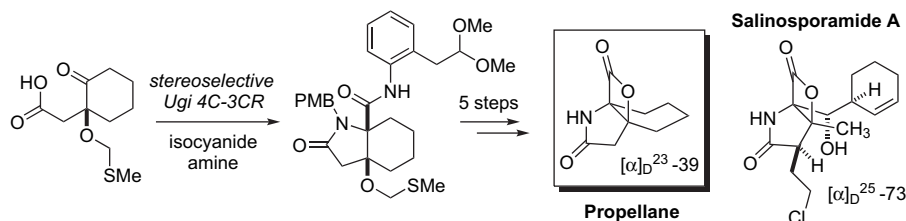


Z = OH and NH₂SO₂X with X = Me,
Ph, C₆H₄-4-NO₂, and CF₃

Propellane as a conformational device for the stabilization of the β -lactone of salinosporamide A

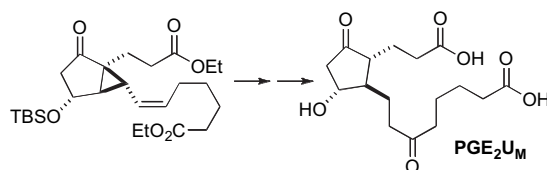
pp 5899–5903

Mitchell Vamos, Yoshihisa Kobayashi*

**Preparation of the major urinary metabolite of (–)-prostaglandin E_2**

pp 5904–5907

Douglass F. Taber*, Peiming Gu

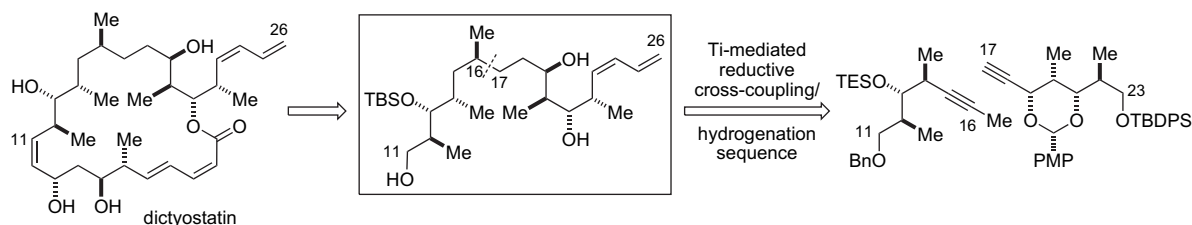


The best way to measure whole body production of the locally acting hormone prostaglandin E_2 (PGE₂) is to assess the accumulation of the major urinary metabolite, PGE₂U_M. A practical preparation of this delicate diacid is described. This synthetic PGE₂U_M will enable production of the antibodies that will be used to quantify this key metabolite.

**A formal total synthesis of dictyostatin**

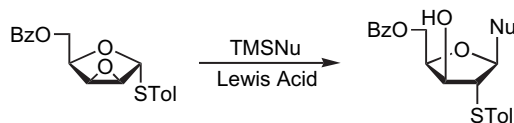
pp 5908–5915

Heidi L. Shimp, Glenn C. Micalizio*

**2,3-Anhydrosugars in glycoside bond synthesis: application to furanosyl azides and C-glycosides**

pp 5916–5921

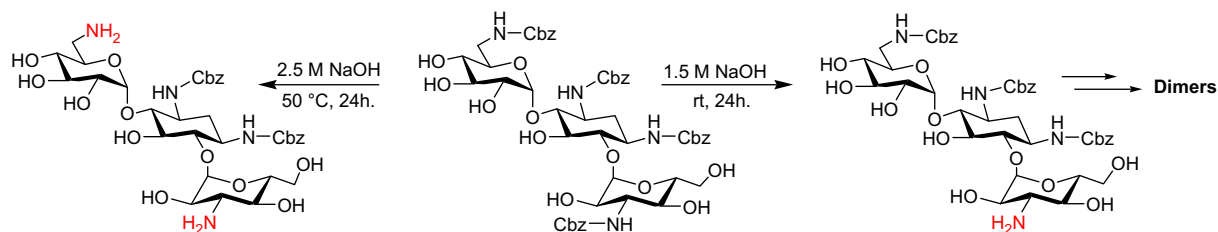
Dianjie Hou, Todd L. Lowary*



Selective deprotection of the Cbz amine protecting group for the facile synthesis of kanamycin A dimers linked at *N*-3'' position

pp 5922–5927

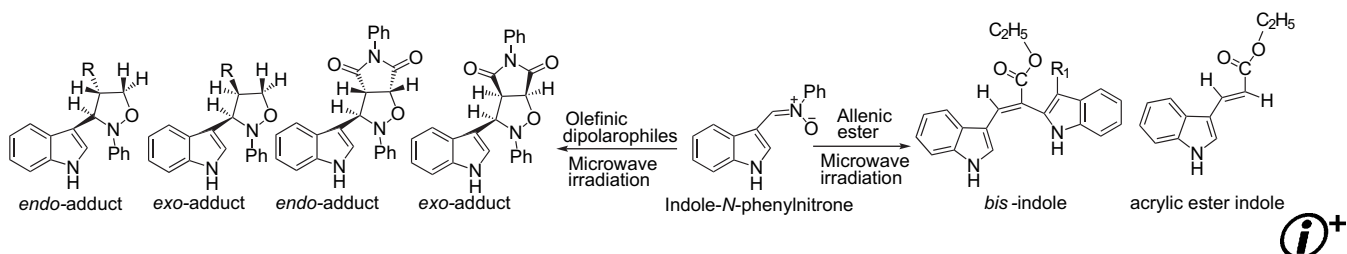
Gui-Hui Chen, Pan Pan, Ying Chen, Xiang-Bao Meng, Zhong-Jun Li*



Investigations on synthesis of indole based constrained mimetic scaffolds through 1,3-dipolar cycloadditions of the C-(3-indolyl)-*N*-phenylnitron with a variety of olefinic and allenic dipolarophiles under microwave irradiation

pp 5928–5935

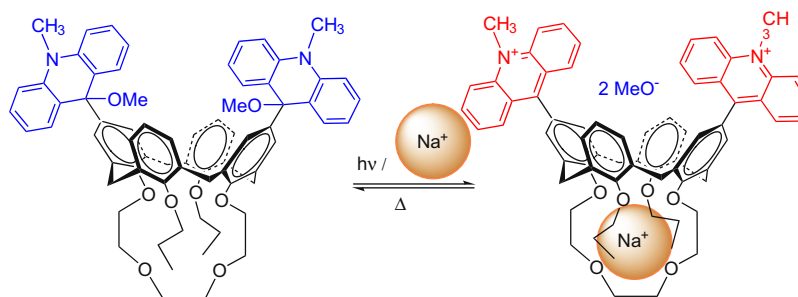
Surinderjit Singh Bhella, Ajay Pal Singh Pannu, Munusamy Elango, Ashish Kapoor, Maninder Singh Hundal, Mohan Paul S. Ishar*



Photo, proton and metal ion responsive wide-rim acridane substituted calix[4]arenes

pp 5936–5944

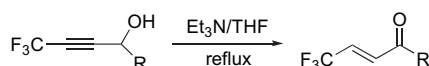
L. Grubert, H. Hennig, W. Abraham*



Facile conversion of 4,4,4-trifluorobut-2-yn-1-ols to 4,4,4-trifluorobut-2-en-1-ones

pp 5945–5948

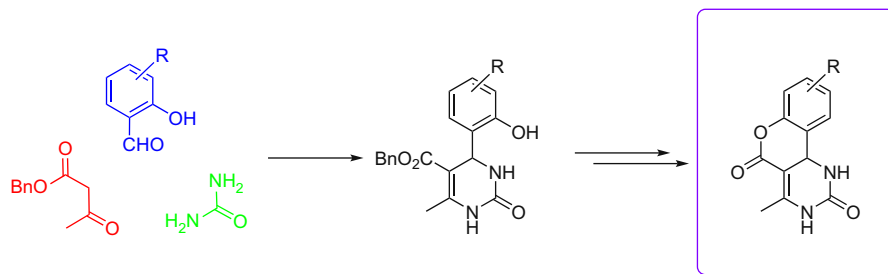
Takashi Yamazaki*, Tomoko Kawasaki-Takasuka, Atsushi Furuta, Shogo Sakamoto



Synthesis of fused dihydro-pyrimido[4,3-d]coumarins using Biginelli multicomponent reaction as key step

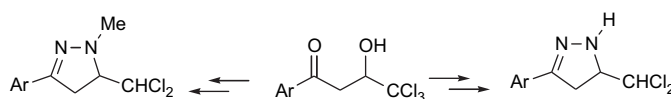
pp 5949–5957

Mihaela Matache, Cristian Dobrota, Niculina D. Bogdan, Ioana Dumitru, Lavinia L. Ruta, Codruta C. Paraschivescu, Ileana C. Farcasanu, Ion Baci, Daniel P. Funeriu*

**A new and efficient approach to pyrazolines. First synthesis of 3-aryl-5-dichloromethyl-2-pyrazolines**

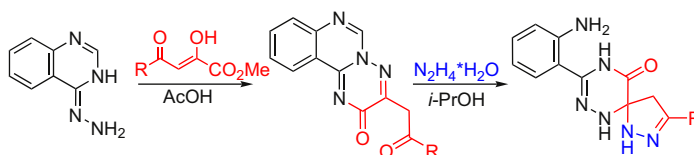
pp 5958–5963

Antonio Guirado*, Bruno Martiz, Raquel Andreu, Delia Bautista

**Synthesis of spiro-fused (C5)-pyrazolino-(C6)-triazinones, a new heterocyclic system**

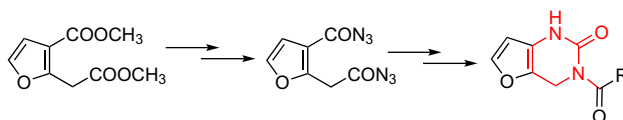
pp 5964–5972

Alexander V. Karpenko*, Sergey I. Kovalenko, Oleg V. Shishkin

**Regioselective synthesis of the 3,4-dihydrofuro[3,2-d]pyrimidin-2(1H)-one skeleton: a new class of compound**

pp 5973–5976

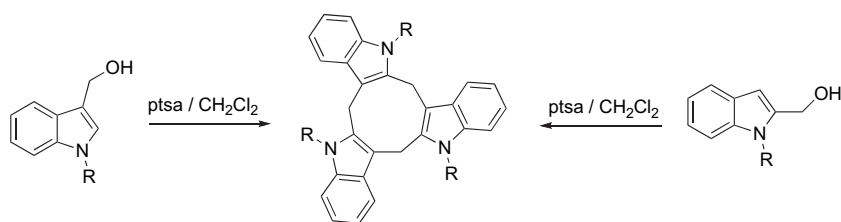
Gani Koza, Sevil Özcan, Ertan Şahin, Metin Balci*



Synthesis of indolocyclotrimeratrylenes

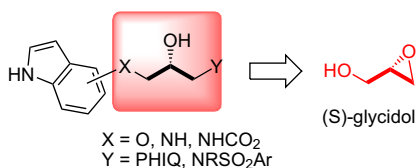
pp 5977–5983

Mardi Santoso, Kittiya Somphol, Naresh Kumar, David StC. Black*

**New indolic non-peptidic HIV protease inhibitors from (S)-glycidol: synthesis and preliminary biological activity**

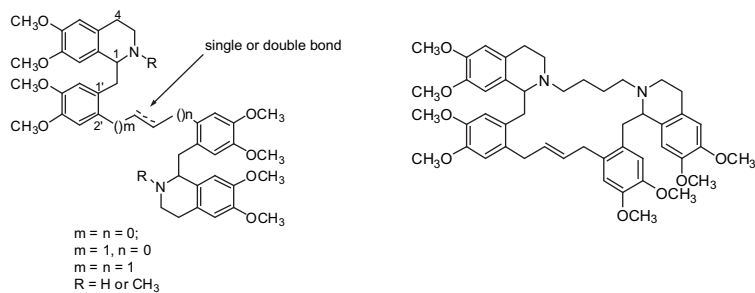
pp 5984–5989

Lucia Chiummiento, Maria Funicello*, Paolo Lupattelli, Francesco Tramutola, Pietro Campaner

**The synthesis of carbon-linked bisbenzylisoquinolines via ruthenium-mediated olefin-metathesis**

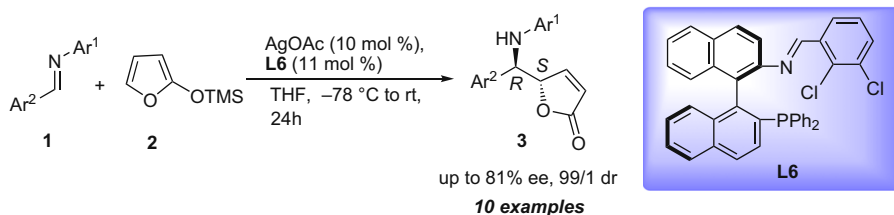
pp 5990–6000

Uta Mbere-Nguyen, Alison T. Ung*, Stephen G. Pyne*

**The application of chiral phosphine-Schiff base type ligands in silver(I)-catalyzed asymmetric vinylogous Mannich reaction of aldimines with trimethylsiloxyfuran**

pp 6001–6007

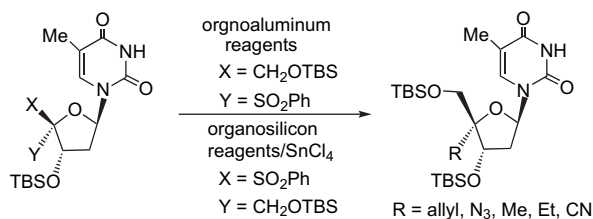
Zhi-Liang Yuan, Jia-Jun Jiang, Min Shi*



Nucleophilic substitution approach to 4'-substituted thymidines by employing 4'-benzenesulfonyl leaving group

pp 6008–6016

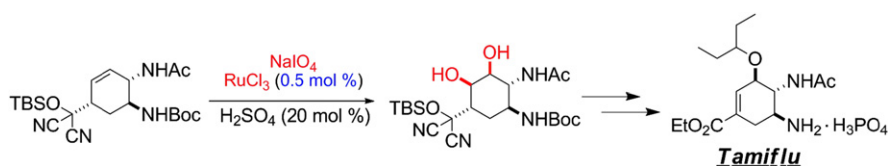
Hisashi Shimada, Satoshi Kikuchi, Saori Okuda, Kazuhiro Haraguchi, Hiromichi Tanaka*



An alternative synthesis of Tamiflu®: a synthetic challenge and the identification of a ruthenium-catalyzed dihydroxylation route

pp 6017–6024

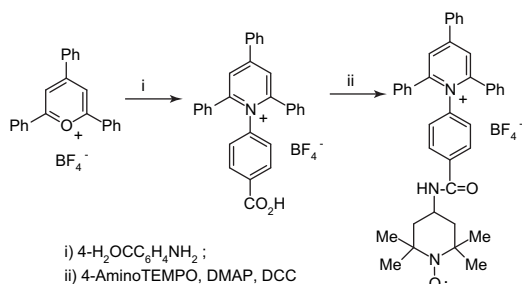
Kenzo Yamatsugu, Motomu Kanai*, Masakatsu Shibasaki*

Ruthenium-catalyzed dihydroxylation successfully circumvented the need of Mitsunobu inversion of α -alcohol in our previously reported synthesis of Tamiflu®.

A new dual probe for hydrogen abstraction

pp 6025–6028

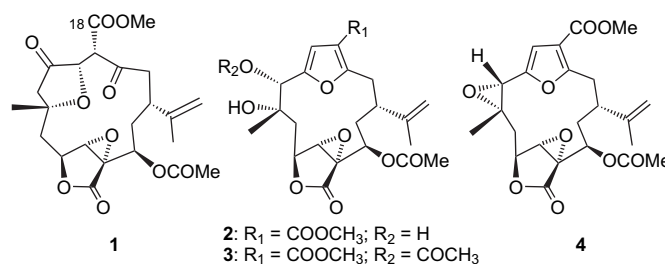
Carolina Aliaga*, Marcos Caroli Rezende, Cristian Tirapegui



Leptogorgolide, a biogenetically interesting 1,4-diketo-cembranoid that reinforces the oxidation profile of C-18 as taxonomical marker for octocorals

pp 6029–6033

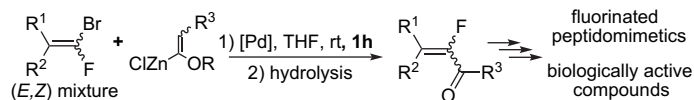
Ana R. Díaz-Marrero*, Gina Porras, Mercedes Cueto, Luís D'Croz, Manuel Lorenzo, Aurelio San-Martín, J. Darias



Synthesis of tetrasubstituted α -fluoroenones

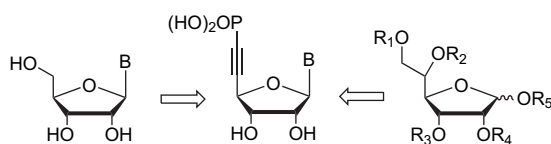
pp 6034–6038

Guillaume Dutheuil, Samuel Couve-Bonnaire, Xavier Pannecoucke*

**Developing an efficient route to the synthesis of nucleoside 1-alkynylphosphonates**

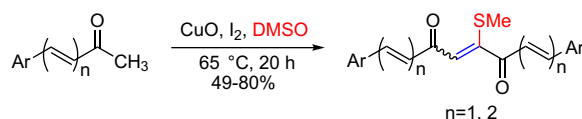
pp 6039–6046

Maïa Meurillon, Franck Gallier, Suzanne Peyrottes*, Christian Périgaud

**A concise and efficient way to synthesize polyenic diones directly from α,β -unsaturated methyl ketones**

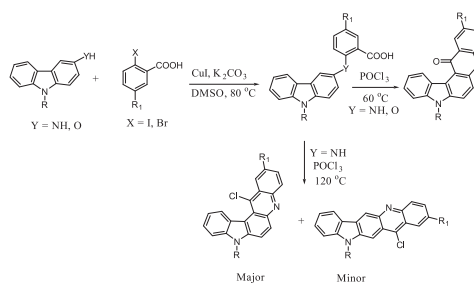
pp 6047–6049

Meng Gao, Guodong Yin, Zihua Wang, Yandong Wu, Cheng Guo, Yuanjiang Pan, Anxin Wu*

**A rapid and efficient entry to synthesis of quino and chromenocarbazoles via Ullmann–Goldberg condensation**

pp 6050–6056

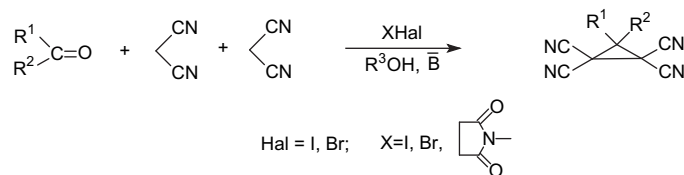
Ramu Meesala, Rajagopal Nagarajan*



A new type of cascade reaction: direct conversion of carbonyl compounds and malononitrile into substituted tetracyanocyclopropanes

pp 6057–6062

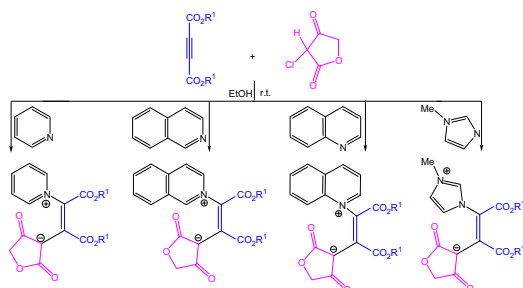
Michail N. Elinson*, Anatolii N. Vereshchagin*, Nikita O. Stepanov, Alexey I. Ilovaisky, Alexander Ya. Vorontsov, Gennady I. Nikishin



Synthesis of highly stable unusual charge-separated pyridinium-, isoquinolinium-, quinolinium-, and N-methylimidazolium-tetronic acid zwitterions

pp 6063–6068

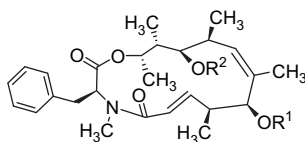
Ahmad Shaabani*, Ali Hossein Rezayan, Afshin Sarvary, Marjan Heidary, Seik Weng Ng



Torrubiellutins A–C, from insect pathogenic fungus *Torrubiella luteorostrata* BCC 12904

pp 6069–6073

Pattama Pittayakhajonwut*, Atit Usuwan, Chakapong Intaraudom, Punsu Khoyaiklang, Sumalee Supothina



- 1) R¹ = R² = H
- 2) R¹ = R² = COCH₃
- 3) R¹ = H, R² = COCH₃

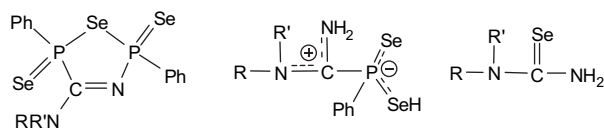
Macrocyclic torrubiellutins A–C (**1–3**) isolated from the insect pathogenic fungus *Torrubiella luteorostrata* BCC 12904 and their biological activities were reported.



Novel heterocyclic selenazadiphospholaminediselenides, zwitterionic carbamidoyl(phenyl)-phosphinodiselenoic acids and selenoureas derived from cyanamides

pp 6074–6082

Guoxiong Hua, Qingzhi Zhang, Yang Li, Alexandra M.Z. Slawin, J. Derek Woollins*

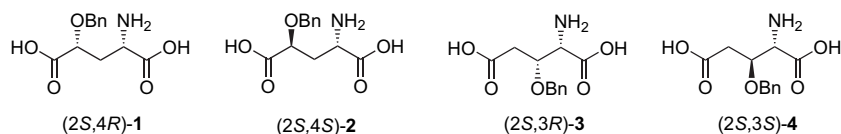


New selenium containing heterocycles and selenoureas are obtained from Woollins' reagent

Synthesis of new β - and γ -benzyloxy-S-glutamic acid derivatives and evaluation of their activity as inhibitors of excitatory amino acid transporters

pp 6083–6089

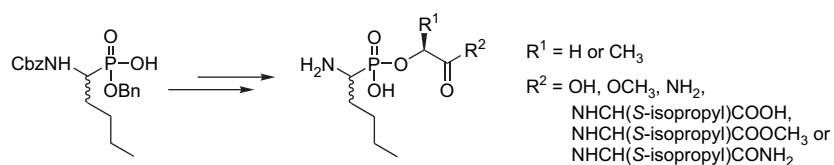
Lucia Tamborini, Paola Conti*, Andrea Pinto, Simona Colleoni, Marco Gobbi, Carlo De Micheli



Efficient synthesis of phosphonodipeptides derived from norleucine

pp 6090–6103

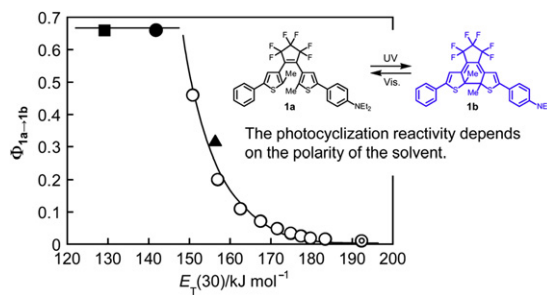
Jan Pícha, Miloš Buděšínský, Ivona Hančlová, Miloslav Šanda, Pavel Fiedler, Václav Vaněk, Jiří Jiráček*



Solvent effect on photochromism of a dithienylperfluorocyclopentene having diethylamino group

pp 6104–6108

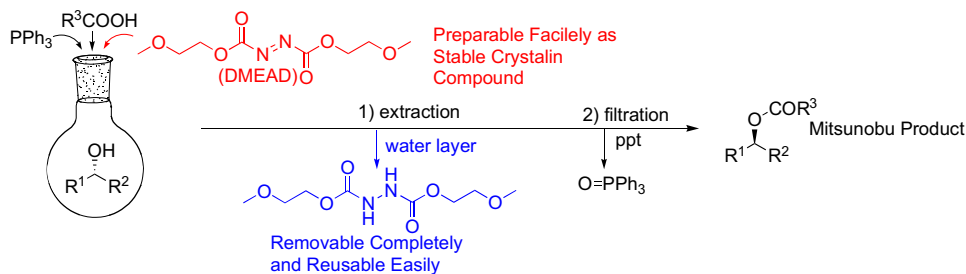
Seiya Kobatake*, Yuko Terakawa, Hiroyuki Imagawa



DMEAD: a new dialkyl azodicarboxylate for the Mitsunobu reaction

pp 6109–6114

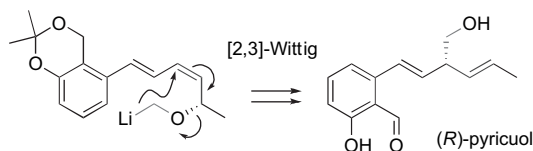
Kazutake Hagiya, Natsuko Muramoto, Tomonori Misaki, Takashi Sugimura*



Synthesis and plant growth inhibitory activity of both enantiomers of pyriculol, a phytotoxin isolated from rice blast disease fungus *Magnaporthe grisea*

pp 6115–6122

Koji Tanaka, Yoko Nakamura, Ayaka Sasaki, Rumi Ueda, Yuji Suzuki, Shigefumi Kuwahara, Hiromasa Kiyota*

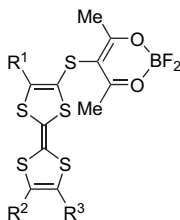


Both enantiomers and racemate of pyriculol, a phytotoxin isolated from the rice blast disease fungus, *M. grisea*, have been synthesized by using Stille coupling and [2,3]-Wittig rearrangement reactions as the key steps. Both enantiomers induced dark necrotic lesions on rice leaves almost equally.

Tetrathiafulvalenyl-acetylacetonate complexes of difluoroboron

pp 6123–6127

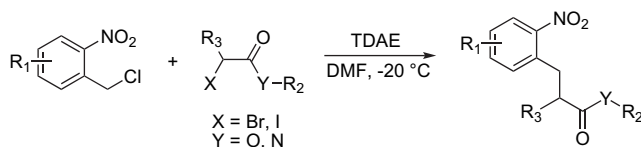
Michel Guerro, Thierry Roisnel, Dominique Lorcy*



Original TDAE strategy using α -halocarbonyl derivatives

pp 6128–6134

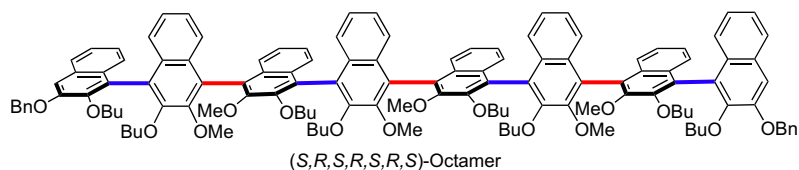
Marc Since, Thierry Terme, Patrice Vanelle*



Synthesis and properties of *S,R*-alternating octinaphthalenes

pp 6135–6140

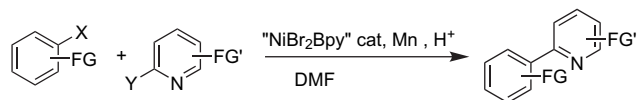
Kazuto Takaishi, Daisuke Sue, Shunsuke Kuwahara, Nobuyuki Harada, Takeo Kawabata, Kazunori Tsubaki*



Synthesis of functionalized 2-arylpyridines from 2-halopyridines and various aryl halides via a nickel catalysis

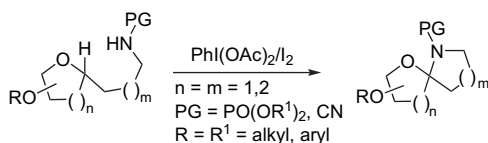
pp 6141–6146

Corinne Gosmini*, Carine Bassene-Ernst, Muriel Durandetti

**Synthesis of oxa-aza spirobicycles by intramolecular hydrogen atom transfer promoted by N-radicals in carbohydrate systems**

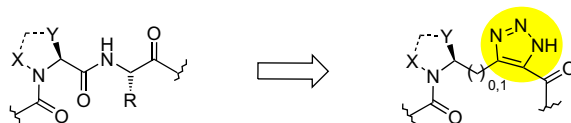
pp 6147–6155

Angeles Martín*, Inés Pérez-Martín, Ernesto Suárez*

**Novel triazolepeptides: chiroselective synthesis and conformational studies of proline derived analogs**

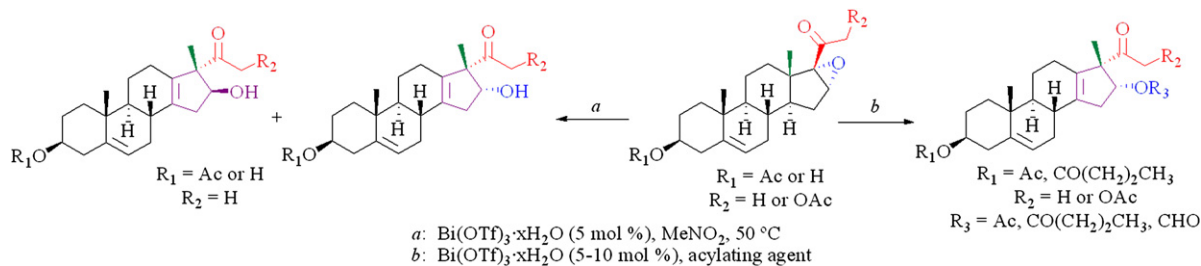
pp 6156–6168

Andreas Paul, Juergen Einsiedel, Reiner Waibel, Frank W. Heinemann, Karsten Meyer, Peter Gmeiner*

**Bismuth(III) triflate-catalyzed rearrangement of 16 α ,17 α -epoxy-20-oxosteroids. Synthesis and structural elucidation of new 16 α -substituted 17 α -alkyl-17 β -methyl- Δ^{13} -18-norsteroids**

pp 6169–6178

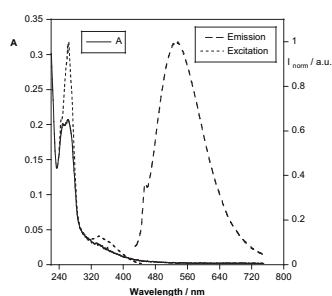
Rui M.A. Pinto, Jorge A.R. Salvador*, Christophe Le Roux, Rui A. Carvalho, Ana Matos Beja, José A. Paixão



Synthesis, characterization, and fluorescence behavior of four novel macrocyclic emissive ligands containing a flexible 8-hydroxyquinoline unit

pp 6179–6188

Cristina Núñez, Rufina Bastida*, Alejandro Macías, Emilia Bértolo, Luz Fernandes, José Luis Capelo, Carlos Lodeiro*

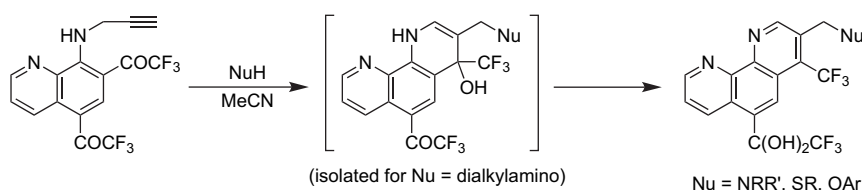


Four emissive macrocyclic ligands mono-substituted with an 8-hydroxyquinoline pendant arm are presented. The new compounds have been used for metal-ion detection, which results from the competition between PET (photo-induced electron transfer) and PPT (photo-induced proton transfer) mechanisms.

Fluorine-containing 1,10-phenanthrolines synthesis: an original and efficient approach by the pyridine-ring formation reaction of *N*-propargyl-5,7-bis(trifluoroacetyl)-8-quinolylamine with various nucleophiles

pp 6189–6195

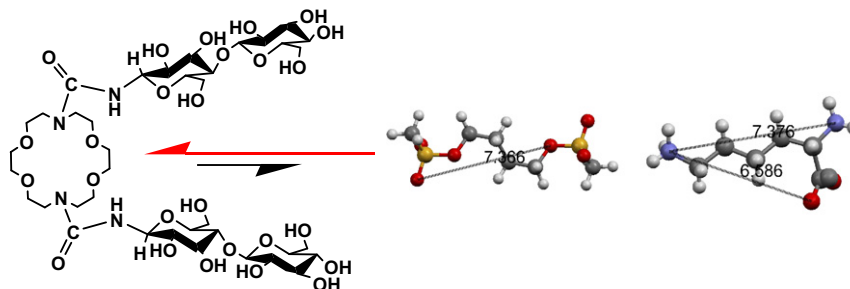
Dai Shibata, Etsuji Okada*, Takayuki Miyaoku, Jérôme Molette, Maurice Médebielle



Bis-β-cyclodextrinyl- and bis-cellobiosyl-diazacrowns: synthesis and molecular complexation behaviors toward Busulfan anticancer agent and two basic aminoacids

pp 6196–6203

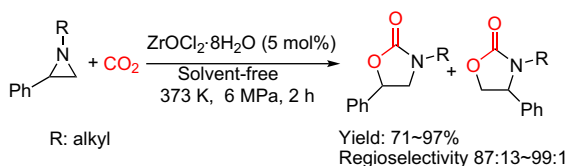
Stanislaw Porwanski, Florence Dumarcay-Charbonnier, Stéphane Menuel, Jean-Pierre Joly, Veronique Bulach, Alain Marsura*



Zirconyl chloride: an efficient recyclable catalyst for synthesis of 5-aryl-2-oxazolidinones from aziridines and CO₂ under solvent-free conditions

pp 6204–6210

Ying Wu, Liang-Nian He*, Ya Du, Jin-Quan Wang, Cheng-Xia Miao, Wei Li*



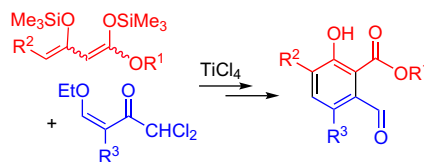
The cycloaddition reaction of aziridines with CO₂ heterogeneously catalyzed by ZrOCl₂·8H₂O smoothly proceeded, leading to the preferential formation of 5-aryl-2-oxazolidinones; and excellent yields, regio- and stereoselectivities towards the target products were reached under solvent-free conditions.



Synthesis of 6-formylsalicylates based on regioselective [3 + 3] cyclocondensations of 1,3-bis(silyloxy)-1,3-butadienes with 1,1-dichloro-4-ethoxy-3-buten-2-ones

pp 6211–6217

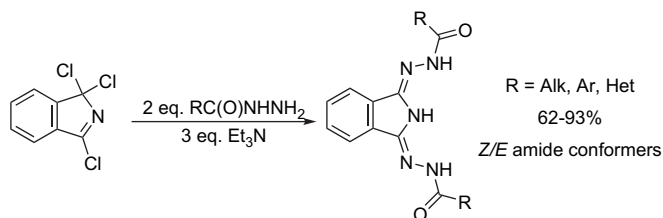
Vahuni Karapetyan, Satenik Mkrtchyan, Mathias Lubbe, Alexander Villinger, Peter Langer*



Efficient preparation of *N,N'*-1*H*-isoindole-1,3-diylidenedicarbohydrazides via 1,1,3-trichloro-1*H*-isoindole, and their characterization

pp 6218–6225

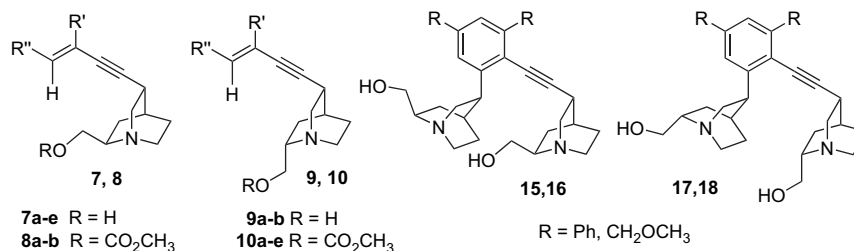
Olga V. Hordiyenko*, Igor V. Rudenko, Angelina V. Bitseva, Aleksandr V. Turov, Axelle Arrault, Nicolas Brosse, Olivier Fabre, Brigitte Jamart-Grégoire, Roman I. Zubatyuk, Oleg V. Shishkin



Synthesis of new quinuclidine derivatives via Pd-mediated cross-coupling and cross-benzannulation reactions

pp 6226–6235

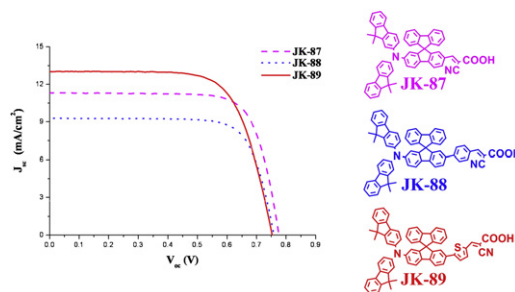
Stefania Tötös*, Manfred Fild, Carsten Thöne, Ion Grosu



Novel organic sensitizers containing a bulky spirobifluorene unit for solar cell

pp 6236–6243

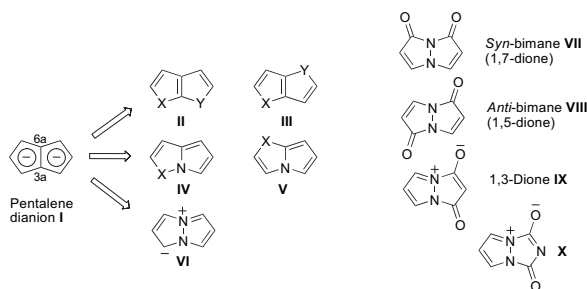
Nara Cho, Hyunbong Choi, Duckhyun Kim, Kihyung Song, Moon-sung Kang, Sang Ook Kang*, Jaejung Ko*



Theoretical studies of azapentalenes. Part 5: Bimanes

Fernando Blanco*, Ibon Alkorta, José Elguero

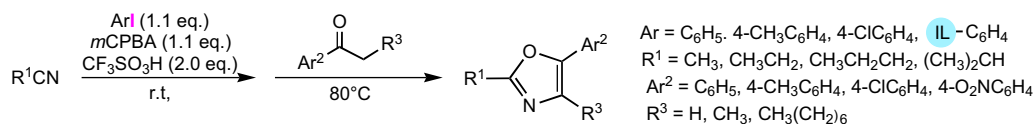
pp 6244–6250



Iodoarene-catalyzed one-pot preparation of 2,4,5-trisubstituted oxazoles from alkyl aryl ketones with *m*CPBA in nitriles

Yuhta Kawano, Hideo Togo*

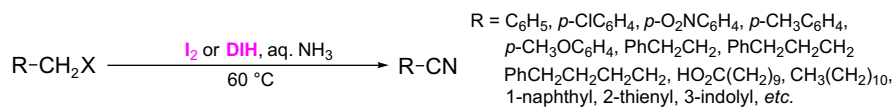
pp 6251–6256



Direct oxidative conversion of alkyl halides into nitriles with molecular iodine and 1,3-diiodo-5,5-dimethylhydantoin in aq ammonia

Shinpei Iida, Ryosuke Ohmura, Hideo Togo*

pp 6257–6262



OTHER CONTENTS**Corrigendum**
Calendar**p 6263**
p I

*Corresponding author

+ Supplementary data available via ScienceDirect

Full text of this journal is available, on-line from **ScienceDirect**. Visit www.sciencedirect.com for more information.

Abstracted/indexed in: AGRICOLA, Beilstein, BIOSIS Previews, CAB Abstracts, Chemical Abstracts, Current Contents: Life Sciences, Current Contents: Physical, Chemical and Earth Sciences, Current Contents Search, Derwent Drug File, Ei compendex, EMBASE/Excerpta Medica, Medline, PASCAL, Research Alert, Science Citation Index, SciSearch. Also covered in the abstract and citation database SCOPUS®. Full text available on ScienceDirect®

**ELSEVIER**

ISSN 0040-4020