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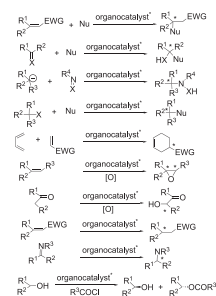
REPORT

Asymmetric organocatalysis

Hélène Pellissier

This review is intended to update the impressive amount of recent developments of asymmetric organocatalysis in numerous reaction types, such as nucleophilic additions to electron-deficient C=C double bonds, nucleophilic additions to C=O double bonds, nucleophilic additions to C=N double bonds, nucleophilic additions to unsaturated nitrogen, nucleophilic substitutions at aliphatic carbon, cycloaddition reactions, oxidations, reductions, kinetic resolutions and miscellaneous reactions, covering the literature from 2005 to 2007. This review clearly demonstrates the explosive growth and power of this new field of organic chemistry, which has become, in the last few years, the third methodology of asymmetric catalysis besides organometallic and enzymatic catalysis.

pp 9267–9331

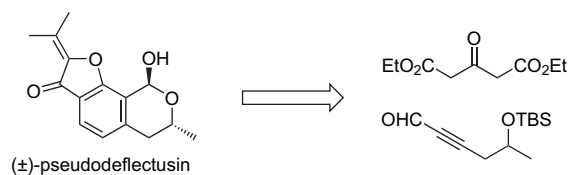


ARTICLES

A concise synthesis of (±)-pseudodeflectusin, an antitumor isochroman derivative isolated from *Aspergillus* sp.

Makiko Tobe, Takuya Tashiro, Mitsuru Sasaki and Hirosato Takikawa\*

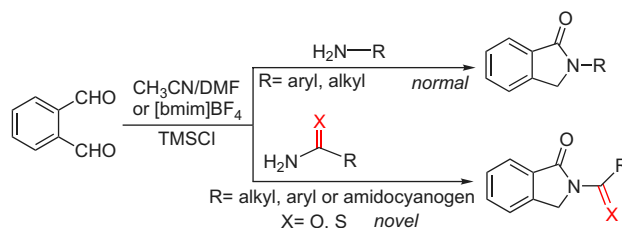
pp 9333–9337



Novel one-step synthesis of 2-carbonyl/thiocarbonyl isoindolinones and mechanistic disclosure on the rearrangement reaction of *o*-phthalaldehyde with amide/thioamide analogs

Jieping Wan, Bin Wu and Yuanjiang Pan\*

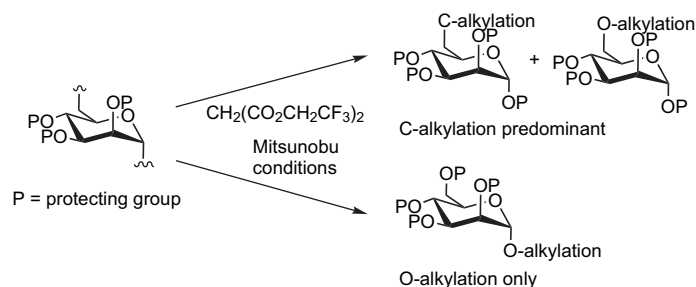
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**O-Alkylation versus C-alkylation under Mitsunobu conditions**

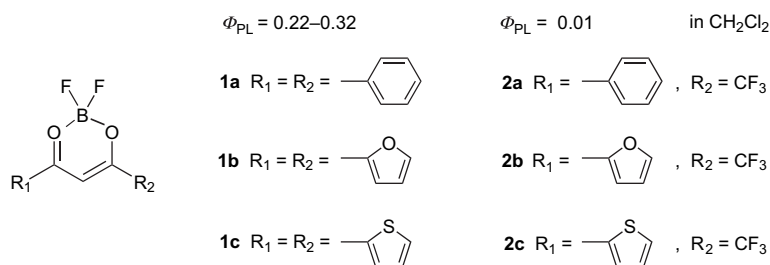
pp 9345–9353

Catalina Gurgui-Ionescu, Loïc Toupet, Lycia Uttaro, Alain Fruchier and Véronique Barragan-Montero\*

**Synthesis and photoluminescence properties of  $\text{BF}_2$  complexes with 1,3-diketone ligands**

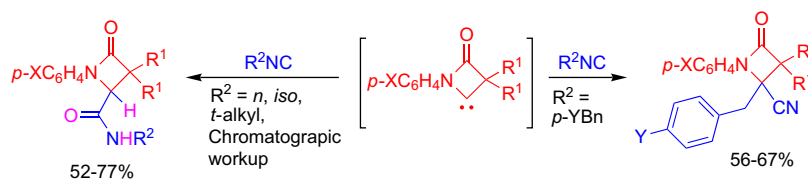
pp 9354–9358

Katsuhiko Ono,\* Kyohei Yoshikawa, Yujiro Tsuji, Hiroyuki Yamaguchi, Rie Uozumi, Masaaki Tomura, Keiji Taga and Katsuhiro Saito

**Reaction of  $\beta$ -lactam carbenes with alkyl isonitriles for a ready approach to 4-cyano and 4-carbamoyl substituted  $\beta$ -lactams**

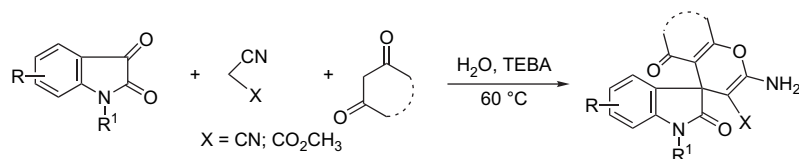
pp 9359–9364

Lan-Qing Cheng and Ying Cheng\*

**A simple and clean procedure for three-component synthesis of spirooxindoles in aqueous medium**

pp 9365–9372

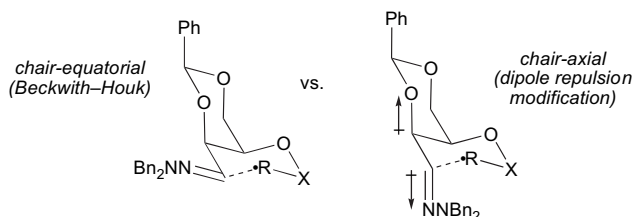
Song-Lei Zhu, Shun-Jun Ji\* and Yong Zhang



**Effects of  $\alpha$ -alkoxy substitution and conformational constraints on 6-*exo* radical cyclizations of hydrazones via reversible thiyl and stannyl additions**

pp 9373–9381

Gregory K. Friestad\* and Alex K. Mathies

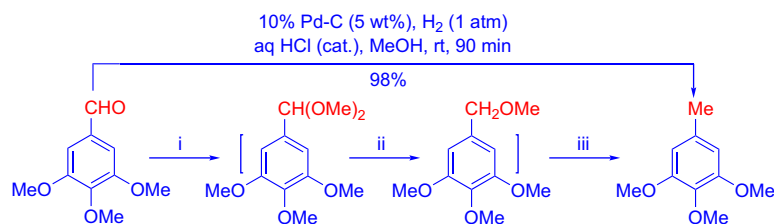


Radical 6-*exo* cyclizations of imino compounds leading to aminosugar building blocks exhibit anomalous diastereoselectivity, attributable to dipole repulsion from an  $\alpha$ -alkoxy substituent.


**A solvent-controlled highly efficient Pd–C catalyzed hydrogenolysis of benzaldehydes to methylbenzenes via a novel ‘acetal pathway’**

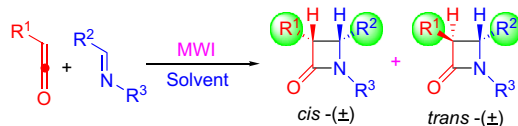
pp 9382–9386

Lixin Xing, Xinyan Wang, Chuanjie Cheng, Rui Zhu, Bo Liu and Yuefei Hu\*


**Diastereoselectivity in the Staudinger reaction: a useful probe for investigation of nonthermal microwave effects**

pp 9387–9392

Libo Hu, Yikai Wang, Bonan Li, Da-Ming Du and Jiayi Xu\*

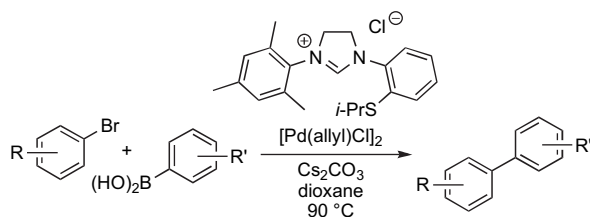


Nonthermal microwave effect in the Staudinger reaction was investigated using diastereoselectivity as a probe.

**Design and synthesis of thioether-imidazolium chlorides as efficient ligands for palladium-catalyzed Suzuki–Miyaura coupling of aryl bromides with arylboronic acids**

pp 9393–9400

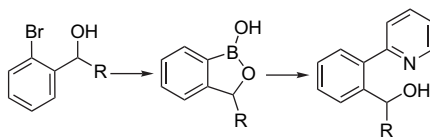
Masami Kuriyama,\* Rumiko Shimazawa and Ryuichi Shirai\*



**Practical synthesis and applications of benzoboroxoles**

pp 9401–9405

Dinara S. Gunasekera, Dennis J. Gerold, Nathan S. Aalderks, J. Subash Chandra, Christiana A. Maanu, Paul Kiprof,\* Viktor V. Zhdankin\* and M. Venkat Ram Reddy\*

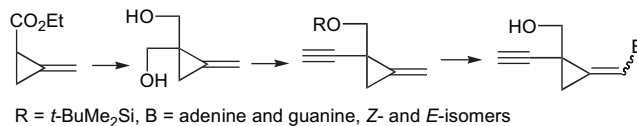


A convenient one-pot synthesis of benzoboroxoles has been developed via the reaction of *o*-bromobenzyl alcohols with NaH, <sup>n</sup>BuLi, and B(O<sup>i</sup>Pr)<sub>3</sub> followed by acidic hydrolysis. Applications of these benzoboroxoles have been demonstrated in Pd-catalyzed cross-coupling reactions and the protocol has been extended for the synthesis of a chiral benzoboroxole. An exceptionally short synthesis of a potent antifungal agent AN2690 and several of its analogs has also been realized.

**Methylene-2-ethynylcyclopropanes: synthesis and biological activity of (Z)- and (E)-9-{{2-ethynyl-2-(hydroxymethyl)cyclopropylidene}methyl}adenine and -guanine**

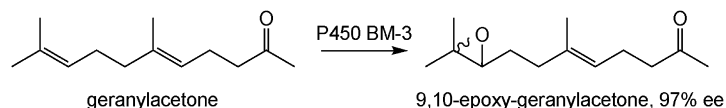
pp 9406–9412

Shaoman Zhou, Mark N. Prichard and Jiri Zemlicka\*

**Oxidation of acyclic monoterpenes by P450 BM-3 monooxygenase: influence of the substrate E/Z-isomerism on enzyme chemo- and regioselectivity**

pp 9413–9422

Yomi Watanabe, Sabine Laschat, Michael Budde, Olena Affolter, Yuji Shimada and Vlada B. Urlacher\*

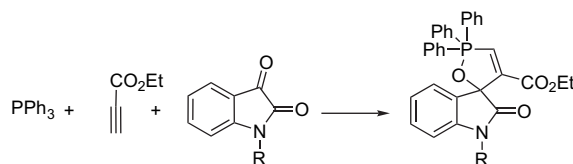


The Z-isomers of monoterpenes were oxidized by a P450 BM-3 mutant to several products, including allylic alcohols and epoxides. E-isomers were epoxidized exclusively. Geranylacetone was converted with high activity and enantioselectivity to 9,10-epoxygeranylacetone.

**Efficient synthesis of functionalized spiro-2,5-dihydro-1,2-λ<sup>5</sup>-oxaphospholes**

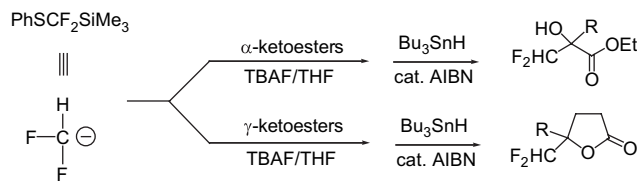
pp 9423–9428

Issa Yavari,\* Zinatossadat Hossaini, Maryam Sabbaghan and Majid Ghazanfarpour-Darjani



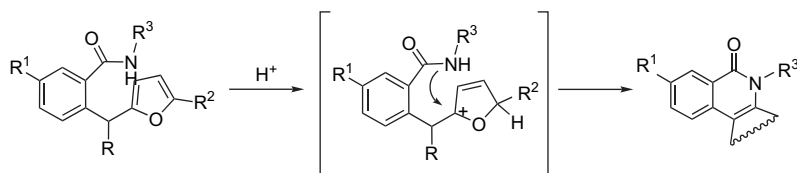
**gem-Difluoromethylation of  $\alpha$ - and  $\gamma$ -ketoesters: preparation of gem-difluorinated  $\alpha$ -hydroxyesters and  $\gamma$ -butyrolactones** pp 9429–9436

Manat Pohmakotr,\* Duanghathai Panichakul, Patoomratana Tuchinda and Vichai Reutrakul\*

**Isoquinolone derivatives via a furan recyclization reaction**

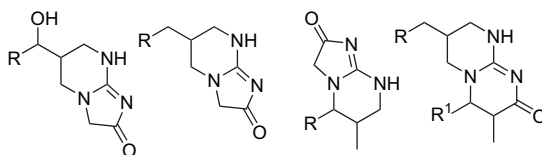
pp 9437–9447

Artem S. Dmitriev, Vladimir T. Abaev, Wolfgang Bender and Alexander V. Butin\*

**Expeditious synthesis of 5,6,7,8-tetrahydro-imidazo[1,2-*a*]pyrimidin-2-ones and 3,4,6,7,8,9-hexahydro-pyrimido[1,2-*a*]pyrimidin-2-ones**

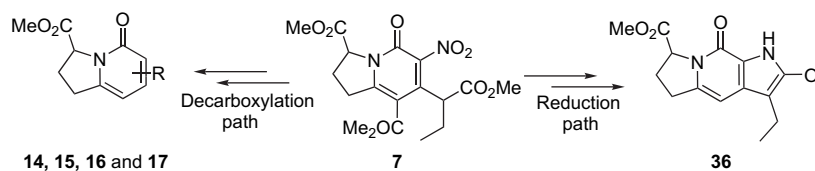
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Richa Pathak and Sanjay Batra\*

**Toward new camptothecins. Part 4: On the reactivity of nitro and amino precursors of aza analogs of 5-methoxycarbonyl camptothecin**

pp 9456–9464

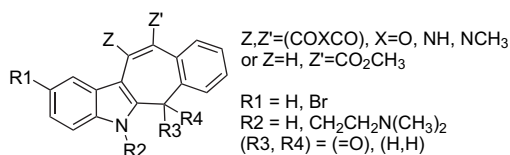
Laurent Gavara, Benoît Rigo,\* Daniel Couturier, Laurence Goossens and Jean-Pierre Hénichart\*



**Synthesis of benzo analogs of oxoarcyriaflavins and caulersine**

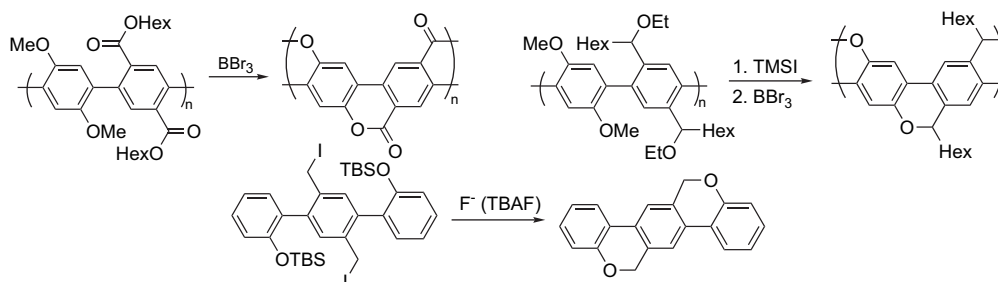
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Aurélie Bourderioux, Sylvain Routier,\* Valérie Bénéteau\* and Jean-Yves Mérour

**Novel chemical cyclization routes to prepare ladder-type conjugated molecules**

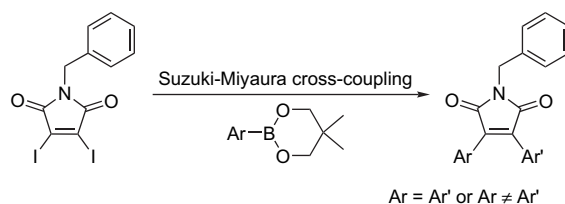
pp 9476–9481

Inja Kim, Minji Yoo and Tae-Hyun Kim\*

**Convenient synthesis of photochromic symmetrical or unsymmetrical bis(heteroaryl)maleimides via the Suzuki–Miyaura cross-coupling reaction**

pp 9482–9487

A. El Yahyaoui, G. Félix, A. Heynderickx,\* C. Moustrou and A. Samat



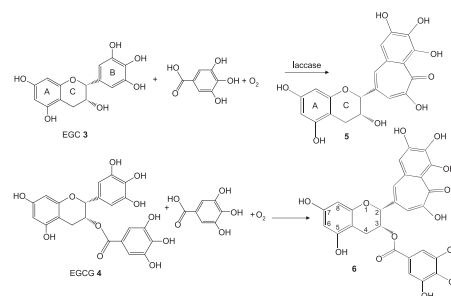
Synthesis of photochromic bis(heteroaryl)maleimides, involving Suzuki–Miyaura cross coupling sequence, was developed on the basis of the reaction of diiodomaleimide with cyclic boronate esters. Behavior of the new products was examined.

**Laccase-catalyzed conversion of green tea catechins in the presence of gallic acid to epitheafagallin and epitheafagallin 3-O-gallate**

pp 9488–9492

Nobuya Itoh,\* Yuji Katsube, Keiichi Yamamoto, Noriyuki Nakajima and Kenzaburo Yoshida

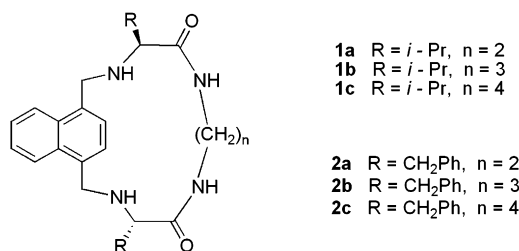
Epitheafagallin (**5**) and epitheafagallin 3-O-gallate (**6**), which are minor components of black tea, were preferentially synthesized from EGC (**3**) and EGCG (**4**) in green tea extracts using laccase and gallic acid. This biooxidation process could be applicable to the production of epitheafagallin derivatives to improve the functionality of green tea.



**Novel peptidomimetic macrocycles showing exciplex fluorescence**

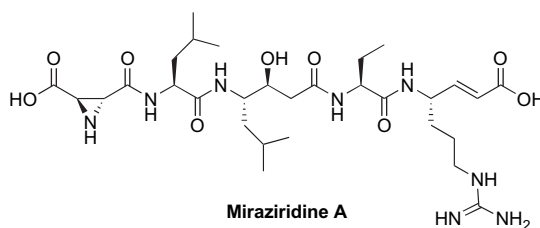
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M. Isabel Burguete, Francisco Galindo,\* M. Angeles Izquierdo, Santiago V. Luis\* and Laura Vigara

EXCIPLEX FLUORESCENCE: **1a** ~ **1b** > **2a** > **1c** > **2b** > **2c****Total synthesis of miraziridine A and identification of its major reaction site for cathepsin B**

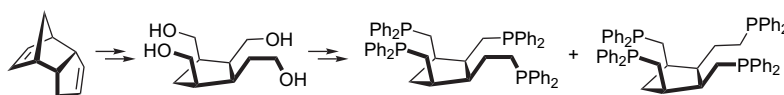
pp 9502–9513

Hiroyuki Konno,\* Kanako Kubo, Hidefumi Makabe, Emi Toshiro, Naoyuki Hinoda, Kazuto Nosaka and Kenichi Akaji

**Synthesis of all-*cis*-3-(2-diphenylphosphinoethyl)-1,2,4-tris(diphenylphosphinomethyl)cyclopentane (Ditricyp) from dicyclopentadiene**

pp 9514–9521

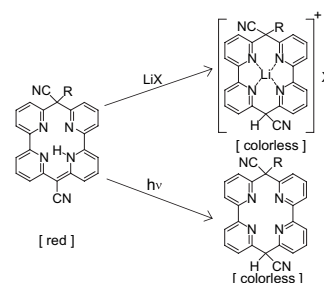
Isabelle Kondolf, Marie Feuerstein, Henri Doucet\* and Maurice Santelli\*

**The unique properties observed for the unsymmetrical macrocyclic compounds with the highly distorted structure**

pp 9522–9530

Junko Morita, Shinji Tsuchiya, Nao Yoshida, Nirei Nakayama, Sayaka Yokokawa and Shojiro Ogawa\*

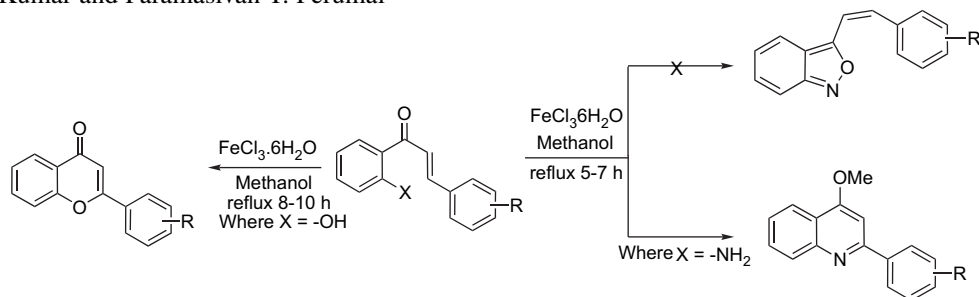
A new class of aza-macrocycles with the highly distorted structure reacts with various lithium salts to form lithium complexes and their lithium complexation reactions depend on a substituent on the macrocyclic ring; slower rates and larger equilibrium constants were observed for the macrocycle with a bulkier substituent. The irradiation of these macrocycles by UV light was found to lead to the isomerization, and the photoisomerization rate of macrocycle with the bulky substituent was much faster.



**A novel one-pot oxidative cyclization of 2'-amino and 2'-hydroxychalcones employing  $\text{FeCl}_3 \cdot 6\text{H}_2\text{O}$ -methanol. Synthesis of 4-alkoxy-2-aryl-quinolines and flavones**

pp 9531–9535

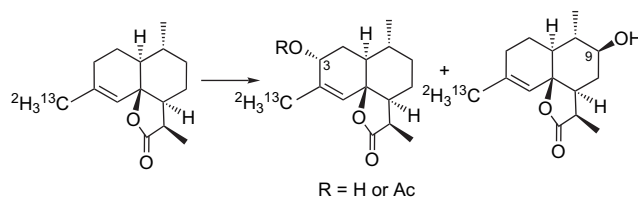
Kalvi Hemanth Kumar and Paramasivan T. Perumal\*



**In vivo transformations of dihydro-*epi*-deoxyarteannuin B in *Artemisia annua* plants**

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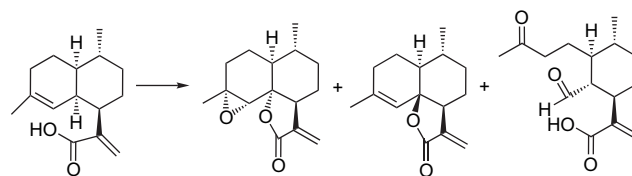
Geoffrey D. Brown\* and Lai-King Sy



**In vivo transformations of artemisinic acid in *Artemisia annua* plants**

pp 9548–9566

Geoffrey D. Brown\* and Lai-King Sy






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\*Corresponding author

 Supplementary data available via ScienceDirect



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