

有机化学

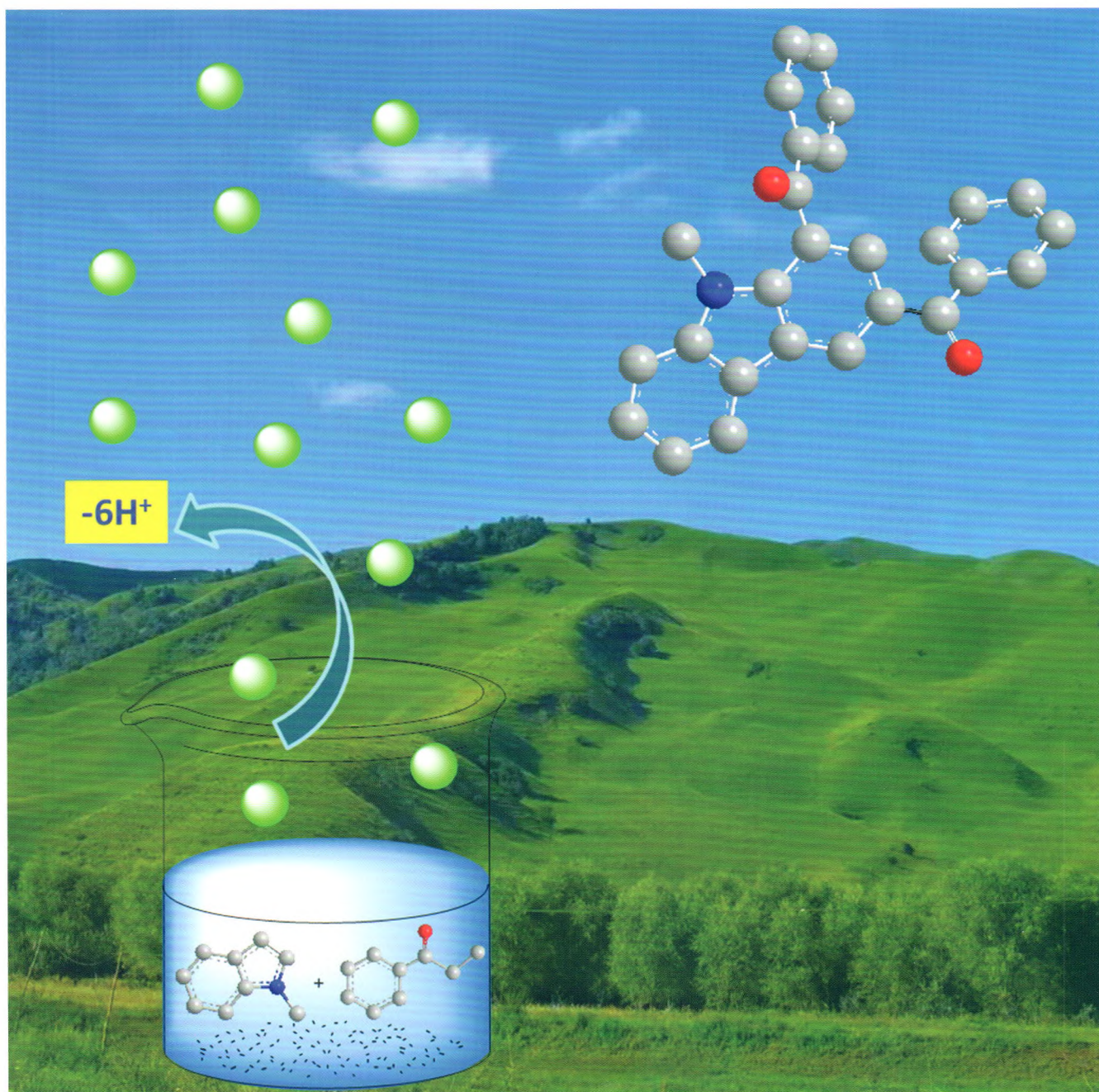
Q K 1 7 3 6 5 9 1

ISSN 0253-2786
CN 31-1321/O6
<http://sioc-journal.cn>

Youji Huaxue

Chinese Journal of Organic Chemistry

第 37 卷 第 10 期 Vol. 37 No. 10 2017



ISSN 0253-2786



中国化学会主办
中国科学院上海有机化学研究所



10 >



9 770253 770253 770253 770253 770253 770253 770253 770253 770253

有机化学 (月刊)

Chinese Journal of Organic Chemistry

(YOUJI HUAXUE)

第 37 卷 第 10 期 (总 347 期) 2017 年 10 月*

目 次

综述与进展

- 电子给体-受体型热活化延迟荧光蓝光材料研究进展 谭继华 霍延平* 蔡 宁 籍少敏 李宗植 张 力 (2457)
- 稳定硼烷加合物在有机硼化物合成中的应用研究进展 杨吉民 李子奇 朱守非* (2481)
- 过硫酸盐促进的自由基反应进展 赵景峰 段新华 郭丽娜* (2498)
- 过渡金属催化二环烯烃加成反应的研究进展 杨 新 杨 文 邓颖颖 杨定乔* (2512)
- 具有优良抗癌活性的天然产物 Neopeltolide 的合成研究进展 于江帆 冯若昆 杨 震* (2526)
- 过渡金属镍与可见光双催化体系的研究进展 阮利衡 董振诚 陈春欣 吴 爽* 孙 京* (2544)
- 钯-单膦催化剂在烯烃不对称硅氢化反应中的应用 张 凤* 刘祥华 刘 玮 邓国军 (2555)
- 碳亲核试剂对氮杂环丙烷的开环反应研究进展 褚 旭 常宏宏 高文超 魏文琰* 李 兴* (2569)
- 氮杂环卡宾催化有机反应的研究进展 王 翱 肖永龙 周 宇* 徐进宜 柳 红* (2590)
- 多共轭硝基二烯炔/硝基烯炔的合成以及应用研究进展 刘 腾* 刘建军 贺池先 成飞翔 (2609)
- 吩噻衍生物在分子识别与自组装中的应用进展 李文婷 曲文娟 张海丽 李 翔 林 奇 姚 虹 张有明 魏太保* (2619)

研究论文

- 新型基于咪唑-氨基硫脲席夫碱识别 Cu^{2+} 的探针 李英俊* 张 楠 靳 焜 许永廷 王思远 周晓霞 (2640)
- 含噻啶环的新型棒-线状 $\text{N}^+\text{C}^-\text{N}$ 型二价铂配合物的合成及其自组装和荧光性能表征 杨 蕾 胡杰娜 曾 旺 吴 洋 李贤英* 张灯青 金武松* (2647)
- 钯催化取代吲哚与苯丙酮类化合物的直接偶联构筑咪唑衍生物 周全龙 朱昌垒 吴 戈 张远飞 张 敏* 苏伟平* (2655)
- 通过铜催化氧化芳构化合成 1,1'-联异喹啉 吕 霞 孟天卓 郑 波 张 义 吴家家 施小新* (2663)

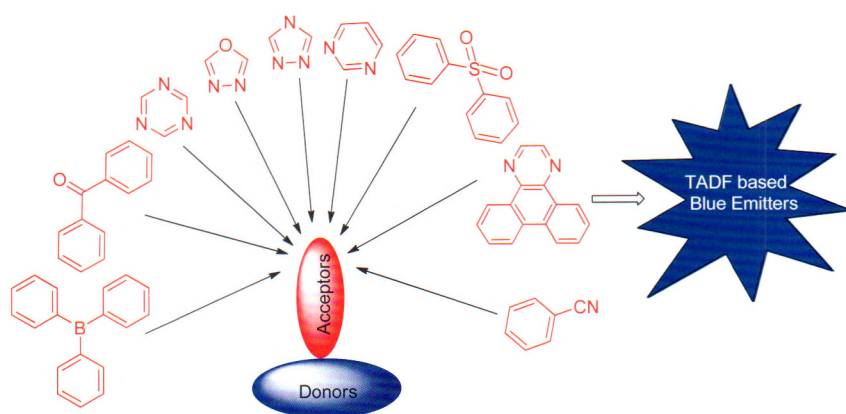
* 通讯联系人.

On the Cover

An efficient method for the facile synthesis of carbazoles via Pd-catalyzed dehydrogenative cross-coupling of indoles with *in situ* generated aryl vinyl ketones from saturated ketones is achieved by Su and coworkers on page 2655. This protocol obviates the need for additional preparation steps of aryl vinyl ketones and therefore opens up a new door to synthesis of carbazoles in an atom- and step-economical fashion.

REVIEWS

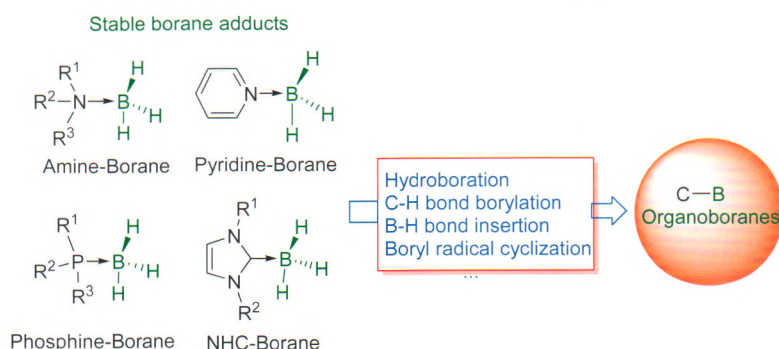
Progress on Donor-Acceptor Type Thermally Activated Delayed Fluorescence Based Blue Emitters



The recent progress in research of donor-acceptor type blue thermally activated delayed fluorescence (TADF) emitters and organic light-emitting diodes (OLEDs) according to the latest research by different acceptors including triazine, oxadiazole, triazole, pyrimidine, diphenyl ketone, cyano, triphenyl boron, 1,4-diazatriphenylene and diphenyl sulfoxide derivatives.

Tan, Jihua; Huo, Yanping*; Cai, Ning; Ji, Shaomin; Li, Zongzhi; Zhang, Li
Chin. J. Org. Chem. **2017**, 37(10), 2457

Progresses on the Application of Stable Borane Adducts in the Synthesis of Organoborons

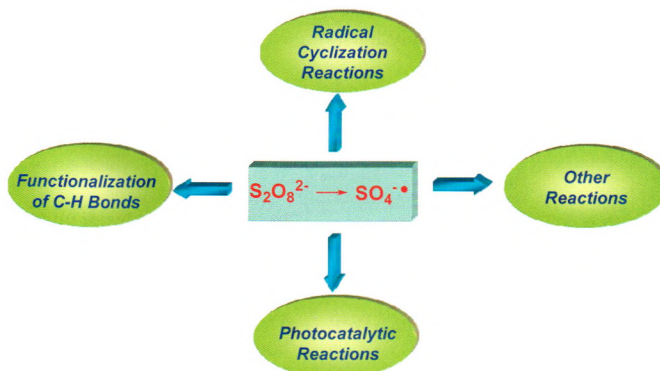


The applications of the stable borane adducts as terminal boron reagents in hydroboration of alkenes or alkynes, C—H bond borylation, carbene insertion into B—H bonds, cascade cyclization initiated by boryl radicals, and substitutions, which provide new methods for the preparation of organoborons are reviewed.

Yang, Jimin; Li, Ziqi; Zhu, Shoufei*
Chin. J. Org. Chem. **2017**, 37(10), 2481

CONTENT

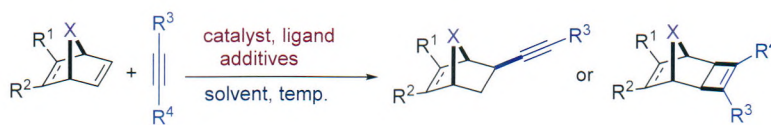
Recent Advances in Persulfates-Promoted Radical Reaction



Recent radical reactions promoted by persulfates are summarized. The full text contains five parts. In the first and second parts, recent advance in the radical cyclization reactions and functionalization of C—H bonds promoted by persulfates is discussed. The third part introduced the persulfates-mediated photocatalytic reactions. The fourth part emphasized persulfates-promoted other free radical reactions. Finally, some perspectives on the future development of this chemistry are given.

Zhao, Jingfeng; Duan, Xinhua; Guo, Li'na*
Chin. J. Org. Chem. **2017**, 37(10), 2498

Progress in Transition-Metal Catalyzed Bicyclic Olefins Addition Reaction

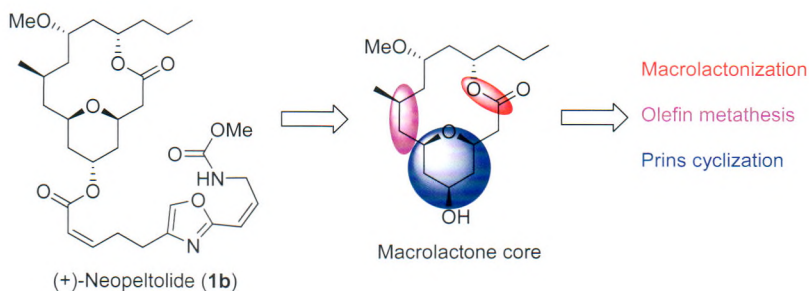


X = CH₂, O, NR; R³ = ph, Ar, P(O)(OR)₂, SiR₃, alkyl; R⁴ = H, COR, CO₂R, Ar, SR, alkyl

In this paper, the recent research progress in transition-metal catalyzed bicyclic olefins addition reactions is reviewed, mainly including Ru, Rh, Ir, Pd, Cu, Co, Ni, Fe *etc.* Moreover, the possible reaction mechanisms of some parts of addition reactions are also discussed.

Yang, Xin; Yang, Wen; Deng, Yingying;
Yang, Dingqiao*
Chin. J. Org. Chem. **2017**, 37(10), 2512

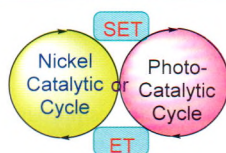
Synthetic Studies toward Neopeltolide: A Potent Anti-cancer Natural Product



(+)-Neopeltolide was isolated from a deep-water sponge of the family neopeltidae. Due to its attractive novel structure and highly potent anticancer activity, more than twenty total and formal syntheses have been reported in last decade. Herein, the synthetic studies toward the total and formal syntheses of neopeltolide are reviewed according to the synthetic strategies.

Yu, Jiangfan; Feng, Ruokun; Yang, Zhen*
Chin. J. Org. Chem. **2017**, 37(10), 2526

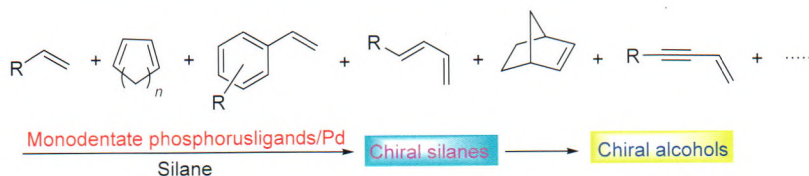
Recent Progress on the Nickel/Photo-redox Dual Catalysis



A dual-catalysis system merging the visible light photoredox with transition metal nickel catalysis enables a new strategy to build the novel carbon-carbon and carbon-heteroatom bond, which are not generally possible via using either photoredox or nickel catalysis alone. This mild, green and promising protocol has attracted the interest of some scientific researchers. In this review, the recent progress of nickel/photoredox dual catalysis is summarized.

Ruan, Liheng; Dong, Zhencheng; Chen, Chunxin; Wu, Shuang*; Sun, Jing*
Chin. J. Org. Chem. **2017**, 37(10), 2544

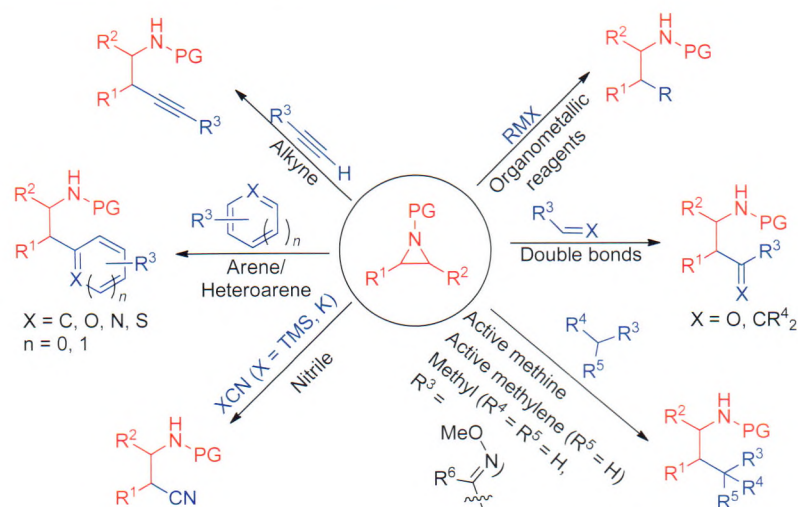
Application of Pd-Monodentate Phosphorus Catalysts in the Asymmetric Hydrosilylation Reactions of Alkenes



In the past decades, a wide variety of chiral monodentate phosphorus ligands have been developed because of their stable structure, facile synthesis, convenient modification, unique efficiency. Herein, the recent advances in asymmetric hydrosilylation of alkyl-substituted alkenes, styrene derivatives, 1,3-dienes and other carbon-carbon double bond compounds catalyzed by palladium monodentate phosphorus catalysts are summarized. The perspective is also discussed.

Zhang, Feng*; Liu, Xianghua; Liu, Wei; Deng, Guojun
Chin. J. Org. Chem. **2017**, 37(10), 2555

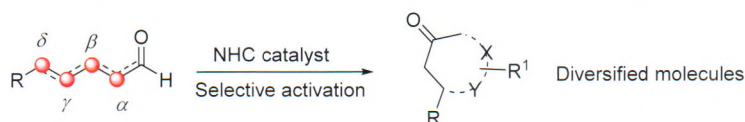
Research Progress in the Ring-Opening Reactions of Aziridines by Carbon Nucleophiles



The recent progress in ring-opening reactions of aziridines by various carbon nucleophiles, such as alkynes, nitriles, arenes, heteroarenes, active methylene compounds, organometallic reagents and so on, is reviewed. Moreover, the prospects of future development are also discussed.

Chu, Xu; Chang, Honghong; Gao, Wenchao; Wei, Wenlong*; Li, Xing*
Chin. J. Org. Chem. **2017**, 37(10), 2569

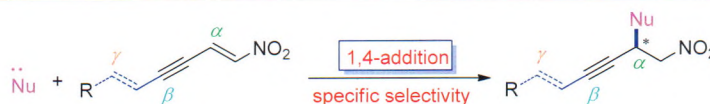
Progress of Organic Reactions Catalyzed by N-Heterocyclic Carbenes



N-Heterocyclic carbene plays important role in building complex molecules in organic synthesis for the characteristics of umpolung. Some special Lewis bases and oxidants can induce carbene reaction with carbonyl to form Breslow intermediates, enol and homo-enolate, which expand the reaction greatly. In this paper, the recent progresses in organic catalytic reactions including Stetter reaction, a^3-d^3 umpolung catalyzed by carbenes are reviewed.

Wang, Ao; Xiao, Yonglong; Zhou, Yu*; Xu, Jinyi; Liu, Hong*
Chin. J. Org. Chem. **2017**, 37(10), 2590

Recent Progress on Polyconjugated Nitrodiene/nitroenynes: Synthesis and Applications

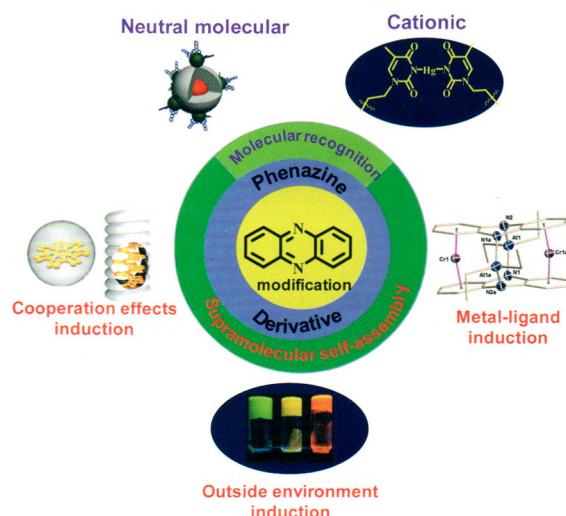


Polyconjugated nitrodiene/nitroenynes as nitroolefin derivatives are good kind of electrophiles and have been widely used in organic synthesis. Herein we summarize the synthesis and applications of polyconjugated nitrodiene/nitroenynes, highlighting the specific selectivity in organic synthesis, as well as the synthetic utility toward complex molecules.

Liu, Teng*; Liu, Jianjun; He, Chixian; Cheng, Feixiang
Chin. J. Org. Chem. **2017**, 37(10), 2609

CONTENT

Development on Application of Phenazine Derivatives in Molecular Recognition and Self-assembly

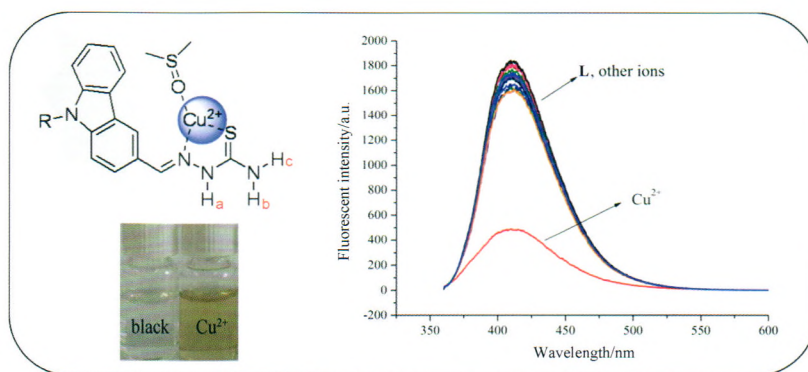


Li, Wenting; Qu, Wenjuan; Zhang, Haili; Li, Xiang; Lin, Qi; Yao, Hong; Zhang, Youming; Wei, Taibao*
Chin. J. Org. Chem. **2017**, 37(10), 2619

The advances in the research of the development on application of phenazine derivatives in molecular recognition (MR) and supramolecular self-assembly (MS-A) in recent years are highlighted.

ARTICLES

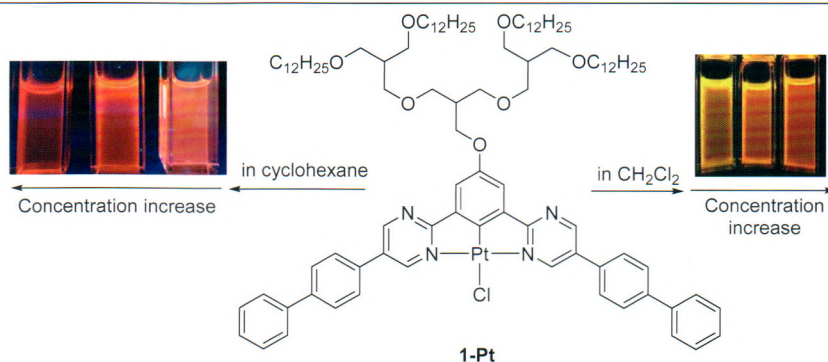
Novel Carbazole-Thiosemicarbazide Based Schiff-Base Probes for Cu^{2+}



Li, Yingjun*; Zhang, Nan; Jin, Kun; Xu, Yongting; Wang, Siyuan; Zhou, Xiaoxia
Chin. J. Org. Chem. **2017**, 37(10), 2640

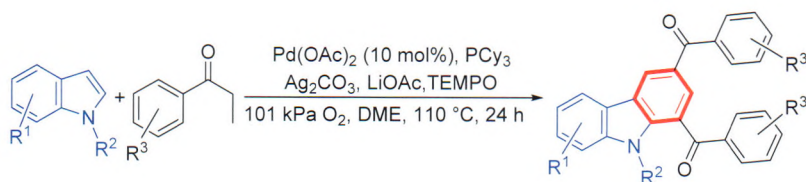
Three novel carbazole-thiosemicarbazides based Schiff-base were synthesized. The recognition ability of representative compound 2-((N-heptane-carbazol-3-yl)methylidene)-hydrazine carbothioamide (L_2) to metal ions was investigated by naked-eye, UV-Vis and fluorescence spectra.

Synthesis, Self-Assemble and Fluorescence of Pyrimidine-Contained Novel Rod-Coil Structured $\text{N}^{\wedge}\text{C}^{\wedge}\text{N}$ -Type Divalent Platinum Complexes



Yang, Lei; Hu, Jiena; Zeng, Wang; Wu, Yang; Li, Xianying*; Zhang, Dengqing; Jin, Wusong*
Chin. J. Org. Chem. **2017**, 37(10), 2647

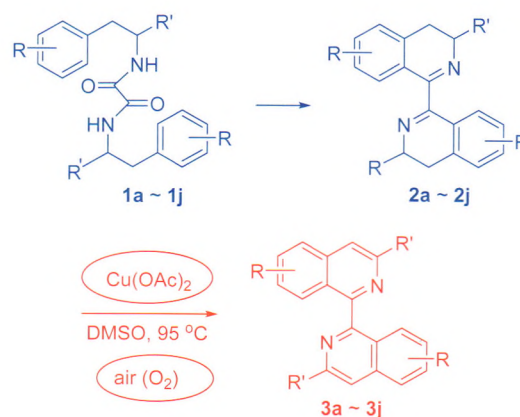
Novel Rod-Coil shaped pyrimidine-contained tridentate $\text{Pt}(\text{N}^{\wedge}\text{C}^{\wedge}\text{N})\text{Cl}$ complex **1-Pt** was synthesized and characterized. The luminescence of **1-Pt** could be tuned by intermolecular π - π staking as well as solvent effect. The self-assembly of **1-Pt** in solvent gave fibrous nanostructures with the red fluorescence.

Construction of Carbazoles by Palladium-Catalyzed Direct Cross-Coupling of Indoles with *in situ* Generated Aryl Vinyl Ketones

The synthesis of carbazoles via Pd-catalyzed direct cross-coupling of indoles with *in situ* generated aryl vinyl ketones by using saturated ketones as the olefins source is described. This protocol obviates the need for additional preparation steps of aryl vinyl ketones and therefore opens up a new door to synthesis of carbazoles in an atom- and step-economical fashion.

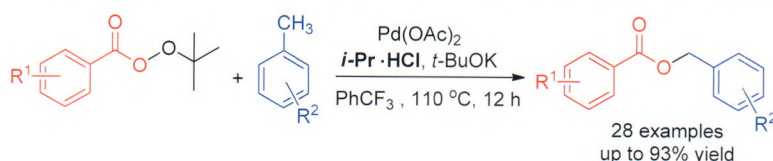
Zhou, Quanlong; Zhu, Changlei; Wu, Ge; Zhang, Yuanfei; Zhang, Min*; Su, Weiping*
Chin. J. Org. Chem. **2017**, 37(10), 2655

Synthesis of 1,1'-Biisoquinolines via Cu-Catalyzed Oxidative Aromatization



A new method for practical synthesis of 1,1'-biisoquinolines is described. 3,3',4,4'-Tetrahydro-1,1'-biisoquinolines (**1a~1j**), which could be readily prepared from *N,N'*-diphenethyloxalamides (**1a~1j**) via Bischler-Napieralski cyclization, were efficiently converted into 1,1'-biisoquinolines (**3a~3j**) via Cu(OAc)₂-catalyzed aerobic oxidative aromatization in dimethyl sulfoxide.

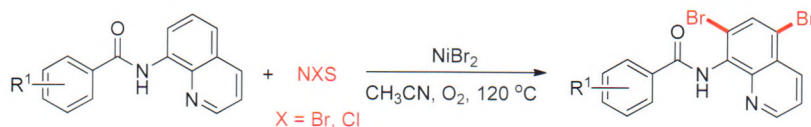
Lü, Xia; Meng, Tianzhuo; Zheng, Bo; Zhang, Yi; Wu, Jiajia; Shi, Xiaoxin*
Chin. J. Org. Chem. **2017**, 37(10), 2663

Pd(II)-Catalyzed Synthesis of Benzyl Benzoates via Benzyl C(sp³)—H Activation

An efficient Pd(II)-catalyzed synthesis of benzyl benzoates via direct functionalization of benzyl C(sp³)—H bonds was developed. This method features high tolerance of functional groups, mild reaction condition, and high chemoselective when there are multiple active C(sp³)—H bonds. A plausible oxidative coupling mechanism was proposed on the basis of mechanistic studies.

Duanmu, Dandan; Leong, Pak-kin; Jiang, Qibai*; Yan, Hong*
Chin. J. Org. Chem. **2017**, 37(10), 2669

Nickel-Catalyzed C—H Halogenation of 8-Aminoquinolines for the Synthesis of C(5) and C(7) Di-halogenated Quinolines

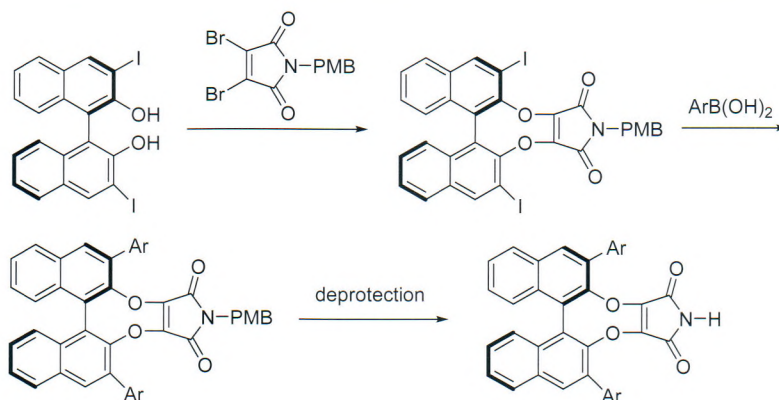


A simple and efficient nickel-catalyzed oxidative halogenation (Cl, Br) of C(5) and C(7) C—H bond of 8-aminoquinoline amides has been developed. This method employed low-cost and easy availability nickel as catalyst and oxygen as oxidant. The reactions have good functional groups compatibility, giving highly selective C(5) and C(7) di-halogenated products in good to excellent yields.

Hao, Wenyan*; Wang, Yuyun; Yang, Guomin; Liu, Yunyun*
Chin. J. Org. Chem. **2017**, 37(10), 2678

CONTENT

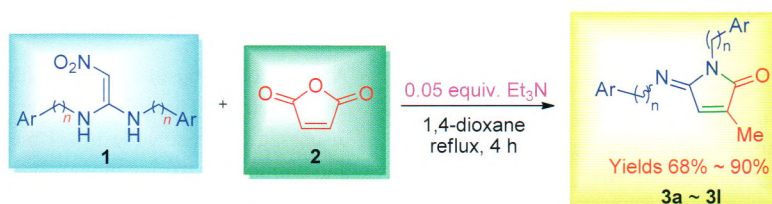
Synthesis of a New Class of Chiral Maleimide Derivatives with C₂-Symmetry



Four kinds of chiral maleimide derivatives with C₂-symmetry were synthesized through Williamson ether synthesis, Suzuki coupling reaction and deprotection reaction by microwave, starting from the readily available maleic anhydride and (*R*)-1,1'-bi-2-naphthol (BINOL). These 3,4-((*R*)-3,3'-diaryl-1,1'-binaphthyl-2,2'-dioxy)-maleimides were characterized by ¹H NMR, ¹³C NMR, IR and HRMS techniques.

Fu, Liyan; Ji, Baoming*; Du, Chenxia
Chin. J. Org. Chem. **2017**, 37(10), 2685

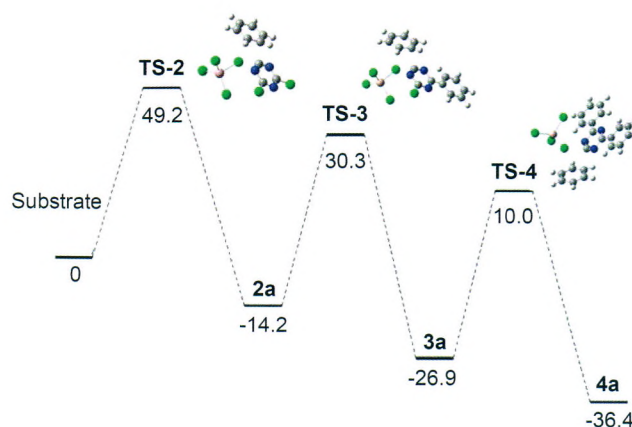
Synthesis of Iminopyrrolone Compounds



The method was constructed for synthesis of pyrrolone compounds, which was based on the reaction of 1,1'-endiamine (**1**) with maleic anhydride (**2**) in 1,4-dioxane at reflux in alkali condition (Et₃N). As a result, a series of iminopyrrolone compounds have been synthesized by this reaction. This protocol possesses some advantages including readily available starting materials, simple operation and concise synthetic route and so on.

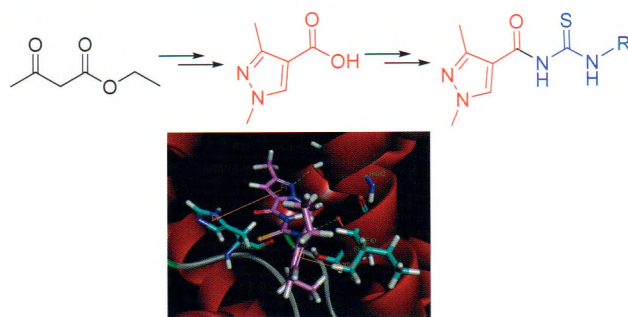
Zhao, Yucheng; Xiao, Qiang; Wang, Baoqu;
Lin, Jun*; Yan, Shengjiao*
Chin. J. Org. Chem. **2017**, 37(10), 2690

Study of the Friedel-Crafts Reaction of Cyanuric Chloride with Low-Boiling Aromatic Ring



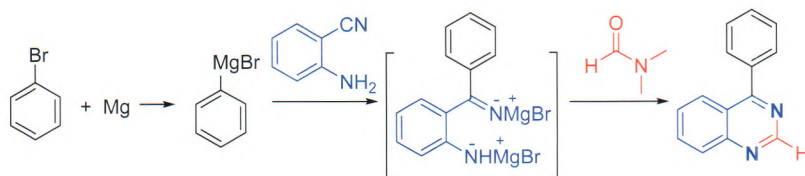
The cyanuric chloride and benzene Friedel-Crafts arylation using Lewis acid catalyst in high pressure autoclave was studied in this manuscript. The aim compounds 2,4-dichloro-6-phenyl-1,3,5-triazine and 2,4,6-triphenyl-1,3,5-triazine could be got with high selectivity and yields by varying reaction temperature, substrate and catalyst amount, which application was expecting and promising. The transition state was obtained by quantum calculation density functional theory (DFT) method using Gaussian software, and the experimental results and mechanism of this reaction were discussed from the point of dynamics and thermodynamics.

Zou, Hao; Wang, Xueding; Yang, Weiqing;
Zhang, Yuanyuan; Chen, Hu; Wang,
Yuliang; Ma, Menglin*; Du, Quan
Chin. J. Org. Chem. **2017**, 37(10), 2697

Design, Synthesis, Fungicidal Activity
and Docking Study of Acyl Thiourea Derivatives
Containing Pyrazole Moiety

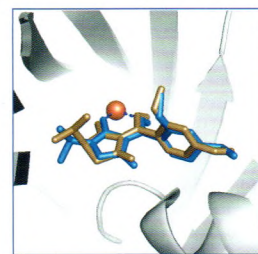
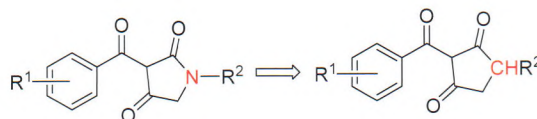
Sun, Nabo; Shen, Zhonghua; Zhai, Zhiwen;
Han, Liang; Weng, Jianquan; Tan, Chengxia;
Liu, Xinghai*
Chin. J. Org. Chem. **2017**, 37(10), 2705

A series of pyrazole acyl thiourea compounds were designed and synthesized. The fungicidal activity results indicated that some of them possessed good inhibitory against *Botryospaeria berengeriana*. The docking mode of the compound **6k** was done.

Catalyst-Free One-Pot Synthesis of 4-
Substituted Quinazolines

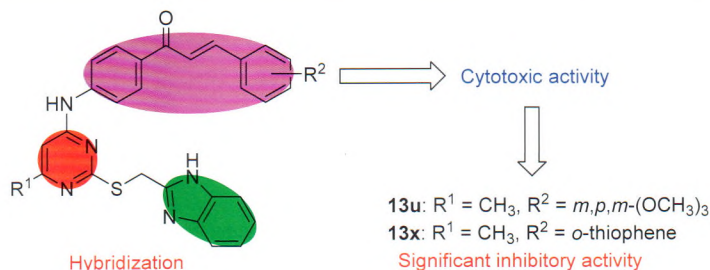
Li, Lingjie; Zhang, Jing; Tang, Yu*; Xu,
Kaitian; Zhang, Yuanming*
Chin. J. Org. Chem. **2017**, 37(10), 2711

A series of 4-sbustituted quinazolines have been synthesized via catalyst-free one-pot novel method. The effects of electron effect and steric hindrance on the reaction were discussed. A reasonable novel mechanism concerning repeating nucleophilic addition and elimination to give quinazoline has been proposed.

Synthesis, Herbicidal Activities of Novel
Triketone Compounds Containing 4-Substituted
Cyclopentane-1,3-dione Moiety

Xu, Haizhen*; Xie, Lifan; Han, Tingfeng;
He, Jingli; Zhu, Youquan*
Chin. J. Org. Chem. **2017**, 37(10), 2717

In this paper, a series of novel triketone derivatives containing 4-substituted cyclopentane-1,3-dione were synthesized from cyclopentane-1,3-dione in six steps. The preliminary greenhouse bioassay results indicated that some compounds showed obvious inhibition effects against *Brassica campestris*, and the herbicidal activity was more than 90% at 1500 g/ha.

Synthesis and Antitumor Activity Evaluation
of 2,4,6-Trisubstituted Pyrimidine
Derivatives

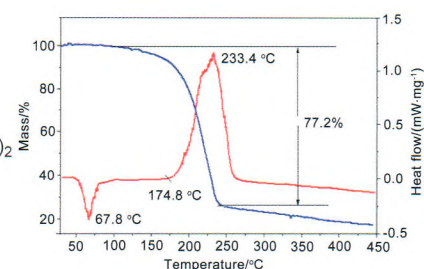
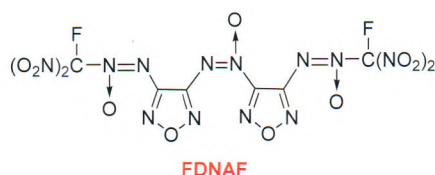
Song, Panpan; Li, Na; Cui, Fei; Xin,
Jingchao; Zhang, Xiaosong; Cao, Qinpo;
Wang, Chaojie; Dai, Wenjie; Meng,
Xiangchuan; Liu, Meng; Chang, Tonghang;
Liu, Qingyi; Sun, Yuehong; Ke, Yu*; Zhang,
Qirong*; Liu, Hongmin*
Chin. J. Org. Chem. **2017**, 37(10), 2725

A series of 2,4,6-trisubstituted pyrimidine derivatives bearing chalcone moiety were synthesized and evaluated for anticancer activity on four human cancer cell lines including EC-109, MGC-803, HepG-2 and MDA-MB-231 by CCK-8 assay. Among them, compound **13u** showed excellent inhibitory effects with IC_{50} values of 0.99 and 1.77 $\mu\text{mol}\cdot\text{L}^{-1}$ against MGC-803 and MDA-MB-231, respectively.

CONTENT

Synthesis and Characterization of an Energetic Compound 3,3'-Bis(fluoronitromethyl-*ONN*-azoxy)azoxyfuran

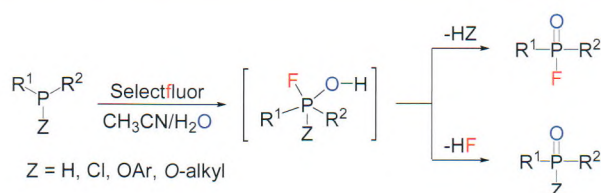
Zhang, Jiarong; Bi, Fuqiang*; Lian, Peng; Zhang, Junlin; Wang, Bozhou*
Chin. J. Org. Chem. **2017**, 37(10), 2736



An energetic compound 3,3'-bis(fluoronitromethyl-*ONN*-azoxy)azoxyfuran (FDNAF) was designed and synthesized through seven-step reactions. The physicochemical properties and detonation performances of FDNAF were studied, and the results revealed that FDNAF is a promising energetic compound with the decomposition temperature of 233.4 °C, high density of 2.02 g·cm⁻³, high explosion velocity of 9735 m·s⁻¹ and detonation pressure of 44.90 GPa.

Fluorination Reaction of P(III) Compounds with the Electrophilic Fluorinating Reagent Selectfluor

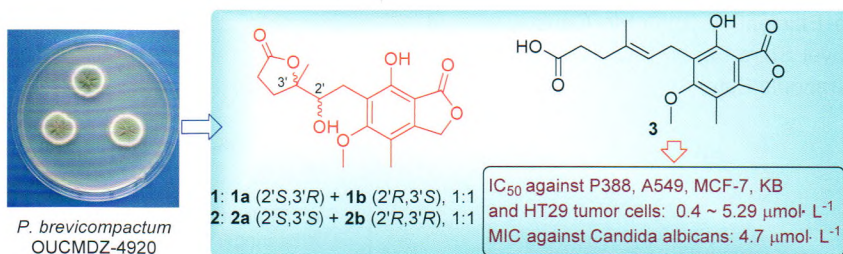
Huang, Yulin; Chen, Qian*
Chin. J. Org. Chem. **2017**, 37(10), 2745



A fluorination reaction of P(III) compounds with the electrophilic fluorinating reagent Selectfluor is described. The reaction proceeded in acetonitrile/water at room temperature for 15~60 min to afford phosphoric fluorides in 34%~81% yields.

Bioactive Natural Products from the Marine-Derived *Penicillium brevicompactum* OUCMDZ-4920

Chen, Lingling; Zhu, Tonghan; Zhu, Guoliang; Liu, Yunlong; Wang, Cong; Piyachaturawat, Pawinee; Chairoungdua, Arthit; Zhu, Weiming*
Chin. J. Org. Chem. **2017**, 37(10), 2752



Two new analogues of mycophenolic acid, (±)-brevicolides A (**1**) and B (**2**) along with nine known compounds (**3**~**11**) were isolated and identified from a nutrient-poor cultivation products of the marine-derived *Penicillium brevicompactum* OUCMDZ-4920. Compound **3** showed cytotoxicities against P388, KB, HT29, MCF-7 and A549 tumor cells together with antifungal activity against *Candida albicans* with the IC₅₀ values ranged from 0.4 to 5.29 μmol·L⁻¹ and a half maximal inhibitory concentration (MIC) value of 4.7 μmol·L⁻¹, respectively. And (−)-7-*O*-methylbrevicolide A (**12a**), (+)-7-*O*-methylbrevicolide A (**12b**), (−)-7-*O*-methylbrevicolide B (**13a**) and (+)-7-*O*-methylbrevicolide B (**13b**) were also synthesized.

NOTES

Clerodane Diterpenes from the Roots of *Polyalthia laui*

Li, Xiaobao; Chen, Guangying; Shao, Tai-ming; Song, Xiaoping; Han, Changri*; Yu, Zhangxin
Chin. J. Org. Chem. **2017**, 37(10), 2763



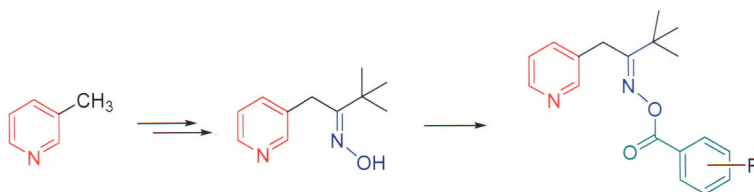
Five clerodane diterpenes were isolated from the roots of *Polyalthia laui* during a systematic phytochemical investigation. Their structures were elucidated by the spectroscopic data. Methyl (4→2)-*abeo*-2,13-diformyl-cleroda-2,12*E*-dien-15-ate (**1**), (*E*)-ent-cleroda-3,12-diene-15,16-dioic acid (**2**), are new clerodane diterpenes.

Five clerodane diterpenes were isolated from the roots of *Polyalthia laui* during a systematic phytochemical investigation. Their structures were elucidated by the spectroscopic data. Methyl (4→2)-*abeo*-2,13-diformyl-cleroda-2,12*E*-dien-15-ate (**1**), (*E*)-ent-cleroda-3,12-diene-15,16-dioic acid (**2**), are new clerodane diterpenes.

Synthesis of Novel 3,3-Dimethyl-1-(pyridin-3-yl)butan-2-one Oxime Esters and Evaluation of Their Antifungal Activity

Zan, Ningning; Zhang, Yulei; Zhang, Shuai; Liu, Si; Jiang, Lin*

Chin. J. Org. Chem. **2017**, 37(10), 2767

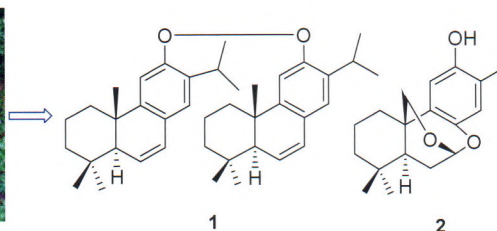


A series of novel pyridine derivatives containing oxime esters have been synthesized from 3-methylpyridine, ethyl pivalate, hydroxylamine hydrochloride and substituted benzoic acid. Some target compounds displayed high antifungal activity against *B. cinerea* and *S. sclerotiorum*.

Diterpenes from the Roots of *Salvia kiaoetiensis* Lévl

Xia, Guanghui; Li, Yuanping; Bi, Dewen; Zhang, Lanjun; Li, Hongzhe*; Gao, Linhua; Wang, Liqin*

Chin. J. Org. Chem. **2017**, 37(10), 2772

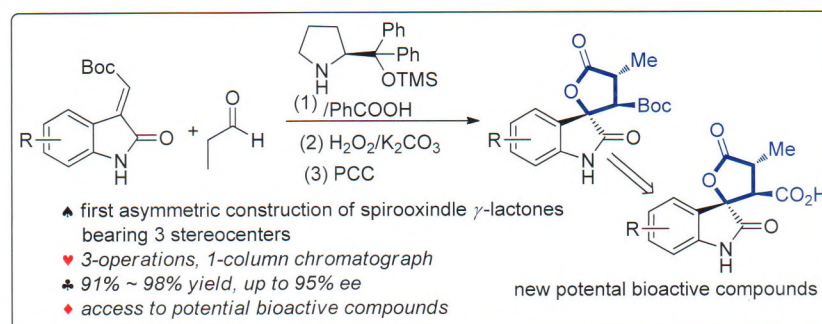


Through a variety of chromatographic techniques and spectroscopic methods, sixteen diterpenes were isolated and identified from the ethanol extraction of the roots of *Salvia kiaoetiensis* Lévl. Their structures were identified by spectroscopic methods, as well as by comparison of their spectral data with those of related compounds. 6,8,11,13-Abietatetraen-12-ol dimer (**1**) is a new abietane diterpenes dimer, and kiaoetin (**2**) is a new 7,8:7,20-diepoxy-nor-abietane diterpenes. All of the diterpenes were isolated from this plant for the first time.

An Efficient Asymmetric Construction of Novel Spiro-Fused 2-Oxindoles/ α -Methyparaconic Ester

Guo, Yanjun; Meng, Chenhong; Liu, Xueli; Xu, Danqian; Xia, Aibao*

Chin. J. Org. Chem. **2017**, 37(10), 2776



An efficient asymmetric construction of novel spiro-fused 2-oxindole/ α -methyparaconic ester is reported, which was offered via organocatalytic Michael reaction of propionaldehyde and olefinic oxindoles, with subsequent $\text{H}_2\text{O}_2/\text{K}_2\text{CO}_3$ system-mediated α -hydroxylation/hemiacetalization cascade reaction under oil/water two-phase conditions, and final oxidative γ -lactonization by pyridinium chlorochromate (PCC).

HIGHLIGHTS

Chin. J. Org. Chem. **2017**, 37(10), 2783

IKA

designed for scientists

RV 10 数显型旋转蒸发仪 四合一套装

/// 全自动蒸馏，最大 100 % 溶剂回收



3 年保修!

IKA 自动蒸馏方案

检测中如何实现快速浓缩?

如何避免爆沸，并实现溶剂的最大回收?

RV 10 数显型旋转蒸发仪套装给您专业解决方案。

- › 气密性好，极限 1 mbar，蒸馏效率高
- › 内置溶剂数据库，全自动蒸馏
- › 控制真空，杜绝爆沸
- › 低温冷凝，最大 100 % 溶剂回收

套装包含:

- › RV 10 数显型旋转蒸发仪
- + RC 2 basic 冷却循环系统
- + MVP 10 basic 真空泵
- + VC 10 真空控制器 / VC 10.400 底座



套装包含:

/// RC 2 basic 冷却循环系统 + MVP 10 basic 真空泵 + VC 10 真空控制器 / VC 10.400 底座



更多咨询，欢迎拨打 IKA 热线:

400-886-0358

阿里巴巴商城: ikashop.1688.com

IKA Works Guangzhou

艾卡 (广州) 仪器设备有限公司

广州经济技术开发区友谊路 173 号 - 175 号

电话: +86 20 8222 6771, 传真: +86 20 8208 8373

邮箱: info@ika.cn, 网址: www.ika.cn



IKAworlwide /// #lookattheblue