

有机化学

Chinese Journal of Organic Chemistry

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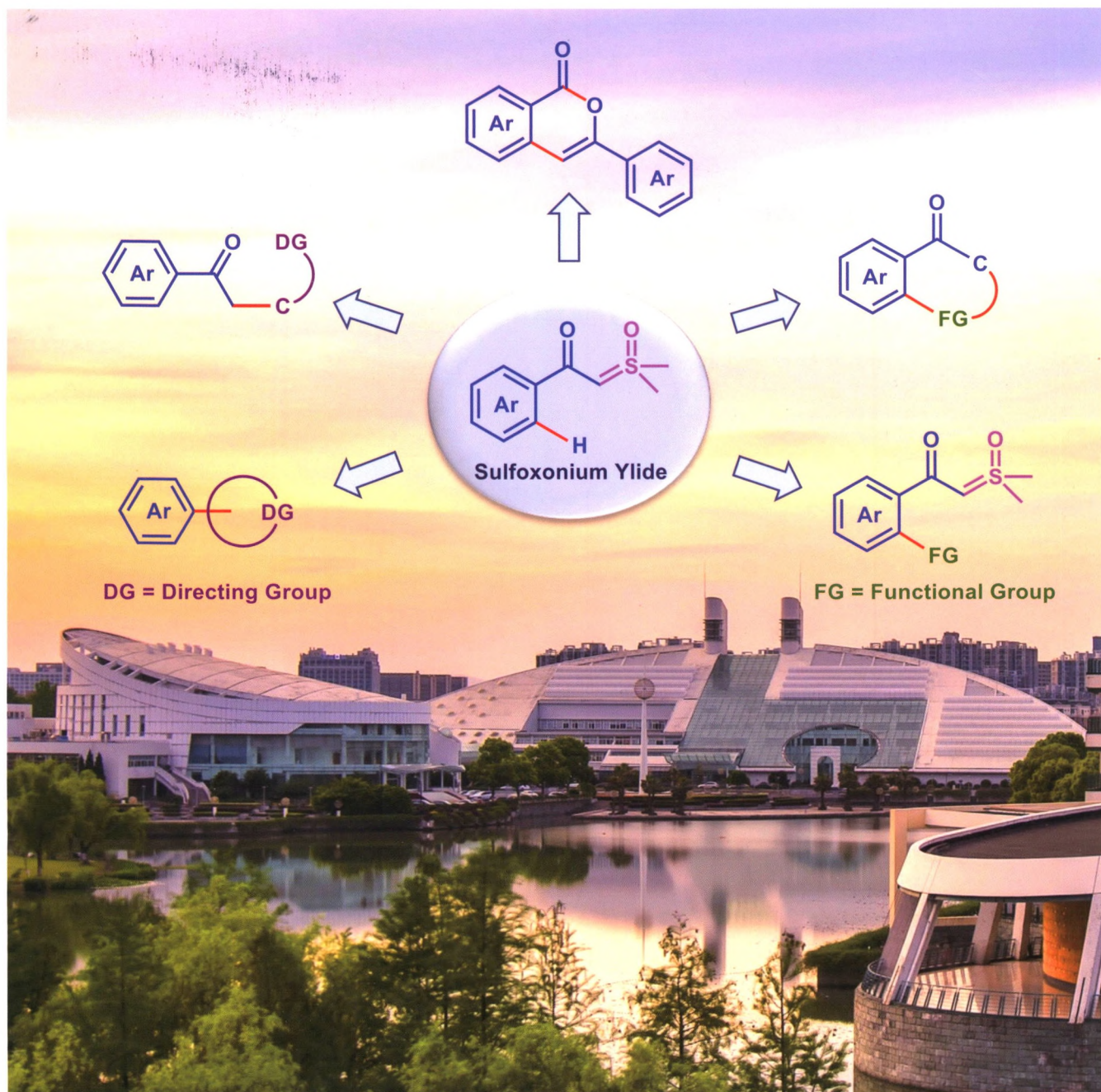
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Chinese Journal of Organic Chemistry

(YOUJI HUAXUE)

第 41 卷 第 3 期 (总 388 期) 2021 年 3 月

目次

研究专题

- 炔酰胺类缩合剂研究进展 刘涛 许泗林 赵军锋* (873)

综述与进展

- 亚砷叶立德在 C—H 键活化反应中的应用研究进展 洪超 蒋希程 于书玲 刘占祥* 张玉红* (888)
- 含四元环的多环芳香化合物的研究进展 崔英翠 夏德斌* (907)
- 基于三苯胺的荧光探针设计、合成与应用研究进展 陈思鸿 陈洪 罗时荷* 曹西颖 杨国贤 曾晓晴 汪朝阳* (919)
- 电化学催化下的多氟烷基化反应研究进展 刘颖杰 韩莹徽 林立青 许颖* (934)
- 氧杂环丁烷的扩环反应 袁文豪 许家喜* (947)
- 卤过氧化物酶在绿色卤化反应中的研究进展 曾志刚 桑贤轲 袁波 吴鸣虎* 张武元* (959)
- 不同催化体系下脞的水合反应研究进展 夏玉杰 何丹丹 伍婉卿* (969)
- 多组分参与的氟烷基化反应研究进展 潘军 吴晶晶* 吴范宏* (983)
- 流动化学在卤化反应中的应用 刘玘 朱园园 古双喜* 陈芬儿* (1002)
- 有机硒参与的硒环化反应研究进展 许颖 李晨 孟建萍 黄玉玲 付纪源 刘冰 刘颖杰 陈宁* (1012)
- 超分子手性组装体的构建与应用 刘金果 殷凤 胡君* 巨勇* (1031)
- 2-取代苯并噻唑化合物的合成进展 张俊 刘雅菲 张育榕 呼亮 韩世清* (1053)
- 卤素盐参与下有机电合成含氮杂环化合物的研究进展 周娅琴 赵志恒 曾亮 李鸣 何永辉* 谷利军* (1072)
- 近十年 Dendralenes 催化合成研究进展 祝洁 杨文超 张乘运 吴磊* (1081)

* 通讯联系人.

研究论文

- 醋酸铜促进的酰胺-噁唑啉化合物与芳基硫醇的 C—H 键双硫化反应研究 王涛* 王晓莎 宋雅雯 霍晶晶 周敬栓 康庆伟 刘澜涛* (1098)
- 高灵敏线粒体靶向近红外二氧化硫荧光探针的开发及细胞、小鼠成像研究 李芳 唐永和 郭锐 林伟英* (1108)
- 一氟甲基二硫化物的高效合成 胡晓光 庞仁艺 郑天骄 姚瑞超 陈文博* (1117)
- 2-[3-氰基咪喃-2(5H)-亚基]丙二腈衍生物的合成及其对 Pd²⁺ 的识别 钟克利 周璐璐 陈琳 汤立军* 高雪 刘秀英 庞秀秀 燕小梅* (1124)
- 空气条件下温和高效催化 *N*-吡啶吡啉的氧化脱氢 唐灏 张贝贝 陈卫东 骆钧飞* (1131)
- 高选择性快速检测 Hg²⁺ 的磺酰脲型探针的合成及其在吸附和 HeLa 细胞中的应用 薛松松 解正峰* 褚义成 岳永双 石伟 周家斌 (1138)
- 铜催化羧酸与芳氨基甲酰氯的脱羧交叉偶联 周敦 樊爱红 李翔 陈春霞* 孙鹏 彭进松* (1146)
- 磷杂 Fries 重排反应用于合成 2-苊基磷化合物 兰新婵 王丽丽* 段征* François, Mathey (1153)
- 一种基于香豆素骨架的荧光化学传感器于水溶液中实现对 Al³⁺ 和焦磷酸根(PPI) 的连续识别 孟宪娇 赵晋忠 张永坡 李志春 袁长春* 马文兵* (1161)
- 诺藻酮基噻唑啉-2-胺型铜离子荧光探针的合成及其应用研究 张明光 李明新 杨益琴 徐徐 宋杰 王忠龙* 王石发* (1168)
- 具有芳并咪唑结构单元的叶绿素类二氢卟吩衍生物的合成 张珠 赵雨 王欣悦 李家柱 王进军* (1177)
- 金鸡纳硅醚衍生物有机催化吲哚与靛红的不对称 Friedel-Crafts 反应 张俊伟 吴昊 张伟鑫 王黎明* 金瑛* (1187)
- 无碱条件下直接多组分反应选择性合成非对称含氮杂芳基硫醚 王琦 朱柏燃 杨光 马献涛* 徐清* (1193)
- 基于硝基还原机理的一氧化碳荧光探针的开发及细胞成像研究 陈恩庆 唐永和 王蕾 任江波 林伟英* (1200)
- 基于叠氮-炔酰胺环化的铜催化碳氢键和氮氢键插入反应研究 刘晓涛* 刘鑫 叶龙武* (1207)
- 聚合物氮化碳负载铜克级制备一种无需额外配体即可催化二级噻啉-2-胺的碳-氮乌尔曼偶联反应的实用催化剂 孙扬阳 冯刚 陈超 刘永红* 张旭* (1216)
- 新型樟脑磺胺基脲衍生物的合成及抗肿瘤活性研究 赵雨琦 王芸芸 张成龙 徐徐 王石发* (1224)

研究简报

- 四氯化钼催化合成噻啉并[4,5-*b*]噻唑-2,4(1*H*,3*H*)-二酮和 11*H*-茚[1,2-*b*]噻唑-11-酮 殷国栋* 李源 范玲 (1234)
- 利用三组分串联反应合成 3-苯并[*d*]咪唑啉取代的吡喃并[3,2-*c*]色烯-2-酮衍生物 王翔* 陈平 支三军 胡华友 阙玉和 唐果东 张载超* (1241)
- 长序三宝木枝叶中一个新的异戊烯基异黄酮类化合物 付艳辉 谢玉桐 马菁伟 蒋波 谢澜 乔泽华 刘艳萍* (1246)

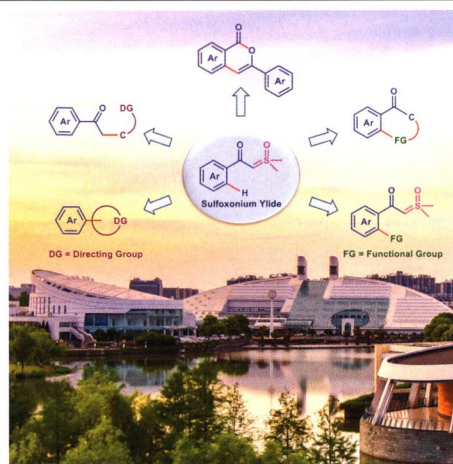
<i>Penicillium herquei</i> JX4 活性次级代谢产物研究	吴习斌 谭银丰 易继凌 宋鑫明 杨静雨 周学明* 陈光英*	(1251)
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亮点述评

铬催化硝基化合物的脱氧硼氢化	张艳东 朱守非*	(1255)
铜催化的非活化烯烃的不对称烷胺化反应	王紫璇 李必杰*	(1257)
钴催化末端炔烃符合马氏规则的硼氢化反应	袁丹 姚英明*	(1259)
钴催化的环丙烯不对称氢烷基化反应	何斌 钮大文*	(1261)
镍催化不对称镍催化端位烯烃 1,1-芳-硼化反应不对称芳-硼化反应	席龙龙 史壮志*	(1264)
通过质子耦合电子转移光合成磷酸化氮杂环	易荣楠 何卫民*	(1267)
Morita-Baylis-Hillman 型[3,3]- σ 重排实现的 Z 选择性 α -芳基化反应	王敏 高洪银*	(1269)
无过渡金属参与的异腈与芳基硼酸双插入偶联反应高效构建双芳基甲胺衍生物	郑龙 王鹏*	(1272)

Cover Picture: Recent Progress on the Application of Sulfoxonium Ylides in C—H Activation

The recent progress on the application of sulfoxonium ylides in C—H activation is summarized by Hong, Jiang, Yu, Liu and Zhang on page 888. An overview of the advances of sulfoxonium ylides is given from three aspects: sulfoxonium ylide as a coupling synthon, sulfoxonium ylide as a directing group as well as self-coupling and condensation of sulfoxonium ylide. Finally, the future challenges and developments of sulfoxonium ylides are also prospected.



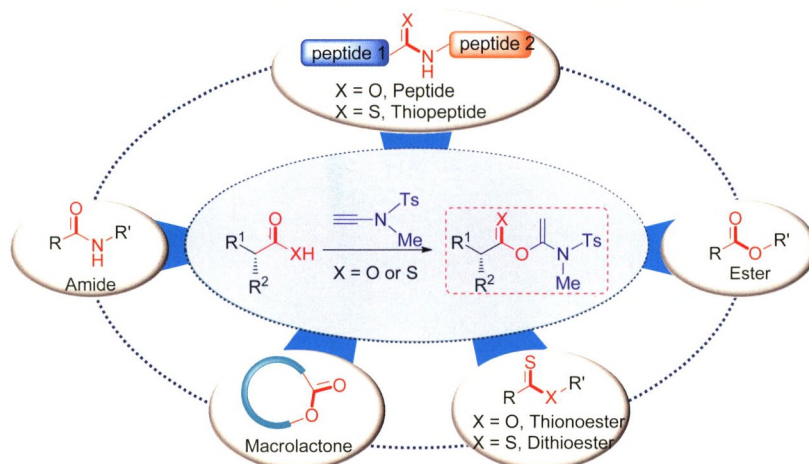
Inside Cover: Cu(OAc)₂-Mediated C—H Bond Dithiolation of Amide-Oxazolines with Aryl Thiols

Cu(OAc)₂-mediated dithiolation of C(sp²)—H bonds with aryl thiols has been developed via using amide-oxazoline as directing group to afford functionalized thioethers by Wang, Wang, Song, Huo, Zhou, Kang, and Liu on page 1098. Under the optimized conditions, various substituted phenylamides and pyridine amides were well tolerated to give the corresponding products in good to excellent yields.



ACCOUNT

Recent Advances in Ynamide Coupling Reagent



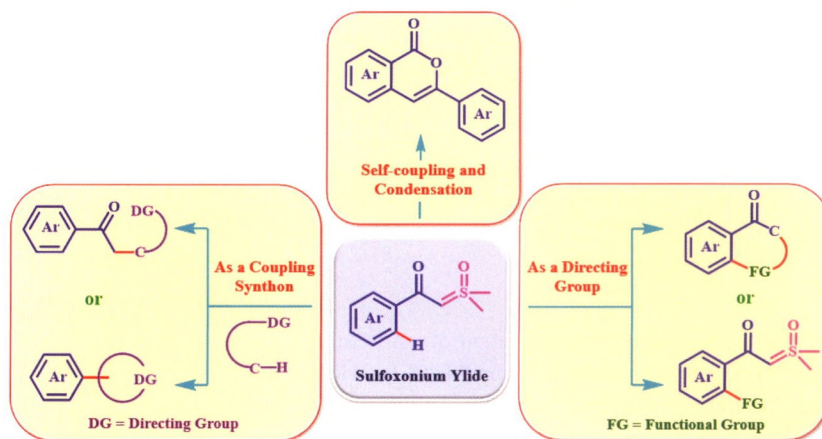
Liu, Tao; Xu, Silin; Zhao, Junfeng*
Chin. J. Org. Chem. **2021**, 41(3), 873

The discovery as well as the application of ynamide coupling reagent in the construction of amide and ester bonds is systematically summarized.

CONTENT

REVIEWS

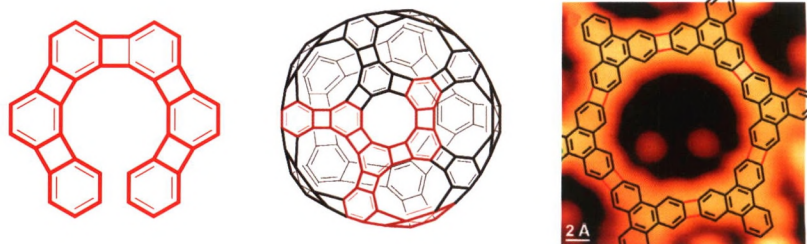
Recent Progress on the Application of Sulfoxonium Ylides in C—H Activation



The recent progress on the application of sulfoxonium ylides in C—H activation is reviewed from three aspects: sulfoxonium ylide as a coupling synthon, sulfoxonium ylide as a directing group as well as self-coupling and condensation of sulfoxonium ylide. Finally, the future challenges and developments of sulfoxonium ylides are also prospected.

Hong, Chao; Jiang, Xicheng; Yu, Shuling; Liu, Zhanxiang*; Zhang, Yuhong*
Chin. J. Org. Chem. **2021**, 41(3), 888

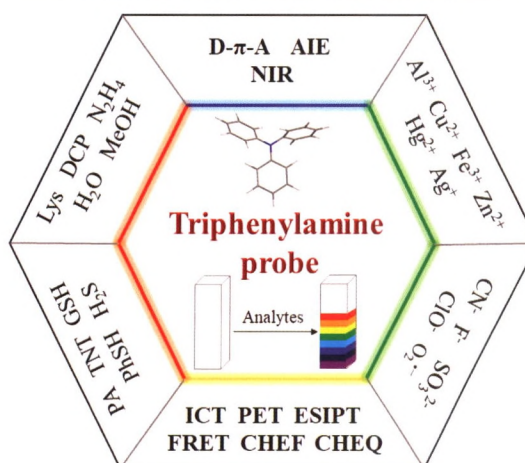
Recent Advances of Polycyclic Aromatic Compounds Containing Four-Membered Rings



The recent advances in the synthesis, structure, properties and applications of polycyclic aromatic compounds containing four-membered rings are reviewed. Linear, angular, helical, and ring-shaped molecules are mainly discussed. Finally, their application and research direction are also prospected.

Cui, Yingcui; Xia, Debin*
Chin. J. Org. Chem. **2021**, 41(3), 907

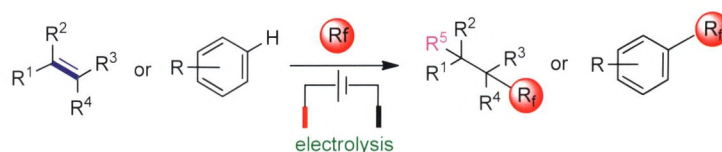
Progress in Design, Synthesis and Application of Triphenylamine-Based Fluorescent Probes



Chen, Sihong; Chen, Qi; Luo, Shihe*; Cao, Xiying; Yang, Guoxian; Zeng, Xiaoqing; Wang, Zhaoyang*
Chin. J. Org. Chem. **2021**, 41(3), 919

The recent progress in the molecular design, synthesis and detecting application of triphenylamine probes is reviewed. In the future, the aggregation-induced emission (AIE)-type triphenylamine-based fluorescent probes with the properties of near-infrared and high photoluminescence quantum yield are promising research topics.

Research Progress of Polyfluoroalkylation Reaction under Electrochemical Catalysis

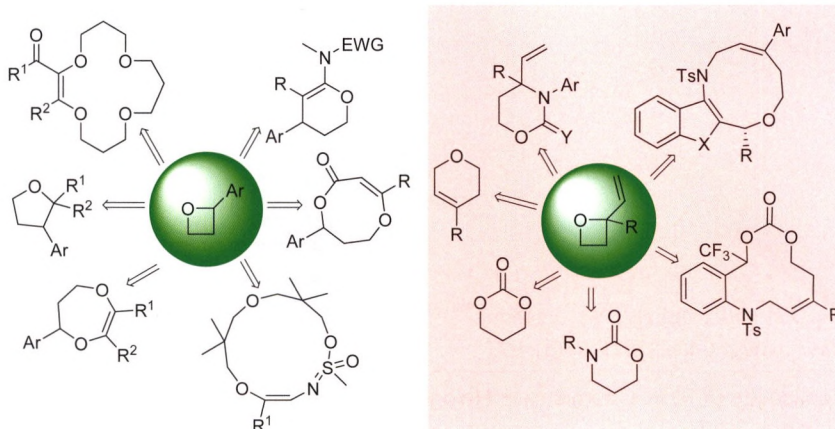


The fluoroalkylation reaction pathway under the guidance of electrochemistry has not only reformed the reaction mode, but also has advantages in the universality of substrates. The progress of electrocatalytic fluoroalkylation methods is summarized based on the nature of the substrate and its reaction mechanism.

Liu, Yingjie; Han, Yinghui; Lin, Liqing; Xu, Ying*

Chin. J. Org. Chem. **2021**, *41*(3), 934

Ring Expansions of Oxetanes

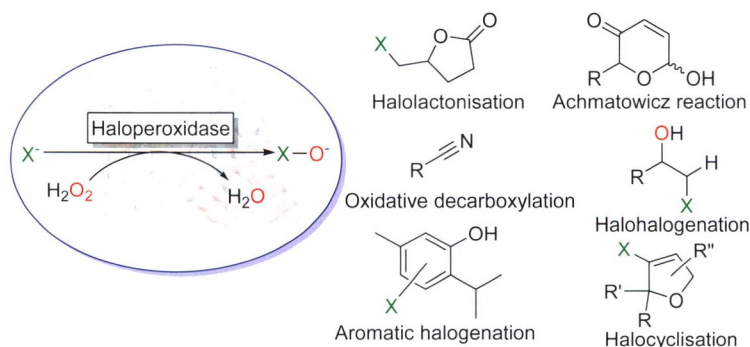


The ring expansion reactions of oxetanes are reviewed. Some reaction mechanisms of ring expansion reactions are analyzed, and new prospects for the future development of the ring expansion reactions are put forward.

Yuan, Wenhao; Xu, Jiayi*

Chin. J. Org. Chem. **2021**, *41*(3), 947

Advances of Haloperoxidases-Catalyzed Green Halogenation Reactions

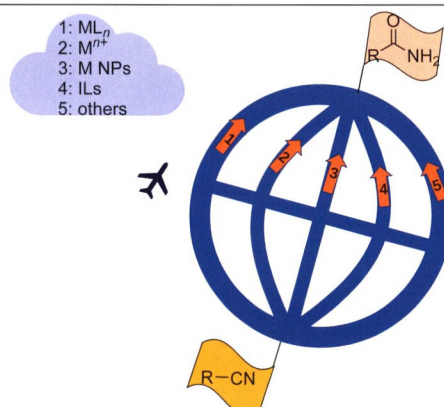


In view of the significant potential of enzymatic catalysis in halogenation reactions, the recent advances of halogenases-catalyzed green synthesis are introduced from the perspective of catalytic activity, enzyme stability, substrate concentration, catalytic scope and so on.

Zeng, Zhigang; Sang, Xianke; Yuan, Bo; Wu, Minghu*; Zhang, Wuyuan*

Chin. J. Org. Chem. **2021**, *41*(3), 959

Recent Advances for Hydration Reaction of Nitriles in Different Catalytic Systems



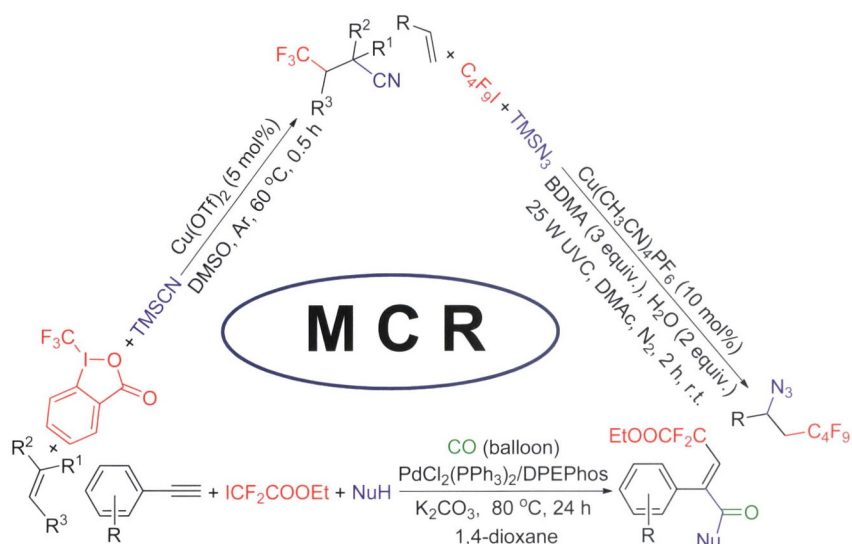
According to different catalytic systems, the progress of the hydration of nitriles including the conversion of cyanohydrins which are difficult to be hydrated due to their easy decomposition into hydrogen cyanide and carbonyl compounds is summarized.

Xia, Yujie; He, Dandan; Wu, Wanqing*

Chin. J. Org. Chem. **2021**, *41*(3), 969

CONTENT

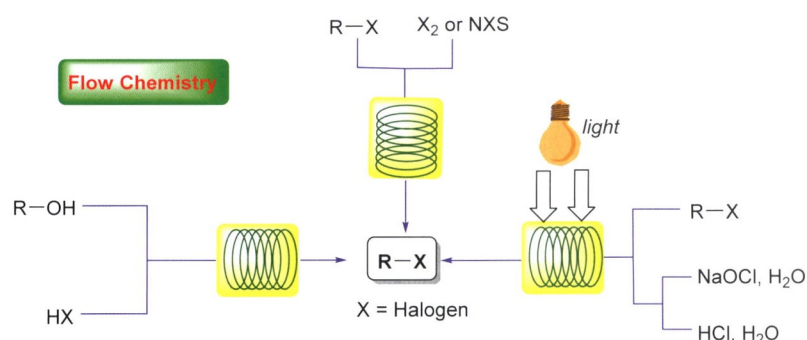
Progress in Fluoroalkylation of Multicomponent



The development process of multicomponent fluoroalkylation reactions in the past decade is summarized from seven parts, and the achievement made in this reaction is summarized and commended. Meanwhile, it also points out the current challenges of multicomponent fluoroalkylation reactions.

Pan, Jun; Wu, Jingjing*; Wu, Fanhong*
Chin. J. Org. Chem. **2021**, 41(3), 983

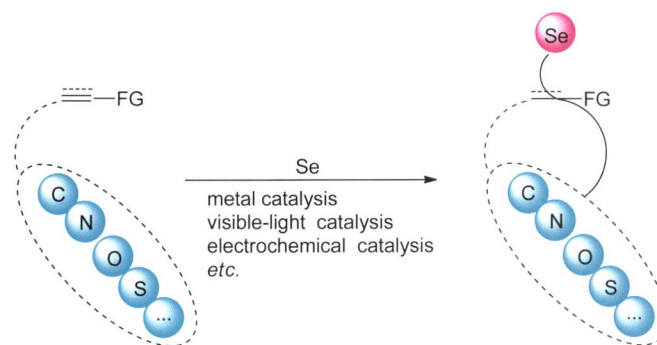
Application of Flow Chemistry in Halogenation



Liu, Ding; Zhu, Yuanyuan; Gu, Shuangxi*; Chen, Fener*
Chin. J. Org. Chem. **2021**, 41(3), 1002

According to the classification of halogenation of organic compounds, the main progress of flow chemistry in fluorination, chlorination, bromination and iodization is reviewed. And its future development is prospected.

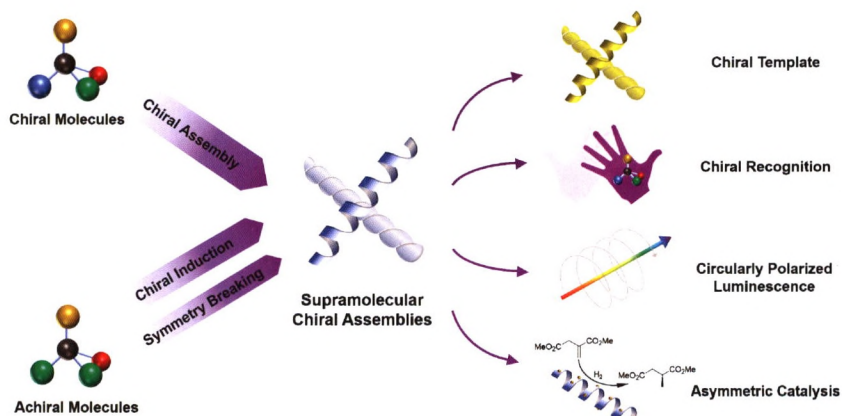
Recent Progress in the Selenocyclization Reactions with Organic Selenides



Xu, Ying; Li, Chen; Meng, Jianping; Huang, Yuling; Fu, Jiyan; Liu, Bing; Liu, Yingjie; Chen, Ning*
Chin. J. Org. Chem. **2021**, 41(3), 1012

The development of new methods for the synthesis of selenium-containing heterocyclic derivatives has attracted much attention. The recent progress in this rapidly growing area, including metal catalysis, electrochemical catalysis, visible-light catalysis, organo-catalysis, and other selenocyclization types, is highlighted with an emphasis on the scope and the mechanisms of these different reactions.

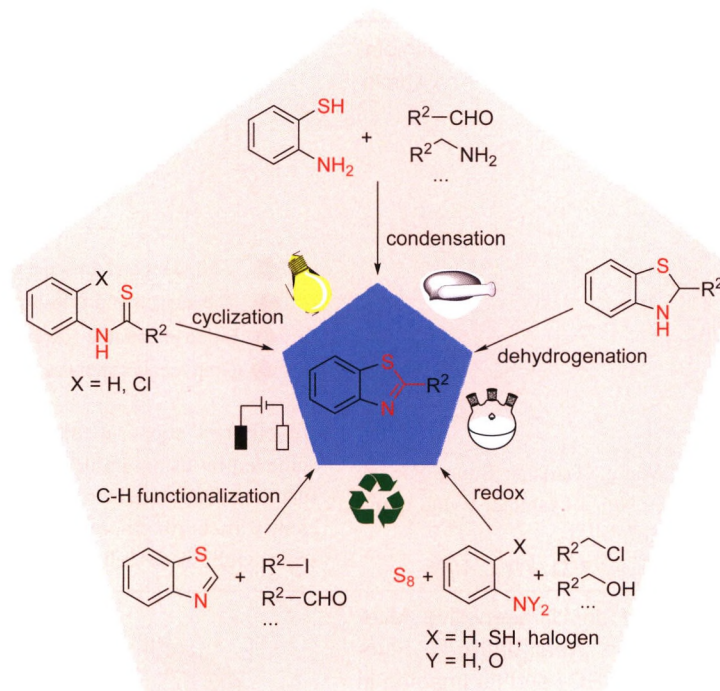
Fabrication and Applications of Supramolecular Chiral Assemblies



The fabrication strategies of supramolecular chiral assemblies in recent years are summarized, and their improvements in chiral template, chiral recognition, circularly polarized luminescence and asymmetric catalysis are briefly reviewed, as well as the shortcomings in these fields. The future development of supramolecular chiral assemblies is also prospected.

Liu, Jinguo; Yin, Feng; Hu, Jun*; Ju, Yong*
Chin. J. Org. Chem. **2021**, 41(3), 1031

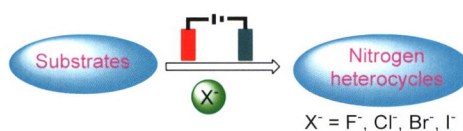
Progress in Synthesis of 2-Substituted Benzothiazole Compounds



As a heterocyclic compound with unique structure, 2-substituted benzothiazole has many applications in biomedicine, materials science and other fields. The recent advances and achievements in the synthesis of 2-substituted benzothiazoles are reviewed, and their future synthetic directions and trends are prospected.

Zhang, Jun; Liu, Yafei; Zhang, Yurong; Hu, Liang; Han, Shiqing*
Chin. J. Org. Chem. **2021**, 41(3), 1053

Recent Advance in Organic Electrochemical Synthesis of Nitrogen Heterocyclic Compounds Involving Haloids as Mediators

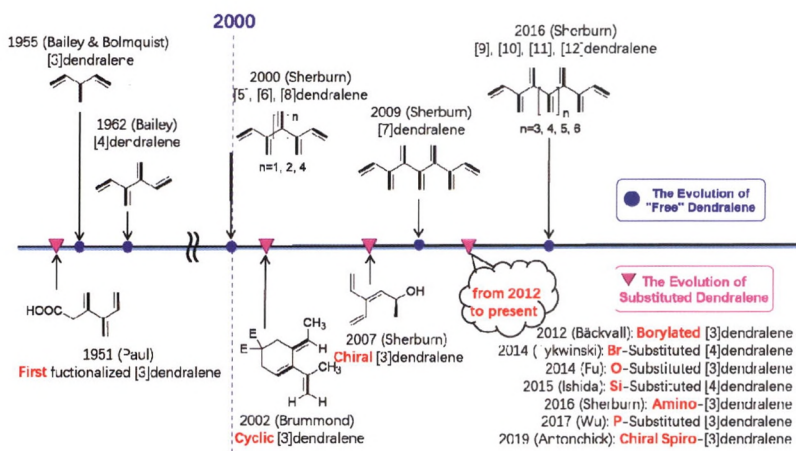


Zhou, Yaqin; Zhao, Zhiheng; Zeng, Liang; Li, Ming He; Yonghui*; Gu, Lijun*
Chin. J. Org. Chem. **2021**, 41(3), 1072

Nitrogen heterocyclic compounds are widely found in medicinal molecules, natural products and functional materials. Recently, remarkable progress has been made in haloids mediated electrochemical synthesis of nitrogen heterocycles. In this review, the recent developments in this area are summarized.

CONTENT

Recent Progress in the Synthesis of Dendralenes: A Decade Update

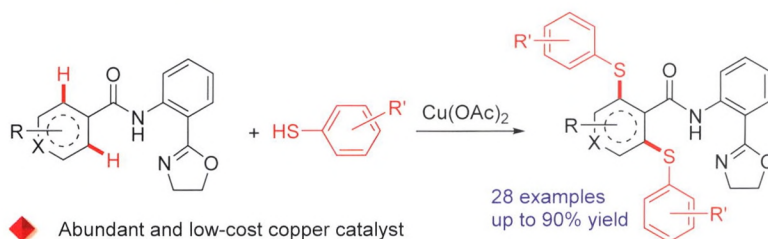


Zhu, Jie; Yang, Wenchao; Zhang, Chengyun; Wu, Lei*
Chin. J. Org. Chem. **2021**, 41(3), 1081

The progress in the synthesis of dendrimers in recent ten years is reviewed. The synthetic design and mechanism are mainly discussed. Finally, the development prospect of dendrimers is prospected.

ARTICLES

Cu(OAc)₂-Mediated C—H Bond Dithiolation of Amide-Oxazolines with Aryl Thiols

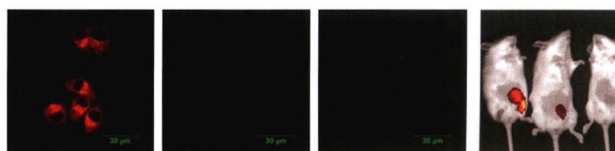
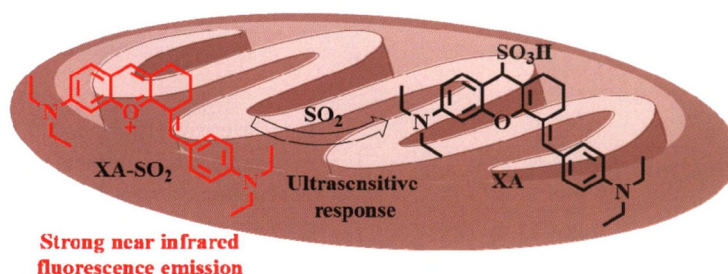


- ◆ Abundant and low-cost copper catalyst
- ◆ Dithiolation of amide-oxazoline
- ◆ Broad substrates scope with various substituted phenylamides and pyridine amides
- ◆ Gram-scale synthesis

Wang, Tao*; Wang, Xiaosha; Song, Yawen; Huo, Jingjing; Zhou, Jingshuan; Kang, Qingwei; Liu, Lantao*
Chin. J. Org. Chem. **2021**, 41(3), 1098

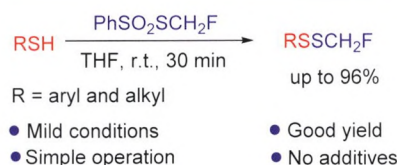
An efficient copper-mediated dithiolation of C(sp²)-H bonds with aryl thiols was achieved by using amide-oxazoline as directing group. This strategy gives a variety of functionalized thioethers in moderate to excellent yields (up to 90%) in simple and efficient way. Furthermore, the protocol has been successfully implemented for the gram-scale synthesis as well.

Development of an Ultrasensitive Mitochondria-Targeted Near Infrared Fluorescent Probe for SO₂ and Its Imaging in Living Cells and Mice



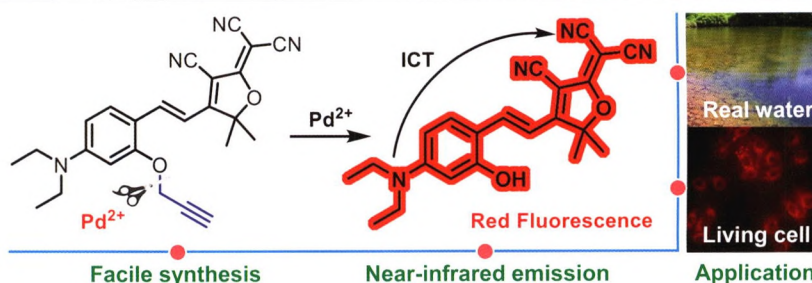
Li, Fang; Tang, Yonghe; Guo, Rui; Lin, Weiyang*
Chin. J. Org. Chem. **2021**, 41(3), 1108

A new ultrasensitive mitochondria-targeted near infrared fluorescent probe (XA-SO₂) was designed and synthesized for monitoring SO₂ in living cells and mouse.

High Efficient Synthesis of Monofluoro-
methyl disulfides

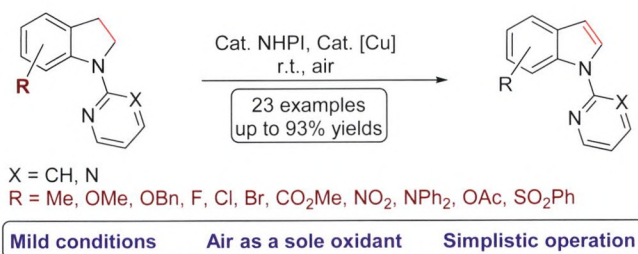
Hu, Xiaoguang; Pang, Renyi; Zheng, Tianjiao; Yao, Ruichao; Chen, Wenbo*
Chin. J. Org. Chem. **2021**, *41*(3), 1117

A new method for the synthesis of monofluoromethyl disulfides from PhSO₂SCH₂F and thiophenols/mercaptans was developed. This approach features short reaction time, mild conditions, simple operation and no additives.

Synthesis of 2-(3-Cyanofuran-2(5H)-ylidene)malononitrile Derivative and Its Recognition for Pd²⁺

Zhong, Keli; Zhou, Lulu; Chen, Lin; Tang, Lijun*; Gao, Xue; Liu, Xiuying; Pang, Xiuxiu; Yan, Xiaomei*
Chin. J. Org. Chem. **2021**, *41*(3), 1124

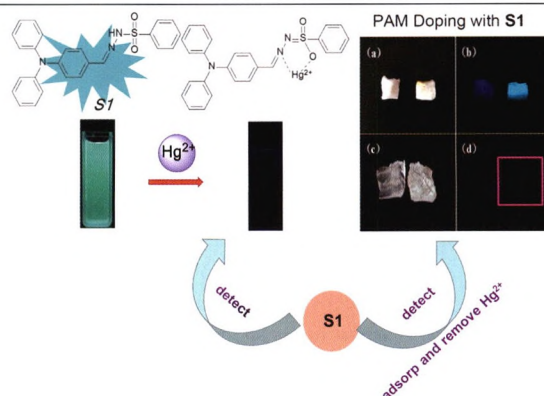
2-(3-Cyanofuran-2(5H)-methylene)malononitrile derivative (**TCF-Pyn**) was synthesized by a two-step reaction. Compound **TCF-Pyn** can recognize Pd²⁺ with a high selectivity, "OFF-ON" fluorescent response and the near-infrared emission (653 nm) in MeCN/PBS (*V*:*V*=2:8, PBS 2 × 10⁻² mol/L, pH=7.4) solution. The probe possesses a good anti-interference capability, a wide pH range (3~8) and a low detection limit (6.92 μmol/L). The application research shows that **TCF-Pyn** can detect Pd²⁺ in real water samples and fluorescent image Pd²⁺ in living cells.

A Mild and Efficient Catalytic Aerobic Oxidative Dehydrogenation of *N*-Pyridylindolines

Tang, Hao; Zhang, Beibei; Chen, Weidong; Luo, Junfei*
Chin. J. Org. Chem. **2021**, *41*(3), 1131

An efficient and mild *N*-hydroxyphthalimide and copper co-catalyzed aerobic oxidative dehydrogenation of *N*-pyridylindolines is developed. The use of air as sole oxidant allows a green, safe, low-cost and simple operation. This method provides an alternative to the known method for the oxidation of *N*-pyridylindoline derivatives by the use of stoichiometric excess strong oxidant 2,3-dichloro-5,6-dicyanobenzoquinone.

Synthesis of Sulfonylhydrazone Type Probe with High Selectivity for Rapid Detection of Mercury and Its Application in Adsorption and HeLa Cell

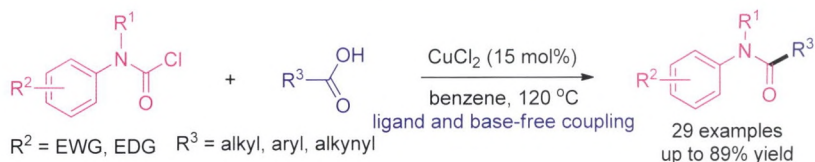


Xue, Songsong; Xie, Zhengfeng*; Chu, Yicheng; Yue, Yongshuang; Shi, Wei; Zhou, Jiabin
Chin. J. Org. Chem. **2021**, *41*(3), 1138

A novel sulfonylhydrazone Hg²⁺ probe (4-(diphenylamino)benzylidene)benzenesulfonyl hydrazone (**S1**) was synthesized, which exhibited a rapid response time, high selectivity and sensitivity to Hg²⁺. Polyacrylamide (**PAM**) doped **S1** (**PAMS**) had high adsorption for Hg²⁺ and could easily be distinguished by the naked-eye in UV lamp. The micro-morphology of **PAMS** before and after adsorption was observed by scanning electron microscope (SEM).

CONTENT

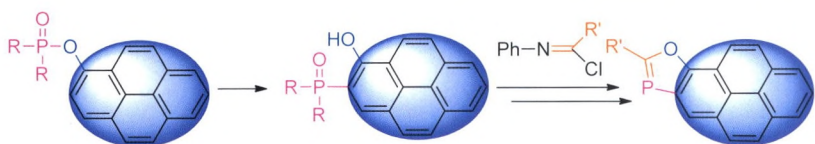
Copper-Catalyzed Decarboxylative Cross-Coupling of Carboxylic Acids and Aryl-carbamoyl Chlorides



Zhou, Dun; Fan, Aihong; Li, Xiang; Chen, Chunxia*; Sun, Peng; Peng, Jinsong*
Chin. J. Org. Chem. **2021**, 41(3), 1146

A ligand-free copper-catalyzed decarboxylative C—C coupling reaction of carboxylic acids and carbamoyl chlorides in the absence of base was described. Under the mild condition, a broad range of functional groups were compatible with this transformation, and diverse amides were obtained in good to high yields.

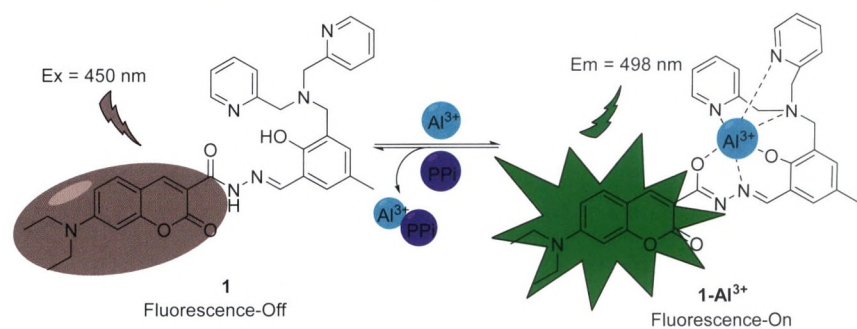
Synthesis of 2-Pyrenylphosphines via Phospho-Fries Rearrangement



Lan, Xinchang; Wang, Lili*; Duan, Zheng*; Mathey, François
Chin. J. Org. Chem. **2021**, 41(3), 1153

This research provides a convenient procedure to synthesize 2-pyrenylphosphine from 1-pyrenylphosphate by phospho-Fries rearrangement. The phospho-Fries rearrangement product could be used to prepare pyreno-1,3-oxaphospholes.

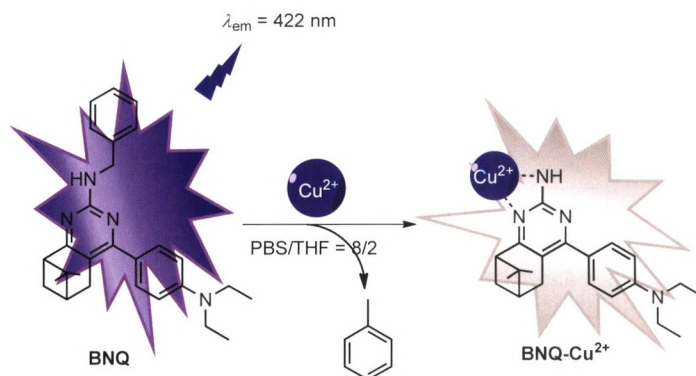
A Fluorescent Chemosensor Based on Coumarin for Sequential Recognition of Al³⁺ and Pyrophosphate (PPi) in Aqueous Solution



Meng, Xianjiao; Zhao, Jinzhong; Zhang, Yongpo; Li, Zhichun; Yuan, Changchun*; Ma, Wenbing*
Chin. J. Org. Chem. **2021**, 41(3), 1161

A novel fluorescent chemosensor **1** has been synthesized and showed an obviously 'off-on-off' fluorescence response toward Al³⁺ and pyrophosphate (PPi) in aqueous solution. The detection limits of sensor **1** were 0.26 μmol/L to Al³⁺ and 0.1 μmol/L to PPi, which showed better stability and higher sensitivity.

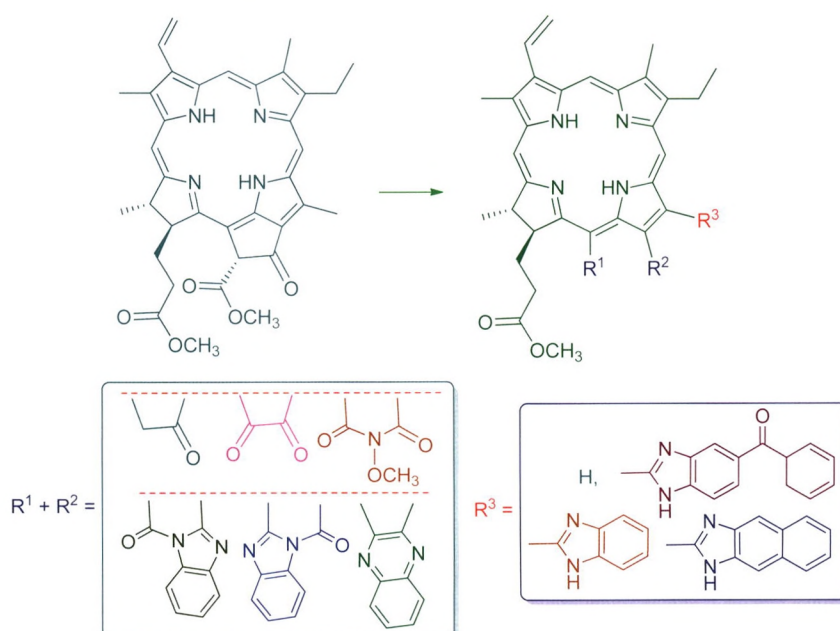
Synthesis of Nopinone-Based Quinazolin-2-amine Fluorescent Probe for Detection of Cu²⁺ and Its Application Research



Zhang, Mingguang; Li, Mingxin; Yang, Yiqin; Xu, Xu; Song, Jie; Wang, Zhonglong*; Wang, Shifa*
Chin. J. Org. Chem. **2021**, 41(3), 1168

A small molecular fluorescent probe **BNQ** was designed and synthesized based on nopinone. The probe **BNQ** could selectively complex with Cu²⁺ and represented high selectivity and competitiveness compared other 20 kinds of metal ions in wide pH range and short time. The limit of detection of **BNQ** to Cu²⁺ was calculated to be 0.09 μmol·L⁻¹. The complexation mechanism of **BNQ** with Cu²⁺ was confirmed by high resolution mass spectrum (HRMS) and density functional theory (DFT) calculation. Moreover, **BNQ** was applied in the detection of micromole level Cu²⁺ in real water samples and bioimaging in living zebrafish.

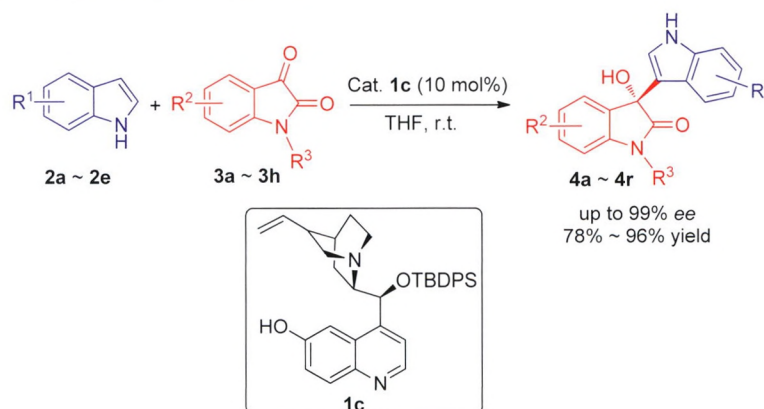
Syntheses of Chlorophyllous Chlorin Derivatives with Aromatic Ring-Fused Imidazole Structural Unit



Using pheophorbide-a methyl ester as starting material, the formyl group and α -diketone moiety were introduced into the water-soluble end of N²¹-N²³ axis at different positions by the structural transformation on exocyclic ring. Furthermore, using the Phillips-Ladenburg-like reaction of active functional groups in chlorophyll chlorins with various aromatic *o*-diamines, the aromatic ring-fused imidazole structural units were created in linkage or fused manner, and a series of unreported chlorin derivatives that contain aryl-fused imidazol unit were finally synthesized.

Zhang, Zhu; Zhao, Yu; Wang, Xinyue; Li, Jiazhu; Wang, Jinjun*
Chin. J. Org. Chem. **2021**, *41*(3), 1177

Enantioselective Friedel-Crafts Reaction of Indoles with Isatins Catalyzed by Cinchona Alkaloid Silyl Ether Derivative



Zhang, Junwei; Wu, Hao; Zhang, Weixin; Wang, Liming*; Jin, Ying*
Chin. J. Org. Chem. **2021**, *41*(3), 1187

Cinchona alkaloid silyl ether derivatives were used to organocatalyze the asymmetric Friedel-Crafts reaction of indoles with isatins. The desired chiral 3-hydroxy-2-oxindoles were obtained in good yields (78%~96%) with high enantioselectivities (up to 99% *ee*).

Selective Synthesis of Unsymmetrical *N*-Heteroaryl Thioethers by Base-Free Direct Multi-Component Reaction

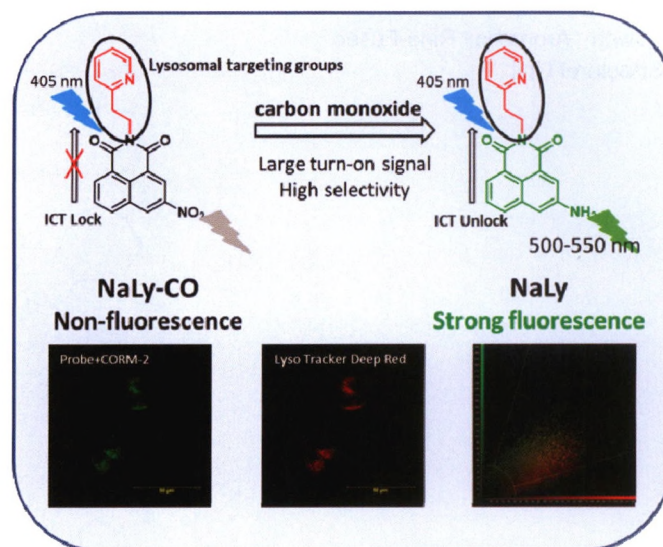


Wang, Qi; Zhu, Boran; Yang, Guang; Ma, Xiantao*; Xu, Qing*
Chin. J. Org. Chem. **2021**, *41*(3), 1193

A new method for the direct synthesis of *N*-heteroaryl thioethers through a base-, additive-, and solvent-free one-pot multi-component reaction of *N*-heteroaryl halides, thiourea, and alkyl bromides was reported. This method can employ thiourea as the sulfur surrogate and tolerate various alkyl bromides and *N*-heteroaryl halides, providing a concise, selective, and efficient new method for heteroaryl thioether synthesis.

CONTENT

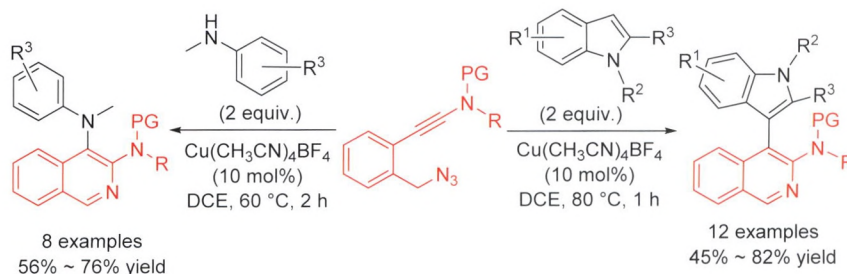
Development of a New Carbon Monoxide Fluorescent Probe Based on Nitro Reduction and Its Bioimaging Research in Living Cells



Chen, Enqing; Tang, Yonghe; Wang, Lei; Ren, Jiangbo; Lin, Weiying*
Chin. J. Org. Chem. **2021**, 41(3), 1200

The new highly selective fluorescence probe (**NaLy-CO**) was designed and synthesized for monitoring endogenous carbon monoxide of the living cells.

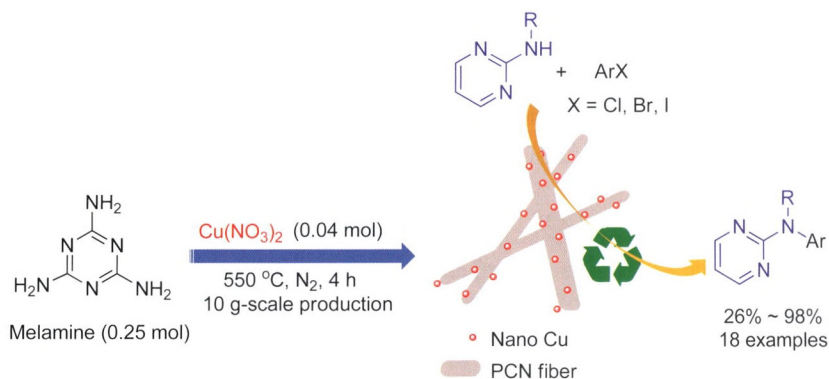
Copper-Catalyzed C—H Bond and N—H Bond Insertion Reaction Based on Azide-Ynamide Cyclization



Liu, Xiaotao*; Liu, Xin; Ye, Longwu*
Chin. J. Org. Chem. **2021**, 41(3), 1207

The insertion reaction of α -imino copper carbene into C—H bond and N—H bond initiated by copper-catalyzed azide-ynamide cyclization has been developed. Under mild reaction conditions, various isoquinoline-indole and isoquinoline-aniline products were obtained in moderate to good yields from readily available azide-ynamides, thus providing a highly convenient and efficient route for the preparation of synthetically useful isoquinoline motif.

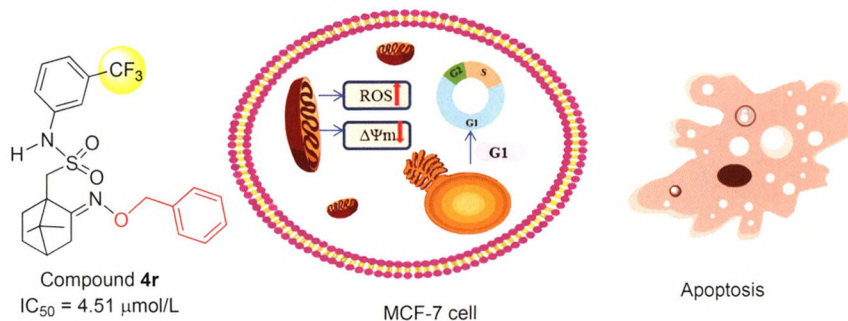
Gram-Scale Synthesis of Polymeric Carbon Nitride-Supported Copper: A Practical Catalyst for Ullmann-Type C—N Coupling Modifying Secondary Pyrimidin-2-amines without Additional Ligand



Sun, Yangyang; Feng, Gang; Chen, Chao; Liu, Yonghong*; Zhang, Xu*
Chin. J. Org. Chem. **2021**, 41(3), 1216

Cu/PCN can be prepared in 10 g scale by calcining Cu(NO₃)₂ with the melamine precursor at 550 °C. It could catalyze the Ullmann-type C—N coupling reactions of pyrimidin-2-amine derivatives without additional ligand, affording an opportunity to develop the efficient and practical catalyst reagent for the synthesis of medicines containing pyrimidin-2-amine moieties in pharmaceutical industry.

Synthesis of Novel Camphor Sulfamoxime Ether Derivatives and Its Application in Antitumor Activity

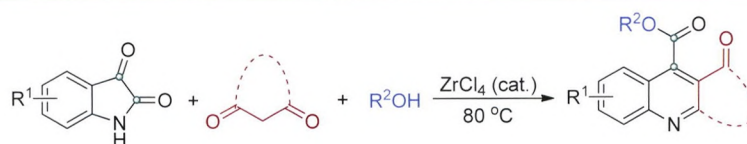


A series of camphor sulfonamido ether derivatives were designed, synthesized and evaluated with anticancer activity. Among them, compound **4r** exhibited the excellent cytotoxicity against MCF-7 (4.51 μmol·L⁻¹). Cell based studies observed that compound **4r** could arrest cell cycle at G0/G1 phase and promote mainly apoptosis in MCF-7 cell line. Furthermore, compound **4r** induced accumulation of ROS and mitochondrial disruption, thereby which caused cell apoptosis in MCF-7 cells.

Zhao, Yuxun; Wang, Yunyun; Zhang, Chenglong; Xu, Xu; Wang, Shifa*

Chin. J. Org. Chem. **2021**, 41(3), 1224

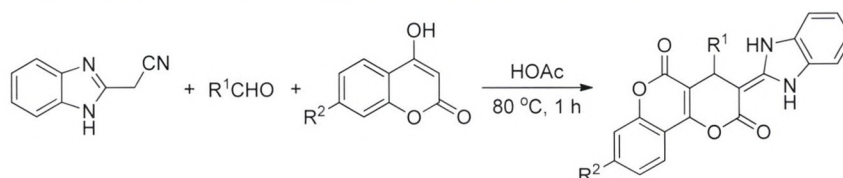
NOTES

ZrCl₄-Catalyzed Synthesis of Pyrimido-[4,5-*b*]quinolone-2,4-(1*H*,3*H*)-diones and 11*H*-Indeno[1,2-*b*]quinolone-11-ones

Using zirconium tetrachloride as the catalyst, a multicomponent domino reaction of isatin, 1,3-dione and aliphatic alcohol, effectively gave the corresponding fused-ring compounds pyrimido[4,5-*b*]quinolone-2,4-(1*H*,3*H*)-diones and 11*H*-indeno[1,2-*b*]quinolone-11-ones.

Yin, Guodong*; Li, Yuan; Fan, Ling

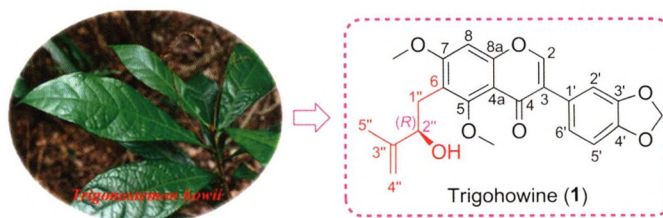
Chin. J. Org. Chem. **2021**, 41(3), 1234

Synthesis of 3-Benzo[*d*]imidazol-2(3*H*)-ylidene Substituted Pyrano[3,2-*c*]chromen-2-ones via Three-Component Reaction

HOAc-promoted three-component annulation reaction of aromatic aldehydes with 2-(1*H*-benzo[*d*]imidazol-2-yl)acetonitrile and 4-hydroxy-2*H*-chromen-2-one is reported, leading to the formation of a series of 3-benzo[*d*]imidazol-2(3*H*)-ylidene substituted pyrano[3,2-*c*]chromen-2-ones in 58%~84% yields. The current reaction could tolerate aromatic aldehydes with diverse functional groups such as chloro, bromo, cyano, methoxy and heteroaryl aldehydes, and HOAc served as the reaction media as well as the Brønsted acid catalyst.

Wang, Xiang*; Chen, Ping; Zhi, Sanjun; Hu, Huayou; Kan, Yuhe; Tang, Guodong; Zhang, Zaichao*

Chin. J. Org. Chem. **2021**, 41(3), 1241

A New Prenylated Isoflavone from the Stems and Leaves of *Trigonostemon howii*

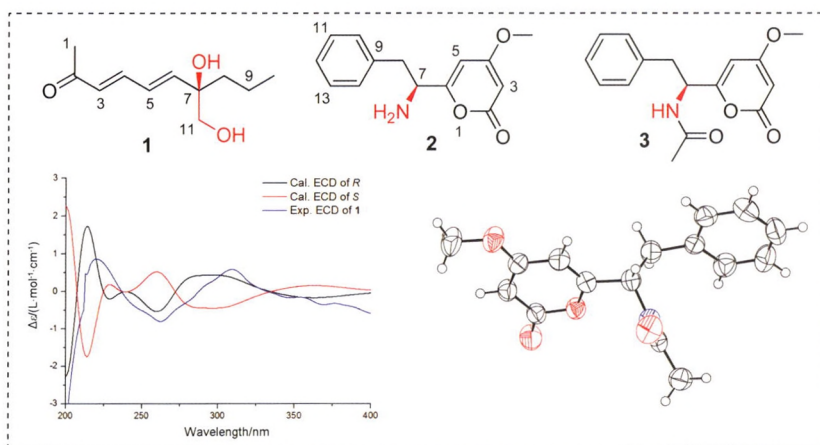
A new prenylated isoflavone, trigohowine (**1**), together with seven known isoflavones, were isolated from the stems and leaves of *Trigonostemon howii*. All known compounds was isolated from the genus *Trigonostemon* for the first time. The antitumor activities of compounds **1**~**8** were evaluated against five cancer cell lines (HL-60, A549, SMMC-7721, MCF-7 and SW480).

Fu, Yanhui; Xie, Yutong; Ma, Qingwei; Jiang, Bo; Xie, Lan; Qiao, Zehua; Liu, Yanping*

Chin. J. Org. Chem. **2021**, 41(3), 1246

CONTENT

Study on Bioactive Secondary Metabolites from *Penicillium herquei* JX4

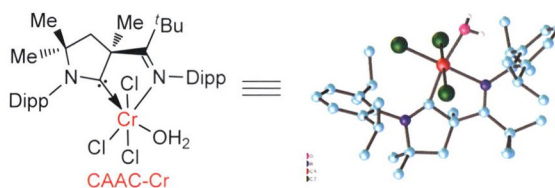
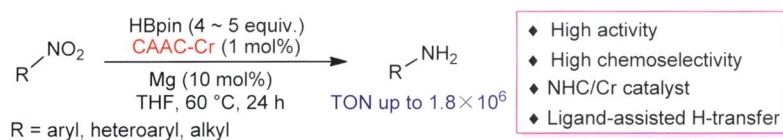


Two new secondary metabolites, penicilliquies A and B (**1** and **2**) were isolated from *Penicillium herquei* JX4. The absolute configuration of penicilliquie A was determined by its experimental and calculated electronic circular dichroism (ECD) spectra. Compounds **2**, **3**, **7** and **8** showed broad spectrum antifungal activities against nine phytopathogenic fungi.

Wu, Xibin; Tan, Yinfeng; Yi, Jiling; Song, Xinming; Yang, Jingyu; Zhou, Xueming*; Chen, Guangying*
Chin. J. Org. Chem. **2021**, 41(3), 1251

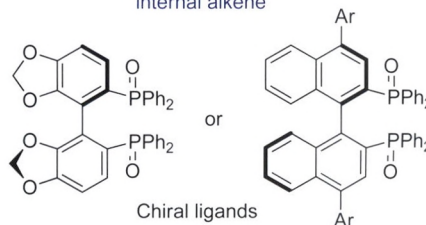
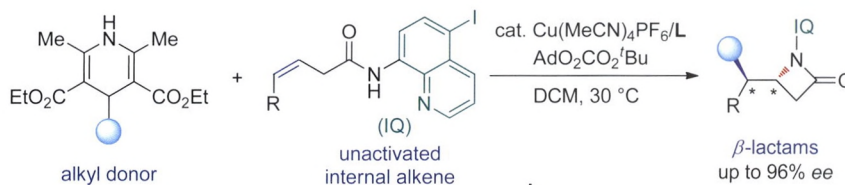
HIGHLIGHTS

Chromium-Catalyzed Deoxygenative Hydroboration of Nitro Compounds



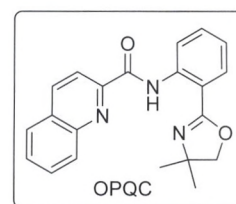
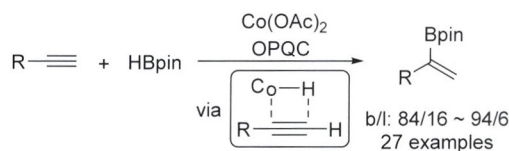
Zhang, Yandong; Zhu, Shoufei*
Chin. J. Org. Chem. **2021**, 41(3), 1255

Cu-Catalyzed Asymmetric Alkylamination of Unactivated Alkenes



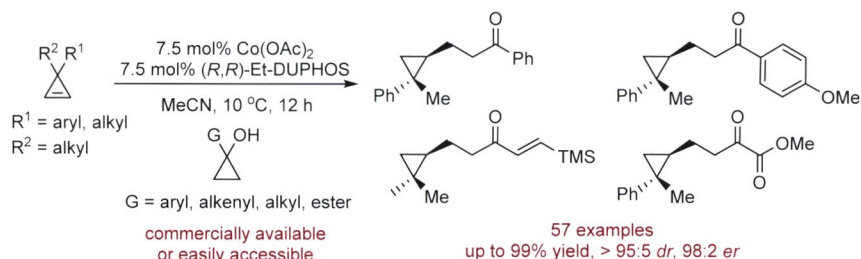
Wang, Zixuan; Li, Bijie*
Chin. J. Org. Chem. **2021**, 41(3), 1257

Cobalt-Catalyzed Markovnikov-Type Selective Hydroboration of Terminal Alkynes



Yuan, Dan; Yao, Yingming*
Chin. J. Org. Chem. **2021**, 41(3), 1259

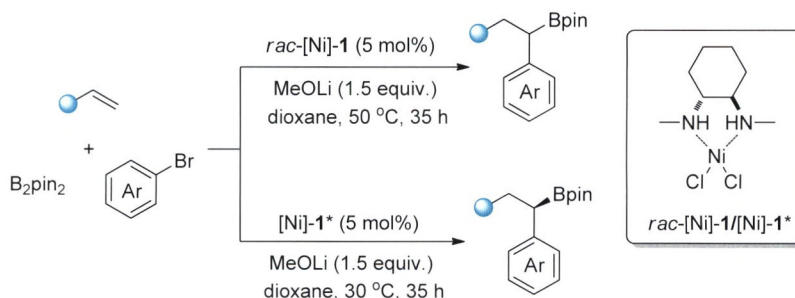
Cobalt-Catalyzed Asymmetric Hydroalkylation of Cyclopropenes



He, Bin; Niu, Dawen*

Chin. J. Org. Chem. **2021**, 41(3), 1261

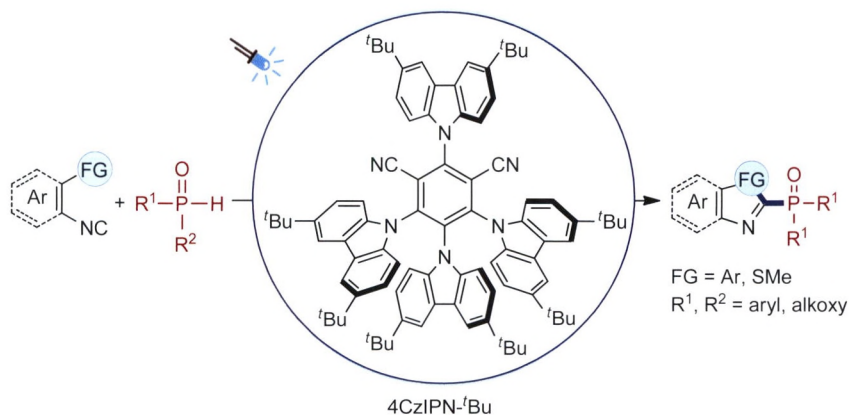
Enantioselective Nickel-Catalyzed 1,1-Arylboration of Terminal Olefins



Xi, Longlong; Shi, Zhuangzhi*

Chin. J. Org. Chem. **2021**, 41(3), 1264

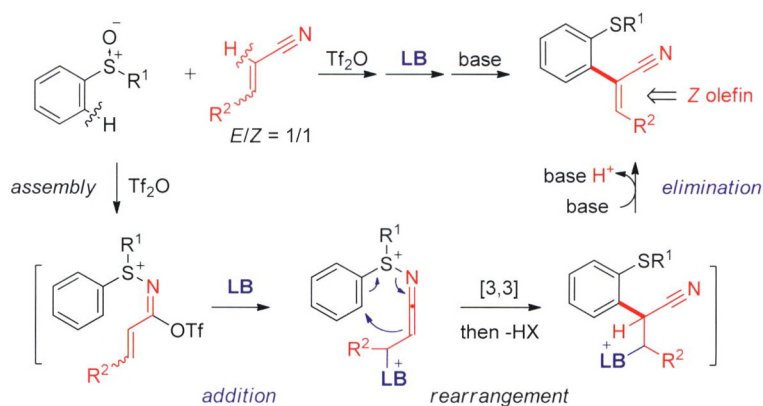
Proton-Coupled Electron Transfer for Photosynthesis of Phosphorylated *N*-Heteroaromatics



Yi, Rongnan; He, Weimin

Chin. J. Org. Chem. **2021**, 41(3), 1267

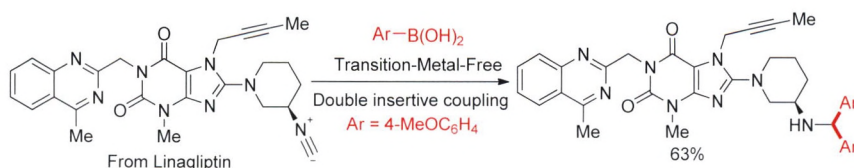
Morita-Baylis-Hillman Type [3,3]- σ Rearrangement Enabled *Z*-Selective α -Arylation



Wang, Min; Gao, Hongyin*

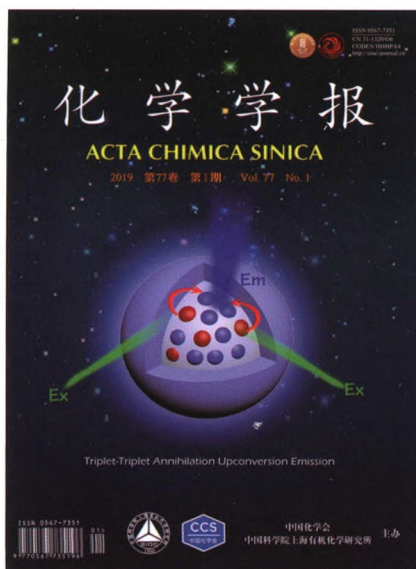
Chin. J. Org. Chem. **2021**, 41(3), 1269

Efficient Synthesis of Diarylmethanamines via Transition-Metal-Free Double-Insertive Coupling of Isocyanides with Arylboronic Acids



Zheng, Long; Wang, Peng*

Chin. J. Org. Chem. **2021**, 41(3), 1272



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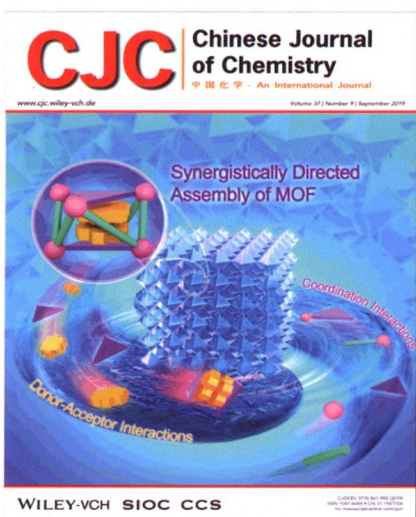
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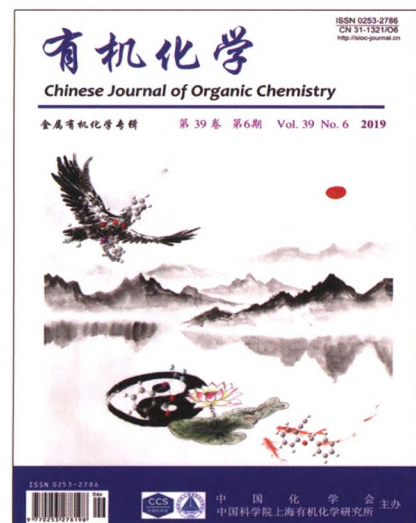
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