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(YOUJI HUAXUE)

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目 次

* 通讯联系人.

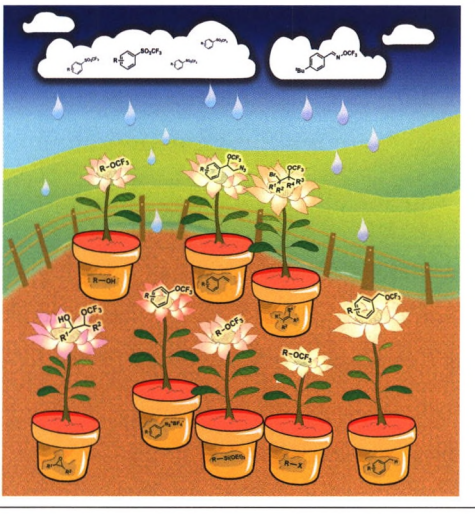
研究简报

亮点述评

Chinese Journal of Organic Chemistry

Vol. 40 No. 7 July 2020

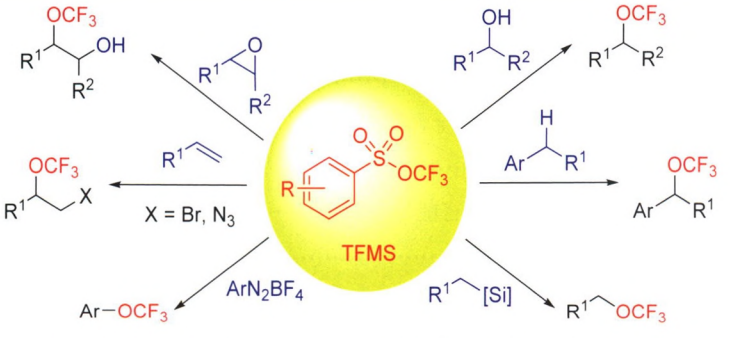
Cover Picture: Recent Advances in Trifluoromethoxylation Reactions



In recent years, some innovative strategies have been used to synthesize compounds containing trifluoromethoxy group. This account focuses on the research results in the field of direct trifluoromethoxylation by using trifluoromethyl aryl sulfonate (TFMS) and (*E*)-*O*-trifluoromethyl-benzaldoximes (TFBO) as trifluoroethoxylation reagents, and some challenges faced by trifluoromethoxy reaction. This paper is reported by Wang, and Tang on page 1805.

ACCOUNTS

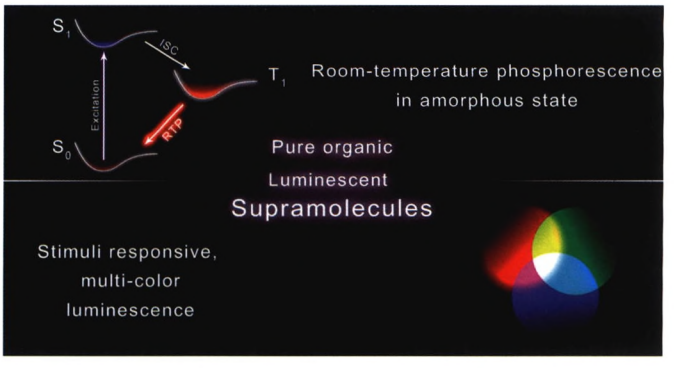
Recent Advances in Trifluoromethoxylation Reactions



The synthesis of trifluoromethoxylated organic molecules is difficult owing to the decomposition of trifluoromethoxide anion and limited trifluoromethoxylation reagents. This account mainly focuses on the research of trifluoromethoxy reaction in our group, and some challenges faced by trifluoromethoxy reaction.

Wang, Feng; Tang, Pingping*
Chin. J. Org. Chem. **2020**, *40*(7), 1805

Recent Advances in Pure Organic Luminescent Supramolecular Materials



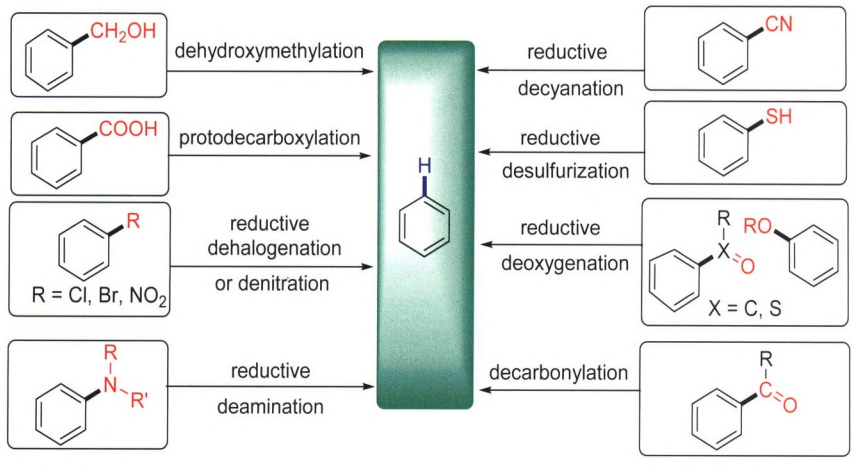
The recent advances in pure organic, luminescent supramolecular materials are summarized. Room-temperature phosphorescence was achieved with decent quantum yields. Multi-color luminescence was accomplished with stimuli responsive character. This account also proposes possible directions for further research.

Yan, Zi'ang; Zou, Lei; Ma, Xiang*
Chin. J. Org. Chem. **2020**, *40*(7), 1814

CONTENT

REVIEWS

Recent Advances in Transition-Metal Catalyzed Defunctionalization Reaction

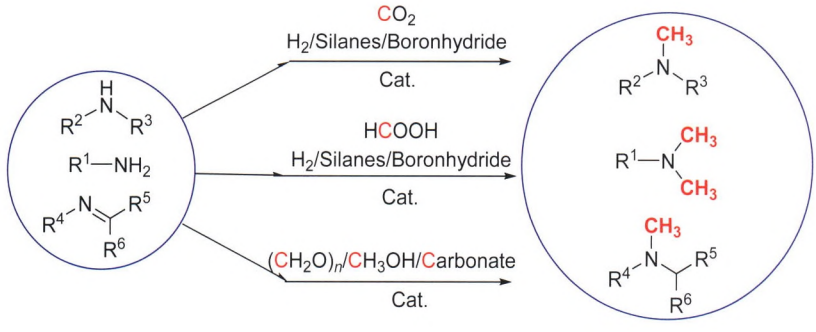


Functional groups are atoms or groups that determine the chemical properties of organic compounds and often play the role of guiding groups in synthetic organic chemistry. Defunctionalization is to chemically make a substrate with more functional groups into a compound with fewer functional groups. Metal catalysis provides a new way for defunctionalization. The defunctionalization reactions mediated by different metals in recent years and their catalytic reaction mechanisms are summarized.

Dong, Xiaojuan; Jin, Weiwei*; Liu, Chenjiang*

Chin. J. Org. Chem. **2020**, *40*(7), 1860

Recent Advances and Applications in *N*-Methylation of Amines and Imines

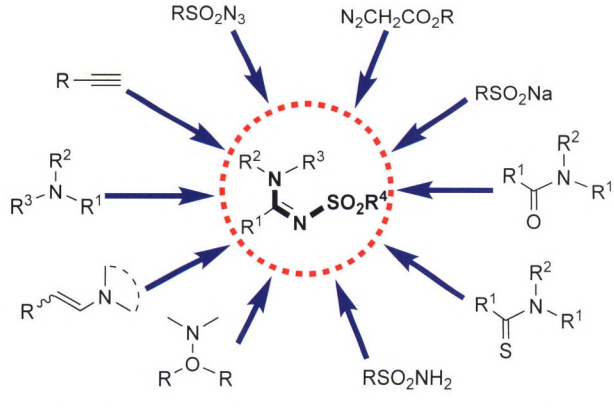


The recent progress in *N*-methylation of amines and imines is reviewed. Traditional methylation reactions involve the use of flammable, explosive and toxic starting materials. In contrast, the newly developed methods have overcome this point and provide a mild strategy. Herein, the recent research progress for the *N*-methylation of amines and imines is summarized based on different C1 carbon source.

Yan, Feng; Cai, Shuang; Wen, Wu; Wen, Wei; Li, Bojie*; Wang, Liansheng*; Zhu, Lei*

Chin. J. Org. Chem. **2020**, *40*(7), 1874

Advances in the Synthesis of *N*-Sulfonyl Amidines



The recent progress in the synthesis of *N*-sulfonyl amidines is reviewed. Based on the known literature in the field, the research works on the *N*-sulfonyl amidine synthesis via amine oxidation, enamine carbon-carbon bond functionalization, alkyne-amine-sulfonyl azide three-component reaction, amide activation and other related synthetic methods are covered.

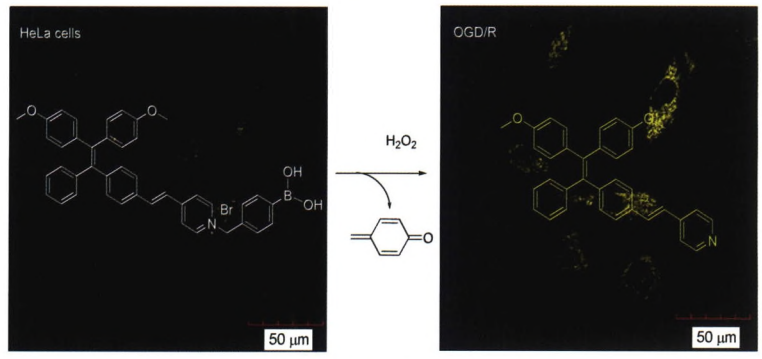
Zheng, Xixi; Liu, Yunyun*; Wan, Jie-Ping*

Chin. J. Org. Chem. **2020**, *40*(7), 1891

CONTENT

ARTICLES

Imaging of Hydrogen Peroxide During the Ischemia Reperfusion Process in Living Cells with An Aggregation Induced-Emission Probe

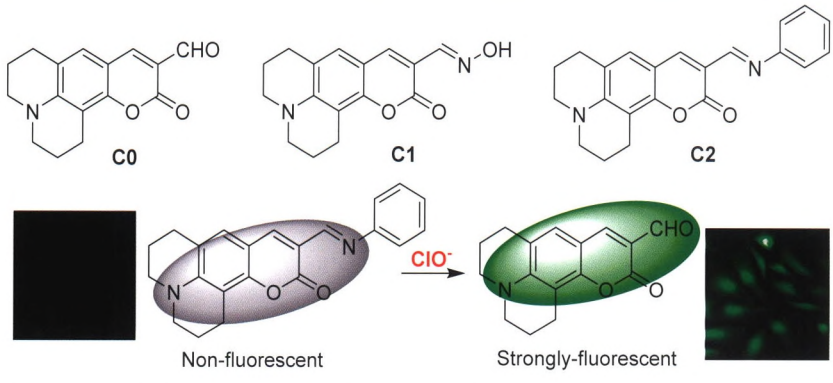


Li, Wei; Jia, Xu; Guo, Zhenbo; Jiang, Wenting; Zhang, Pingzhu; Wei, Chao*; Li, Xiaoliu*

Chin. J. Org. Chem. **2020**, *40*(7), 1934

An aggregation induced-emission probe was constructed and used to imaging of endogenous hydrogen peroxide during the ischemia-reperfusion injury process in living HeLa cells.

"Turn-On" Fluorescent Probe for Hypochlorite: Successful Bioimaging and Real Application in Tap Water

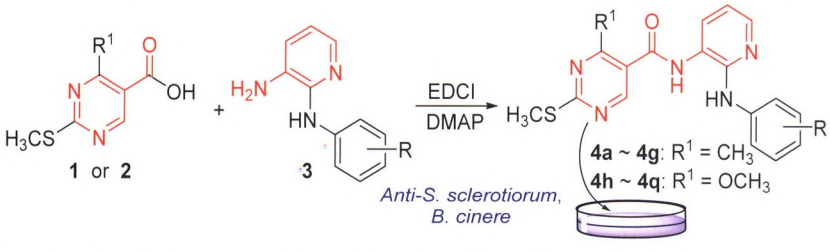


Cheng, Xiaohong*; Li, Shuang; Wang, Jingyang; Li, Wangnan

Chin. J. Org. Chem. **2020**, *40*(7), 1941

Novel "turn-on" fluorescent probe was developed for the rapid detection of ClO^-, especially application in the bioimaging and tap water.

Synthesis, Fungicidal Activity and Molecular Docking Study of Novel *N*-(2-((Substitutedphenyl)amino)pyridin-3-yl)-pyrimidine-4-carboxamides

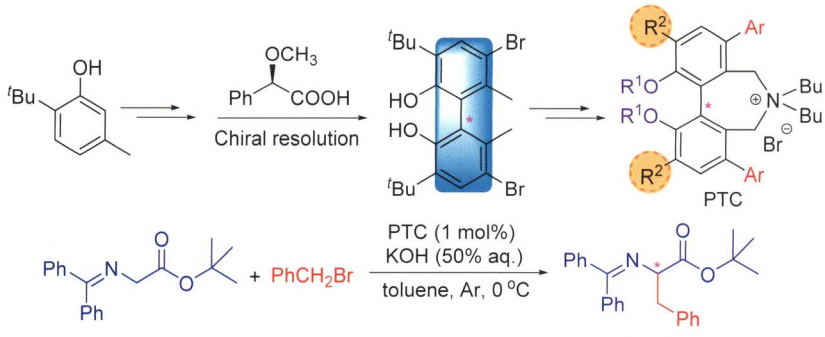


Shi, Yanhua; Zhang, Shuai; Wan, Fuxian; Sun, Changxing; Jiang, Lin*

Chin. J. Org. Chem. **2020**, *40*(7), 1948

A series of *N*-(2-((substitutedphenyl)amino)pyridin-3-yl)-4-methyl/methoxy-2-(methylthio)pyrimidine-5-carboxamides were designed and synthesized. The *in vitro* bioassay showed that the most of target compounds possessed high fungicidal activity against *S. sclerotiorum*, and some compounds showed moderate inhibitory activity against *B. cinerea* at 50 μg/mL.

Chiral Resolution of Biphenol and Asymmetric Alkylation under Phase Transfer Catalysis



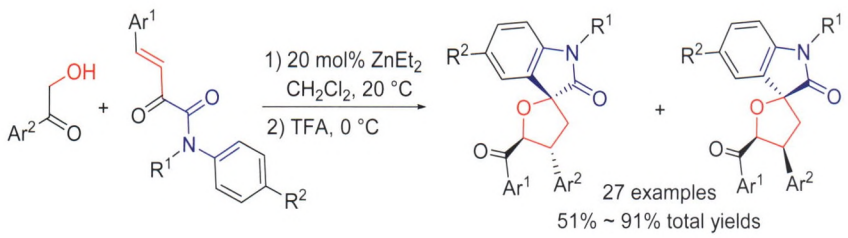
Ke, Cuilian; Xu, Weiping; Liu, Da; Liu, Yan*; Maruoka, Keiji*

Chin. J. Org. Chem. **2020**, *40*(7), 1955

The chiral resolution of biphenyl derivatives skeleton was achieved by utilizing the readily available (*R*)-α-methoxyphenylacetic acid as resolution agent. A series of new biphenyl type of phase transfer catalysts were synthesized based on the optically pure C_2-symmetric chiral biphenyl framework.

CONTENT

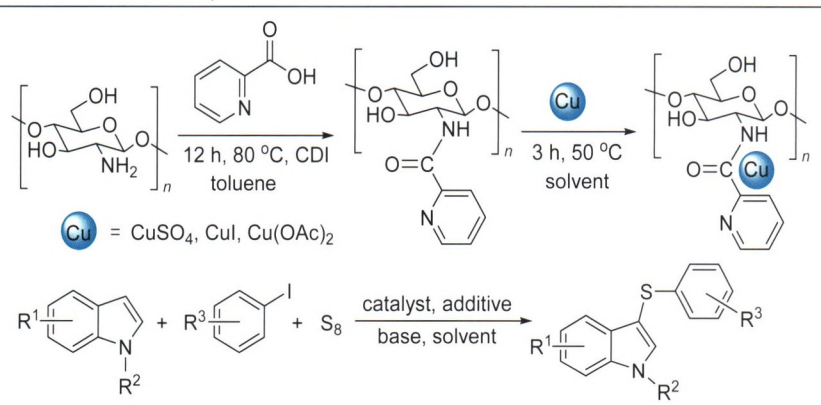
Efficient Synthesis of Tetrahydrofuran Spirooxindoles via One-Pot Reaction



Guo, Xin; Guo, Yajun; Kong, Dezhi; Lu, Huijie; Hua, Yuanzhao*; Wang, Mincan*
Chin. J. Org. Chem. **2020**, *40*(7), 1999

Using $ZnEt_2$ and trifluoroacetic acid (TFA) as catalysts, the sequential Michael/hemiketalization and Fridel-Crafts reaction of α-hydroxy aryl ketones and β,γ-unsaturated α-ketoamides led to a wide range of tetrahydrofuran spirooxindoles in moderate to good yields.

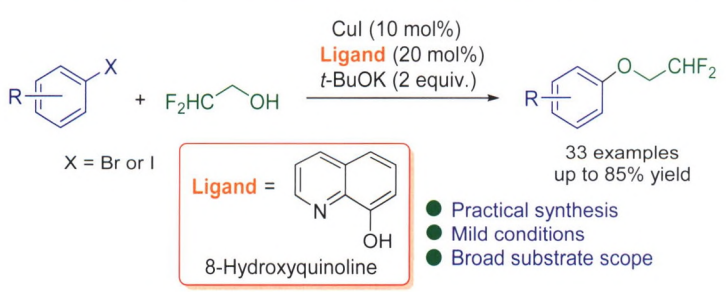
Chitosan@Cu-Catalyzed C3-Sulfenylation of Indoles with Sulfur Powder and Aryl Iodides



Cheng, Lin; Ge, Xin; Liu, Xuemin*; Feng, Yunhui*
Chin. J. Org. Chem. **2020**, *40*(7), 2008

2-Pyridinecarboxylic acid modified chitosan (PACS) catalyst with different type of copper was prepared, which was used to catalyze the three-component reaction of indole, sulfur powder and iodobenzene to prepare C-3 thioether-based indole in a one-pot method. The most suitable catalyst (PACS@$Cu(OAc)_2$) was characterized and analyzed.

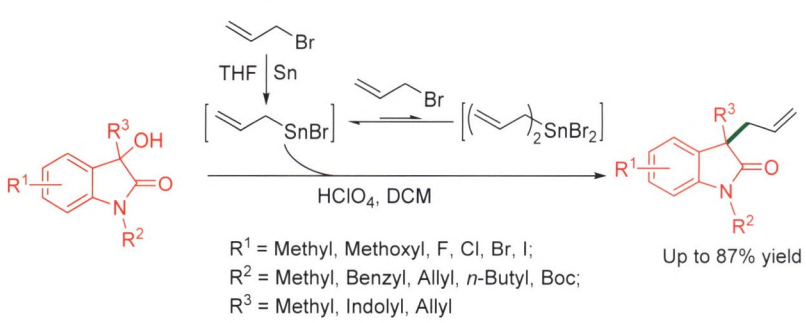
Copper-Catalyzed Arylated Etherification of 2,2-Difluoroethanol and Its Mechanistic Study



Huang, Shuaishuai; Nie, Yixue; Yang, Jingjing; Zheng, Zhanjiang*; Cao, Jian; Xu, Zheng; Xu, Liwen*
Chin. J. Org. Chem. **2020**, *40*(7), 2018

A mild and efficient method for the preparation of difluoroethyl aryl ethers was developed by the Ullmann reaction of aryl bromides with commercial 2,2-difluoroethanol, and a new mechanism involving Cu(III) intermediate was proposed based on the ESI-MS analysis and density functional theory (DFT) calculations.

Study on Tin Powder-Promoted Allylation of 3-Aryl-3-hydroxy-2-oxindoles

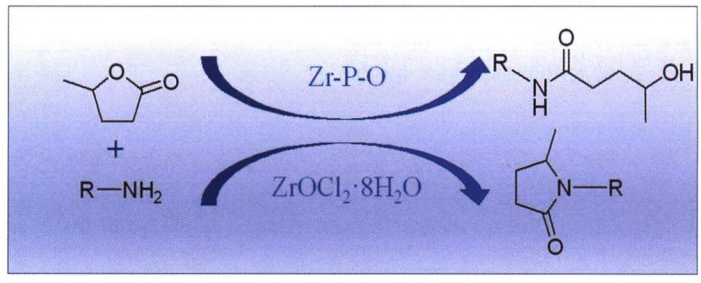


Zhao, Zhuanxia; Wang, Junjiao; Huang, Danfeng*; Yang, Zheng; Zhao, Fangxia; Hu, Yongqin; Xu, Weigang; Hu, Yulai
Chin. J. Org. Chem. **2020**, *40*(7), 2026

3,3-Disubstituted-2-oxindoles were synthesized by the allylation of 3-aryl-3-hydroxy-2-oxindoles promoted by tin powder in good yields.

CONTENT

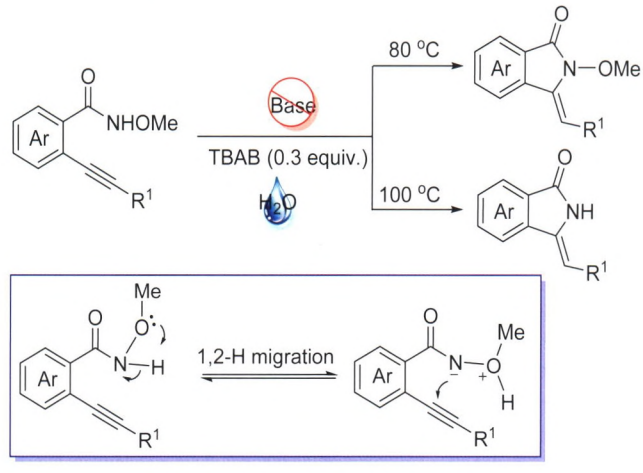
Study on Reaction of γ-Valerolactone and Amine Catalyzed by Zirconium-Based Lewis Acids



Kong, Qingshan; Li, Xinglong; Xu, Huajian*; Fu, Yao*
Chin. J. Org. Chem. **2020**, *40*(7), 2062

This article describes a method for the synthesis of hydroxyamides and pyrrolidones from γ-valerolactone (GVL) and amine compounds by reductive amination/cyclization reactions under mild conditions using zirconium-based Lewis acid catalysts Zr-P-O and $ZrOCl_2 \cdot 8H_2O$, respectively.

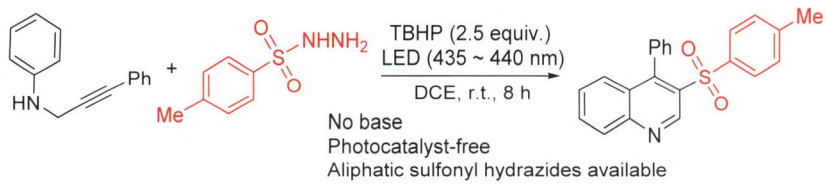
Base-Free 5-*exo*-dig aza-Cyclization of *N*-Methoxyl-2-alkynylbenzamides in Water



Liu, Renzhi; Yang, Min; Qiu, Guanyinsheng*; Zhang, Lianpeng*; Wang, Yuchao; Luo, Jin*
Chin. J. Org. Chem. **2020**, *40*(7), 2071

A based-free 5-*exo*-dig aza-cyclization of *N*-methoxyl-2-alkynylbenzamide is reported in water for the synthesis of various *N*-methoxylisoindolin-1-ones. The transformation proceeds smoothly with high efficiency and good functional group tolerance.

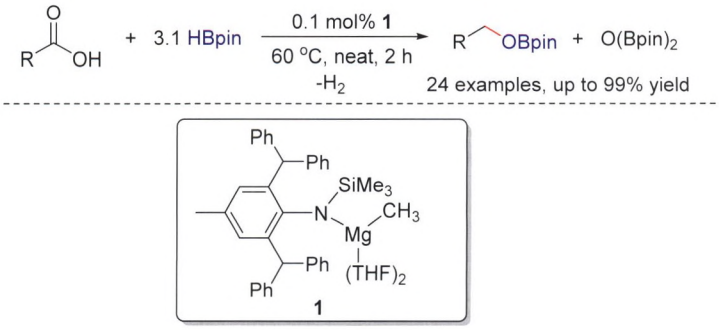
Visible-Light-Induced Cycloaddition Involving *N*-Propargylanilines with Arylsulfonylhydrazides: Rapid Access to 3-Sulfonated Quinoline Derivatives without Base and Catalyst



Peng, Mei; Zheng, Yangfan; Huang, Hao; Ye, Jia; Deng, Xingguo*; He, Chunlian*
Chin. J. Org. Chem. **2020**, *40*(7), 2078

A visible-light-induced oxidative cyclization of *N*-anilines with arylsulfonylhydrazides was developed using *tert*-butyl hydroperoxide as oxidant. This transformation offers a straightforward route to 3-sulfonated quinoline derivatives with good functional group tolerance, good to excellent yields and high regio-selectivity.

Efficient Magnesium-Catalyzed Hydroboration of Carboxylic Acids



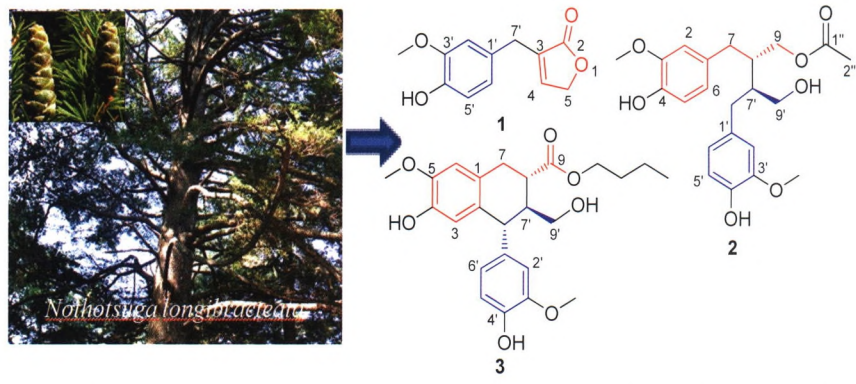
Zheng, Yukun; Cao, Xu; Li, Jia; Hua, Haiming; Yao, Weiwei*; Zhao, Binlin*; Ma, Mengtao*
Chin. J. Org. Chem. **2020**, *40*(7), 2086

Sterically bulky amido magnesium methyl complex **1** has been employed as an efficient catalyst for the deoxygenative hydroboration of a variety of aromatic and aliphatic carboxylic acids with pinacolborane (HBpin) under mild reaction condition.

CONTENT

NOTES

Lignans from the Heartwood of *Nothotsuga longibracteata*

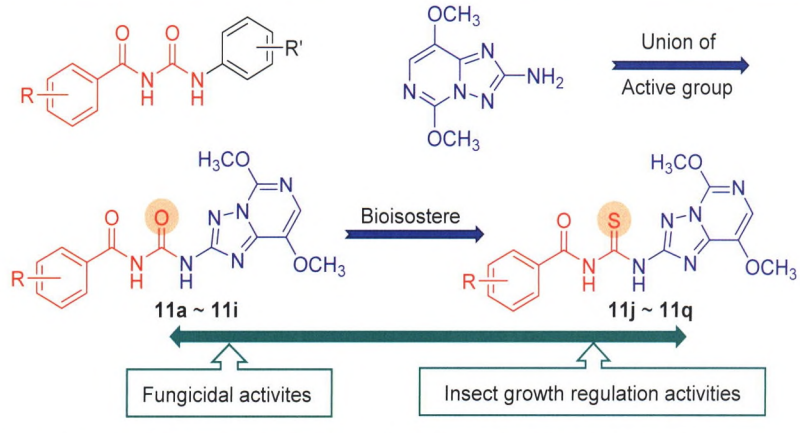


Liu, Guiyuan; Guo, Dale; Deng, Yun; Linghu, Lang; Zhang, Maosheng; He, Yuqi; Xiao, Shiji*

Chin. J. Org. Chem. **2020**, *40*(7), 2120

A rare norlignan, and two new lignans **2** and **3** were isolated from the heartwood of *Nothotsuga longibracteata*, together with nineteen known lignan compounds. Gastrointestinal motility test of zebrafish showed that compound **3** has the function of promoting gastrointestinal motility of zebrafish to excrete Nile red at doses 8 and 24 μmol/L by means of acting on the cholinergic nervous system.

Design, Synthesis and Biological Activities Evaluation of *N*-(Substitutedbenzoyl)-*N'*-4,7-dimethoxy-[1,2,4]triazolo[1,5-*c*]pyrimidine (Thio)ureas

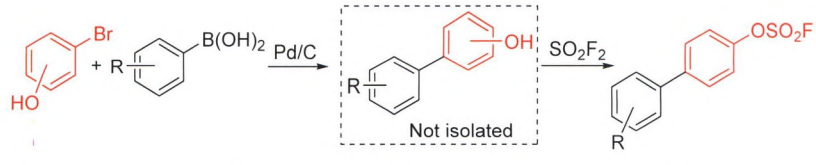


Wei, Kailun; Shi, Ruijing; Jiang, Lin; Miao, Chengxia; Li, Ying*

Chin. J. Org. Chem. **2020**, *40*(7), 2127

A series of benzoyl(thio)ureas containing [1,2,4]triazolo[1,5-*c*]pyrimidine were designed and synthesized by cyclization, Dimroth rearrangement and nucleophilic addition reactions. The preliminary bioassay of fungicidal activity *in vitro* and insect growth regulation activities were tested.

Preparation of Biaryl Fluorosulfates by a Tandem Process

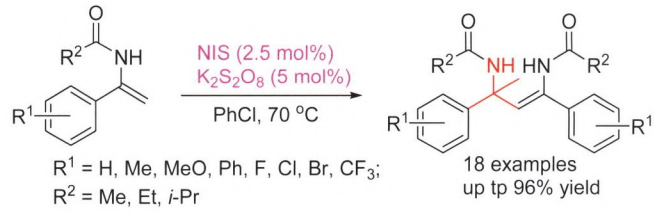


Li, Xinmin*; Hu, Rui; Chen, Zhengjun; Hu, Qinghong; Yuan, Zeli*

Chin. J. Org. Chem. **2020**, *40*(7), 2135

The one-pot process for the preparation of biaryl fluorosulfates from bromophenols has been developed. Phosphine ligand and nitrogen protection were not required. Furthermore, Pd/C catalyst could be recycled and reused three times without significant loss of catalytic activity.

N-Iodo-succininide (NIS)/$K_2S_2O_8$ Initiated Self-Coupling of Enamides to Nitrogen-Containing Quaternary Carbon Centers



Zhou, Xiaoqiang*; Yan, Hao; Wang, Qiuya

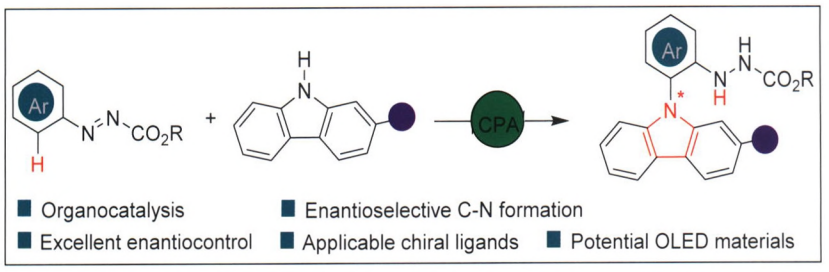
Chin. J. Org. Chem. **2020**, *40*(7), 2142

N-Iodo-succininide (NIS)/$K_2S_2O_8$ initiated C—C bond formation reaction through self-coupling of enamides has been reported. The environmental friendliness and high atom-economy feature of this transition-metal free radical pathway offers a useful and attractive strategy to nitrogen-containing quaternary carbon centers.

CONTENT

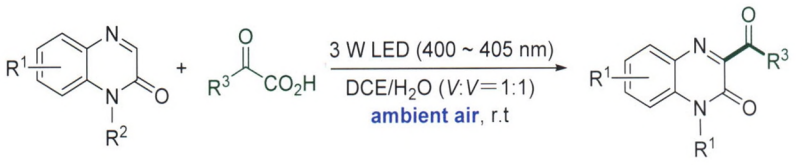
HIGHLIGHTS

Chiral Phosphoric Acid Catalyzed Atroposelective C—H Amination of Arenes



Peng, Lei; Yan, Hailong*
Chin. J. Org. Chem. **2020**, *40*(7), 2167

External Photocatalyst-Free Visible-Light-Induced C3-Acylation of Quinoxalin-2(1*H*)-ones

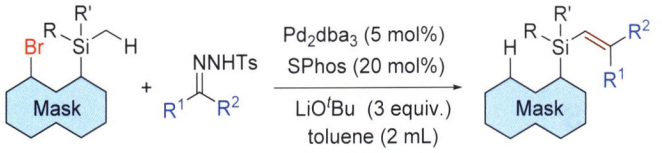


Shi, Jianwei; Wei, Wei*
Chin. J. Org. Chem. **2020**, *40*(7), 2170

Total Synthesis of Farnesin through Excited-State Nazarov Cyclization

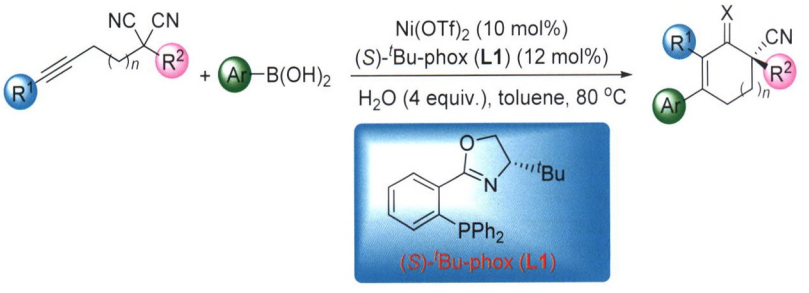
Cao, Wei; Liu, Bo*
Chin. J. Org. Chem. **2020**, *40*(7), 2173

C—H Bond Functionalization of Si-Bound Methyl Group through a 1,5-Palladium Migration Process



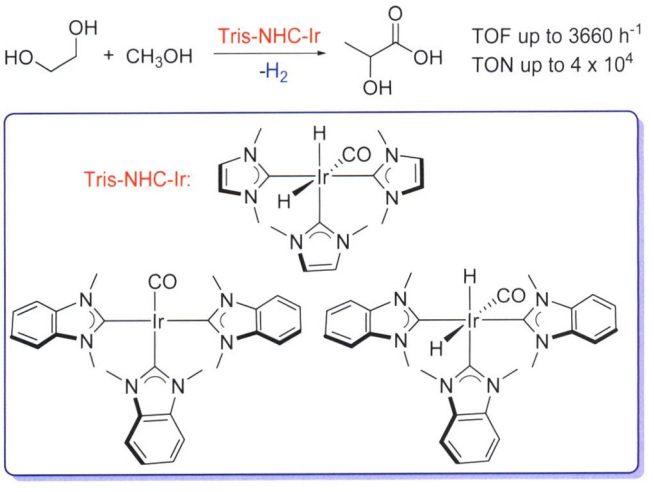
Song, Zhenlei*
Chin. J. Org. Chem. **2020**, *40*(7), 2176

Ni-Catalyzed Desymmetrization of Malononitriles to Cycloenones with a Nitrile-Containing All-Carbon Quaternary Center



Zhou, Feng; Zhou, Jian*
Chin. J. Org. Chem. **2020**, *40*(7), 2180

Iridium Catalyzed Dehydrogenative Cross-Coupling for Lactic Acid Synthesis



Wang, Chao; Xiao, Jianliang*
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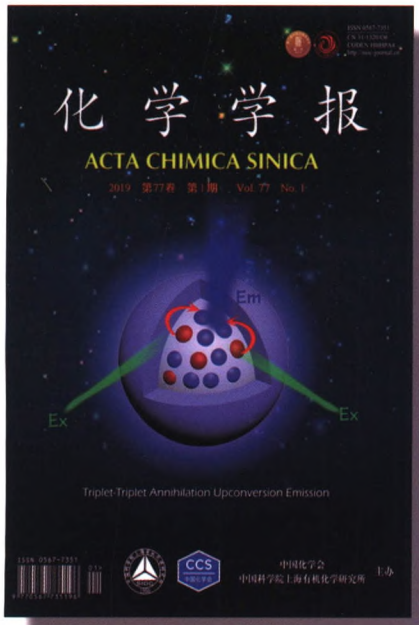

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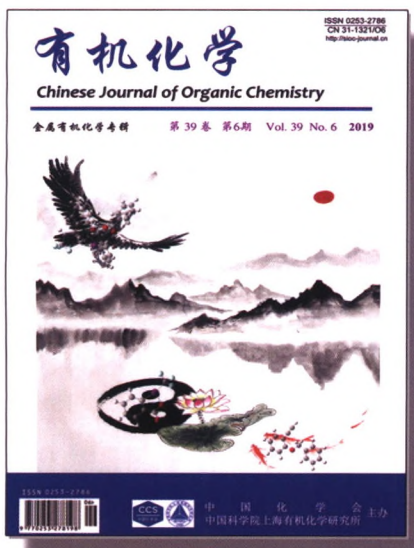

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