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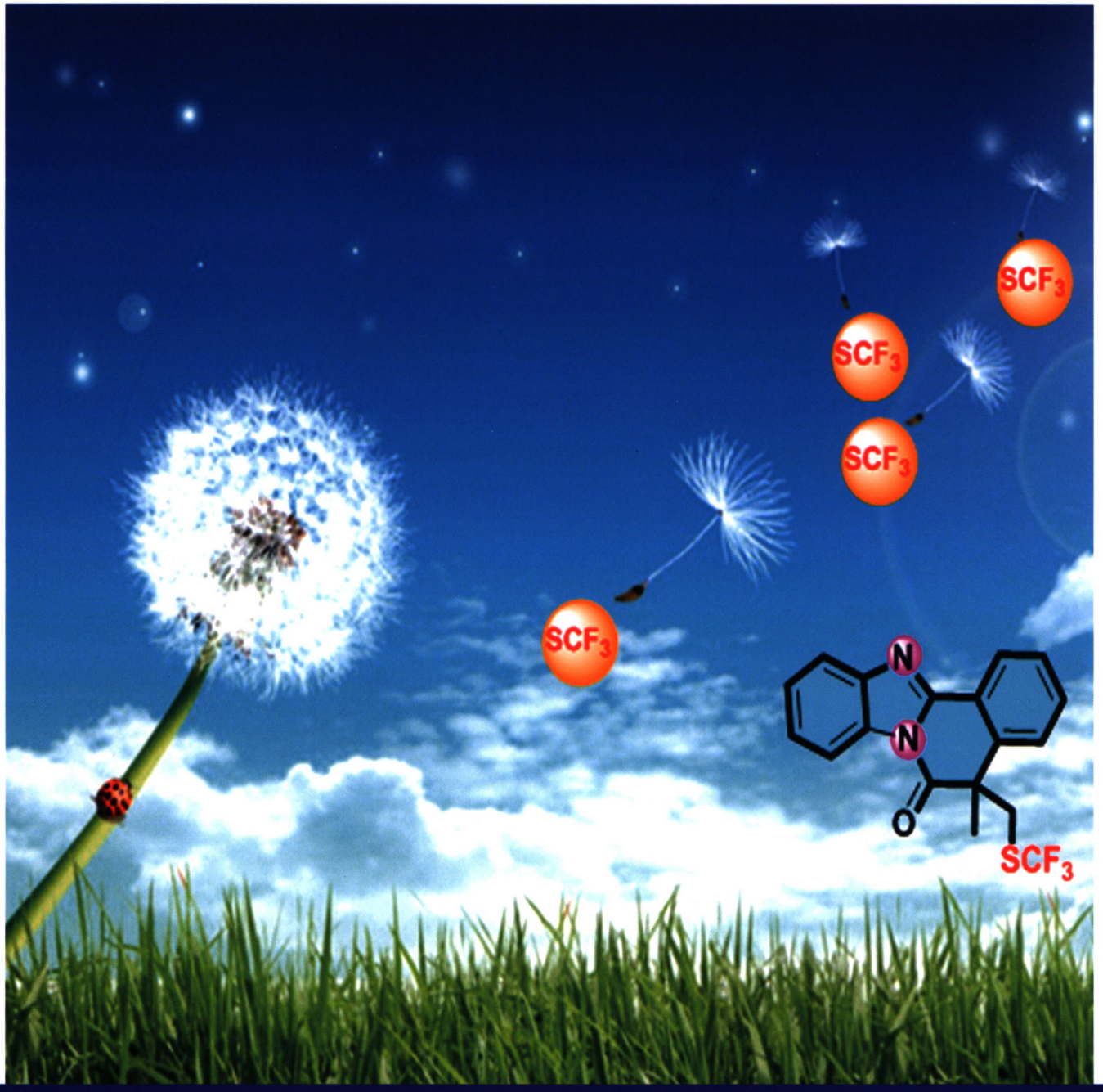
Chinese Journal of Organic Chemistry

Vol. 42 No. 5 May 2022



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目 次

综述与进展

研究论文

* 通讯联系人.

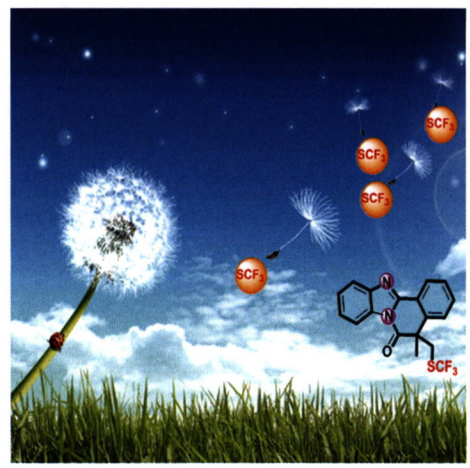
研究简报

亮点述评

Chinese Journal of Organic Chemistry

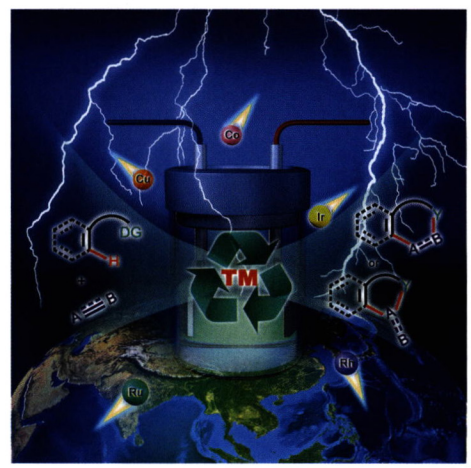
Vol. 42 No. 5 May 2022

Cover Picture: Silver-Mediated Radical Trifluoromethylthiolation Cyclization: Access to F_3CS-Containing Benzimidazole[2,1-*a*]isoquinolines



Structurally diverse polycyclic benzimidazole[2,1-*a*]-isoquinolines are important synthetic intermediates and key structural motifs in biologically active molecules. In this work, a $AgSCF_3$-mediated oxidative radical cascade cyclization is reported by Liu, Wang, Sun, Tang and Wang on page 1387, which features ease of handling, a wide substrate scope, good functional group compatibility, easily scaled-up operation, and facile derivatization.

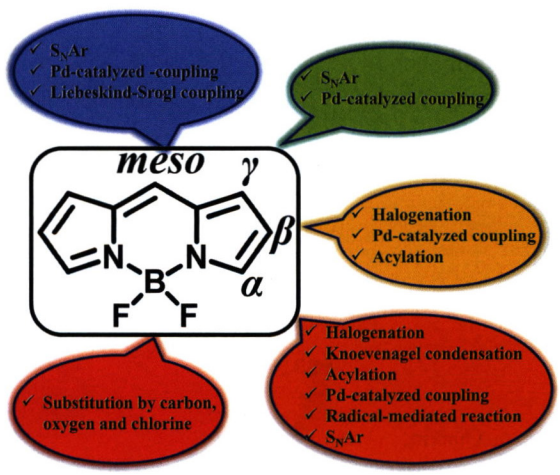
Inside Cover: Electrooxidative Annulation of Unsaturated Molecules via Directed C—H Activation



The recent progress of transition-metal catalyzed electrooxidative annulation of unsaturated molecules such as alkynes, olefins, carbon monoxide and isocyanogens via directed C—H activation is reviewed by Xie, Chen, Li, Lin, Chen and Shi on page 1286. The characteristics and mechanism of these reactions are systematically summarized.

REVIEWS

Progress in the Synthesis of Boron Dipyrromethene (BODIPY) Fluorescent Dyes



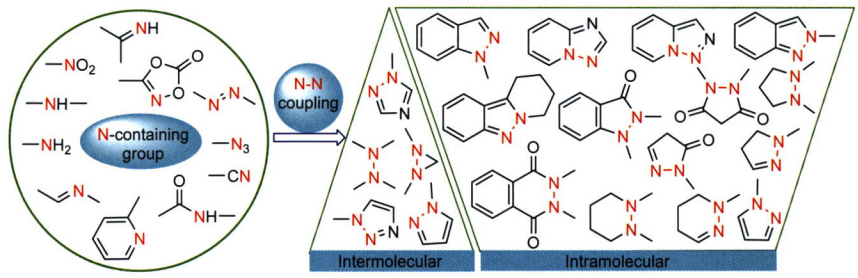
Liu, Bin-Kai; Teng, Kun-Xu; Niu, Li-Ya*; Yang, Qing-Zheng*

Chin. J. Org. Chem. **2022**, *42*(5), 1265

The modification strategies of boron dipyrromethene (BODIPY) are summarized, including *α*, *β*, *γ*, *meso*-positions and boron atom. Then Pd-catalyzed cross-coupling reactions and oxidative coupling reactions are discussed individually for their importance.

CONTENT

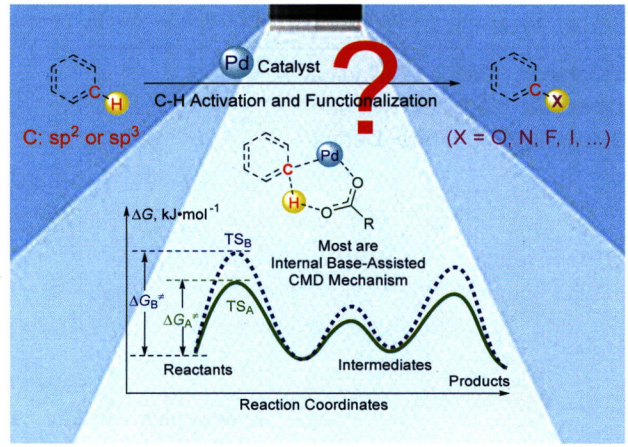
Advances on the Synthesis of N—N Bonds



Zhao, Weizhe; Xu, Jiali; Yang, Fan; Zeng, Xianghua*
Chin. J. Org. Chem. **2022**, *42*(5), 1336

The intermolecular and intramolecular formation of N—N bond in recent years is summarized. Additionally, the difficulties and future development of this strategy are prospected.

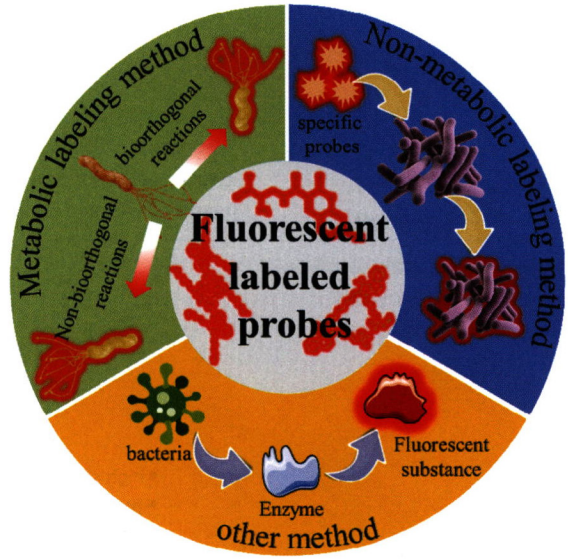
Research Progress on Density Functional Theory Study of Palladium-Catalyzed C—H Functionalization to Form C—X (X=O, N, F, I, ···) Bonds



Shi, Yubing; Bai, Wenji; Mu, Weihua*; Li, Jiangping; Yu, Jiawei; Lian, Bing
Chin. J. Org. Chem. **2022**, *42*(5), 1346

The latest density functional theory research results on palladium-catalyzed C—H functionalization in constructing C—X (X=O, N, F, I, ···) bonds are summarized, with emphasis on the corresponding computational results about microcosmic reaction mechanism and selectivity controlling. The present issues and prospects of future development in this field are also summarized and forecasted in the end.

Recent Progress on Strategies and Applications of Imaging for Intestinal Microflora



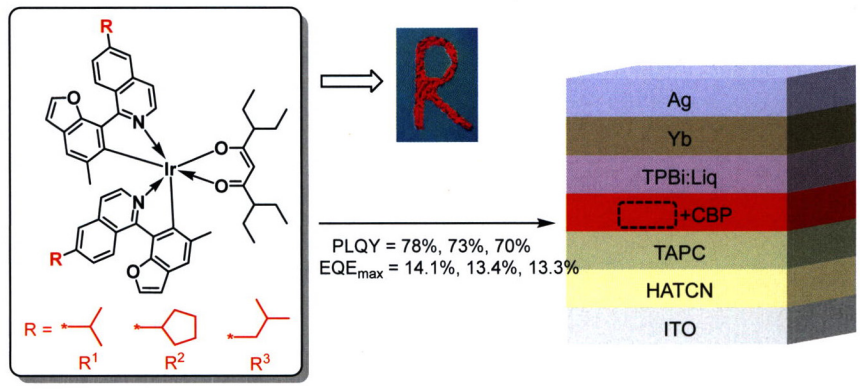
Li, Na; Tan, Xiaofeng*; Yang, Qinglai*
Chin. J. Org. Chem. **2022**, *42*(5), 1375

The microflora in the mammalian gut plays an essential role in maintaining the physiological states and pathological changes of the host, and it is of significance for host health to detect the microflora in the gut. The fluorescent-labeled probes based on the metabolic/non-metabolic labelling and specific metabolite labeling methods, with the advantages of non-invasive, less tissue damage, higher specificity, and sensitivity, have shown greater potential in the intestinal microflora detection.

CONTENT

ARTICLES

Synthesis and Electroluminescent Properties of Red-Emitting Iridium Complexes Based on Benzofuran-Isoquinoline

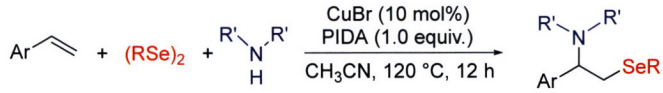


Nie, Fei; Huang, Guanbo; Dai, Lei; Chen, Shaofu; Ji, Shaomin; Chen, Jiaxiong*; Huo, Yanping*

Chin. J. Org. Chem. **2022**, *42*(5), 1423

Three red phosphorescent iridium complexes were designed and synthesized, and the organic light-emitting devices prepared by using them as light-emitting materials showed good electroluminescent properties.

Radical Aminoselenation of Styrenes: Facile Access to β-Amido-selenides

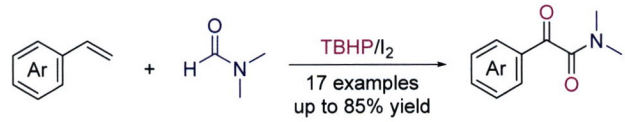


Yin, Yifan; Li, Chen; Sun, Kai*; Liu, Yingjie; Wang, Xin*

Chin. J. Org. Chem. **2022**, *42*(5), 1431

An efficient protocol for the intermolecular amidoselenation of alkenes with diphenyl diselenides and alkyl amines that affords a series of β-amido-selenides in high yields has been developed.

I_2/*t*-Butylhydroperoxide (TBHP)-Mediated *Oxo*-amidation of Alkenes with *N*,*N*-Dimethylformamide: A Facile Access to Aryl-α-ketoamide Derivatives

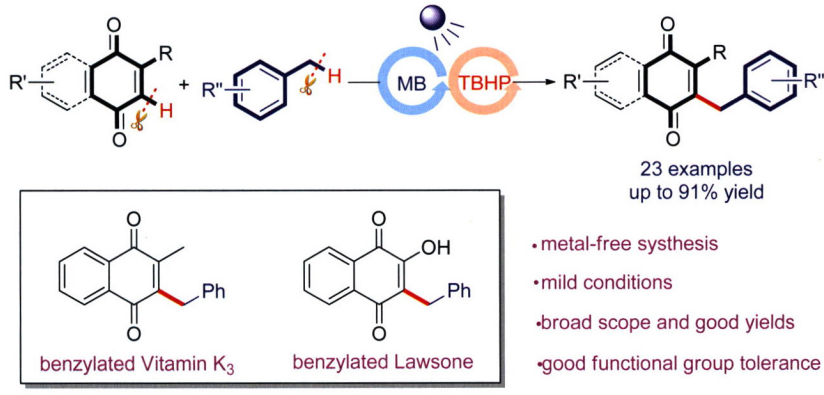


Xiao, Duoduo; Liu, Hailing; Zhou, Peng; Zhang, Jiantao*; Liu, Weibing*

Chin. J. Org. Chem. **2022**, *42*(5), 1438

Difunctionalization of alkenes providing for the synthesis of aryl-α-ketoamide derivatives is developed by using *N*,*N*-dimethylformamide (DMF) as the solvent and the source of dimethylamine. This procedure is catalyzed by I_2 and *t*-butylhydroperoxide (TBHP) as oxidant. A wide range of aryl-α-ketoamide derivatives are generated in good yields.

Visible Light-Induced Metal-Free Benzylation of Quinones via Cross Dehydrogenation Coupling Reaction



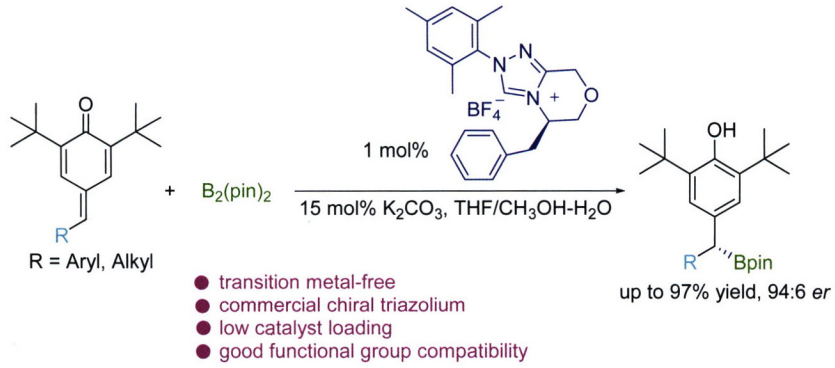
Wang, Xinyao; Zhang, Qingqing; Liu, Shuyang; Li, Min*; Li, Haifang*; Duan, Chunying; Jin, Yunhe*

Chin. J. Org. Chem. **2022**, *42*(5), 1443

The development of visible light-induced metal-free benzylation of quinones via cross dehydrogenation coupling reaction was reported. The method exhibits many advantages, including mild conditions, a broad scope with good functional group tolerance, low cost, and avoidance of metal remaining in products. This method may bring novel inspiration and approach for the synthesis of bioactive quinones.

CONTENT

Asymmetric Boration of *para*-Quinone Methides Catalyzed by *N*-Heterocyclic Carbene



Wu, Yuzhu; Shen, Panpan; Duan, Wenzeng; Ma, Yudao*
Chin. J. Org. Chem. **2022**, *42*(5), 1483

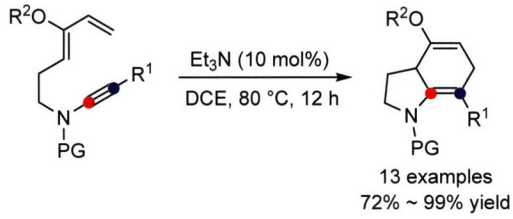
Organocatalytic enantioselective boration of *para*-quinone methides was achieved by using a commercial chiral triazolium as the catalyst.

Visible Light-Induced Hydroxyalkylation of Heteroarenes with Aliphatic Alcohols

Xu, Dongping; Huang, Fei; Tang, Lin; Zhang, Xinming; Zhang, Wu*
Chin. J. Org. Chem. **2022**, *42*(5), 1493

An efficient visible light-induced direct cross-dehydrogenative coupling of heteroarenes with aliphatic alcohols in aqueous solution at ambient temperature was developed. This protocol was highlighted by photocatalyst-free, green solvent, mild conditions, readily available starting materials and wide functional group tolerance.

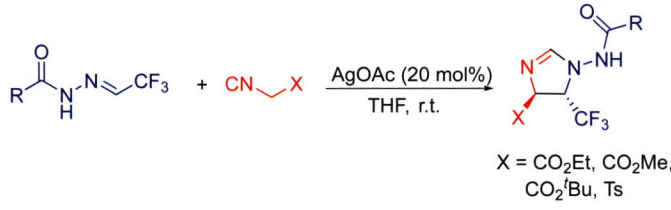
Synthesis of Tetrahydroindole Derivatives via Metal-Free Intramolecular [4+2] Annulation of Ynamides



Zhang, Zhixin; Zhai, Tongyi; Zhu, Bohan; Qian, Pengcheng*; Ye, Longwu*
Chin. J. Org. Chem. **2022**, *42*(5), 1501

A metal-free intramolecular [4+2] annulation of 4-siloxy-3,5-diene ynamides has been developed. Under mild reaction conditions and without metal catalyst, various 2,3,3*a*,6-tetrahydroindoles were obtained in good to excellent yields from readily available 4-siloxy-3,5-diene ynamides, thus providing an efficient and convenient protocol for the preparation of synthetically useful tetrahydroindole motif.

Silver-Catalyzed Synthesis of CF_3-Substituted 2-Imidazolines



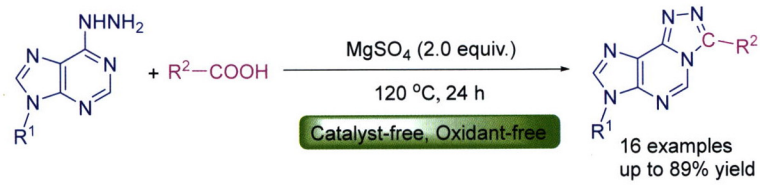
Yang, Ming; Huang, Danfeng*; Wang, Kehu; Han, Tongyu; Zhao, Pengfei; Wang, Feng; Wang, Junjiao; Su, Yingpeng; Hu, Yulai*
Chin. J. Org. Chem. **2022**, *42*(5), 1509

The silver salt catalyzed [3+2] cycloaddition reaction of trifluoromethylated *N*-acylhydrazones and ethyl isocyanoacetate was investigated. The reaction proceeds quickly to produce a series of trifluoromethylated 2-imidazoline compounds in high yields with excellent stereoselectivity, which provides a novel and efficient method for the synthesis of trifluoromethylated 2-imidazoline compounds.

CONTENT

NOTES

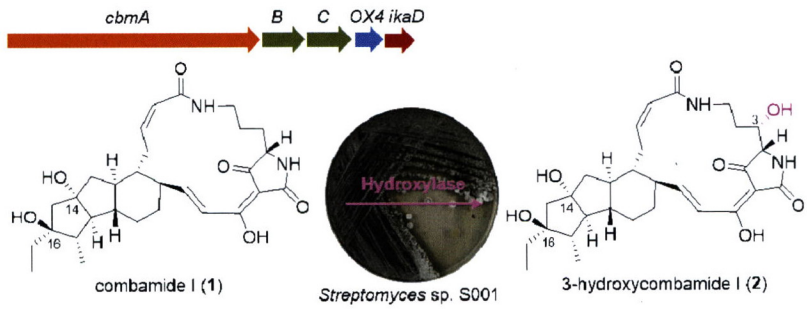
One-Step Synthesis of 1,2,4-Triazolo-[3,4-*i*]purine Derivatives



Chu, Zhiliang; Chen, Huijuan; Shan, Shuai; Wang, Xiaona; Gao, Chunfang; Qu, Guirong; Liu, Zhongyu*; Guo, Haiming*
Chin. J. Org. Chem. **2022**, *42*(5), 1551

A new one-step mothed for the preparation of 1,2,4-triazolo[3,4-*i*]purine derivatives via 6-hydrazinyl-N^9-substituted purine and aliphatic monocarboxylic acid was developed. Seventeen novel 1,2,4-triazolo[3,4-*i*]purine derivatives were synthesized in good to excellent yields. The method is simple to operate and does not need any catalyst or oxidant reagent

Discovery of a New Polycyclic Tetramate Macrolactam 3-Hydroxycombamide I

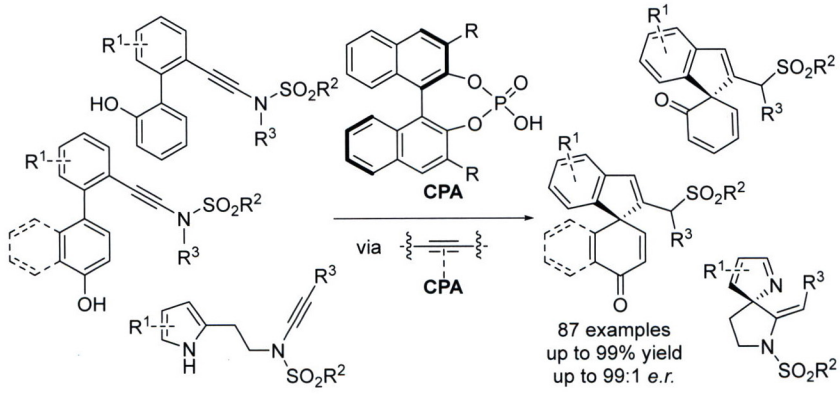


Yan, Yaqian; Wang, Haoxin; Li, Yaoyao*
Chin. J. Org. Chem. **2022**, *42*(5), 1557

A new polycyclic tetramate macrolactam 3-hydroxycombamide I (**2**) was idenitified from the recombinant strain S001-*cbm-OX4-ikaD*. The hydroxylation of **2** at C-3 was proposed to be catalyzed by a hydroxylase of *Streptomyces* sp. S001.

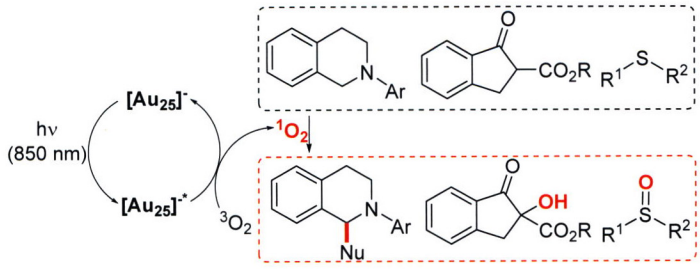
HIGHLIGHTS

Catalytic Asymmetric Dearomatization (CADA) through Activation of Ynamide by Chiral Brønsted Acids



Zhang, Wenzhao; Luo, Sanzhong*
Chin. J. Org. Chem. **2022**, *42*(5), 1562

Near-Infrared Photocatalytic Oxidation Functionalization Mediated by Gold Nanoclusters



Yi, Rongnan; He, Weimin*
Chin. J. Org. Chem. **2022**, *42*(5), 1565

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