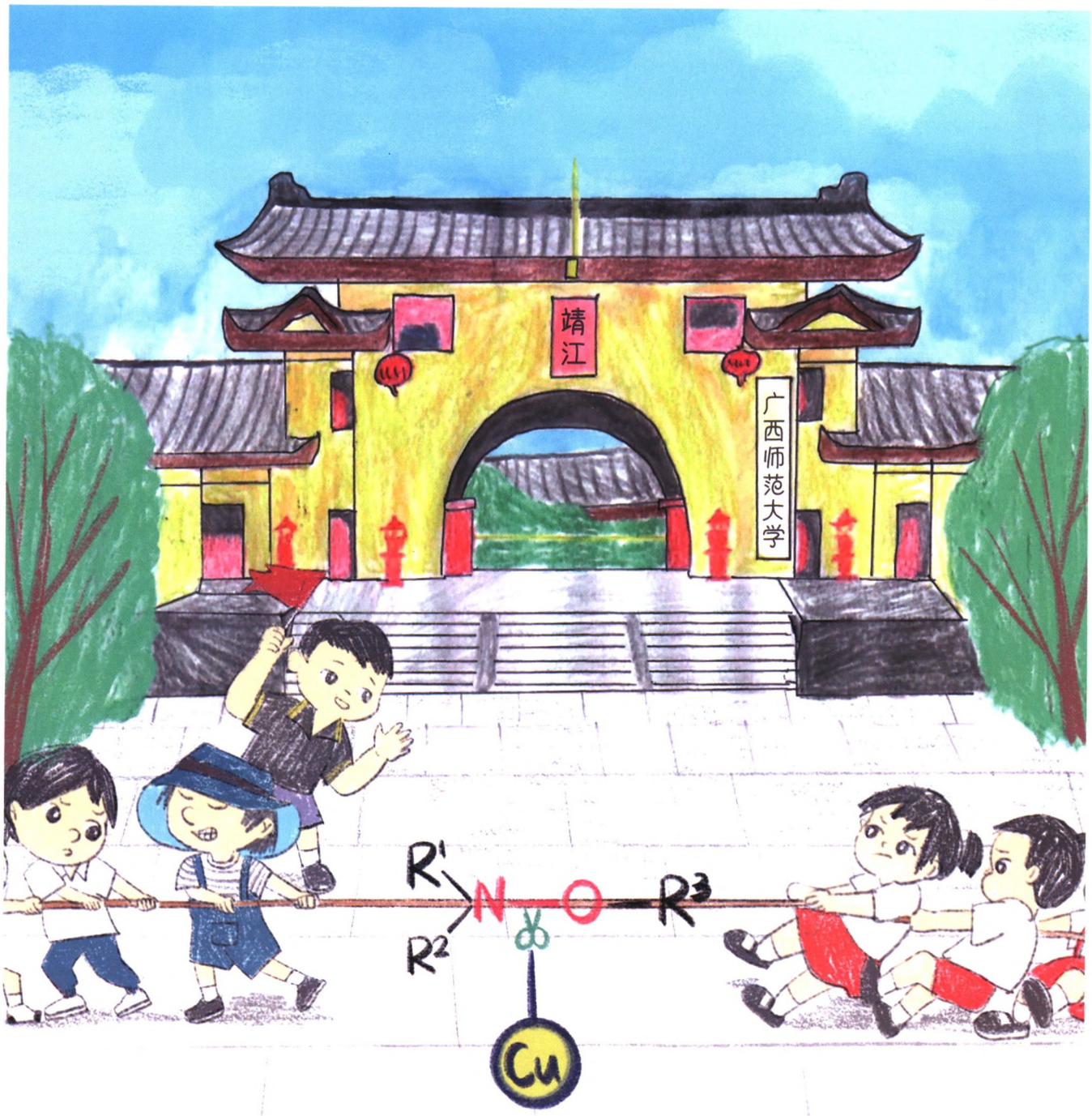
有机化学

Chinese Journal of Organic Chemistry

第 39 卷 第11期 Vol. 39 No. 11 2019



ISSN 0253-2786

中国化学会
中国科学院上海有机化学研究所 主办

有 机 化 学 (月刊)

Chinese Journal of Organic Chemistry

(YOUJI HUAXUE)

第 39 卷 第 11 期 (总 372 期) 2019 年 11 月*

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. 39 No. 11 November 2019

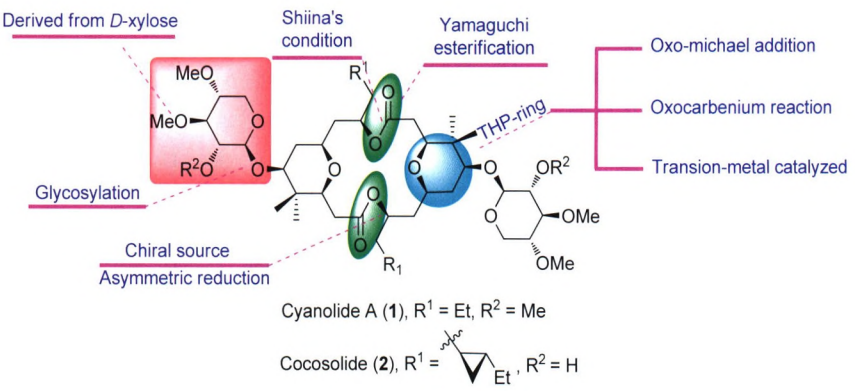
On the Cover

The recent advances in copper-catalyzed N—O bond cleavage strategy to introduce N- or O-functional groups into the target molecules are reviewed by Lei, Li, and Mo on page 2989. Copper catalysts have been not only widely used to construct C—N and C—O bonds but also successfully applied in the total synthesis of natural products and pharmaceuticals through N—O bond cleavage.

REVIEWS

CONTENT

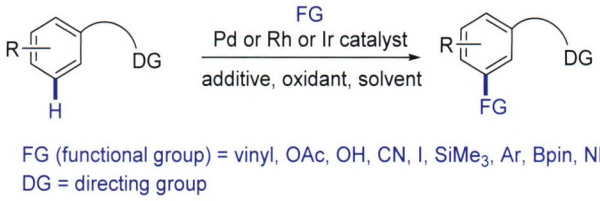
Synthetic Studies toward Natural Occurred Cyanolide A and Cocosolide



Zhang, Liu; Zhang, Mengfan; Qi, Chenze; Yang, Zhen*
Chin. J. Org. Chem. **2019**, *39*(11), 3105

Cyanolide A (**1**) and cocosolide (**2**) were isolated from Papua New Guinea and Guam, respectively. The synthesis of cynaolide A (**1**) and cocosolide (**2**) is reviewed based on the construction methods of tetrahydropyran ring, which involves oxo-Michael addition, oxo-carbenium cyclization and transition-metal catalyzed cyclization reactions.

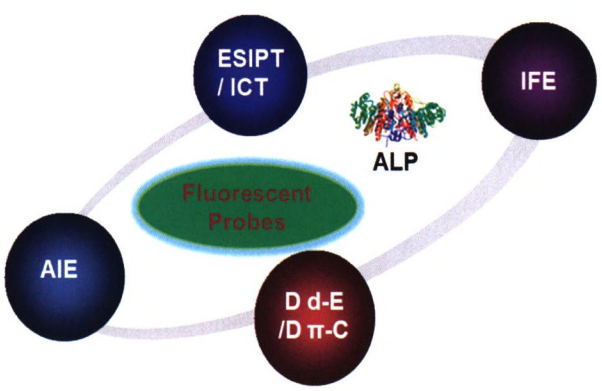
Advances on Directing-Group Assisted *meta*-C—H Functionalization Catalyzed by Transition Metal



Wu, Mei*; Huang, Xinping; Zhang, Haibing; Li, Pengfei
Chin. J. Org. Chem. **2019**, *39*(11), 3114

The *meta*-C—H functionalization assisted by directing group such as template directed, secondary interaction and transient mediator is summarized in detail. The existing problems and limitations of this field are also included. Finally, the development trend of this area is prospected.

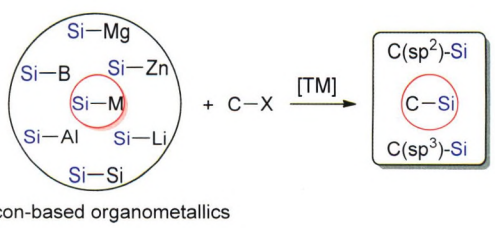
Research Progress in the Fluorescent Probes for Alkaline Phosphatase



Zhang, Jidong*; Liu, Hongze; Meng, Li
Chin. J. Org. Chem. **2019**, *39*(11), 3132

The fluorescent probes for alkaline phosphatase with different luminous mechanism are summarized, and the development tendency of the sensing ensembles is prospected.

Cross-Coupling of C—Si Bond by Using Silyl Reagents



Silicon-based organometallics

Wang, Mingfeng; Yu, Maodong; Wang, Wenshu; Lin, Weili; Luo, Feixian*
Chin. J. Org. Chem. **2019**, *39*(11), 3145

The recent progress on the cross-coupling of C—Si bond by using silyl reagents is summarized. The application of silyl reagents in cross-coupling for C—Si bond formation including silyl boranes, organosilyl magnesium, organosilyl zinc, unasymetric disilanes, organosilyl aluminum and organosilyl lithium reagents is mainly discussed.

CONTENT

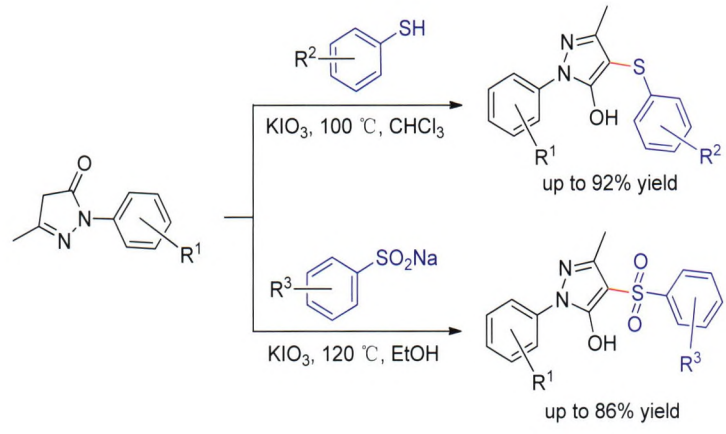
ARTICLES

Synthesis of 3-Ethanoyl/Aroylacetylindoles in Water

Hu, Xiaoyu; Yu, Haifeng*; Wang, Wenju*; Jiang, Siao; Liu, Qi; He, Jie
Chin. J. Org. Chem. **2019**, *39*(11), 3183

4-Dodecylbenzenesulfonic acid (DBSA) catalyzed hydrolysis reaction of β-ethylthio-β-indoly-α,β-unsaturated ketones (**1**) in water to yield 3-ethanoyl/aroylacetylindoles (**2**) was studied. It showed that the hydrolysis of **1** in water smoothly occurred in the presence of 10 mol% DBSA in reflux, and **2** was obtained in excellent yield.

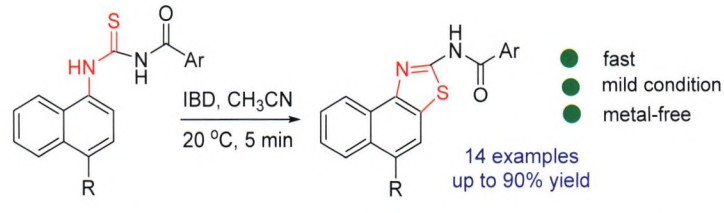
Direct Synthesis of Sulfonated or Sulfenylated Pyrazolones Mediated by KIO_3 and Their Anti-microbial Activity



Dong, Daoqing; Chen, Wenjing; Chen, Demao; Li, Lixia; Li, Guanghui; Wang, Zuli*; Deng, Qi; Long, Shu
Chin. J. Org. Chem. **2019**, *39*(11), 3190

A facile and efficient method for the synthesis of sulfonated or sulfenylated pyrazolones catalyzed by KIO_3 was established. A variety of desired products were obtained in moderate to high yields. This methodology could be conducted under mild reaction conditions without requiring any metal or oxidant. Control experiments showed that the mechanism of this reaction was different from previous KIO_3-catalyzed reactions. Some of these desired products showed high inhibitory activity against *V. mali* and *B. cinerea*.

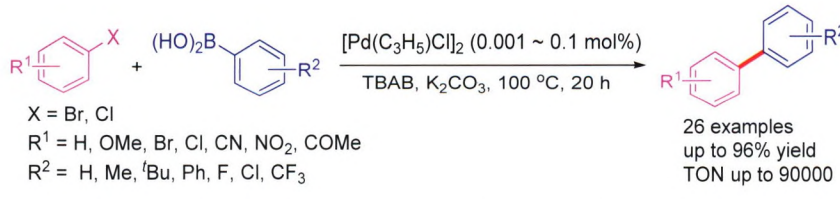
Metal-Free Rapid Synthesis of 2-Aroylamino Naphtho[1,2-*d*]thiazoles



Liu, Tianbao*; Peng, Yanfen; Gui, Meifang; Zhang, Min*
Chin. J. Org. Chem. **2019**, *39*(11), 3199

A novel and practical method to synthesize naphtho[1,2-*d*]thiazole derivatives under metal-free conditions has been developed. This protocol provides a quick, efficient and mild approach to various 2-aroylamino naphtho[1,2-*d*]thiazole compounds with a broad range of functional groups with up to 90% isolated yields in 5 min.

An Efficient Palladium Nanoparticles Catalytic System for Suzuki Coupling Reactions

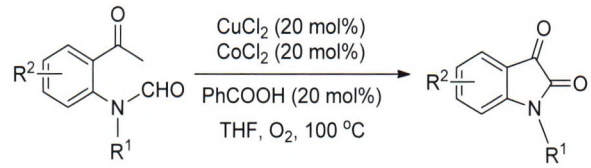


Li, Hengchao; Zhao, Ling; Liu, Yan; Zhang, Xia; Li, Wangbing; Jing, Linhai; Huang, Jin*; Wang, Wei*
Chin. J. Org. Chem. **2019**, *39*(11), 3207

A simple and highly efficient palladium nanoparticles catalytic system was successfully used in the Suzuki reaction of aryl halides and arylboronic acids. A high turnover number of 90000 was achieved at the catalyst loading as low as 0.001 mol%. This catalytic system exhibited good stability and longevity, and a broad scope of substrates was tolerated.

CONTENT

Copper-Catalyzed Aerobic Oxidation Strategy: A Concise Route to Isatin

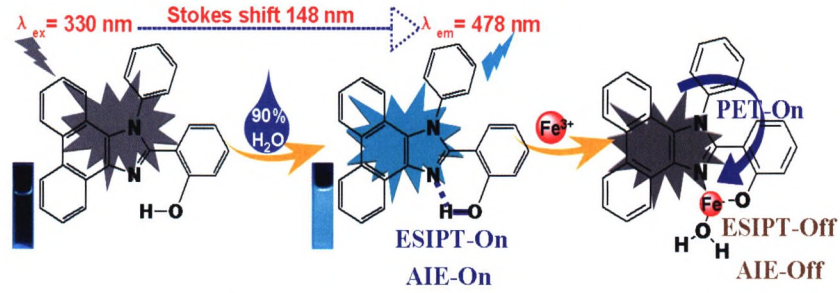


Ahmad, Muhammad Siddique; Zhu, Yamin; Guo, Yunlong; Zhang, Saisai; Shen, Zengming*

Chin. J. Org. Chem. **2019**, *39*(11), 3244

A copper-catalyzed decarbonylation cyclization to form isatins using oxygen as terminal oxidant is developed. This complementary way offers a new protocol for the synthesis of isatins through C(sp^3)—H bond functionalization in Cu/O_2/Co system. This system shows good reactivity and compatibility.

An Excited-State Intramolecular Proton Transfer (ESIPT) Plus Aggregation Induced Emission (AIE) Phenanthro[9,10-*d*]-imidazole-Based Fluorescence Probe for Detection of Fe^{3+} in Living Cells



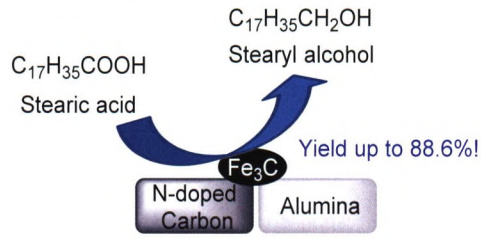
He, Yuqian; Zhao, Bing*; Kan, Wei*; Wang, Liyan; Song, Bo; Yin, Guangming; Bi, Ye; Chen, Shuwen*

Chin. J. Org. Chem. **2019**, *39*(11), 3250

Based on the mechanism of excited-state intramolecular proton transfer (ESIPT) plus aggregation induced emission (AIE), a fluorescence probe of phenanthro[9,10-*d*]imidazole modified by the phenolic hydroxyl (**PIP-*o*-OH**) had been designed, synthesized and applied in the detection of Fe^{3+}.

NOTES

Iron-Catalyzed Selective Hydrogenation of Stearic Acid to Stearyl Alcohol

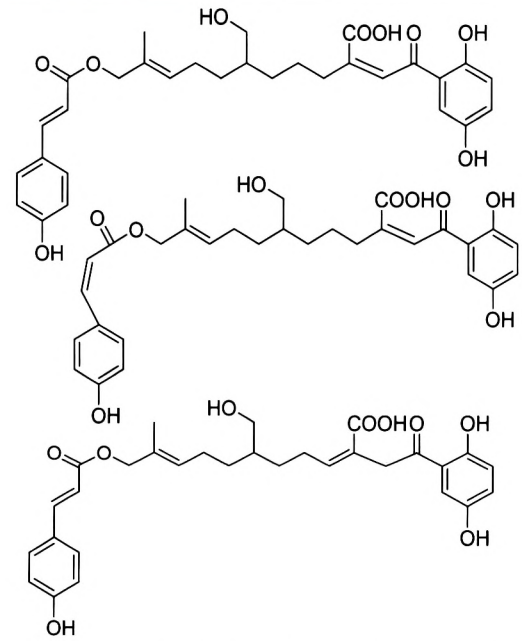


Li, Jiang*; Wan, Tong; Zhang, Junjie; Fu, Yao

Chin. J. Org. Chem. **2019**, *39*(11), 3258

Selective hydrogenation of stearic acid to stearyl alcohol is first achieved over heterogeneous iron catalysts.

Meroterpenoids from the Fruiting Bodies of *Ganoderma ahmadii* Steyaret and Their Protein Tyrosine Phosphatase 1B Inhibitory Activities



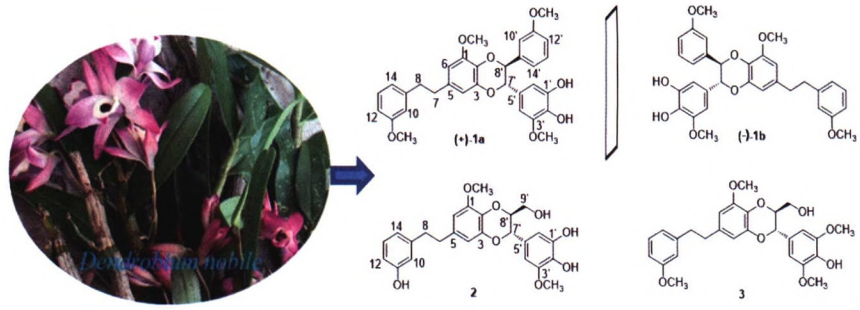
Guo, Jiaocen; Ma, Qingyun; Kong, Fangdong; Xie, Jingyi; Zhou, Liman; Ding, Qiong; Wu, Yougen*; Zhao, Youxing*

Chin. J. Org. Chem. **2019**, *39*(11), 3264

The extraction, isolation, structure identification and protein tyrosine phosphatase 1B (PTP1B) inhibitory activity of three new meroterpenoid compounds from the fruiting body of *Ganoderma ahmadii* Steyaret are reported. Finally, their future development and application are also prospected.

CONTENT

Bibenzyl Derivatives from *Dendrobium nobile*

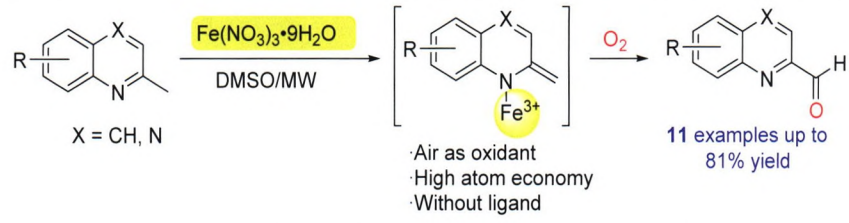


By silica gel, MCI column chromatographic and preparative high performance liquid chromatography (HPLC) technologies, three new bibenzyl derivatives were isolated from the tubes of *Dendrobium nobile*. One racemic compound was further purified by chiral HPLC to obtain a pair of enantiomers **1a** and **1b**, and the absolute configurations of the enantiomers were confirmed using electronic circular dichroism calculations. The structures of compounds **1**～**3** were identified as didendronbiline A (**1**), dendronbiline B (**2**) and dendronbiline C (**3**).

Zhang, Maosheng; Linghu, Lang; Zhang, Jianyong; Nie, Xuqiang; Li, Xiaofei; Guo, Dale; Xiao, Shiji*

Chin. J. Org. Chem. **2019**, *39*(11), 3289

Iron/O_2-Promoted C—H Bond Functionalization for the Exclusive Synthesis of 2-Quinoline Carboxaldehydes under Microwave Irradiation

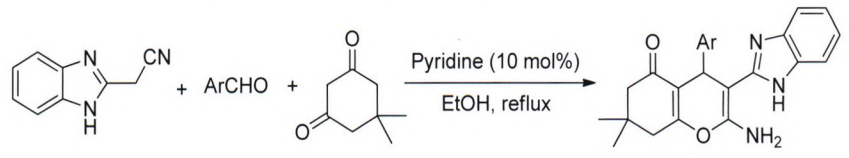


An one-pot iron-catalyzed oxidative formylation of 2-methylquinolines to produce 2-quinoline carboxaldehydes under microwave irradiation has been achieved by employing O_2 as the oxygen donor.

Xie, Tinghui; Jiang, Xiaoying; Mi, Zhisheng; Li, Xue; Xu, Xiaohe; Bai, Renren; Shuai, Qi; Xie, Yuanyuan*

Chin. J. Org. Chem. **2019**, *39*(11), 3294

One-Pot Three-Component Synthesis of 3-(1*H*-Benzo[*d*]imidazol-2-yl)chromen Derivatives



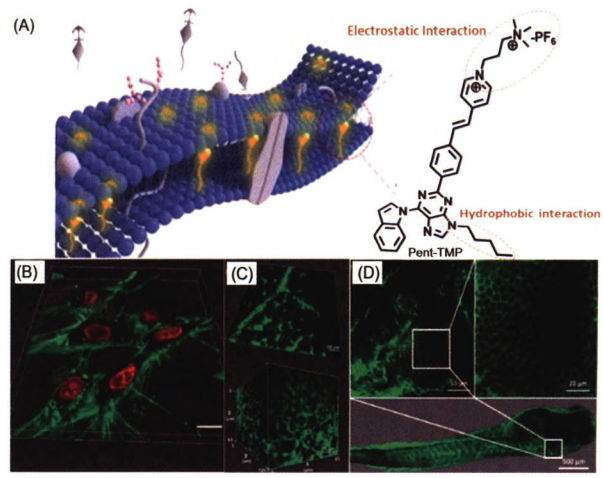
The efficient synthesis of new substituted 3-(1*H*-benzo[*d*]imidazol-2-yl)-4*H*-chromens in 48%～89% yields via one-pot, three-component reaction of 2-(1*H*-benzo[*d*]imidazol-2-yl)acetonitrile with aromatic aldehydes and 5,5-dimethyl-cyclohexane-1,3-dione was reported. This reaction was carried out in EtOH in the presence of pyridine under reflux conditions. All reactions were completed within 1～3 h.

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

Chin. J. Org. Chem. **2019**, *39*(11), 3299

HIGHLIGHTS

Visual Imaging of Plasma Membrane: New Application for Aggregation Induced Emission (AIE) Probe



Yang, Jiea; Li, Zhen*

Chin. J. Org. Chem. **2019**, *39*(11), 3304

CONTENT

