有机化学

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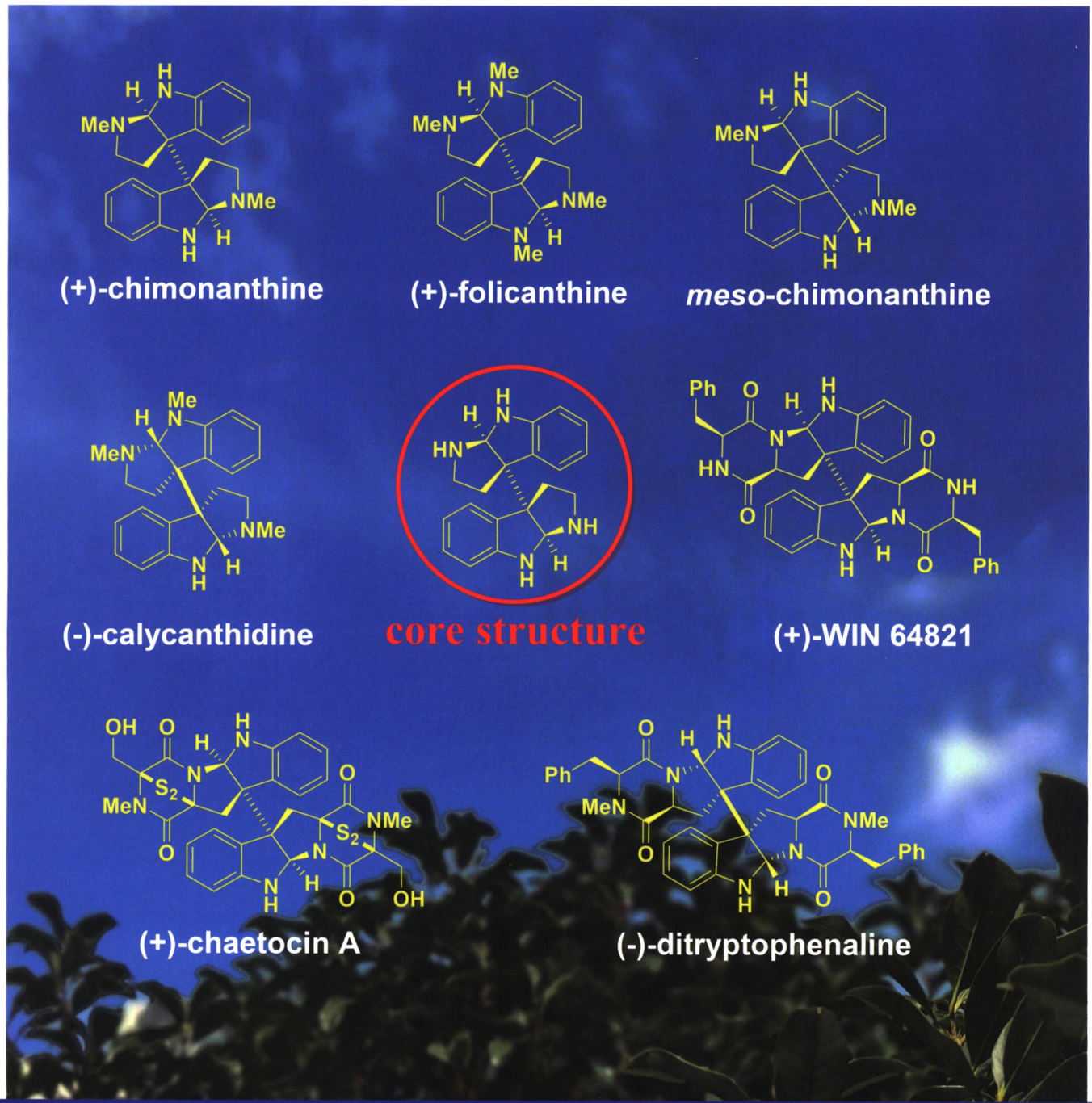

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综述与进展

研究论文

* 通讯联系人.

研究简报

Chinese Journal of Organic Chemistry

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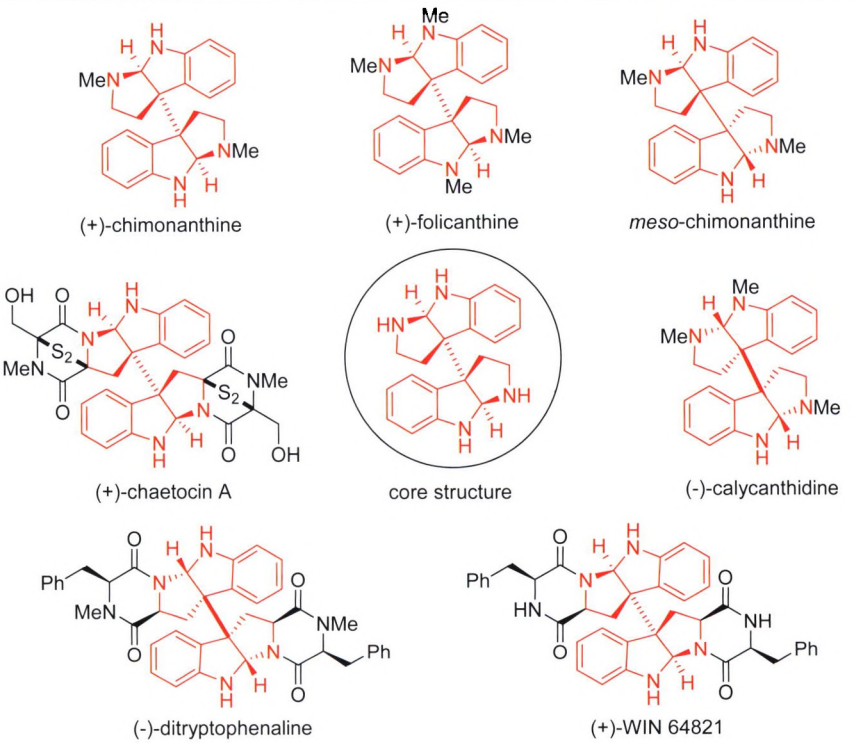
On the Cover

Cyclotryptamine alkaloids constitute a large family of architecturally interesting alkaloids with a wide array of biological activities. As interesting synthetic targets, dimeric cyclotryptamine alkaloids bearing sterically hindered vicinal all-carbon quaternary stereocenters have attracted significant attention from the synthetic community. The synthetic efforts towards dimeric cyclotryptamine alkaloids in the last twelve years are summarized on page 2685.

REVIEWS

Progress in Total Syntheses of Dimeric Cyclotryptamine Alkaloids

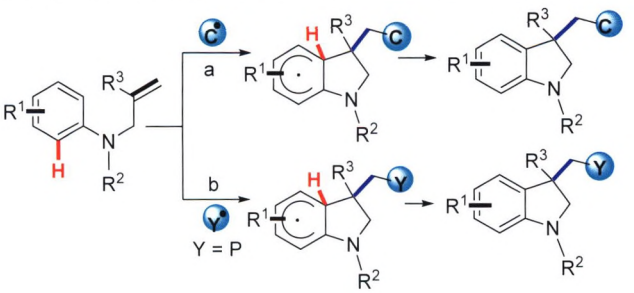


Shen, Xianfu; Peng, Tianfeng; Zhou, Yongyun; Xi, Yongkai; Zhao, Jingfeng; Yang, Xiaodong; Zhang, Hongbin*

Chin. J. Org. Chem. **2019**, *39*(10), 2685

Stereocontrolled synthesis of the congested all-carbon quaternary stereocenters in these alkaloids presents a formidable challenge. This review summarizes the synthetic efforts towards dimeric cyclotryptamine alkaloids in the last twelve years.

Recent Advances of the Synthesis of Indolines by Unactivated Alkenes



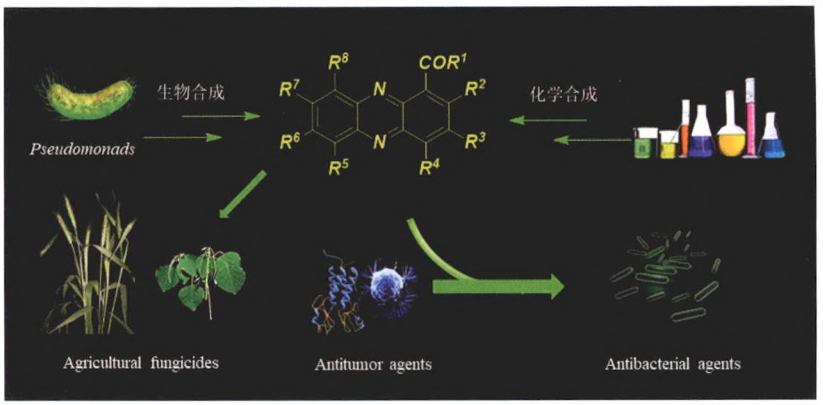
Liu, Yingjie*; Lin, Liqing; Han, Yinghui; Zhang, Xin

Chin. J. Org. Chem. **2019**, *39*(10), 2705

The recent studies on the synthesis of various functionalized indolines using unactivated alkenes are described. It involves radical addition/cyclization reaction in the presence of oxidizing agent, which is usually carried out under neutral reaction conditions using readily available oxidizing agents and different transition metals or under metal-free as catalysts

CONTENT

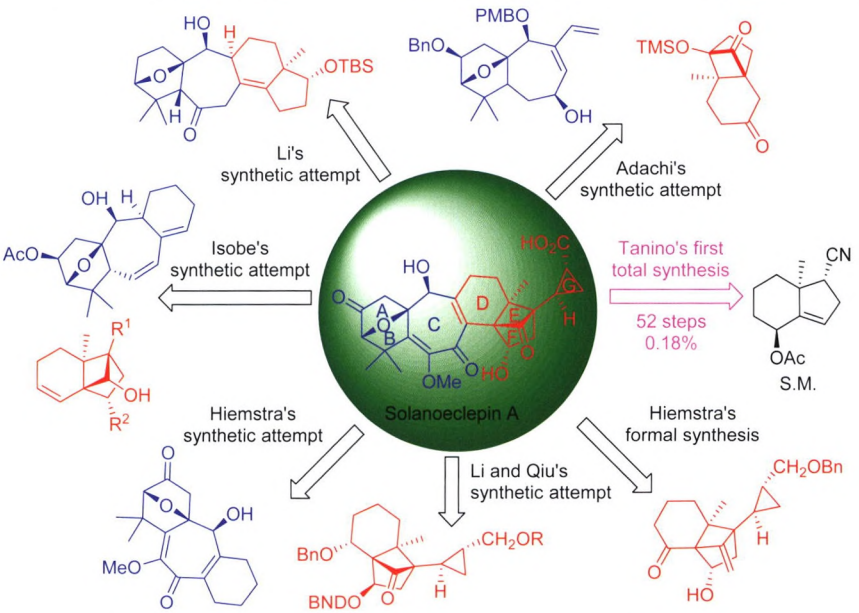
Research Progress of Phenazine-1-carboxylic Acid and Its Analogue



The biosynthesis and chemosynthesis of phenazine-1-carboxylic acid are summarized. At the same time, the diverse biological evaluations of its biosynthetic and chemosynthetic analogues are summarized.

Zhu, Xiang; Wu, Qinglai*; Li, Junkai*
Chin. J. Org. Chem. **2019**, *39*(10), 2744

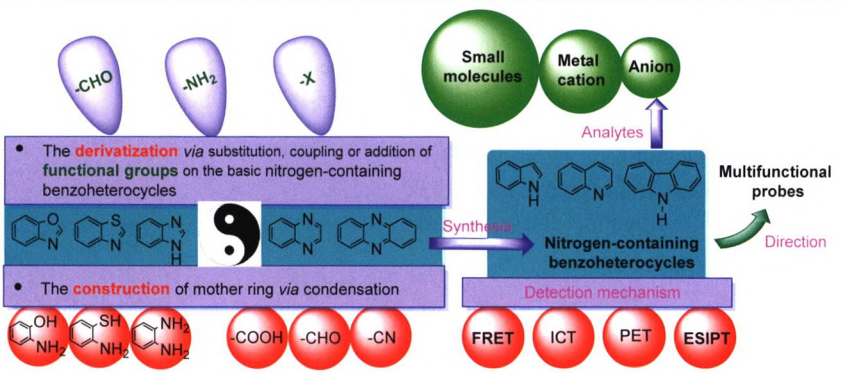
Recent Progresses in the Synthesis of Solanoeclepin A



Based on the known general biosynthesis of tetranortriterpenoids and Corey's biomimetic synthesis of glycinoeclepin, a plausible biosynthetic pathway of solanoeclepin A is proposed. A schematic review on the synthetic studies of solanoeclepin A is provided.

Sun, Mao; Qiu, Fayang*; Li, Wei-Dong*
Chin. J. Org. Chem. **2019**, *39*(10), 2759

Research Progress in Design, Synthesis and Application of Benzo Nitrogen-Containing Heterocyclic Fluorescent Probes



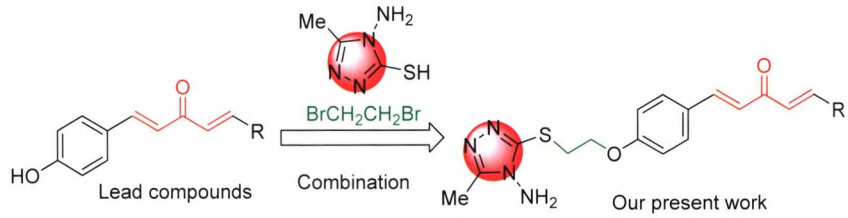
The synthesis methods, molecular structure, interaction mechanism, benzo five-/six-membered nitrogen-containing heterocyclic fluorescent probes containing the structure of benzoxazole, benzothiazole, benzimidazole, indole, carbazole, quinoline, benzopyrazine and phenazine are introduced. And their detection applications for a variety of analytes, such small molecules, metal cations, anions and pH are reviewed.

Wang, Neng; Arulkumar, Mani; Chen, Xiaoyun*; Wang, Bowen; Chen, Sihong; Yao, Chen; Wang, Zhaoyang*
Chin. J. Org. Chem. **2019**, *39*(10), 2771

CONTENT

ARTICLES

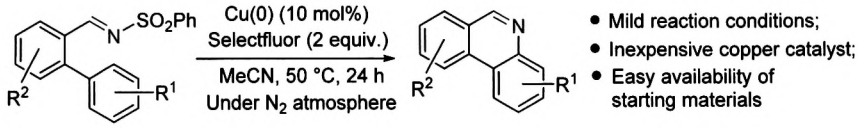
Syntheses and Biological Activities of 1,4-Pentadien-3-one Derivatives Containing Thioether Triazole Moiety



The 1,4-pentadien-3-one derivatives containing thioether triazole were designed and synthesized. The bioassays results reveal that some of the target compounds exhibit better activities against *X. citri*, *X. oryzae* and *R. solanacearum* than positive control of bismerthiazol.

Chen, Ying; Li, Pu; Chen, Mei; Su, Shijun; He, Jun; Zhang, Min; Liu, Liwei; Xue, Wei*
Chin. J. Org. Chem. **2019**, *39*(10), 2813

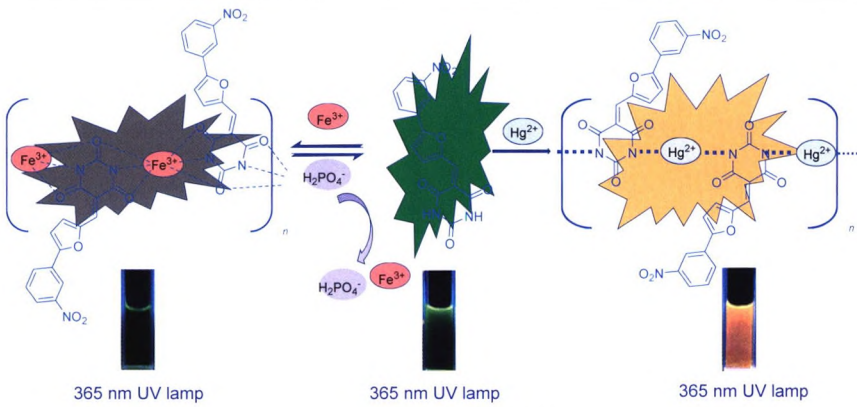
Copper(0)/Selectfluor System-Catalyzed Tandem Annulation/Aromatization of *o*-Aryl Benzenesulfonylimides: A Facile Synthesis of 6*H*-Phenanthridines



A facile and efficient method for the synthesis of 6*H*-phenanthridines has been successfully developed involving a copper(0)/Selectfluor system-catalyzed tandem annulation/aromatization of *o*-aryl benzenesulfonylimides. A variety of substituted 6*H*-phenanthridines were synthesized in moderate to good yields under mild reaction conditions.

Zheng, Limeng; Shi, Dongdong; Bao, Hanyang; Liu, Yunkui*
Chin. J. Org. Chem. **2019**, *39*(10), 2821

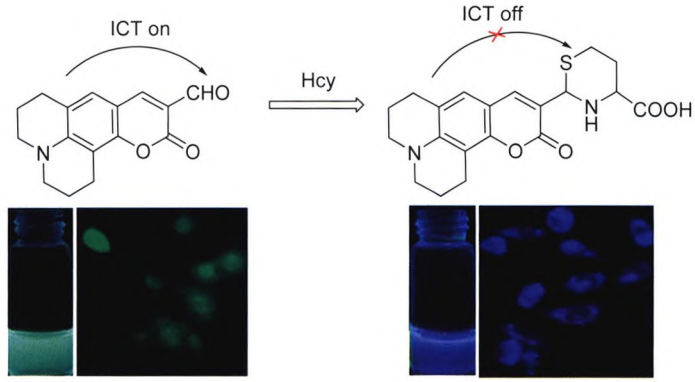
A Novel Fluorescent Sensor Based on Aryl-furfural Functionalized Barbituric Acid for Recognition and Separation of Hg^{2+}/Fe^{3+}



A novel fluorescent sensor bearing 5-(3-nitrophenyl)-furan-2-carbaldehyde functionalized barbituric acid derivative (**QS**) was synthesized. **QS** showed different fluorescence identification ability for aqueous solution of Hg^{2+} and Fe^{3+}. The addition of Hg^{2+} enhanced the fluorescence intensity of **QS** to orange fluorescence and the addition of Fe^{3+} quenched the fluorescence intensity of **QS**, then the detection duration is real-time.

Zhu, Wenbo; Zhu, Wei; Ding, Jindong; Ma, Xiaoqiang; Yao, Hong; Zhang, Youming; Lin, Qi*; Wei, Taibao*
Chin. J. Org. Chem. **2019**, *39*(10), 2829

Ratiometric Fluorescent Probe for Homocysteine and Cysteine Based on the Aldehyde Functionalized Coumarin and Successful Bioimaging Application

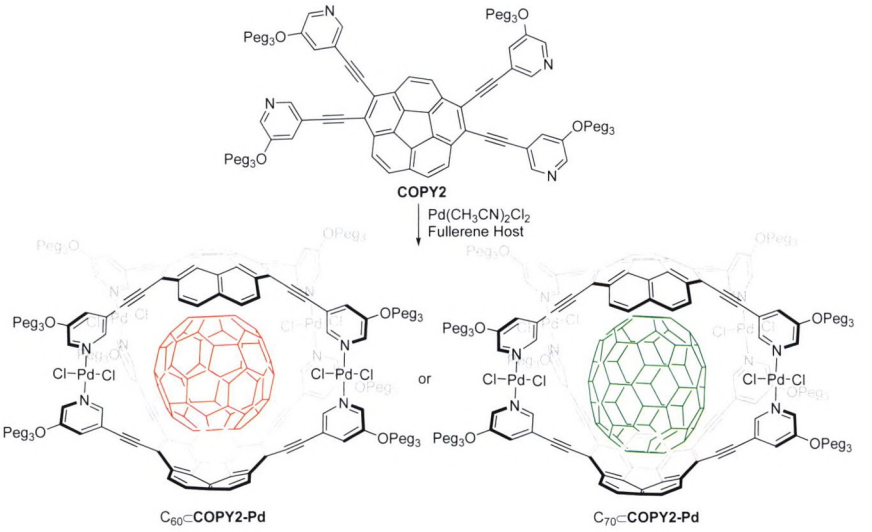


Compound **C2** could act as a new ratiometric fluorescent probe for homocysteine over cysteine, glutathione and other amino acids, and was successfully applied to cell imaging with ratiometric fluorescent methods.

Cheng, Xiaohong*; Xu, Ke; Qu, Shaohua; Ruan, Zhijun
Chin. J. Org. Chem. **2019**, *39*(10), 2835

CONTENT

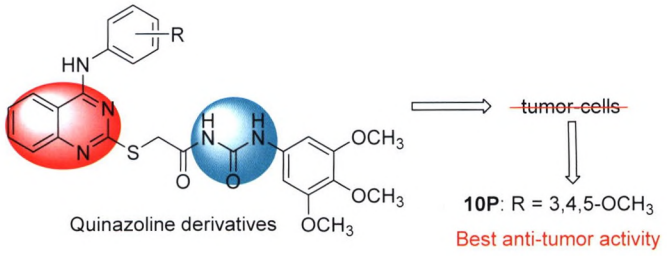
Self-Assembled of Corannulene-Based Molecular Cage with Fullerenes as Template



A tetrapyridyl substituted corannulene derivative **COPY2** was designed and synthesized. Fullerenes were used not only as a template agent for constructing target molecular cages, but also as a stabilizer for molecular cages. Through fullerene replacement experiment and fullerene mixture competitive complexation experiment, ligand **COPY2** showed stronger complexation ability to C_{60}. Therefore, the ligand **COPY2** can be used to the enrichment of C_{60} at room temperature.

Sun, Weidong; Ye, Lin; Liu, Jia; Zheng, Lu; Guo, Wencai; Han, Senkai; Shao, Chengyuan; Jiang, Hua*
Chin. J. Org. Chem. **2019**, *39*(10), 2867

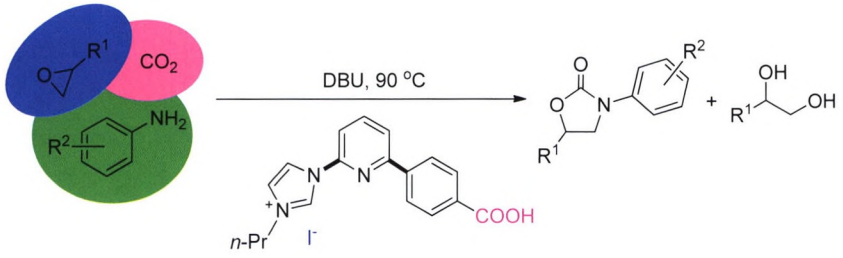
Design, Synthesis and Antitumor Activity Evaluation of 4-Aminoquinazoline Derivatives Containing Urea Moiety



A series of novel 4-aminoquinazoline derivatives bearing urea moiety were designed, synthesized and evaluated for antitumor activities against four human cancer cell lines of MCF-7, MGC-803, SW620 and A549. Among them, compound **10p** showed the best antitumor activity against MGC-803, SW620 and A549 cancer cell lines, with the IC_{50} values of (7.02±0.46), (6.00±0.78) and (7.04±1.11) μmol•L^{-1}, respectively.

Li, Erdong; Meng, Yaqi; Zhang, Luye; Zhang, Yang; Wang, Jikuan; Zhang, Danqing; Song, Panpan; Xin, Jingchao; Li, Na; Zheng, jiaxin; Ke, Yu*; Liu, Hongmin*; Zhang, Qiurong*
Chin. J. Org. Chem. **2019**, *39*(10), 2875

Pyridine Bridged Organocatalyst for the Synthesis of 3-Aryl-2-oxazolidinones from Carbon Dioxide, Terminal Epoxide, and Aryl Amine

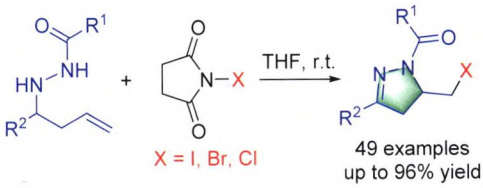


A series of carboxyl group or hydroxyl group functionalized organocatalysts were synthesized and were applied in three component reaction of carbon dioxide with epoxide, and aryl amines for the synthesis of 3-aryl-2-oxazolidinones. The method allows the reaction to smoothly proceed in the mild reaction conditions, together with excellent substrates scope of epoxides and aryl amines.

Liu, Quanyao; Shi, Lei; Liu, Ning*
Chin. J. Org. Chem. **2019**, *39*(10), 2882

CONTENT

Synthesis of Pyrazolines by Cascade Oxidation/Halogenoaminocyclization Reaction of Homoallylhydrazides



Li, Pengfei; Huang, Danfeng; Yang, Tianyu; Deng, Zhoubin; Wang, Kehu; Wang, Junjiao; Su, Yingpeng; Hu, Yulai*

Chin. J. Org. Chem. **2019**, *39*(10), 2920

An efficient cascade oxidation/halogenoaminocyclization of homoallylhydrazides with *N*-halogensuccinimide was developed without the addition of other additives under mild reaction conditions to provide facile access to pyrazolines in good yields.

A Novel Method for the Synthesis Triarylphosphines under Transition-Metal-Free Conditions

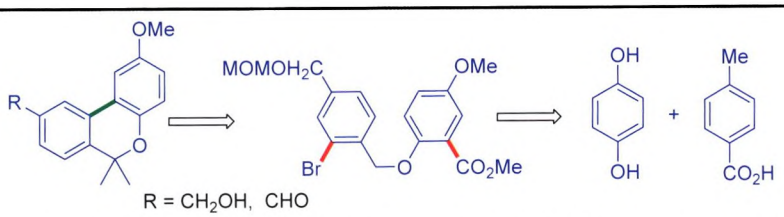
Yin, Qing; Yu, Xiaoqiang*; Bao, Ming

Chin. J. Org. Chem. **2019**, *39*(10), 2930

Triarylphosphines play an important role in pharmaceutical synthesis and transition-meal-catalyzed reactions. A novel method for the synthesis of triarylphosphines via base-promoted C(sp^2)—P cross-coupling reactions of alkyldiphenylphosphines with aryl halides is described.

NOTES

Total Synthesis of Pulchrol and Pulchral

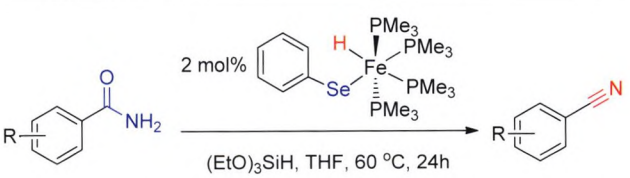


Guo, Dongdong; Zhang, Wuxia; Gao, Weimei; Guo, Xiaodi; Wang, Yongqiang*

Chin. J. Org. Chem. **2019**, *39*(10), 2936

The total synthesis of natural products pulchrol and pulchral with antiprotozoan activity was reported, starting from the cheap hydroquinone and 4-methylbenzoic acid and using palladium-catalyzed intramolecular decarboxylation coupling reaction of arene carboxylic acids with aryl bromides as the key reaction.

Catalytic Effect of Iron Hydrides on Dehydration of Primary Amides to Nitriles

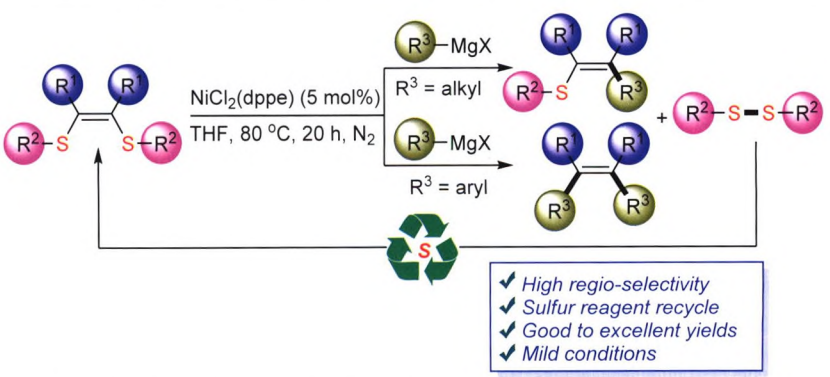


Zheng, Tingting; Wang, Yangyang; Yang, Zaixiao; Sun, Hongjian; Li, Xiaoyan*

Chin. J. Org. Chem. **2019**, *39*(10), 2941

Three *cis*-selenophenolato iron hydrides, *cis*-[(ArSe)FeH(PMe_3)$_4$] (Ar=Ph, *p*-$MeOC_6H_4$ and *o*-MeC_6H_4), have good catalytic effect on the dehydration of primary amide to nitrile under mild conditions using $(EtO)_3SiH$ as reducing agent. The catalytic system is well tolerated to the substituents on the benzene rings in aromatic amides.

Nickel-Catalyzed Coupling of 1,2-Diarylthio-1,2-diarylalkenes with Grignard Reagents for Synthesis of Multi-substituted Alkenes



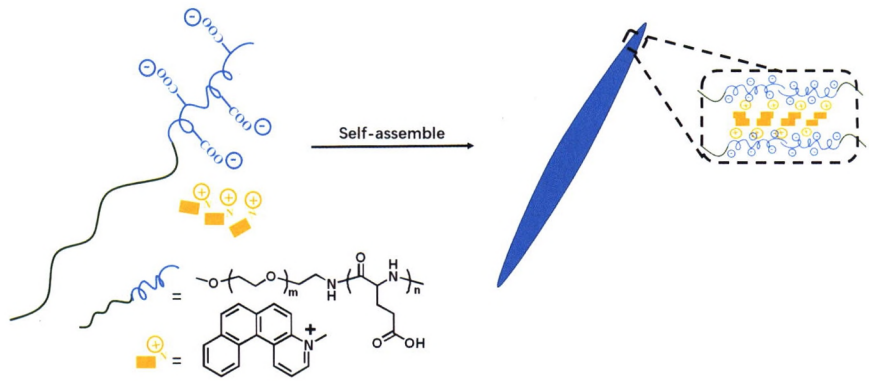
Wu, Yan; Luo, Fan; Pan, Shimin; Li, Yuhan; He, Shuhua*

Chin. J. Org. Chem. **2019**, *39*(10), 2946

A convenient protocol for the synthesis of multi-substituted alkenes from (*Z*)-1,2-diarylthio-1,2-diarylalkenes with Grignard reagents was developed via the highly selective coupling of (*Z*)-1,2-diarylthio-1,2-diarylalkenes catalyzed by 5.0 mol% $NiCl_2$(dppe).

CONTENT

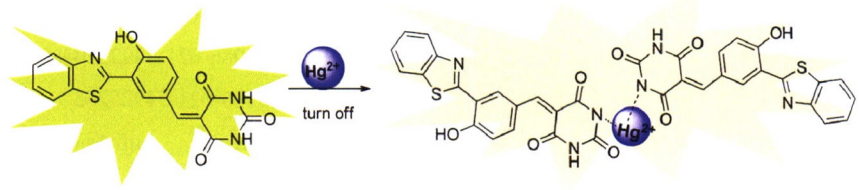
Study of Charge-Conjugated Self-Assembly Behavior of Amphiphilic Block Copolypeptides/Helicene



Amphiphilic block copolypeptides of polyethylene glycol-*b*-poly(*L*-glutamic acid) (PEG-*b*-PGlu) were synthesized to self-assemble with 4-methyl-4-aza[4]helicene onium ion (Me[4]H) in water through charge-conjugation. The morphology of the assemblies was studied by varying PGlu block length, the molar ratio of Glu unit/Me[4]H and pH value.

Wang, Jinglin; Shen, Chengshuo; Tang, Songchao*; Yao, Yuan*
Chin. J. Org. Chem. **2019**, *39*(10), 2973

Synthesis and Application of Fluorescent Probe Containing Barbitone Unit



A novel excited-state intramolecular proton transfer (ESIPT) fluorescent probe containing barbitone unit was designed and synthesized from salicylaldehyde. Mechanism studies showed that mercury ions and probes formed a structure similar to "(thymine)T-Hg-T" which has high selectivity in determining mercury ions. The calibration curve indicated that there was a good linear correlation between the relative fluorescent intensities over the concentration range of 4～20 μmol•L^{-1} of Hg^{2+} ion.

Liu, Yu; Tang, Yongxing; Luo, Yueyang; Zhu, Yeting; Yang, Jin; Wei, Xinyu; Liu, Xiong; Zhao, Yunhui*
Chin. J. Org. Chem. **2019**, *39*(10), 2980

HIGHLIGHTS

Chin. J. Org. Chem. **2019**, *39*(10), 2985