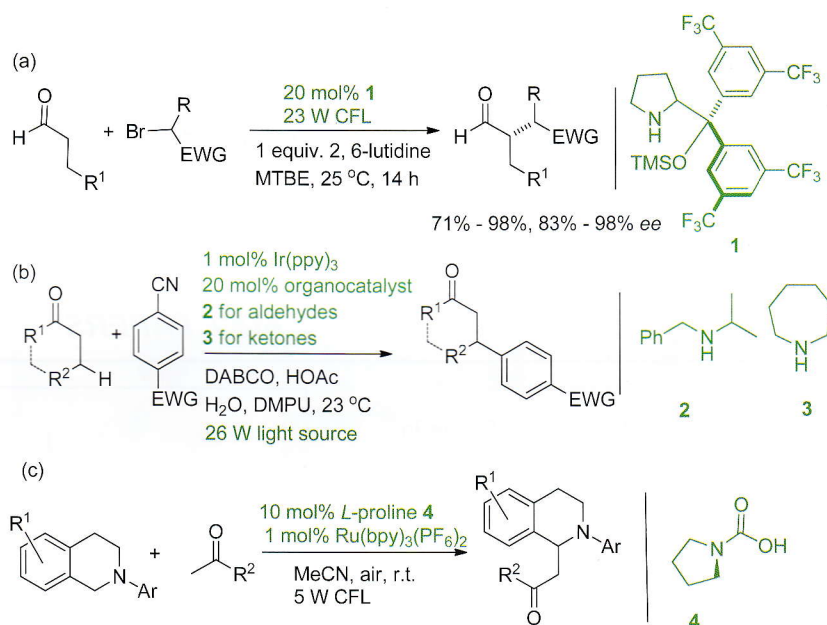


## REVIEWS

1491

## Functionalization of Carbonyl Compounds via Photoredox Organocatalysis

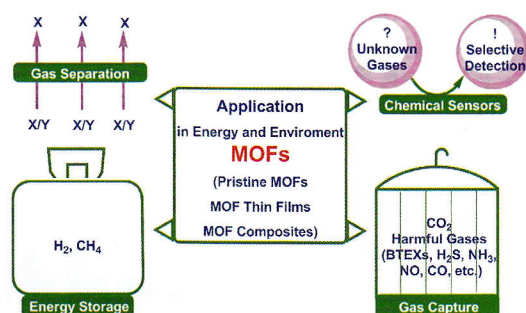


A methodology merging photoredox catalysis with organocatalysis termed “photoredox organocatalysis” has emerged to allow the direct and selective functionalization of the  $\alpha/\beta$ -C of carbonyl compounds. In this review, photophysics background of photoredox catalysis is introduced, followed by a report on recent advances in direct  $\alpha$ - and  $\beta$ -functionalization of carbonyls with photoredox organocatalysis methodology.

Yuhua Liu,\* Wen Dong

1501

## Advances of Metal-Organic Frameworks in Energy and Environmental Applications



Metal-organic frameworks (MOFs) have aroused great attention over decades owing to their features such as ultrahigh porosity, large surface area, structural diversity and functionalities which make them promising candidates for diversified applications. This microreview focuses the emphasize on their applica-

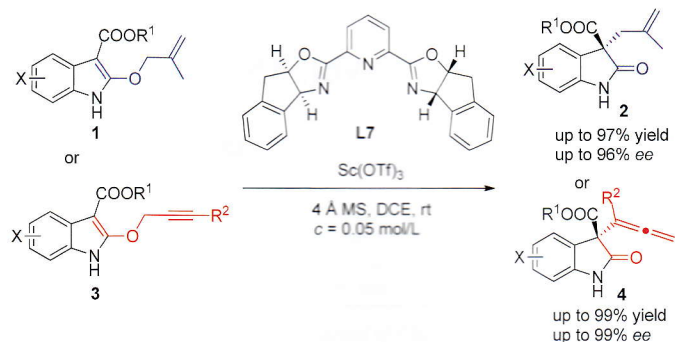
tions in energy and environmental fields such as energy storage ( $H_2$  and  $CH_4$ ),  $CO_2$  capture and separation, adsorption removal and sensing of harmful gases in the environment, and also depicts some challenges and perspectives.

Ying Li,\* Bing Zou, Anshan Xiao, Hongxing Zhang

1512

**Asymmetric Synthesis of 3-Allyloxindoles and 3-Allenyloxindoles by Scandium(III)-Catalyzed Claisen Rearrangement Reactions**

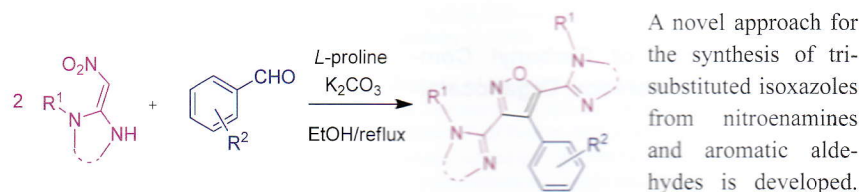
Zeng-Wei Lai, Chuan Liu, Hongbin Sun,\*  
Shu-Li You\*



1517

**Synthesis of Trisubstituted Isoxazoles from Nitroenamines and Aromatic Aldehydes**

Chao Lei, Zhenhong Gao, Xusheng Shao, Xiaoyong Xu, Zhong Li\*



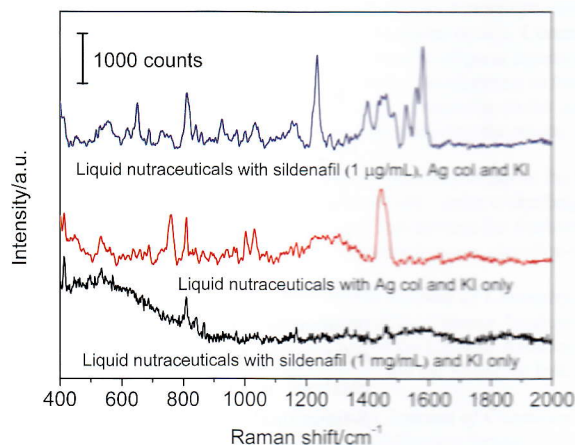
*L*-Proline/ $K_2CO_3$  system was employed to promote this process. The reaction underwent nucleophilic attack of nitroenamines to aromatic aldehydes, intramolecular denitration, tautomerization and elimination of  $H_2O$  to furnish the target compounds.

FULL PAPERS

1522

**Rapid Detection of Sildenafil Drugs in Liquid Nutraceuticals Based on Surface-Enhanced Raman Spectroscopy Technology**

Hang Zhao, Wuliji Hasi,\* Lin Bao, Siqingaowa Han, Xuanyu Sha, Jia Sun, Xiutao Lou, Dianyong Lin,\* Zhiwei Lv\*



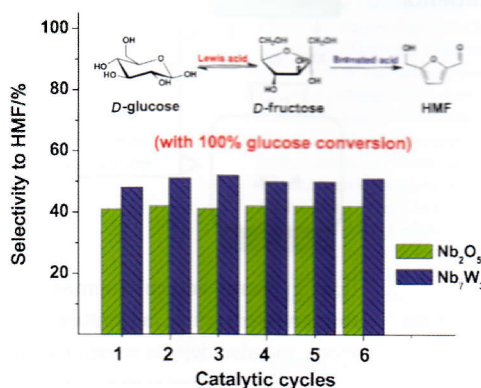
SERS technology has great potential for on-site and real-time detection of illegal drugs in water and in liquid nutraceuticals.

A detailed attribution analysis by density functional theory (DFT) was used to guide the surface-enhanced Raman spectroscopy experiments. The SERS signals were obtained from a silver colloid (Ag col) substrate and mineral salts. Here, Raman technology detected low contents of sildenafil drugs in liquid nutraceuticals. Therefore,

1529

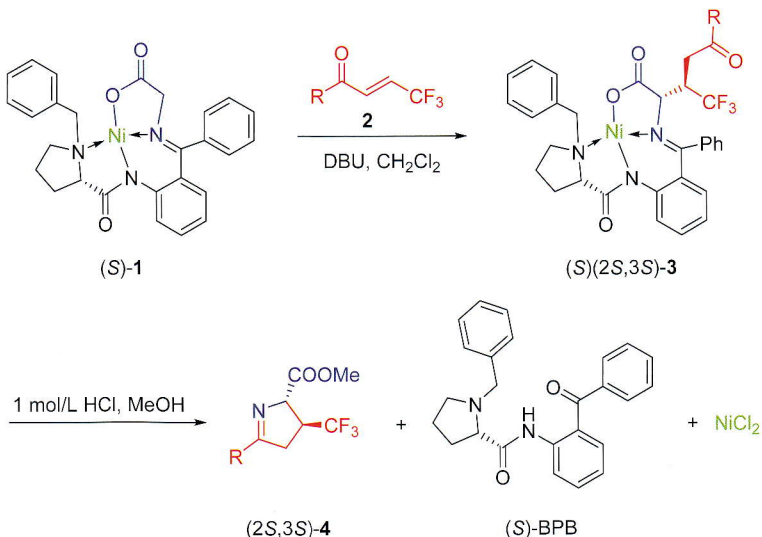
**Effect of Brønsted/Lewis Acid Ratio on Conversion of Sugars to 5-Hydroxymethylfurfural over Mesoporous Nb and Nb-W Oxides**

Bin Guo, Lin Ye, Gangfeng Tang, Li Zhang, Bin Yue,\* Shik Chi Edman Tsang, Heyong He\*



52% HMF selectivity with 100% glucose conversion achieves over  $Nb_7W_3$  oxide in 2-butanol/ $H_2O$  system which stabilizes the catalyst activity.

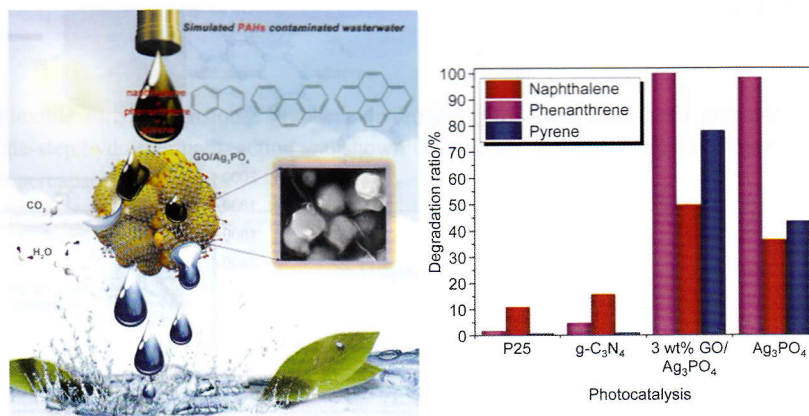
1540

**Asymmetric Synthesis of Chiral Tri-fluoromethyl Containing Heterocyclic Amino Acids**

- Chiral trifluoromethyl containing heterocyclic amino acids
- Convenient and mild reaction conditions
- A broad substrates scope

Liang Zhao, Shengbin Zhou, Junhua Tong, Jiang Wang,\* Hong Liu\*

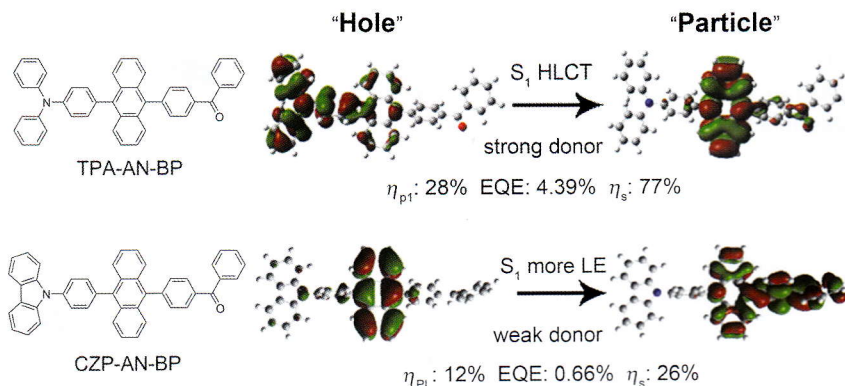
1549

**Highly Efficient Photocatalytic Remediation of Simulated Polycyclic Aromatic Hydrocarbons (PAHs) Contaminated Wastewater under Visible Light Irradiation by Graphene Oxide Enwrapped Ag<sub>3</sub>PO<sub>4</sub> Composite**

We demonstrated for the first time that GO/Ag<sub>3</sub>PO<sub>4</sub> composite exhibited excellent photocatalytic degradability and reusability for simulated PAHs contaminated wastewater under visible light irradiation.

Xiaolong Yang, Haoyuan Cai, Mutai Bao,\* Jianqiang Yu, Jinren Lu, Yiming Li

1559

**Tailoring Excited State Properties and Energy Levels Arrangement via Subtle Structural Design on D- $\pi$ -A Materials**

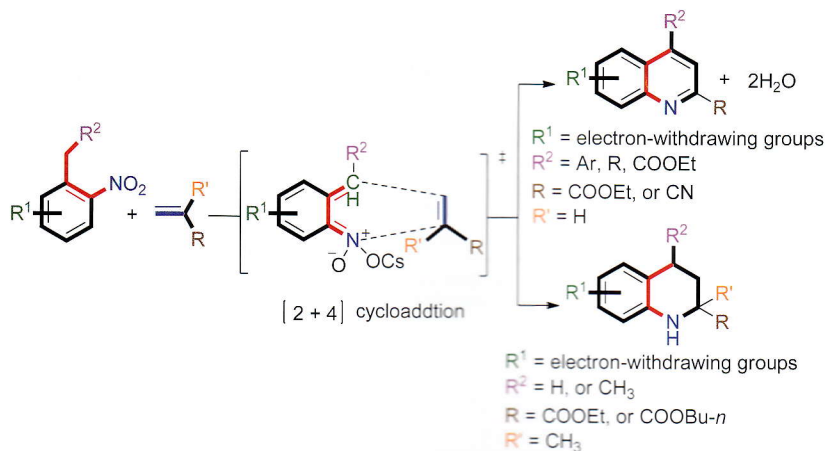
Xiaoming Liang, Zhiheng Wang, Liang-xuan Wang, Muddasir Hanif, Dehua Hu,\* Shijian Su, Zengqi Xie, Yu Gao, Bing Yang, Yuguang Ma\*

The D- $\pi$ -A structure with proper donor,  $\pi$ -bridge and acceptor can result in high photoluminescent efficiencies and high exciton utilization efficiency.



1569

## Synthesis of Quinoline and 1,2,3,4-Tetrahydroquinoline Derivatives from Substituted *o*-Nitrotoluenes via Cesium-promoted [2+4] Cycloaddition

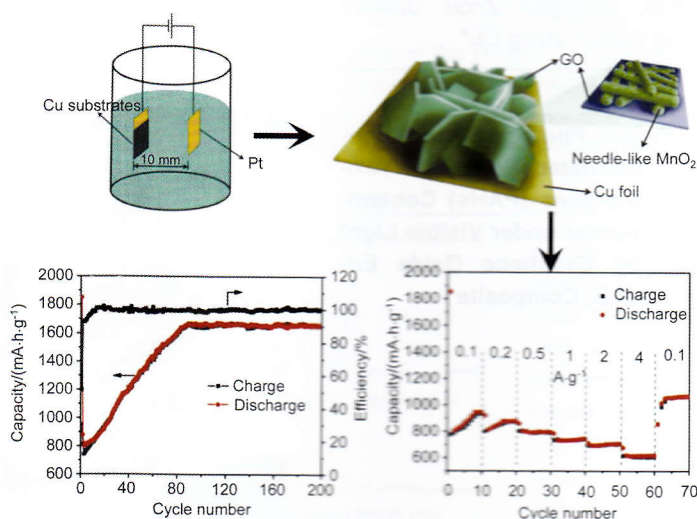


A one-pot procedure for the preparation of quinoline and 1,2,3,4-tetrahydroquinoline derivatives from *o*-nitrotoluenes bearing electron-withdrawing groups and olefins (acrylic esters, acrylonitriles, and methyl acrylates) via a base-catalyzed [2+4] cycloaddition was described.

Weijie Guo, Maocong Yi, Jianhui Wang,\*  
 Guiyan Liu\*

1575

## Electrophoretic Deposition of Binder-Free MnO<sub>2</sub>/Graphene Films for Lithium-Ion Batteries

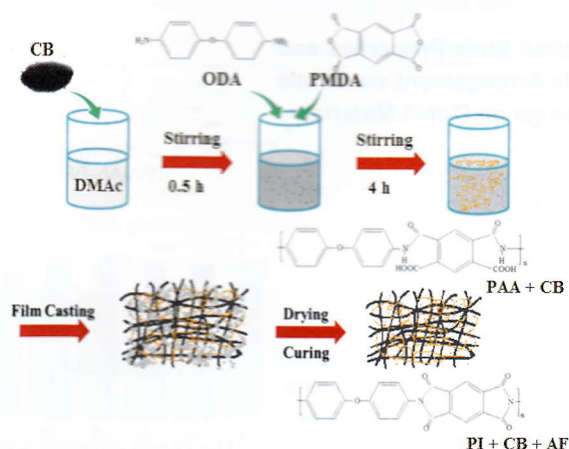


Binder-free, nano-sized needle-like, MnO<sub>2</sub>-submillimeter-sized rGO hybrid films with abundant porous structures fabricated through electrophoretic deposition present excellent electrochemical performance of LIBs.

Tao Xu, Qinghan Meng,\* Qiang Fan,  
 Meng Yang, Wanyuan Zhi, Bing Cao\*

1586

## Synthesis and Characterization of Aramid Fiber-Reinforced Polyimide/Carbon Black Composites and Their Use in a Supercapacitor

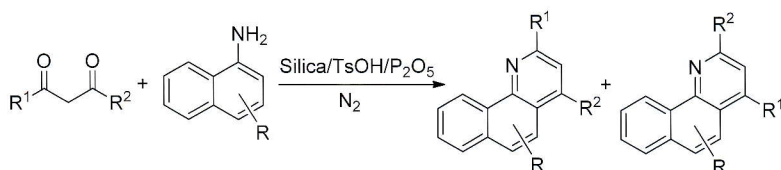


Juan Yu, Tong Zhang, Lin Xu, Pei Huang\*

1595

### A Facile Synthesis of Benzo[*h*]quinolines via Silica-TsOH-P<sub>2</sub>O<sub>5</sub> Promoted Condensation of 1-Naphthylamines with 1,3-Diketones under Solvent Free Conditions

Chuanlei Zhu, Ruiqiang Guo, Zhe Sheng, Yanzhe Li, Changhu Chu\*

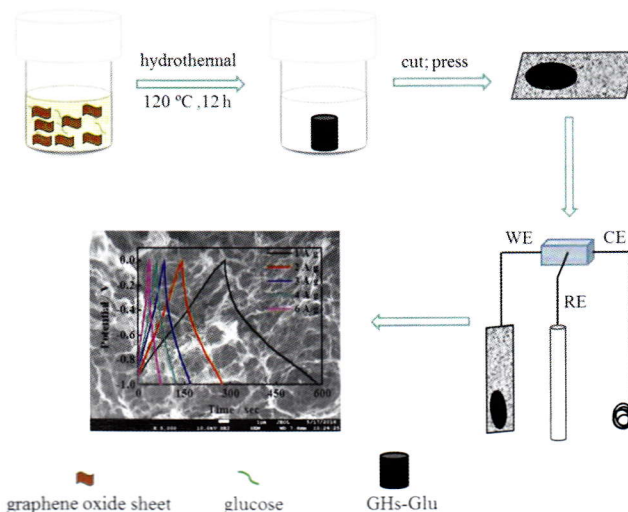


A facile and efficient method for the synthesis of benzo[*h*]quinolines has been developed by using a silica-TsOH-P<sub>2</sub>O<sub>5</sub> combination under solvent free conditions.

1601

### Flexible Three-Dimensional Graphene Hydrogels with Superior Conductivity and Excellent Electrochemical Performance for Supercapacitor Electrodes

Juan Zhang, Bo Zhou, Bo Zhao, Ling Si, Xiaoqing Jiang\*



Flexible three-dimensional graphene hydrogels (GHs-Glu) have been prepared via a one-step hydrothermal reaction and shown an excellent electrochemical performance for supercapacitor electrode.

1611

### Synthesis of 2-Amino-1,3,4-oxadiazoles through Elemental Sulfur Promoted Cyclization of Hydrazides with Isocyanides

Wenhu Bao, Chuang Chen, Niannian Yi, Jun Jiang, Zebing Zeng, Wei Deng,\* Zhihong Peng,\* Jiannan Xiang\*

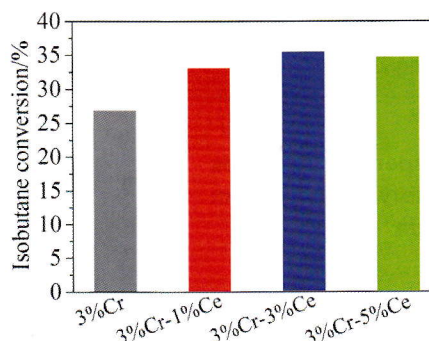


A novel sulfur-promoted cyclization of hydrazides and isocyanides to produce 1,3,4-oxadiazole has been developed. The method is operationally simple and compatible with a wide scope of substrates and various 2-amino-1,3,4-oxadiazoles are efficiently obtained in good yields.

1619

### Dehydrogenation of Isobutane to Isobutene with Carbon Dioxide over SBA-15-Supported Chromia-Ceria Catalysts

Chunling Wei, Fangqi Xue, Changxi Miao,\* Yinghong Yue, Weimin Yang, Weiming Hua,\* Zi Gao

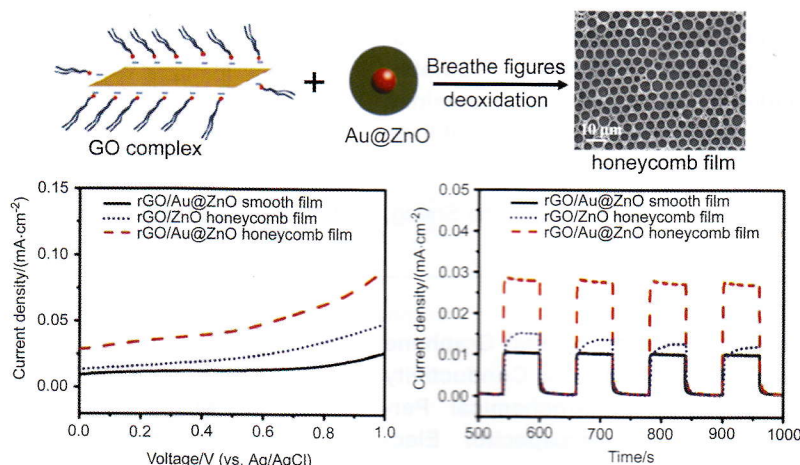


The incorporation of ceria to SBA-15-supported chromia obviously improves the catalytic activity for the dehydrogenation of isobutane with CO<sub>2</sub> due to the enhanced number of Cr<sup>6+</sup> species.



1627

## Enhanced Photocurrent Generation of Graphene/Au@ZnO Honeycomb Film



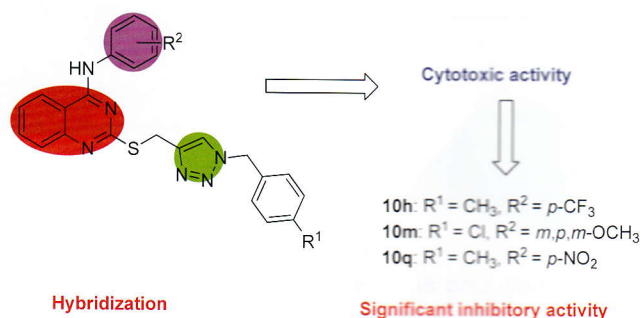
Hang Sun,\* Qinrong He, Shengyan Yin, Kongliang Xu

A bio-inspired graphene/Au@ZnO honeycomb film with enhanced photocurrent generation has been synthesized by breath figure method.

1633

## Synthesis, Cytotoxic Activity Evaluation of Novel 1,2,3-Triazole Linked Quinazoline Derivatives

Panpan Song, Fei Cui, Na Li, Jingchao Xin, Qisheng Ma, Xiangchuan Meng, Chaojie Wang, Qinpo Cao, Yifei Gu, Yu Ke,\* Qiurong Zhang,\* Hongmin Liu\*



Compounds **10h** and **10q** exhibited excellent growth inhibition against HGC-27 and compound **10m** also possessed excellent activity against MCF-7, with  $\text{IC}_{50}$  value

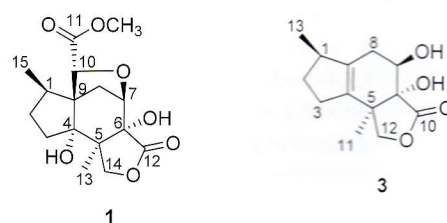
less than  $1 \mu\text{mol/L}$ . Especially, compound **10h** is more cytotoxic than 5-fluorouracil with  $\text{IC}_{50}$  values of 7.13, 2.17, 4.91 and  $0.57 \mu\text{mol/L}$  against MCF-7, MGC-803, EC-109 and HGC-27, respectively.

## NOTES

1640

## Sesquiterpenoids of *Illicium jiadifengpi* and Their Effects on NGF-induced Neurite Outgrowth in PC12 Cells

Jifeng Liu,\* Xiaoyu Su, Feixia Hu, Jing Guo, Xu Song, Yanbing Zhang\*

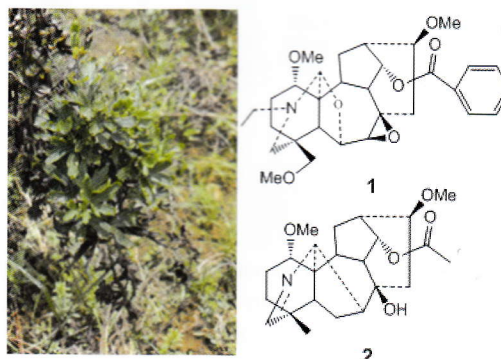


Two new compounds, jiadifenlactone acid monomethyl ester (**1**) and jiadifenin (**3**), and five known compounds were isolated from the fruits of *I. jiadifengpi*. Furthermore, the isolated compounds were evaluated for their effects on nerve growth factor (NGF)-mediated neurite outgrowth in pheochromocytoma (PC12) cells and two compounds showed promoting effects.

1644

## Two New C<sub>19</sub>-Diterpenoid Alkaloids with Anti-inflammatory Activity from *Aconitum iochanicum*

Ruihua Guo, Chengxin Guo, Dan He, Dake Zhao,\* Yong Shen\*



Two new C<sub>19</sub>-diterpenoid alkaloids, 7,8-epoxy-franchetine (**1**) and N(19)-en-austroconitine A (**2**), were isolated from *Aconitum iochanicum*. They showed weak effects with the inhibition rate of 27.3% and 29.2%, respectively, relative to positive control.