中国科学院科学出版基金资助出版

# CHINESE JOURNAL OF CHEMISTRY

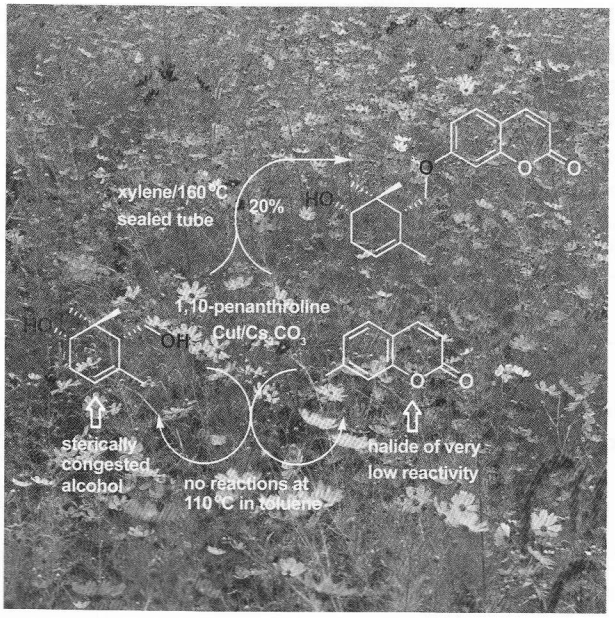
Vol. 33 No. 7 July 2015

Pages 693—800

Project for Enhancing International Impact of China STM Journals

## COVER PICTURE

**The cover picture shows** the first examples for the synthesis of coumarins via direct couplings of alcohols with C-7 coumarin halides. Such reactions proved to be much more difficult than similar couplings with simple substituted phenyl halides, especially when the alcohols are sterically congested as encountered in this work. En route to the first synthesis of the two long-known naturally occurring coumarins, several broadly employed coupling protocols were examined for the given substrates without success. In the end, the desired products were obtained by performing the reaction in xylene at 160 ℃ in the presence of CuI/$Cs_2CO_3$/1,11-penanthroline. More details are discussed in the article by Wu and Liu *et al.* on page 723—728.

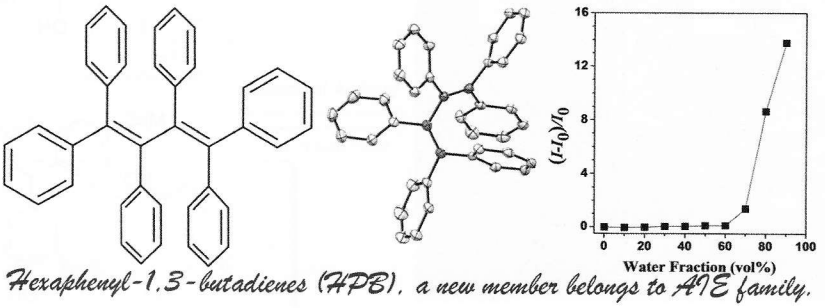



## COMMUNICATIONS

701

**Aggregation-Induced Emission of Hexaphenyl-1,3-butadiene**

Yahui Zhang, Lingwei Kong, Jianbing Shi,* Bin Tong, Junge Zhi, Xiao Feng, Yuping Dong*



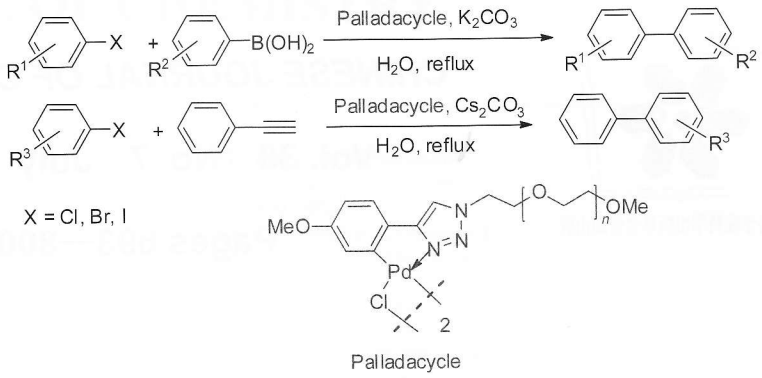

*Hexaphenyl-1,3-butadienes (HPB), a new member belongs to AIE family.*

A new type of AIE molecules based on hexaphenyl-1,3-butadienes was reported with respect to the synthesis and characterization. This material exhibited different maximum emission wavelength and enhanced emission intensity at different aggregate state (amorphous and crystalline state). The process of the restricted intramolecular rotation is the predominant mechanism for the AIE effects.

# CONTENT


705

**PEG Click-Triazole Palladacycle: An Efficient Precatalyst for Palladium-Catalyzed Suzuki-Miyaura and Copper-free Sonogashira Reactions in Neat Water**



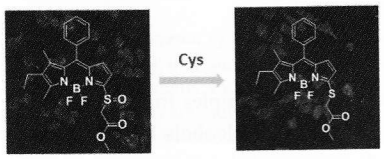

Palladacycle

Guofu Zhang, Wei Zhang, Yuxin Luan, Xingwang Han, Chengrong Ding*

A water-soluble PEG "click" triazole palladacycle has been successfully synthesized. The palladacycle exhibited superior catalytic activity towards Suzuki-Miyaura and copper-free Sonogashira cross-coupling in neat water.

711

**Synthesis and Evaluation of Sulfoxide-Functionalized BODIPYs as Chemosensors for Thiols**



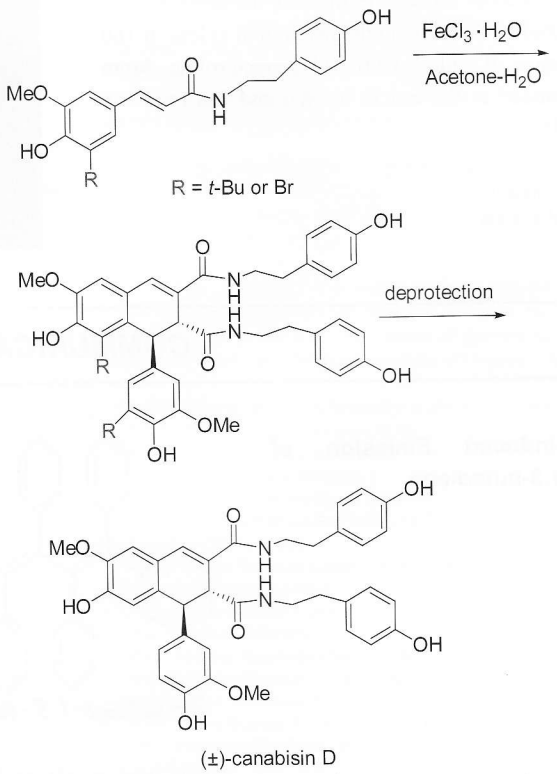

Chunchang Zhao,* Haifeng Jiang

Thiol-triggered sulfoxide→sulfide transfer induced a distinct ratiometric fluorescence change, thus enabling the accurate assay of Cys in living cells via ratiometric method.


## *FULL PAPERS*


717

**Regioselective Oxidation Approaches to Concise Synthesis of (±)-Canabisin D**

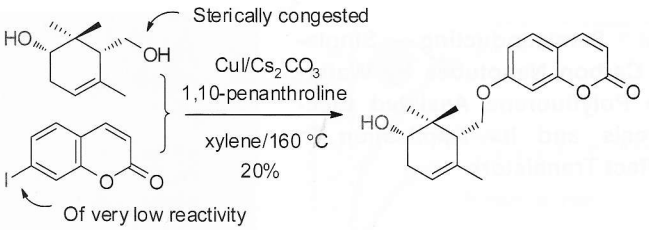



Wenling Li,* Qian Liu, Hao Liu, Peilan Chen, Xi Yang, Yingying Liu

$FeCl_3 \cdot 6H_2O$-catalyzed oxidative coupling reactions of feruloytyamide protected by *tert*-butyl or bromine group produced the desired 8-8-coupled aryldihydronaphthalene products, which underwent the debutylation or debromination to concisely synthesize (±)-canabisin D.

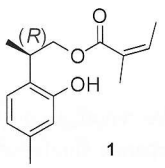
723
**Synthesis of Two Coumarins Isolated from *Aster praealtus***




Bo Wang, Huijun Chen, Yikang Wu,* Bo Liu*

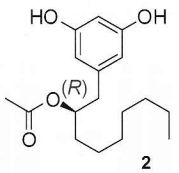
These two long-known naturally occurring coumarins were synthesized via a direct coupling reaction, a very difficult etherification that frustrated many seemingly feasible protocols. Clear-cut spectroscopic data for these compounds were thus made available for the first time.

729
**Synthesis and Absolute Configuration of Two Natural Phenolic Homobenzyl Esters**




1

$[\alpha]_D^{28}$ −17.2 (*c* 0.55, MeOH)



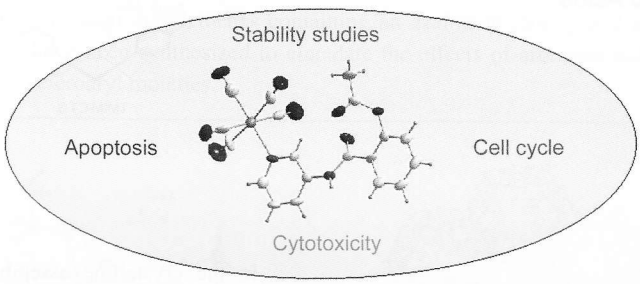

2

$[\alpha]_D^{26}$ −4.14 (*c* 0.80, $CHCl_3$)

Murong Xu, Shijun Zhu, Zejun Xu, Yikang Wu,* Po Gao*

Two recently isolated natural phenolic homobenzyl esters were synthesized in enantiopure forms. The absolute configurations for these natural products were thus reliably assigned. En route to the total synthesis of the first target, complete physical and spectroscopic data for two other related natural products were made available for the first time. Configuration assignment of a third natural product was also achieved.

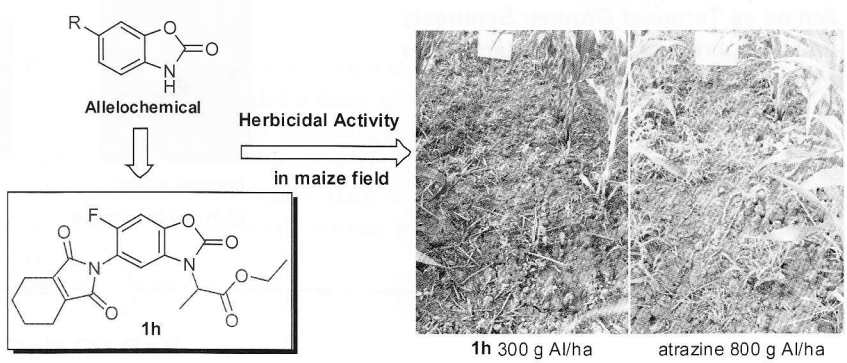
739
**Syntheses, Cytotoxicity and Properties of CO Releasing Molecules Containing Acetyl Salicylamide-3-pyridine**




Huapeng Liu, Yaguo Gong, Taofeng Zhang, Na Li, Quanyi Zhao,* Yonglin Chen, Bin Liu, Yawen Zheng

A series of CO-releasing molecules containing $M(CO)_5$ (M=Mo, W and Cr) were synthesized. Among them, CORMs containing acetyl salicylamide-3-pyridine were evaluated for stability, cytotoxicity, cell cycle and apoptosis.

749
**Design, Synthesis and Herbicidal Activities of Tetrahydroisoindoline-1,3-dione Derivatives Containing Alkoxycarbonyl Substituted 2-Benzoxazolinone**




Hao Zhang, Kechang Liu, Ruiquan Liu, Qibo Li, Yongqiang Li, Qingmin Wang,* Shangzhong Liu*

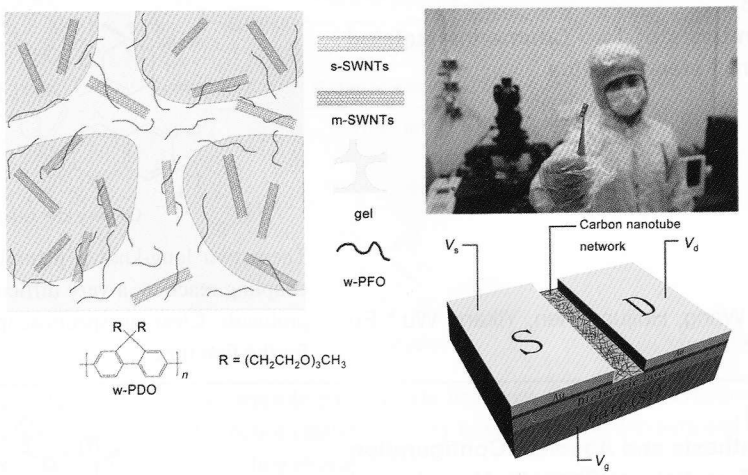
Two series of tetrahydroisoindoline-1,3-diones containing an alkoxycarbonyl substituted 2-benzoxazolinone moiety were designed and synthesized. Compound **1h** displayed excellent herbicidal effect against *Abutilon theophrasti* with $ED_{50}$ values of 1.8 g AI•$ha^{-1}$, and compound **1h** could potentially be used as a new post-emergence herbicide for maize fields.

# CONTENT


756

**Sorting Semiconducting Single-Walled Carbon Nanotubes by Water-Soluble Polyfluorene Assisted Electrophoresis and Its Application in Field-effect Transistors**

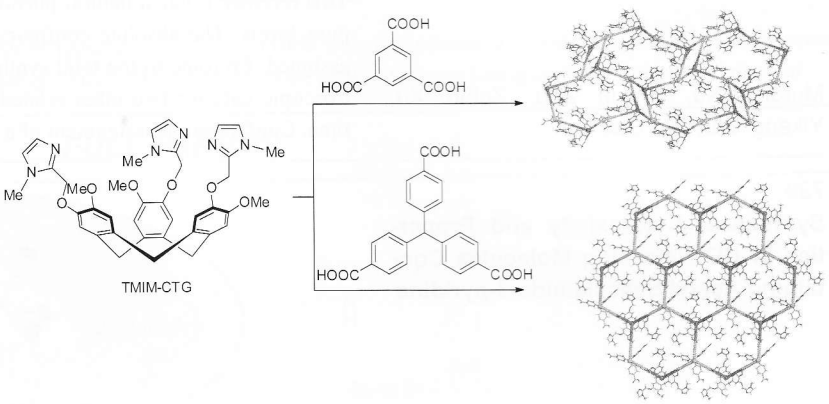



Haoyun Zhu, Weizhi Wang*

We report a considerably promising method based on agarose gel electrophoresis to separate single-walled carbon nanotubes by adding a water-soluble polyfluorene in the agarose gel which has an interaction with semiconducting nanotubes. This method not only raises the purity of separated SWNTs, but also improves the yield.

765

**Homomeric Inclusion and Hydrogen-Bonding Cooperatively Directed Crystalline Assembly of a Cyclotriguaiacylene Derivative with Different Aromatic Acids**

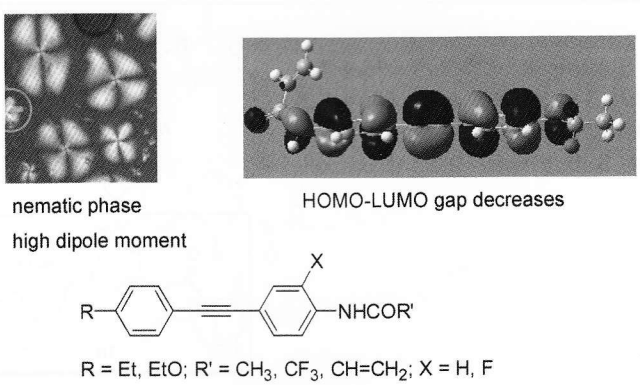



Jingru Song, Yanyan Shi, Zhitang Huang, Qiyu Zheng*

In the crystalline assembly of macrocyclic host TMIM-CTG with aromatic acids, homomeric inclusion is a general driving force and extends the primary hydrogen-bonded networks to the frameworks with higher levels.

771

**Amide as Terminal Groups: Synthesis and Properties as New Tolane-Type Liquid Crystals**

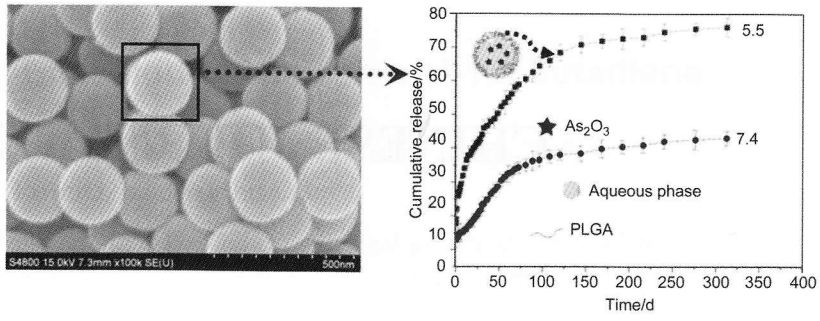



Hong Zhang, Fengying Hong, Dezhao Zhu, Zhengce Xia, Hongxiang Wu, Hui Wang, Zhuo Zeng*

A series of novel tolane-type liquid crystals with amide group as terminal group have been prepared. Three of these new compounds exhibit nematic phase and good thermal stabilities. The new molecules with electron donating amide as end group display slight difference on the HOMO-LUMO energy gap, and have higher dipole moment based on theroetical calculation.

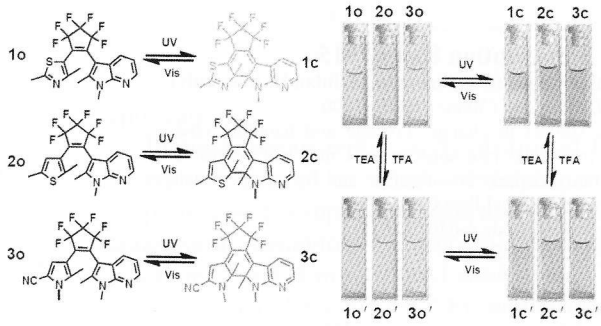
777
**Enhanced Anticancer Cells Effects of Optimized Suspension Stable $As_2O_3$-Loaded Poly(lactic-co-glycolic acid) Nanocapsules**




Xiaoli Song,* Juan You, Chunlan Xu, Aiping Zhu, Caifeng Yan, Rong Guo*

Nanocapsules based on poly(lactic-co-glycolic acid) (PLGA) can controlled release $As_2O_3$ according to pH and enhance anti-solid tumor effects of $As_2O_3$.

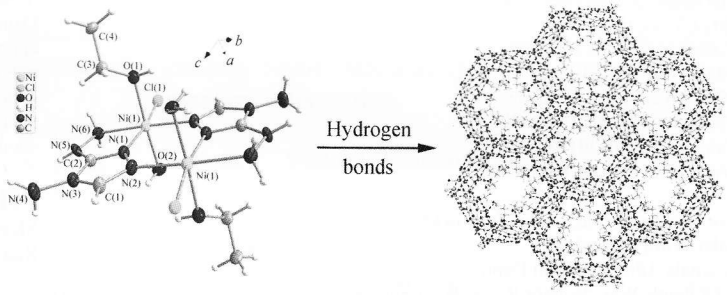
785
**Effects of Aromatic Stabilization Energies on Photochromism of New Asymmetrical Azaindole-Containing Diarylethenes**




Zhiyuan Sun, Congcong Zhang, Hui Li, Congbin Fan,* Gang Liu, Shouzhi Pu*

Three new asymmetrical diarylethenes containing an azaindole moiety and a variable heteroaryl ring have been synthesized to elucidate the effects of aromatic stabilization energies of the heteroaryl moieties.

792
**Chlorine-Induced Hydrogen-Bonding Network of A Novel Dimer Based on Nickel and Tridentate Ligand: 3-Hydrazine-4-amino-1,2,4-Triazole**




Yangang Bi, Wenyuan Zhao, Ying Li, Tonglai Zhang*

The reaction of $NiCl_2$ and 3-hydrazine-4-amino-1,2,4-triazole (Hatr) in the mixed solvent of EtOH and $H_2O$ yielded a dimer compound ($[Ni_2(Hatr)_2(H_2O)_2(EtOH)_2Cl_2]Cl_2$•EtOH) with water and EtOH molecules coordinated to nickle ions. It crystallized in trigonal space group $R$-3, $a=b=29.67(1)$ Å, $c=8.95(7)$ Å, $\beta=120(1)°$, as determined by single-crystal X-ray diffraction. Then, they were fully characterized by the IR spectroscopy, differential scanning calorimetry (DSC), thermogravimetry (TG), and elemental analysis.