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### offerential expression of the TwHMGS gene nd its effect on triptolide biosynthesis in ripterygium wilfordii

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### Contents

#### ·Review·

*Microcos paniculata*: a review on its botany, traditional uses, phytochemistry and pharmacology 561-574 JIANG Ying-Qun, LIU E-Hu<sup>\*</sup>

This review summarizes the traditional uses, botany, phytochemicals, pharmacological activities, quality control, toxicology and potential mechanisms of *Microcos paniculata* (MPL) leaves, fruits, barks and roots extracts reported over the past decades. Additionally, this review will highlight the existing research gaps in knowledge and provide a foundation for further investigations on this plant.



#### ·Research Articles·

# Differential expression of the TwHMGS gene and its effect on triptolide biosynthesis in Trip- 575-584 terygium wilfordii

TONG Yu-Ru, ZHANG Yi-Feng, ZHAO Yu-Jun, HU Tian-Yuan, WANG Jia-Dian, HUANG Lu-Qi<sup>\*</sup>, GAO Wei<sup>\*</sup>

Differential expression of *TwHMGS* determined the production of triptolide in *Tripterygium wilfordii* (*T. wilfordii*) and laterally caused different trends of relative gene expression in the terpene biosynthetic pathway. Finally, the substrate acetyl-CoA was docked into the active site of *TwHMGS*, suggesting the key residues including His247, Lys256 and Arg296 undergo electrostatic or H-bond interactions with acetyl-CoA.



### Species identification of poisonous medicinal plant using DNA barcoding



LIU Miao, LI Xi-Wen<sup>\*</sup>, LIAO Bao-Sheng, LUO Lu, REN Yue-Ying<sup>\*</sup>

We chose 4 commonly used regions as candidate DNA barcodes (*ITS2*, *psbA-trnH*, *matK* and *rbcL*) and compared their identification efficiency in 106 species from 27 families and 65 genera totally. Our findings show that *ITS2* can be applied as a universal barcode for identifying poisonous medicinal plants in Chinese pharmacopoeia and their poisonous related species or adulterants.



The data distribution of inter/intra specific distance

### A novel protease-activated receptor 1 inhibitor from the leech Whitmania pigra

591-599

### REN Shen-Hong, LIU Zhao-Jun, CAO Yuan, HUA Yi, CHEN Cong, GUO Wei, KONG Yi\*

Based on the analysis of the transcriptome and the proteome of leech, a novel protease-activated receptor 1 inhibitor pigrin was found, which exhibited strong antithrombotic effect in rat arterio-venous shunt thrombosis model. This study helped to elucidate the mechanism of the leech for the treatment of cardiovascular disorder.



*Dendrobium sonia* polysaccharide regulates immunity and restores the dysbiosis of the gut microbiota of the cyclophosphamide-induced immunosuppressed mice

LIU Wei, YAN Ran, ZHANG Liang\*

To recognize the potential medicinal value of the *Dendrobium* sonia, polysaccharide was extracted, purified, and investigated for its immunomodulatory activitys *in vitro* and *in vivo*. The results shows DSP increased serum levels of TNF- $\alpha$ , IL-6 and IFN- $\gamma$  (enzyme-linked immunosorbent assay, ELISA), and ameliorated the imbalance of the community of gut microbiota as detected by 16S ribosomal RNA gene sequencing.



# Investigation into perturbed nucleoside metabolism and cell cycle for elucidating the cytotoxicity 608-615 effect of resveratrol on human lung adenocarcinoma epithelial cells

LI Zheng, CHEN Qian-Qian, LAM Christopher Wai Kei, GUO Jian-Ru, ZHANG Wei-Jia, WANG Cai-Yun, WONG Vincent Kam Wai, YAO Mei-Cun<sup>\*</sup>, ZHANG Wei<sup>\*</sup>

In an effort to understand the molecular events contributing to the cytotoxicity activity of resveratrol (RSV), we investigated its effects on human lung adenocarcinoma epithelial cell line A549 at different concentrations. The results shows that the dual effect of RSV on cell cycle arrest at S phase and perturbation of cellular dNTPs may respond for its cytotoxicity in A549 cells. Our results provided important clues to the molecular basis for the anticancer effect of RSV on epithelial cells.



#### Effect of loureirin A against Candida albicans biofilms

# LIN Mei-Yu, YUAN Zhong-Lan, HU Dan-Dan, HU Gan-Hai, ZHANG Ri-Li, ZHONG Hua, YAN Lan, JIANG Yuan-Ying, SUJuan<sup>\*</sup>, WANG Yan<sup>\*</sup>

Our data indicated that loureirin A had a significant effect on inhibiting *Candida albicans* biofilms, decreasing cell surface hydrophobicity (CSH), and suppressing hyphal formation. Consistently, loureirin A down-regulated the expression of some adhesion-related genes and hypha/biofilm-related genes. Moreover, loureirin A prolonged the survival of *Galleria mellonella* and *Caenorhabditis elegans in C. albicans* infection models and exhibited low toxicity. Collectively, loureirin A inhibits fungal biofilms, and this effect may be associated with the suppression of pathogenic traits, adhesion and hyphal formation.



**Five new polyhydroxylated furostanol saponins from the rhizomes of** *Tupistra chinensis LI Yu-Ze, SONG Bei, ZHENG Xu-Dong, HUANG Wen-Li, ZHANG Hua-Wei, JIANG Yi, YUE Zheng-Gang, SONG Xiao-Mei*<sup>\*</sup>, *LIU Jian-Li*<sup>\*</sup>

Five new polyhydroxylated furostanol saponins tupistrosides J–N (1–5), together with four known furostanol saponins (6–9), were isolated from the roots and rhizomes of *Tupistra chinensis*. Among them, compounds 3 and 5 showed cytotoxicity against human cancer cell lines SW620, and compound 4 showed cytotoxicity against human cancer cell line HepG2.



Profiling and identification of aqueous extract of *Cordyceps sinensis* by ultra-high performance 631-640 liquid chromatography tandem quadrupole-orbitrap mass spectrometry

YAO Chang-Liang, QIAN Zheng-Ming, TIAN Wen-Shuai, XU Xiao-Qian, YAN Yu, SHEN Yao, LU Song-Mao, LI Wen-Jia<sup>\*</sup>, GUO De-An<sup>\*</sup>

This study presents a systematic characterization method based on a rapid chromatographic separation on a polar-modified  $C_{18}$  column of aqueous extract of *Cordyceps sinensis*. UHPLC-HRMS method was used to profile components, and a total of 91 components were characterized. The chemical basis inquiry of this work would be beneficial to mechanism exploration and quality control of *C. sinensis* and related products. Meanwhile, this work also provided an effective solution for characterization of aqueous extract in TCM.



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# **Chinese Journal of Natural Medicines**

### **Aims and Scopes**

The Chinese Journal of Natural Medicines (CJNM) is devoted to communications among pharmaceutical and medicinal plant scientists who are interested in the advancement of the botanical, chemical, and biological sciences in support of the use of natural medicines in health care, in particular, traditional Chinese medicines (TCM). CJNM aims to cover a broad spectrum of original research papers and review articles on natural medicines or their products from all over the world, including those from TCM.

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