

## 专家信息

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单 位: 茶与食品科技学院

专业名称: 茶学/食品科学/食品营养

研究方向: 天然产物化学, 茶与健康, 化学生物学

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## 社会荣誉与任职

博士生导师, 茶学国家重点实验室天然产物化学**PI**。中国化学会, 美国化学会, 美国生药学会会员, Food Chem, JAFC等10多种杂志评审。

## 学习与工作经历

1996年安徽农业大学经济林专业本科毕业,

1999年中国药科大学药物化学硕士研究生毕业,

2002年中国科学院上海药物所天然产物化学博士毕业。

2002.7-2004.7 上海药物研究所天然药物化学研究室, 助理研究员, 期间到诺华公司瑞士总部三个月博士后。

2011年3月开始安徽农业大学工作。

## 基金项目及主要成果

主持了国家自然科学基金、安徽省杰出青年基金等3项科研课题。

近年来在Nature Chemical Biology, Nature Communication, Organic Letters, Food Chemistry, Journal of Agricultural and Food Chemistry, Journal of Natural Products, BMC Plant Biology等相关领域国际著名期刊发表SCI论文45篇, 总影响因子>160。获得国际专利3项, 国内专利5项。在审专利7项。

- 鲍官虎; 郑文君. 苯丙素类酯型儿茶素及其制备方法和应用。申请日2018/9/18, CN201811082211.9
- 鲍官虎; 姚京京; 胡启明. 一种表没食子儿茶素没食子酸酯纳米缓释制剂及其制备方法, 申请日2018/6/21, CN201810643329.8
- 鲍官虎; 姚京京; 胡启明. 一种表没食子儿茶素没食子酸酯纳米线制剂及其制备方法和应用, 申请日2018/6/21, CN201810640343.2
- 鲍官虎; 程剑. 脂型儿茶素吡咯烷生物碱及其制备方法和应用, 申请日2018/6/08, CN201810589928.6
- 鲍官虎; 王威. 三种新型咪唑二聚体生物碱及其制备方法和应用, 申请日2018/4/17, C

## N201810343896.1

- 鲍官虎; 李道; 刘学诗. 黄烷醇生物碱及其制备方法和应用, 申请日2018/3/12, CN201810201244.4
- 鲍官虎; 柏无瑕; 王威. 一种酰基化黄酮四糖苷及其提取方法和应用, 申请日2017/2/22, CN201710098381.5
- 鲍官虎; 王威; 付熙雯; 利恩乐; 谢忠稳. 一种名为表儿茶素反式咖啡酸酯的儿茶素类衍生物及其制备方法和应用2016/4/20, 安徽, CN201610051758.7.(授权)
- 鲍官虎; 王威; 华芳; 一种儿茶素衍生物及其在制备抑制乙酰胆碱酯酶活性药物中的用途2016/7/29, 安徽, CN 2016106160573 (授权)
- Ling T.J.; Wan, X.C.; Bao, G.H.; Zhang, L.; Luo,Z.M. et al.一种名为茯砖素B的儿茶素类衍生物及其制备方法和应用; 申请号: 201310060914.2; 申请日: 2013年2月27日; 公开号: CN103113384A (授权)
- 侯如燕,宗建法,王睿龙,张梁,凌铁军,鲍官虎. 一种名为油茶皂苷C1和油茶皂苷C2的五环三萜类化合物及其制备方法. 申请(专利)号: CN201410676245.6; 申请日期: 2014年11月21日. 公开(公告)日: 2015年1月28日, 公开(公告)号: CN104311623A (授权)
- 胡丰林, 鲍官虎, 陆瑞利, 刘肖肖: 具有抑制酪氨酸酶活性和清除自由基活性的拟青霉提取物及其用途. 安徽农业大学 March 26, 2014: CN201310582413.0 (授权)
- Barasch, Jonathan; Deng, Shixian; Bao, Guanhu; Landry, Donald W. Lipocalin NGAL-binding mammalian siderophores and use thereof to treat iron deficiency and iron overload and lipocalin detection. WIPO Int. Appl. (2010), 128p p. WO2010033847A1 (Published 2010-3-25) (授权)
- Liang, Jingyu; Wu, Feihua; Bao, Guanhu; Cheng, Qilei. A natural compound useful for treating diabetes, its preparation and use. PCT Int. Appl.(2004), 26 pp. CODEN: PIXXD2 WO2004039759 (publication date: 2004-5-13); Canadian Patent Number CA 2502703 (A1) (publication date: 2004-5-13); Australian Patent Number AU2002344514(A1) (publication date: 2004-5-25); Japanese Patent Number JP2006503102(T) (publication date: 2006-1-26); US Patent Publication number: US2006135624(A1) (publication date: 2006-6-22); European Patent number EP1559703(A1) (publication date: 2005-8-3); Patent number EP1559703(A4) (publication date: 2006-5-24); Patent number EP1559703(B1) (publication date: 2008-12-17); Germany Patent Number DE60230455(D1) (publication date: 2009-1-29). (授权)
- Liang, Jingyu; Wu, Feihua; Bao, Guanhu; Cheng, Qilei. Plant extract for preventing and treating diabetes, its formulation and pharmaceutical use. Faming Zhuanli Shenqing Gongkai Shuomingshu CN Appl. (2004), 12 pp. Publication No. CN 100369610C (Approval Date 2008-02-20) (授权)

## 科研领域 最新进展

1、我们天然产物研究组围绕影响茶叶质量的三大主要成分儿茶素, 咖啡碱及茶氨酸进行茶叶化学成分研究。首先发现了一系列新的儿茶素衍生物。发现的儿茶素与茶氨酸相互作用而生成的新黄烷生物碱成分为研究茶叶与其它食用植物如猕猴桃在进化上的相似性和特殊性及从化学成分上探索其进化的特点提供了新思路(JAFC, 2018; 2018)。

2、此外, 在茶叶加工产品及其鲜叶发现了一系列多甲基化的咪唑生物碱及经亚甲基偶联的咪唑二聚体, 以及多甲基化尿囊素类化合物为研究植物中咖啡碱降解代谢提供了新思路。以往研究咖

啡碱代谢以为是先去甲基化而后走黄嘌呤降解的路线。我们的发现表明咖啡碱降解时保留着甲基直到其完全降解后(OL, 2018, )。

## 研究方法:

### 茶树次生代谢产物与天然产物化学

- 1、 研究茶树中新颖次生代谢产物及其形成的机制
- 2、 研究茶叶加工过程中次生代谢产物的变化规律及形成机制
  - ①. 基于**LCMS**代谢组学研究主要成分发生哪些变化
  - ②. 运用**HPLC**和**UPLC**定量变化了多少
  - ③. 运用天然产物研究方法研究变化成哪些新的化合物
  - ④. 运用有机化学反应机理知识阐明主要成分变化和新成分形成的机制
  - ⑤. 茶叶品质发生变化的物质基础
- 3、 茶叶化合物的神经细胞保护作用及茶叶促智药物的研发

## 主讲课程

博士班Scientific Writing (in English)

天然药物研究进展 (全校公选课)

欢迎有志于茶叶与食品化学研究, 茶与健康研究, 天然产物利用和天然药物研究, 以及与天然产物小分子有关的化学生物学研究的青年报考本实验室硕士和博士。

Professor of Tea natural product laboratory of International Joint Lab of Tea Chemistry and Health effects, State Key Laboratory of Tea Plant Biology and Utilization.

Dr. Bao got Ph.D degree from Shanghai Institute of Materia Medica, China Academy of Sciences, majoring in Natural Products Chemistry. Research interest: Tea Chemistry, Natural Products Chemistry, Traditional Chinese Medicinal Chemistry, research and development of anti-aging therapeutics from natural resources such as: plants, fungi, and bacteria with the guidance of modern drug discovery achievements

Teaching courses: Scientific Writing from 2015 (Ph.D); Natural Products chemistry, starting from March, 2011

Welcome those interested in Tea and Food Chemistry, tea and health, research and development of natural products and natural medicine, as well as Chemical Biology related to natural small molecules to join our lab, for master and doctoral research

代表性文章:

9 Jian Cheng, Fei-Hua Wu, Pu Wang, Jia-Ping ke, Xiao-Chun Wan, Ming-Hua Qiu, Guan-Hu Bao. Flavoalkaloids with pyrrolidinone ring from Chinese ancient cultivated tea Xi-Gui. Journal of Agricultural and Food Chemistry, 2018, 66(30), 7948-7957.

8 Fang Hua, Peng Zhou, Hao-Yue Wu, Gang-Xiu Chu, Zhong-Wen Xie and Guan-Hu Bao, Inhibition of flavonoid glycosides from Lu'an GuaPian tea on  $\alpha$ -glucosidase and  $\alpha$ -amylase: molecular docking and interaction mechanism. *Food & Function*, 2018, 9, 4173-4183

7 Wei Wang, Xing Tang, Fang Hua, Tie-Jun Ling Xiao-Chun Wan, Guan-Hu Bao. Camellimidazole A-C, Three Methylene-bridged Dimeric Imidazole Alkaloids from Keemun Black Tea. *Organic Letters*. 2018, 20(9), 2672-2675.

6 Xiao Li, Guang-Jin Liu, Wei Zhang, Yv-Long Zhou, Tie-Jun Ling, Xiao-Chun Wan, Guan-Hu Bao. Novel Flavalkaloids from White Tea with Inhibitory Activity against Formation of Advanced Glycation End Products. *Journal of Agricultural and Food Chemistry*, 2018, 66, 4621-4629.

5 Wei Zhang, Xiao Li, Fang Hua, Wei Chen, Wei Wang, Gang-Xiu Chu\*, Guan-Hu Bao\*. Interaction between Ester-type Tea Catechins and Neutrophil Gelatinase-Associated Lipocalin: Inhibitory Mechanism. *Journal of Agricultural and Food Chemistry*, 2018, 66(5), 1147-1156

4 Wei Wang, Xi-Wen Fu, Xin-Long Dai, Fang Hua, Gang-Xiu Chu, Ming-Jie Chu, Feng-Lin Hu, Tie-Jun Ling, Li-Ping Gao, Zhong-wen Xie, Xiao-Chun Wan, Guan-hu Bao\*. Novel acetylcholinesterase inhibitors from Zijuan tea and biosynthetic pathway of caffeoylated catechin in tea plant. *Food Chemistry*, 2017, 237(23), 1172-1178.

3 Wu-Xia Bai, Chao Wang, Yi-Jun Wang, Wen-Jun Zheng, Wei Wang, Xiao-Chun Wan, Guan-Hu Bao\*, Novel Acylated Flavonol Tetraglycoside with Inhibitory Effect on Lipid Accumulation in 3T3-L1 Cells from Lu'an GuaPian Tea and Quantification of Flavonoid Glycosides in Six Major Processing Types of Tea. *Journal of agricultural and food chemistry*, 2017, 65 (14), 2999-3005.

2 Yun-Fei Zhu, Jing-Jing Chen, Xiao-Ming Ji, Xin Hu, Tie-Jun Ling, Zheng-Zhu Zhang, Guan-Hu Bao\*, Xiao-Chun Wan. Changes of major tea polyphenols and production of four new B-ring fission metabolites of catechins from post-fermented Jing-Wei Fu brick tea. *Food Chemistry*, 2015, 170, 110-117

1 Yi Yue, Gang-Xiu Chu, Xue-Shi Liu, Xin Tang, Wei Wang, Guang-Jing Liu, Tao Yang, Tie-Jun Ling, Xiao-Gang Wang, Zheng-Zhu Zhang, Tao Xia, Xiao-Chun Wan\*, Guan-Hu Bao\*. TMDB: A literature-curated database for small molecular compounds found from tea. *BMC Plant Biology*, 2014,14, 243

More publication can be found at <https://xueshu.glgoo.net/scholar?hl=zh-CN&q=guanhuhubao&btnG=&lr=>