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教师风采

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阮征

最后编辑日期: 2019-11-20 21:51



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导师类型：博导

学科方向：食品营养，功能食品，农产品加工

所属院系：食品学院

研究方向

- 1, 功能食品：研制改善胃肠功能健康与抑制腹部肥胖的功能食品；
- 2, 分子营养：食物功能成分（氨基酸与酚酸）调控代谢及肠黏膜屏障的作用机制；
- 3, 农产品与农业资源高效利用：农副产品高值化利用。

个人经历

教授，博士生导师，食品营养与安全系副主任。赣江特聘教授，食品国家重点实验室固定成员，江西省杰青获得者。世界中医药学会联合会中医与农业产分副会长，中国农学会微量元素与食物链分会理事，中国农学会农产品加工分会理事。

讲授课程

食品化学，功能食品学

学术成就

 近五年来研究方向为食品分子营养和功能配料，集中在植物多酚活性成分调控营养代谢和增强肠道屏障，探索构建靶向肠道健康的精准营养技术与平台。

 研究成果包括:第一，在国内外率先系统揭示了植物多酚改善肠道损伤（膳食性、生理病理性和化学性三类模型）和增强肠道屏障的作用机制，揭示了植物多酚调控肠道上皮细胞差异枢纽蛋白、信号通路和紧密连接蛋白随时空序列的表达/组装/迁移/分布的动态变化规律，阐明了肠腔与黏液层两个空间中黏蛋白与黏蛋白降解菌的响应差异机制；第二，探明了植物多酚保护机体肝脏功能与细胞线粒体代谢的作用机制；第三，创新建立了功能性植物提取物配伍和畜禽健康养殖（肉质提升与抗生素替代）技术体系并产业化推广。相关研究成果从有别于经典营养学角度（即肠道屏障和菌群）进一步补充与认识植物多酚的营养代谢，对植物综合加工利用与多酚营养代谢评价的科技创新起到极大的推动作用。

 以第一或通讯作者在本领域优质期刊发表论文42篇并被广泛引用，中英文引用970多次；编写专著与教材2部，参编2部。研究成果转化或产业化多项，广泛应用于农业与食品业，产生直接和间接经济效益5亿多元，具有显著的经济和社会效益。

承担课题

1，基于组学技术研究膳食绿原酸增强肠黏膜屏障的分子机制（项目批准号：31872897），2019-2022，国家自然科学基金面上项目；

- 2, 新型POPs识别及在畜禽体内迁移转化及控制机理 (2017YFC1600302) , 2018-2021 , 国家重点研发计划重点专项;
- 3, 猪微量元素、维生素和电解质失衡防控技术研究 (2016YFD0501201) , 2016-2020, 国家重点研发计划重点专项;
- 4, 基于组学技术研究膳食绿原酸增强肠黏膜屏障紧密连接的作用机制, 2018-2020, 江西省自然科学基金杰出青年项目;
- 5, 葛薯主副食品加工与营养品制备关键技术 (20071BBF60048) , 2017-2018, 江西省重点研发计划项目 ;

论文专著

32 Yanwen Xue#, Fang Huang#, Rongxue Tang, Qingsheng Fan, Bing Zhang, Zhenjiang Xu, Xiaoming Sun*, Zheng Ruan*. Chlorogenic acid attenuates cadmium-induced intestinal injury in Sprague–Dawley rats. *Food and Chemical Toxicology*. 2019.133, 110751, 10.1016/j.fct.2019.110751.

31 Zhenlong Chen#, Yuhui Yang#, Shumei Mi, Qingsheng Fan, Xiaoming Sun, Baichuan Deng, Guoyao Wu, Yafei Li,*, Quancheng Zhou*, Zheng Ruan*. Hepatoprotective effect of chlorogenic acid against chronic liver injury in inflammatory rats. *Journal of Functional Foods*, 2019. 62: 103540.
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30 Mengdie Chen, Yuyu Liu, Shanbai Xiong, Moucheng Wu, Bin Li, Zheng Ruan*, Xiaobo Hu*. Dietary L-tryptophan alleviated LPS-induced intestinal barrier injury by regulating tight junctions in a Caco-2 cell monolayer model, *Food & Function*, DOI: 10.1039/c9fo00123a 2019-3-19

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Dietary chlorogenic acid regulates gut microbiota, serum-free amino acids and colonic serotonin levels in growing pigs. *International Journal of Food Sciences and Nutrition*, 2018, 69(5):566-573, doi: 10.1080/09637486.2017.1394449.

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- 28 Wenhui Liu, Shumei Mi, Zheng Ruan *, Jing Li, Xugang Shu, Kang Yao, Min Jiang, Zeyuan Deng. Dietary Tryptophan Enhanced the Expression of Tight Junction Protein ZO-1 in Intestine. *Journal of Food Science*, 2017, 82(2):562-567
- 27 Zhou, Quancheng; Feng, Chuanxing; Ruan, Zheng*. Inhibitory effect of a genistein derivative on pigmentation of guinea pig skin. *RSC Advances*, 2017, 3(13):7914-7919
- 26 Zheng Ruan, Shumei Mi, Lili Zhou, Yan Zhou, Jing Li, Wenhui Liu, Zeyuan Deng *, Yulong Yin *. Chlorogenic acid enhances intestinal barrier by decreasing MLCK expression and promoting dynamic distribution of tight junction proteins in colitic rats. *Journal of Functional Foods*, 2016, 26:698-708.
- 25 Y. Zhou, Z. Ruan *, X. L. Li, S. M. Mi, M. Jiang, W. H. Liu, X. Wu, G. L. Jiang, Y. L. Yin*. *Eucommia ulmoides* Oliver leaf polyphenol supplementation improves meat quality and regulates myofiber type in finishing pigs. *Journal of Animal Science*, 2016, 94(S3): 164-168
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- 23, X.L. Li, M. Jiang, Z. Ruan*, S.M. Mi, X. Wu, K. Yao, X. Xiong, Y. Zhou, Y. L. Yin. Tryptophan increases intestinal permeability and decreases intestinal tight junction protein expression in weanling piglets. *Journal of Animal Science*, 2016, 94(S3): 87-90.
- 22, Yan Zhou, Lili Zhou, Zheng Ruan*, Shumei Mi, Min Jiang, Xiaolan Li, Xin Wu, Zeyuan Deng, Yulong Yin. Chlorogenic acid ameliorates intestinal mitochondrial injury by increasing antioxidant effects and activity of respiratory complexes. *Bioscience, Biotechnology, and Biochemistry*, 2016, 80(5):962-971.
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- 20, Yan Zhou, Zheng Ruan*, Lili Zhou, Yuhui Yang, Shumei Mi, Zeyuan Deng, Yulong Yin. Chlorogenic acid decreased intestinal permeability and ameliorated intestinal injury in rats via amelioration of mitochondrial respiratory chain dysfunction. *Food Science and Biotechnology*, 2016, 25(1):253-260.

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17 Zheng Ruan, Yuhui Yang, Yanmei Wen, Yan Zhou, Xiaofang Fu, Sheng Ding, Gang Liu, Kang Yao, Xin Wu, Zeyuan Deng, Guoyao Wu, Yulong Yin*. *Metabolomic analysis of amino acid and fat metabolism in rats with L-tryptophan supplementation. Amino Acids*. 2014, 46: 2681-2691.

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