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研究方向：肉品加工与质量安全控制

个人简介:

钟山学者首席教授，博导，入选国家级人才工程，科技部创新人才，南京市科技顶尖专家，国家禽肉加工技术研发专业中心主任、国家肉鸡产业技术体系溧水综合试验站站长、江苏省畜禽产品加工工程技术研究中心主任、南京肉制品加工产业创新中心主任，中国农业工程学会农产品加工及贮藏工程专业委员会常务理事，全国畜牧业标准化技术委员会禽业标准化工作组委员。从事食品特别是肉品加工与质量安全控制等方面的学习、教学、研究和实践工作 30 余年，先后主持国家自然科学基金面上项目 4 项，国家“863”重点项目子专题 2 项，农业部“948”，公益性行业（农业）科研专项等国家和省部级课题近 20 项。在国内外学术刊物上发表论文 200 余篇。作为主要完成人，获国家和河南省科技进步二等奖各 1 项，授权专利 21 件。培养硕博士研究生 50 余人。先后获得全国农村创业创新优秀带头人、教育部全国万名优秀创新创业导师、江苏省大学生涉农创业导师、南京市“大

众创业、万众创新”立功竞赛先进个人、江苏省“送科技下乡促农民增收”优秀科技特派员、南京市“五一”劳动奖章和南京市劳动模范等荣誉称号。

科研情况:

鸡肉加工中有害物减控与保鲜技术合作研发，202002040，南京市科技计划项目（国际联合研发项目），2020/10-2022/09，主持，在研；

烧鸡加工关键技术研发与产品开发，BE2019308，江苏省科技厅（现代农业-重点及面上项目），2017/09-2022/06，主持，结题；

鸭肉成熟过程中功能性肽的形成机制研究，31671872，国家自然科学基金面上项目，2017/01-2020/12，主持，结题；

中华传统烤制类畜禽食品工业化加工关键研究与装备开发，2016YFD040040303，科技部“十三五”国家重点研发计划，2016/07-2020/12，主持，结题；

盐水鸭加工关键技术集成与示范，TG(16)035，中央财政农业技术推广项目，2016/08-2018/07，主持，结题；

钙激活酶在鸡肉成熟中的作用机制，31375866，国家自然科学基金面上项目，2014/01-2017/12，主持，结题；

优质安全禽肉制品技工关键技术集成与示范，CX(14)2133，江苏省农业科技自主创新资金项目，2014/07-2016/06，主持，结题；

畜禽宰后减损、分级技术装备研究与示范，201303083-2，农业部公益性行业（农业）科研专项，2013/01-2017/12，主持，结题；

全自动油水分离式油炸机关键技术的引进与创新，2013-Z23，农业部“引进国际先进农业科学技术”项目，2013/01-2013/12，主持，

结题；

长三角现代农业区优质畜禽养殖及加工技术集成与示范，2013BAD20B05，科技部“十二五”国家科技支撑计划，2013/1-2015/12，主持，结题；

宰后肌肉蛋白质氧化对肉成熟的影响机制研究，31172633，国家自然科学基金面上项目，2012/01-2015/12，主持，结题；

调理肉制品冷冻、解冻和成型切割新技术研究与开发，2012BAD28B00，科技部“十二五”农村领域国家科技计划，2012/1-2015/12，主持，结题；

发酵肉制品现代化加工关键技术研究与开发2011AA100805-0-2，科技部“十二五”农村领域国家科技计划，2011/1-2015/12，主持，结题；

细胞凋亡效应酶在肉成熟中的作用机制研究，30971180，国家自然科学基金面上项目，2010/01-2012/12，主持，结题；

食品链中转基因生物的溯源与污染评估模型的研究，2009ZX08012-014B，农业部“转基因生物新品种培育重大专项”，2009/06-2010/12，主持，结题；

细胞凋亡效应酶 Caspase 在肉成熟中的作用机制研究 BK2009314，江苏省自然科学基金面上项目，2009/7-2012/6，主持，结题。

科研成果:

一、近五年发表科研论文:

2021 年度：

1. Iftikhar Ali Khan， Ji Luo, Haibo Shi, Ye Zou, Asad Khan, Zongshuai Zhu, Weimin Xu, Daoying Wang*, Ming Huang. Mitigation of heterocyclic amines by phenolic compounds in allspice and perilla frutescens seed extract: The correlation between antioxidant capacities and mitigating activities, Food

Chemistry, 2022, 368, 130845.
2. Iftikhar Ali Khan, Asad Khan, Ye Zou, Zongshuai Zhu, Weimin Xu, Daoying Wang*, Ming Huang*. Heterocyclic amines in cooked meat products, shortcomings during evaluation, factors influencing formation, risk assessment and mitigation strategies, 2022, https://doi.org/10.1016/j.meatsci.2021.108693 (Accepted, In press)
3. Mei Yue, Mingyuan Huang, Zongshuai Zhu, Tianran Huang, Ming Huang*. Effect of ultrasound assisted emulsification in the production of Pickering emulsion formulated with chitosan self-assembled particles: Stability, macro, and micro rheological properties, 2022, https://doi.org/10.1016/j.lwt.2021.112595 (Accepted, In press)
4. Yan Li, Fangfang Li, Gongming Liu, Jingxin Sun*, Liping Guo,Yinglian Zhu, Bin Pang, Ming Huang, Jianming Yang. The characteristics of gelation of myofibrillar proteins combined with salt soluble Rhodotorula glutinis proteins by enzymatic crosslinking. Food Chemistry. 2021, 343:128505.
5. Zongshuai Zhu*, Anthony Pius Bassey, Iftikhar Ali Khan, Ming Huang*, Xibin Zhang. Inhibitory Mechanism of Catechins against Advanced Glycation End Products of Glycated Myofibrillar Protein through Anti-Aggregation and Anti-Oxidation. LWT-Food Science and Technology. 2021,147: 111550.
6. Liping Guo, Xuecong Zhang, Lin Xu, Yan Li, Bin Pang, Jingxin Sun*, Baowei Wang, Ming Huang, Xinglian Xu, Harvey Ho. Efficacy and Mechanism of Ultrasound Combined with Slightly Acidic Electrolyzed Water for Inactivating Escherichia coli. Journal of Food Quality. 2021, 6689751.
7. Zongshuai Zhu, Jing Yang, Xinghu Zhou, Iftikhar Ali Khan, Anthony Pius Bassey, Ming Huang*. Comparison of Two Kinds of Peroxyl Radical Pretreatment at Chicken Myofibrillar Proteins Glycation on the Formation of Nε-Carboxymethyllysine and Nε-Carboxyethyllysine. Food Chemistry, 2021, 353: 129487.
8. Liping Guo, Yan Li, Shengchao Ding, Baowei Wang, Yinglian Zhu, Bin Pang, Ming Huang, Harvey Ho, Jiying Yu, Jingxin Sun*. Effect of Fermentation with Two Molds on Characteristics of Chicken Meat. Journal of Food Quality. 2021, 1-9.
9. Zongshuai Zhu, Rui Fang, Jing Yang, Iftikhar Ali Khan, Jichao Huang, Ming Huang*. Air Frying Combined with Grape Seed Extract Inhibits Nε-Carboxymethyllysine and Nε-Carboxyethyllysine by Controlling Oxidation and Glycosylation. Poultry Science. 2021, 100 (2): 1308–18.
10. Zongshuai Zhu, Rui Fang, Di Zhao, Ming Huang*, Yunji Wei. Nε -Carboxymethyllysine and Nε -Carboxyethyllysine Kinetics and Water Loss Analysis during Chicken Braising. Journal of the Science of Food and Agriculture. 2021, 101 (2): 388–97.
11. Yajie Yu, Yiqun Cheng, Chong Wang, Suhong Huang, Yang Lei, Ming Huang*. Inhibitory effect of coriander (*Coriandrum sativum L.*) extract marinades on the formation of polycyclic aromatic hydrocarbons in roasted duck wings. Food Science and Human Wellness. 2021（Accepted）

12. Yali Zhang, Yang Lei, Suhong Huang, Xiaoli Dong, Jichao Huang, Ming Huang*. In-package cold plasma treatment of braised chicken: voltage effect. Food Science and Human Wellness. 2021 (Accepted)
13. Suhong Huang, Xiaoli Dong, Yali Zhang, Yuru Chen, Yajie Yu, Ming Huang*. Formation of advanced glycation end products in raw and subsequently boiled broiler muscle: Biological variation and effects of postmortem ageing and storage. Food Science and Human Wellness, 2021.（Accepted）
14. Yang Lei, Yali Zhang, Yiqun Cheng, Jichao Huang, Ming Huang*. Monitoring and identification of spoilage-related microorganisms in braised chicken with modified atmosphere packaging during refrigerated storage. Food Science and Human Wellness, 2021.（Accepted）
15. Suhong Huang, Ming Huang*, Xiaoli Dong. Advanced Glycation End Products in Meat during Processing and Storage: A Review, Food Reviews International, 2021, 16,1-17.
16. Rui Fang, Zongshuai Zhu*, Anthony Pius Bassey, Iftikhar Ali Khan, Ming Huang. Glyoxal induced advanced glycation end products formation in chicken meat emulsion instead of oxidation. Food Science and Human Wellness. (Accepted).
17. Zongshuai Zhu, Anthony Pius Bassey, Ming Huang*, Iftikhar Ali Khan. The effect of protein oxidation on the formation of advanced glycation end products after chicken myofibrillar protein glycation. Food Science and Human Wellness. 2021. (Accepted)
18. 杜晓兰，杨文敏，黄永强，朱宗帅，黄苏红，黄明*，基于顶空气相-离子迁移谱对不同加工方式番鸭的挥发性成分的分析.食品科学，2021(录用)
19. 程轶群,雷阳,周兴虎,黄明*,汪昌保.传统肉制品中杂环胺研究进展. 食品科学, 2021,（录用，网络首发）doi:10.7506/spkx1002-6630-20200927-338.
20. 董小丽，肖孟超，杨静，黄继超*，黄苏红，黄明*，宰前倒挂应激对鸭血凝胶特性的影响，食品科学，2021,42（17）：69-75.
21. 刘鸿中，黄天然，黄苏红，黄明*，不同发酵剂对发酵鸡胸肉品质的影响. 南京农业大学学报，2021（录用）
22. 王建军，雷阳，黄天然，黄明*，不同解冻方式对肉鸡食用品质和肌原纤维蛋白特性的影响. 南京农业大学学报，2021（录用）

2020 年度：

1. Zhu Zongshuai, Fang Rui, Cheng Yiqun, Khan Iftikhar, Huang Jichao, Li Bin, Huang Ming*. Content of free and protein-binding Nε-carboxymethyllysine and Nε-carboxyethyllysine in different parts of braised chicken. Food Science & Nutrition, 2020, 8: 767-776.
2. Zongshuai Zhu, Ming Huang*, Yiqun Cheng, Iftikhar Ali Khan, Jichao Huang. A comprehensive review of Nε-carboxymethyllysine and Nε-carboxyethyllysine in thermal processed meat products. Trends in Food Science & Technology, 2020, 98: 30-40.
3. Mingjun Yao, Iftikhar Khan , Yiqun Cheng , Yun Ang , Xinghu Zhou, Ming Huang*. Effects of cooking methods and tea marinades on the formation of heterocyclic amines and benzo[a]pyrene in grilled drumsticks. Journal of Food Protection, 2020, 83 (2): 365-376.

4. Yuchen Guo, Jichao Huang, Yuru Chen, Qin Hou, Ming Huang*. Effect of grape seed extract combined with modified atmosphere packaging on the quality of roast chicken. Poultry Science, 2020, 99(3): 1598-1605.
5. Yiqun Cheng, Yajie Yu, Zongshuai Zhu, Yang Lei, Iftikhar Ali Khan, Ming Huang*, Guanghong Zhou. Heterocyclic amines in braised chicken may mainly infiltrate from reused marinade during braising, instead of thermic generation. Journal of the Science of Food and Agriculture, 2020, 100(5): 1867-1874.
6. Iftikhar Ali Khan, Weimin Xu, Daoying Wang, Ang Yun, Asad Khan, Zhu Zongshuai, Muhammad Umair Ijaz, Cheng Yiqun, Muzahir Hussain, Ming Huang*. Antioxidant potential of chrysanthemum morifolium flower extract on lipid and protein oxidation in goat meat patties during refrigerated storage. Journal of Food Science, 2020, 85(3): 618-627.
7. Tingting Li, Caiyue Shi, Changyu Zhou, Xiaobin Sun, Yun Ang, Xiaoli Dong, Ming Huang*, Guanghong Zhou. Purification and characterization of novel antioxidant peptides from duck breast protein hydrolysates. LWT-Food Science and Technology, 2020, 125: 109215.
8. Jichao Huang, Yuchen Guo, Qin Hou, Ming Huang*, Xinghu Zhou. Dynamic changes of the bacterial communities in roast chicken stored under normal and modified atmosphere packaging. Journal of Food Science, 2020, 85(4): 1231-1239.
9. Jing Yang, Jichao Huang, Xiaoli Dong, Yali Zhang, Xinghu Zhou, Ming Huang*, Guanghong Zhou. Purification and identification of antioxidant peptides from duck plasma proteins. Food Chemistry 319 (2020) 126534
10. Zongshuai Zhu, Rui Fang, Di Zhao, Ming Huang*. Effect of malondialdehyde on oil-in-water emulsifying behavior and Maillard reaction of chicken sarcoplasmic protein in emulsion. Colloids and Surfaces B: Biointerfaces. 2020, 191: 111016.
11. Zongshuai Zhu, Rui Fang, Khan Iftikhar Ali, Ming Huang*. Impact of methylglyoxal modification of chicken sarcoplasmic protein emulsions on emulsifying properties, rheological behavior and advanced glycation end products. Journal of the Science of Food and Agriculture, 2020, 100(11): 4208-4216.
12. Zongshuai Zhu, Rui Fang, Ming Huang*, Yunji Wei, Guanghong Zhou. Oxidation combined with Maillard reaction induced free and protein-bound Nε-carboxymethyllysine and Nε-carboxyethyllysine formation during braised chicken processing. Food Science and Human Wellness. 2020, 9(4):383-393.
13. 陈玉茹, 杨静, 黄苏红, 程轶群, 黄明*. 毛肚涨发工艺优化及其水分分布和组织结构变化研究. 食品工业科技, 2020, 41(18):157-163.
14. Jing Yang, Jichao Huang, Zongshuai Zhu, Ming Huang*. Investigation of Optimal Conditions for Production of Antioxidant Peptides from Duck Blood Plasma: Response Surface Methodology. Poultry Science. 2020, 99 (12): 7159-68.

2019 年度：

1. Khan Iftikhar Ali, Liu Dongmei, Yao Mingjun, Memon Arif, Huang Jichao, Huang Ming*. Inhibitory effect of Chrysanthemum morifolium flower extract on

the formation of heterocyclic amines in goat meat patties cooked by various cooking methods and temperatures. Meat Science, 2019, (147):70–81.
2. Iftikhar Ali Khan, Cheng Yiqun, Zhu Zongshuai, Muhammad Umair Ijaz, Sarfaraz Ahmed Brohi, Muhammad Ijaz Ahmad, Caiyue Shi, Muzahir Hussain, Jichao Huang, Ming Huang*. Occurrence of heterocyclic amines in commercial fast-food meat products available on the Chinese market and assessment of human exposure to these compounds. Journal of Food Science, 2019, 84(1): 192-200.
3. X. B Sun, J. C. Huang, T. T. Li, Y. Ang, X. L. Xu, M Huang*. Effects of preslaughter shackling on postmortem glycolysis, meat quality, changes of water distribution, and protein structures of broiler breast meat. Poultry Science, 2019, 98(9): 4212-4220.
4. Caiyue Shi, Tingting Li, Jichao Huang, Ali Khan Iftihar, Ming Huang*, Guanghong Zhou. Effect of processing conditions and simulated gastrointestinal digestion on the activity of angiotensin I-converting enzyme (ACE) inhibitory peptide drived from duck meat hydrolysate. CyTA-Journal of Food, 2019, 17(1): 393-399.
5. Dongmei Liu, Xin Chen, Ming Huang*, Guanghong Zhou. Effect of cooking and in vitro digestion on the antioxidant activity of peptides in post-mortem aged duck meat. International Journal of Food Properties. 2019, 22(1): 727–736.
6. Qing Lu, Jingxin Sun, Ming Huang*, Yuchen Guo, Arif Memon. Effect of storage temperatures and duration on quality of prepared chicken breast with paprika oleoresin. Animal Science Journal, 2019,90(2):280-287.
7. 鲁青, 黄继超, 朱宗帅, 刘冬梅, 黄明*. 响应面法优化天然抗氧化剂抑制调理鸡排褪色和脂质氧化工艺. 食品科学, 2019, 40(6): 296-303.
8. Yiqun Cheng, Mingjun Yao, Zongshuai Zhu, Xiaoli Dong, Iftikhar Ali Khan, Jichao Huang, Xinghu Zhou, Ming Huang*, Guanghong Zhou. Content, causes and analysis of heterocyclic amines in Chinese traditional braised chicken. Food Additives & Contaminants: Part A, 2019, 36(7): 1032-1041.
9. 孙永才, 孙京新*, 李鹏, 慕鸿雁, 王宝维, 黄明, 李玉峰, 王虎虎. 超声协同次氯酸钠处理对冷藏鸡胸肉品质的影响[J]. 食品科学, 2019, 40 (9): 262-268.
10. 许梦珊, 姚媛, 孙京新, 黄明, 李显耀, 赵纪华, 冯永胜, 孟凡生. 黄羽肉鸡胴体冷藏时间对蒙山炒鸡食用品质的影响. 肉类研究, 2019, 33(07): 56-60.
11. 李鹏, 孙京新, 冯婷, 王淑玲, 黄明, 徐幸莲, 周兴虎. 不同滚揉腌制对鸭肉蛋白及水分分布的影响. 中国食品学报. 2019, 19(10): 157-164.
12. Huang Jichao, Zhao Liang, Yang Jing, Zhang Baohua, Xu Xinglian, Chen Kenjie, Huang Ming*. The Effect of μ/m-Calpain on Protein Degradation of Chicken Breast Meat. Journal of Food Science. 2019, 84(5): 1054-1059.
13. Liping Guo, Bing Yu, Shuling Wang, Yinglian Zhu, Peng Li, Baowei Wang, Ming Huang, Jingxin Sun. Effect of ripening with Penicillium roqueforti on texture, microstructure, water distribution and volatiles of chicken breast meat. International Journal of Food Science and Technology, 2019, 54: 1550-1557.
14. Yan Li, Qiumin Wang, Liping Guo, Harvey Ho, Baowei Wang, Jingxin Sun, Xinglian Xu, Ming Huang. Effects of ultrafine comminution treatment on gelling

properties of myofibrillar proteins from chicken breast. Food Hydrocolloids, 2019, 97: 105199.

15. Zongshuai Zhu, Suhong Huang, Iftikhar Ali Khan, Yiqun Cheng, Yajie Yu, Chuangchuang Zhang, Jichao Huang, Ming Huang*, Xinghu Zhou. The effect of oxidation and Maillard reaction on formation of Nε -carboxymethyllysine and Nε-carboxyethyllysine in prepared chicken breast. CyTA-Journal of Food, 2019, 17(1): 685-694.
16. Zongshuai Zhu, Yiqun Cheng, Suhong Huang, Mingjun Yao, Yang Lei, Iftikhar Khan, Ming Huang*, Xinghu Zhou. The formation of Nε-carboxymethyllysine and Nε-carboxyethyllysine in prepared chicken breast by pan-frying. Journal of Food Protection, 2019, 82(12): 2154-2160.
17. 周兴虎, 黄勃, 黄明. 崇仁麻鸡加工技术需求及产品发展方向[J]. 中国禽业导刊, 2019(19):36-37.

2018 年度：

1. Yang Zhai, Jichao Huang, Iftikhar Ali Khan, Yuchen Guo, Ming Huang*, Guanghong Zhou. Shelf-Life of Boiled Salted Duck Meat Stored Under Normal and Modified Atmosphere. Journal of Food Science, 2018, 1(83): 147-152.
2. 韩科研, 黄继超, 刘冬梅, 周兴虎, 黄明*. 鸭骨汤酶解液的美拉德反应条件优化[J]. 食品科学, 2018,04(39),261-267.
3. Liang Zhao, Tong Xing, Jichao Huang, Yan Qiao, Yulian Chen, Ming Huang*. Involvement of μ/m-calpain in the proteolysis and meat quality changes during postmortem storage of chicken breast muscle. Animal Science Journal, 2018(89): 423–431.
4. 孙永才, 孙京新, 王宝维, 黄明, 徐幸莲, 于冰. 纳地青霉发酵鸭血食用品质的变化. 食品工业科技, 2018, 39(10): 154-158.
5. Yuchen Guo, Jichao Huang, Xiaobin Sun, Qing Lu, Ming Huang*, Guanghong Zhou. Effect of normal and modified atmosphere packaging on shelf life of roast chicken meat. Journal of Food Safety. 2018;e12493. https://doi.org/10.1111/jfs.12493

2017 年度：

1. Dongmei Liu, Xing Chen, Jichao Huang, Ming Huang*, Guanghong Zhou. Generation of bioactive peptides from duck meat during post-mortem aging. Food Chemistry, 2017, 237: 408-415.
2. Siyu Zhang, Chaoyang Zhang, Yan Qiao, Lujuan Xing, Dacheng Kang, Iftikhar AliKhan, Ming Huang*, Guanghong Zhou. Effect of Flavourzyme on proteolysis, antioxidant activity and sensory qualities of Cantonese bacon. Food Chemistry, 2017, 237: 779-785.
3. Dongmei Liu, Xing Chen, Jichao Huang, Xinghu Zhou, Ming Huang*, Guanghong Zhou. Stability of antioxidant peptides from duck meat after post-mortem ageing. International Journal of Food Science and Technology, 2017, 52: 2513-2521.
4. Yan Qiao, Jichao Huang, Yulian Chen, Haochun Chen, Liang Zhao, Ming Huang*, Guanghong Zhou. Meat quality, fatty acid composition and sensory evaluation of

Cherry Valley, Spent Layer and Crossbred ducks. Animal Science Journal, 2017, 52:174-182.
5. Huang, J. C., Yang, J., Huang, M., Chen, K. J., Xu, X. L., & Zhou, G. H.. The effects of electrical stunning voltage on meat quality, plasma parameters, and protein solubility of broiler breast meat. Poultry Science, 2017, 96(3):764.
6. Huang J C, Yang J, Zhang B H, M. Huang, K. J. Chen, X. L. Xu, G. H. Zhou. Effect of electrical stunning frequency on meat quality, plasma parameters, and protein solubility of broilers.[J]. Poultry Science, 2017, 0:1-6
7. Wu Honghong; Wang Xiaofu; Zhou Xinghu; Zhang Yihua, Huang Ming, He Jian, Shen Wenbiao*. Targeting the middle region of CP4-EPSPS protein for its traceability in highly processed soy-related products. Journal of food science and technology, 2017, 54(10): 3242-3151.
8. 周兴虎，陈玉连，王俊青，刘冬梅，黄继超，王加进，黄明*.不同品种及部位鸡肉对风鸡加工适应性的影响. 肉类研究，2017, 31(9): 14-18.
9. 刘功明, 孙京新*, 李鹏, 董佩瑜, 徐幸莲, 黄明, 周光宏. 近红外光谱法检测猪、牛、羊肉加热终点温度. 中国食品学报, 2017, 17(8):221-228.

二、授权专利

发明专利:

1．全自动连续式油炸机，ZL201510283597.X；
2. 肉类蛋白酶解物对酸奶中分离乳酸菌增值作用的试验方法，ZL201410056354.8；
3．一种利用复合蛋白酶制作风味抗氧化中式香肠的方法，ZL20131048934.0；
4. 一种快速检测转基因大豆MON89788的实时荧光PCR方法，ZL201310693528.7；
5．一种利用风味蛋白酶制作风味抗氧化中式香肠的方法，ZL201310487703.7；
6．一种用于腌制肉制品的混合盐及其应用，ZL201310127352.9；
7．一种快速检测食品中鸭源性成分的方法，ZL201310185234.3；
8．一种添加扩增内标的食品中猪肉或肌肉成分 Taqman 探针荧光定量 PCR 快速检测方法，ZL201210390500.1；
9．一种利用羊骨制备天然羊肉味香精的方法，ZL201110435507.6；
10．一种生鲜调理鸭胸肉产品及其生产工艺，ZL201210157803.9；
11．一种水晶肴肉及其生产工艺，ZL201110402430.2；
12．一种牛肉嫩化的方法，ZL201110323030.2；
13．检测转 cp4-epsps 基因大豆及其深加工产品中转基因成分的方法及试剂盒，ZL201010249480.7；
14．与 CP4-EPSPS 蛋白发生特异性抗原抗体反应的多克隆抗体及其应用，ZL201010225353.3。
15. 一种提高广式腊肉 DPPH 清除率的方法，ZL 201710417127.7；

实用新型专利：

1. 附带油渣收集水槽及刮渣装置的全自动连续式油炸机，ZL201520355279.5；
2. 一种可自动清洗的滚揉机，ZL201520594273.3；

3. 一种用于畜禽加工的水切割设备，ZL201520581703.8；
4. 一种新型变压滚揉机，ZL201520594412.2；
5. 一种新型禽血收集设备，ZL 201820836020.6
6. 一种新型盐焗加工设备，ZL 201820834527.8

计算机软件著作权：
1. 农大车间智能控制系统软件 V1.0，2017SR021433；
2. 农大盐水鸭自动化生产溯源系统软件 V1.0，2017SR019620；
3. 农大食品腌制控制系统软件 V1.0，2017SR019623；

三、获奖

1. 2019 年山东省科技进步三等奖；
2. 2019 年青岛市科技进步二等奖；
3. 2018 年入选农业部“全国农村创业创新第二批优秀带头人”；
4. 2018 年入选南京市科技顶尖专家聚集计划
5. 2017 年入选国家“万人计划”领军人才；
6. 2017 年获国家农业部“神农中华农业科技奖优秀创新团队”奖；
7. 2017 年获农业部农村创业创新项目创意大赛成长组优胜奖；
8. 2017 年入选国家教育部“全国万名优秀创新创业导师人才库”；
9. 2016 年入选科技部“创新人才推进计划”；
10. 2013 年获“国家科学技术进步奖”二等奖；
11. 2012 年获江苏省高校“青蓝工程”优秀青年骨干教师荣誉；
12. 2009 年获河南省“科学技术进步奖”二等奖；
13. 2000 年获山东省“科学技术进步奖”三等奖。

四、制定标准

1. 山东省地方标准《肉鹅屠宰加工技术规程》，DB 37/T 3119-2018，第五起草人；
2. 山东省地方标准《肉鸡福利屠宰技术规范》，DB 37/T 2828-2016，第二起草人；
3. 中华人民共和国农业行业标准《无公害食品 鲜鸭蛋》，NY 5259-2004，第二起草人；
4. 中华人民共和国农业行业标准《无公害食品 鹌鹑蛋》，NY 5259-2004，第三起草人；
5. 中华人民共和国农业行业标准《无公害食品 猪肉》，NY 5029-2001，第五起草人；
6. 中华人民共和国农业行业标准《无公害食品 牛肉》，NY 5044-2001，第五起草人。

五、主要著作

1. 《兔产品加工新技术》，主编，中国农业出版社；
2. 《畜产品质量安全及其检测技术》，副主编，化学工业出版社；
3. 《禽肉加工》第 2 版，参译，中国农业大学出版社；
4. 《肉品加工学》，参编，农业出版社；

5. 《Lawrie’s 肉品科学》第 7 版，编译，中国农业大学出版社；
6. 《食品中转基因成分检测指南》，参编，中国标准出版社；
7. 《猪肉产品加工与流通》，参编，中国农业大学出版社；
8. 《现代食品原料学》，参编，中国轻工出版社。