

姓名：杨润强

性别：男

毕业院校：南京农业大学

最高学位：博士

办公地址：食品科技学院 216

办公电话：025-84396293

电子邮箱：yangrq@njau.edu.cn



研究方向：植物食品营养与功能品质改善及其深加工

个人简介：1984 年出生于甘肃省陇西县，2008 年 6 月本科毕业于吉林大学食品科学与工程专业，获工学学士学位；2013 年 6 月毕业于南京农业大学食品科学与技术学院，获工学博士学位；同年留校任教，2015 年 10 月入选南京农业大学第三批钟山学术新秀，2015 年 12 月被聘为副教授，2016 年 9 月至今担任食品科学与工程系副主任。主讲《食品原料研究进展》、《新资源食品》等研究生课程，主讲《农产品加工工艺》、《农产品贮运加工》、《园艺产品贮藏加工》、《食品工艺学》等本科生课程。

科研情况：

主要从事植物性食品原料营养与功能品质改善技术与机理研究，通过籽粒萌发手段调控内源酶活性降解抗营养因子和富集生物活性物质。先后主持和参与国家自然科学基金“GABA 对盐胁迫促进大麦芽苗酚酸富集的生物信号传导机理”和“NaCl 胁迫下 Ca<sup>2+</sup>调控大豆芽菜富集 GABA 机理研究”、博士后基金面上一等资助项目等 8 项纵向

科研项目。发表科研论文 100 余篇，其中以第一作者和通讯作者发表 SCI 收录论文 40 余篇；获得授权专利 16 项。

#### 1. 主持及参与科研项目

[1] 国家自然科学基金面上项目：GABA 对盐胁迫促进大麦芽苗酚酸富集的生物信号传导机理，59 万元，主持，2019.1-2022.12；

[2] 国家自然科学基金青年项目：NaCl 胁迫下 Ca<sup>2+</sup>调控大豆芽菜富集 GABA 机理研究，24 万元，主持，2015.1-2017.12；

[3] 中国博士后基金面上项目：NaCl 胁迫下 Ca<sup>2+</sup>促进西兰花芽苗生长及 ITCs 富集机理研究，8 万元，主持，2015.7-2019.6；

[4] 中央高校科研业务费自主创新重点项目：盐胁迫下 GABA 在大豆芽菜酚类物质富集中的信号传导作用，25 万元，主持，2017.1-2019.12；

[5] 国家自然科学基金面上项目：ABA 和 NO 信号对 UV-B 胁迫下大豆芽菜中异黄酮富集的作用机理，64 万元，主要成员，2017.1-2020.12；

[6] 国家自然科学基金面上项目：低氧与热激调控芸薹属芽菜异硫氰酸酯富集机理研究，88 万元，主要成员，2015.1-2017.12；

[7] 江苏省重点研发计划项目：富含异硫氰酸酯的甘蓝健康食品加工技术研究，50 万元，主要成员，2016.7-2019.6；

发表论文（\*通讯作者，详见 <https://orcid.org/0000-0002-0191-6315>）

1. Wang, P.; Hou, C.; Zhao, X.; Tian, M.; Gu, Z.; **Yang, R.\***, Molecular characterization of water-extractable arabinoxylan from wheat bran and its effect on the heat-induced polymerization of gluten and steamed bread quality. *Food Hydrocolloids* **2019**, *87*, 570-581.
2. Ma, Y.; Wang, P.; Wang, M.; Sun, M.; Gu, Z.; **Yang, R. \***, GABA mediates phenolic compounds accumulation and the antioxidant system enhancement in germinated hulless barley under NaCl stress. *Food chemistry* **2019**, *270*, 593-601.
3. Zhou, T.; Wang, P.; **Yang, R. \***; Gu, Z., Polyamines regulating phytic acid degradation in mung bean sprouts. *Journal of the Science of Food and Agriculture* **2018**, *98*, 3299-3308.
4. **Yang, R.**; Sun, Y.; Gu, Z., Zinc Accumulation and Distribution in Germinated Brown Rice. *Food Science and Technology Research* **2018**, *24*, 369-376.
5. **Yang, R.**; Gu, Z.; Yin, Y., Polyamine degradation pathway regulating growth and GABA accumulation in germinating fava bean under hypoxia-NaCl stress. **2018**.
6. Wang, P.; Zou, M.; Gu, Z.; **Yang, R. \***, Heat-induced polymerization behavior variation of frozen-stored gluten. *Food chemistry* **2018**, *255*, 242-251.
7. Wang, P.; Liu, K.; Gu, Z.; **Yang, R. \***, Enhanced  $\gamma$ -aminobutyric acid accumulation, alleviated componential deterioration and technofunctionality loss of germinated wheat by hypoxia stress. *Food chemistry* **2018**, *269*, 473-479.
8. Wang, P.; Hou, C.; Zhao, X.; Tian, M.; Gu, Z.; **Yang, R. \***, Molecular characterization of water-extractable arabinoxylan from wheat bran and its effect on the heat-induced polymerization of gluten and steamed bread quality. *Food Hydrocolloids* **2018**.
9. Ma, Y.; Wang, P.; Chen, Z.; Gu, Z.; **Yang, R. \***, GABA enhances physio-biochemical metabolism and antioxidant capacity of germinated hulless barley under NaCl stress. *Journal of Plant Physiology* **2018**.
10. Ma, Y.; Wang, P.; Chen, Z.; Gu, Z.; **Yang, R. \***, NaCl stress on physio-biochemical metabolism and antioxidant capacity in germinated hulless barley (*Hordeum vulgare* L.). *Journal of the Science of Food and Agriculture* **2018**.
11. Ma, M.; Wang, P.; **Yang, R. \***; Gu, Z., Effects of UV-B radiation on the isoflavone accumulation and physiological-biochemical changes of soybean during germination: Physiological-biochemical change of germinated soybean induced by UV-B. *Food chemistry* **2018**, *250*, 259-267.
12. Hui, Q.; Wang, M.; Wang, P.; Ma, Y.; Gu, Z.; **Yang, R. \***, Gibberellic acid promoting phytic acid degradation in germinating soybean under calcium lactate treatment. *Journal of the Science of Food and Agriculture* **2018**, *98*, 644-651.

13. **Yang, R.**; Guo, L.; Wang, J.; Wang, Z.; Gu, Z., Heat shock enhances isothiocyanate formation and antioxidant capacity of cabbage sprouts. *Journal of Food Processing and Preservation* **2017**, *41*, e13034.
14. Yan, X.; **Yang, R.** \*; Wang, P.; Gu, Z.; Zhou, T., NaCl-CaCl<sub>2</sub> treatment enhancing nutritional and functional quality of mung bean sprouts. *Emirates Journal of Food and Agriculture* **2017**, 123-130.
15. Wang, P.; Zou, M.; Liu, K.; Gu, Z.; **Yang, R.** \*, Effect of mild thermal treatment on the polymerization behavior, conformation. **2017**.
16. Tian, L.; Wu, J.; Li, X.; **Yang, R.** \*; Gu, Z., Effect of NaCl and CaCl<sub>2</sub> treatment on glucosinolate and isothiocyanates content in broccoli sprouts. *Journal of Nanjing Agricultural University* **2017**, *40*, 352-358.
17. Guo, L.; Wang, P.; Gu, Z.; Jin, X.; **Yang, R.** \*, Proteomic analysis of broccoli sprouts by iTRAQ in response to jasmonic acid. *Journal of plant physiology* **2017**, *218*, 16-25.
18. Guo, L.; Gu, Z.; Jin, X.; **Yang, R.** \*, iTRAQ-based proteomic and physiological analyses of broccoli sprouts in response to the stresses of heat, hypoxia and heat plus hypoxia. *Plant and soil* **2017**, *414*, 355-377.
19. Chen, Z.; Wang, P.; Weng, Y.; Ma, Y.; Gu, Z.; **Yang, R.** \*, Comparison of phenolic profiles, antioxidant capacity and relevant enzyme activity of different Chinese wheat varieties during germination. *Food Bioscience* **2017**, *20*, 159-167.
20. **Yang, R.**; Wang, P.; Elbaloula, M. F.; Gu, Z., Effect of germination on main physiology and biochemistry metabolism of Sorghum seeds. *Bioscience Journal* **2016**, *32*.
21. **Yang, R.**; Wang, J.; Nie, X.; Zhuang, Y.; Gu, Z.; Guo, Q., Chlorophyll degradation and lignification of fresh-cut water fennel treated with a complex chemical solution and subsequent packaging. *Food Science and Biotechnology* **2016**, *25*, 483-488.
22. **Yang, R.**; Hui, Q.; Gu, Z.; Zhou, Y.; Guo, L.; Shen, C.; Zhang, W., Effects of CaCl<sub>2</sub> on the metabolism of glucosinolates and the formation of isothiocyanates as well as the antioxidant capacity of broccoli sprouts. *Journal of Functional Foods* **2016**, *24*, 156-163.
23. **Yang, R.**; Hui, Q.; Gu, Z., Effects of ABA and CaCl<sub>2</sub> on GABA accumulation in fava bean germinating under hypoxia-NaCl stress. *Bioscience, biotechnology, and biochemistry* **2016**, *80*, 540-546.
24. **Yang, R.**; Gu, D.; Gu, Z., Cordyceps Rice Wine: A Novel Brewing Process. *Journal of Food Process Engineering* **2016**, *39*, 581-590.

25. **Yang, R.**; Geng, C.; Gu, Z., Activation and Tempering on  $\Gamma$ -Aminobutyric Acid Accumulation and Distribution in Brown Rice. *Journal of Food Processing and Preservation* **2016**, *40*, 1364-1369.
26. **Yang, R.**; Feng, L.; Wang, S.; Yu, N.; Gu, Z., Accumulation of  $\gamma$ -aminobutyric acid in soybean by hypoxia germination and freeze–thawing incubation. *Journal of the Science of Food and Agriculture* **2016**, *96*, 2090-2096.
27. Tian, L.; Li, X.; **Yang, R.** \*; Gu, Z., NaCl treatment improves reactive oxygen metabolism and antioxidant capacity in broccoli sprouts. *Horticulture, Environment, and Biotechnology* **2016**, *57*, 640-648.
28. Hui, Q.; **Yang, R.** \*; Shen, C.; Zhou, Y.; Gu, Z., Mechanism of calcium lactate facilitating phytic acid degradation in soybean during germination. *Journal of agricultural and food chemistry* **2016**, *64*, 5564-5573.
29. **Yang, R.**; Wang, S.; Yin, Y.; Gu, Z., Hypoxia treatment on germinating faba bean (*Vicia faba* L.) seeds enhances GABA-related protection against salt stress. *Chilean journal of agricultural research* **2015**, *75*, 184-191.
30. **Yang, R.**; Guo, Y.; Wang, S.; Gu, Z.,  $\text{Ca}^{2+}$  and aminoguanidine on  $\gamma$ -aminobutyric acid accumulation in germinating soybean under hypoxia–NaCl stress. *journal of food and drug analysis* **2015**, *23*, 287-293.
31. **Yang, R.**; Guo, L.; Zhou, Y.; Shen, C.; Gu, Z., Calcium mitigates the stress caused by  $\text{ZnSO}_4$  as a sulphur fertilizer and enhances the sulforaphane formation of broccoli sprouts. *RSC Advances* **2015**, *5*, 12563-12570.
32. **Yang, R.**; Guo, L.; Jin, X.; Shen, C.; Zhou, Y.; Gu, Z., Enhancement of glucosinolate and sulforaphane formation of broccoli sprouts by zinc sulphate via its stress effect. *Journal of Functional Foods* **2015**, *13*, 345-349.
33. **Yang, R.**; Yin, Y.; Guo, L.; Han, Y.; Gu, Z., Sequence analysis of diamine oxidase gene from fava bean and its expression related to  $\gamma$ -aminobutyric acid accumulation in seeds germinating under hypoxia-NaCl stress. *Journal of the Science of Food and Agriculture* **2014**, *94*, 1585-1591.
34. **Yang, R.**; Wang, S.; Gu, Z., Full length cDNA cloning of VfActin in germinated faba bean (*Vicia faba* L.). *Indian Journal of Plant Physiology* **2014**, *19*, 65-68.
35. **Yang, R.**; Yin, Y.; Guo, Q.; Gu, Z., Purification, properties and cDNA cloning of glutamate decarboxylase in germinated faba bean (*Vicia faba* L.). *Food chemistry* **2013**, *138*, 1945-1951.

36. **Yang, R.**; Guo, Q.; Gu, Z., GABA shunt and polyamine degradation pathway on  $\gamma$ -aminobutyric acid accumulation in germinating fava bean (*Vicia faba* L.) under hypoxia. *Food chemistry* **2013**, *136*, 152-159.
37. **Yang, R.**; Chen, H.; Han, Y.; Gu, Z., Purification of diamine oxidase and its properties in germinated fava bean (*Vicia faba* L.). *Journal of the Science of Food and Agriculture* **2012**, *92*, 1709-1715.
38. **Yang, R.**; Zou, Y.; Yu, N.; Gu, Z., Accumulation and identification of angiotensin-converting enzyme inhibitory peptides from wheat germ. *Journal of agricultural and food chemistry* **2011**, *59*, 3598-3605.
39. **Yang, R.**; Song, J.; Gu, Z.; Li, C., Partial purification and characterisation of cysteine protease in wheat germ. *Journal of the Science of Food and Agriculture* **2011**, *91*, 2437-2442.
40. **Yang, R.**; Chen, H.; Gu, Z., Factors influencing diamine oxidase activity and  $\gamma$ -aminobutyric acid content of fava bean (*Vicia faba* L.) during germination. *Journal of agricultural and food chemistry* **2011**, *59*, 11616-11620.

## 科研成果:

### 1. 主要授权专利

( <http://www2.soopat.com/Home/Result?SearchWord=%E6%9D%A8%E6%B6%A6%E5%BC%BA&FMSQ=Y>) :

- [1] **杨润强**, 田璐, 顾振新, 沈昌. 一种功能性纳豆咀嚼片及其生产工艺, 2017.12, 中国, CN 102389082 B.
- [2] 顾振新, **杨润强**, 宋玉, 尹永祺. 一种富含 GABA 的冻干豆类芽菜及其生产工艺, 2014.1, 中国, CN 102754780 A.
- [3] 顾振新, **杨润强**, 宋娇娇. 一种低脂酸豆类芽菜生产技术, 2016.01, 中国, CN 130750175 B.
- [4] 顾振新, 尹永祺, 宋玉, **杨润强**. 一种富含 GABA 的冻干豆芽汤料生产工艺及其产品, 2013.11, 中国, CN 102754869 B.
- [5] 顾振新, 饶青青, 孙雨茜, **杨润强**. 一种富含 $\gamma$ -氨基丁酸发芽糙米茶生产工艺及其产品, 2014.1, 中国, CN 102919470A.
- [6] 顾振新, 樊翠, 耿程欣, **杨润强**. 一种富含 $\gamma$ -氨基丁酸低爆腰率发芽糙米及其生产方法, 2014.1, 中国, CN 102919735A.

### 2. 荣誉和获奖情况

[1] 南京农业大学第三批钟山学术新秀。

[2] 典型特色果蔬贮运及加工关键技术开发与应用 2011-2013 年度中国食品工业协会科学技术奖 特等奖 8/13 2014。