

Lifei Yang



Areas of Research

Vegetable cultivation, Vegetable nutrition, Plant stress physiology.

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Research Interests

1. Vegetable cultivation

Our primary research interest concerns how to improve the efficiency of vegetable production. We aim to enhance the productivity of vegetables by optimizing cultivation conditions, such as fertilization, irrigation, soil amelioration, etc. In addition, we try to integrate all the approaches to develop vegetable species-dependent resolution system to ensure the safety of the final vegetable product, which meets to the requirement of both domestic and international standard.

2. Vegetable nutrition

We study the biosynthetic and regulatory pathways of functional nutrients (e.g. ascorbic acid and anthocyanin) in vegetables. Mining the key regulatory node is able to provide target that can be modulated in order to help enhance the content of functional nutrients in vegetables. We also investigate selenium biofortification of vegetables by optimizing the application of selenium fertilizers as well as the bioaccumulation of selenium in vegetables.

3. Plant stress physiology

Overuse of selenium fertilizers may led the increase in selenium content in agricultural environment, which in turn poses potential threat to vegetable growth. We identify the physiological responses of vegetables under selenium stress by using physiological, biochemical, and molecular biological approaches. Especially, the signaling interactions among hydrogen sulfide (H₂S), nitric oxide (NO), and reactive oxygen species (ROS) are much concerned. In addition, we study the adaption mechanism of vegetables

under the challenge of various environmental stimuli, such as drought, cold, and heavy metals. This drives us to develop cultivation strategies to help vegetable combat stress conditions.

Education Background

Bachelor: Qingdao Agricultural University

Doctor: Nanjing Agricultural University

Work experience

Associate Professor, College of Horticulture, 2011-

Selected Publication

Wang Yongzhu, Ye Xiefeng, Yang Kang, Shi Zhiqi, Wang Ning, **Yang Lifei***, Chen Jian. 2019. Characterization, expression, and functional analysis of polyamine oxidases and their role in selenium-induced hydrogen peroxide production in *Brassica rapa*. Journal of the Science of Food and Agriculture **99**:4082-4093.

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Bian Zhiwei, Chen Jian, Li Hui, Liu Dandan, **Yang Lifei***, Zhu Yuelin, Zhu Wenli, Liu Wei, Ying Zhengzheng. 2016. The phytotoxic effects of selenium-mercury interactions on root growth in *Brassica rapa* (LvLing). Horticulture, Environment, and Biotechnology. **57**:232-240.

Chen Yi, Mo Haizhen, Hu Liangbin, Li youqi, Chen Jian*, **Yang Lifei***. 2014. The endogenous nitric oxide mediates selenium-induced phytotoxicity by promoting ROS generation in *Brassica rapa*. PLoS ONE **9(10)**:e110901.

Chen Yi, Mo Haizhen, Zheng Meiyu, Ming Xian, Qi Zhognqiang, Li Youqin, Hu Liangbin, Chen Jian*, **Yang leifei***. 2014. Selenium inhibits root elongation by repressing the generation of endogenous hydrogen sulfide in *Brassica rapa*. PLoS ONE. **9(10)**:e110904.
