Curriculum Vitae

ZHEN WU, PROFESSOR

Address:

College of Horticulture
Nanjing Agricultural University
Nanjing, Jiangsu 210095
P.R. China
Phone:025-84399083
Email: wzh@njau.edu.cn
zpzx@njau.edu.cn

Work (Research) experience:

Associate professor(2000- 2006) - College of Horticulture, Nanjing Agricultural University
professor(2006 -present) - College of Horticulture, Nanjing Agricultural University

Education:

Ph.D. (Agricultural Science), Kharkiv National University of Agriculture.
M.S. (Agricultural Science), College of Horticulture, Shenyang Agricultural University, Shenyang 110161.
B.S. (Agricultural Science), College of Horticulture, Shenyang Agricultural University, Shenyang 110161.

Research field:

Mainly engaged in the evaluation and utilization of tomato germplasm resources and germplasm innovation; tomato stress tolerance and quality physiology and molecular biology, the theory and technology of high-quality, safe and high yeild of protected vegetables, the theory and technology of vegetable plant tissue culture and virus-free and rapid propagation

Publication and presentation:

Refereed publication:

1.Yabing Hou, Fangling Jiang, Xiaolan Zheng, Zhen Wu*. (2019). Identification and analysis of oxygen responsive microRNAs in the root of wild tomato (*S. habrochaites*). BMC Plant Biology, 19:100, https://doi.org/10.1186/s12870-019-1698-x

2.Mintao Sun[#], Fangling Jiang[#], Rong Zhou, Junqin Wen, Shouyao Cui, Weize Wang, Zhen Wu*. (2019). Respiratory burst oxidase homologue-dependent H_2O_2 is essential during heat stress memory in heat sensitive tomato. Scientia Horticulturae, 258, 108777, https://doi.org/10.1016/j.scienta.2019.108777

3.Mintao Sun, Fangling Jiang, Benjian Cen, Heqiang Huo, Zhen Wu*. (2019). Antioxidant enzymes act as indicators predicting intension of acquired and maintenance of acquired thermotolerance and the relationships between

basal, acquired and maintenance of acquired thermotolerance of tomato. Scientia Horticulturae, 247: 130–137, https://doi.org/10.1016/j.scienta.2018.12.015

4.Junqin Wen, Fangling Jiang, Yiqun Weng, Mintao Sun, Xiaopu Shi, Yanzhao Zhou, Lu Yu, Zhen Wu*. (2019). Identification of heat-tolerance QTLs and high-temperature stress-responsive genes through conventional QTL mapping, QTL-seq and RNA-seq in tomato. BMC Plant Biology, 19:398, https://doi.org/10.1186/s12870-019-2008-3

5.Mintao Sun, Fangling Jiang, Rong Zhou, Benjian Cen, Zhen Wu*. (2019). Coordinated regulation of three kinds of thermotolerance in tomato by antioxidant enzymes. Acta Physiologiae Plantarum, 41:9, DOI 10.1007/s11738-019-2951-5

6.Rong Zhou, Lingpeng Kong, Xiaqing Yu, Carl-Otto Ottosen, Tongmin Zhao, Fangling Jiang, Zhen Wu*. (2019). Oxidative damage and antioxidant mechanism in tomatoes responding to drought and heat stress. Acta Physiologiae Plantarum, 41: 20, https://doi.org/10.1007/s11738-019-2805-1

7. Xiaopu Shi, Fangling Jiang, Junqing Wen, Shouyao Cui, Yanzhao Zhou, Zhen Wu*. (2019). MicroRNA319 family members play an important role in Solanum habrochaites and S. lycopersicum responses to chilling and heat stresses. Biologia Plantarum, 63: 200-209, DOI 10.32615/bp.2019.023

8. Xiaopu Shi, Fangling Jiang, Junqin Wen, Zhen Wu*. (2019). Overexpression of Solanum habrochaites microRNA319d (sha-miR319d) confers chilling and heat stress tolerance in tomato (*S. lycopersicum*). BMC Plant Biology, 19:214, https://doi.org/10.1186/s12870-019-1823-x

9.Tianmei Zhou, Zhen Wu, Yachen Wang, Xiaojun Su, Chaoxuan Qin, Heqiang Huo, Fangling Jiang*. (2019). Modelling seedling development using thermal effectiveness and photosynthetically active radiation. Journal of Integrative Agriculture, 18(11): 2521-2533, https://doi.org/10.1016/S2095-3119(19)62671-7

10.Fangling Jiang, Alfonso Lopez, Shinjae Jeon, Sergio Tonetto de Freitas, Qinghui Yu, Zhen Wu, John M. Labavitch, Shengke Tian, Ann L. T. Powell*, Elizabeth Mitcham*. (2019). Disassembly of the fruit cell wall by the ripening-associated polygalacturonase and expansin influences tomato cracking. Horticulture Research, 6 :17, DOI 10.1038/s41438-018-0105-3

11. Lingzi Xue, Mintao Sun, Zhen Wu, Lu Yu, Qinghui Yu, Yaping Tang and Fangling Jiang*. LncRNA regulates tomato fruit cracking by coordinating gene expression via a hormone-redox-cell wall network. BMC Plant Biology, 2020, 20:162. https://doi.org/10.1186/s12870-020-02373-9.

12. Yanzhao Zhou,Fangling Jiang,Liu Shuai,Zhen Wu*. Genetic Diversity and Genetic Structure Analysis of Cultivated Tomato Based on Molecular Markers. Molecular Plant Breeding,2020,18(12):3952-3960. (In Chinese)

13. Yanchao Zhou,Fangling Jiang,Mintao Sun,Shuai Liu,Junqin Wen,Siqi Li,Lingzi Xue,Zhen Wu*. Construction of Solanum pimpinellifolium LA2093 Introgression Lines and QTL Analysis of Their Inflorescence Traits,Acta Agriculturae Jiangxi,2019,31(06):1-8. (In Chinese)

14. Mintao Sun, Fangling Jiang, Benjian Cen, Junqin Wen, Yanzhao Zhou, Zhen Wu*. (2018). Respiratory burst oxidase homologue-dependent H_2O_2 and chloroplast H_2O_2 are essential for the maintenance of acquired thermotolerance during recovery after acclimation. Plant Cell Environ., 41:2373-2389, DOI: 10.1111/pce.13351

15. Fang Ling Jiang, Li Ping Bo, Jin Jin Xu, Zhen Wu*. (2018). Changes in respiration and structure of non-heading Chinese cabbage seeds during gradual artificial aging. Scientia Horticulturae, 238: 14-22

16. Rong Zhou, Xiaqing Yu, Lingpeng Kong, Xu Wang, Eva Rosenqvist, Zhen Wu, Carl-Otto Ottosen and Tongmin Zhao. (2018). Evaluation of temperature stress tolerance among cultivated and wild tomatoes using photosynthesis and chlorophyll fluorescence. Horticulture, Environment and Biotechnology, 59(4): 499-509.
17. Hanhua Wu, Fangling Jiang, Cao Xue, Zhen Wu*.Vigor indexes change and correlation of non-heading Chinese cabbage seeds in different aging degrees, Acta Botanica Boreali-Occidentalia Sinica, 2018, 32(8):1606-1614.(In Chinese)
18. Min Liu, Fangling Jiang, Xiangyu Kong, Jie Tian, Zhen Wu*.(2017). Effects of multiple factors on hyperhydricity of *Allium sativum* L. Scientia horticulturae. 217:285-296.
19. Jie Tian, Yaqi Chen, Xiangyu Kong, Liu Min, Fangling Jiang, Zhen Wu*. (2017). Induction of reactive oxygen species and the potential role of NADPH oxidase in hyperhydricity of garlic plantlets in vitro. Protoplasma, 254(1): 379-388.
20. Xiangyu Kong, Min Liu, Fangling Jiang, Zexiu Wu, Jie Tian, Zhen Wu*. (2017). Response of antioxidant system on exogenous abscisic acid and its alleviate effects on hyperhydricity of garlic plantlets in vitro. Acta Botanica Boreali-Occidentalia Sinica, 37(12):2410-2418.(In Chinese)
21. Meng Shen, Fangling Jiang, Shan Wang, Jing Tang, Zhen Wu*. (2017). Effects of Biochar Application Amount on Soil Characteristics, Yield and Fruit Properties of Tomato. Soils, 49(03):534-542.(In Chinese)
22. Yuwen Zang, Fangling Jiang, Min Liu, Yaqi Cheng, Xiangyu Kong, Zhen Wu*.(2017). Screening on vitrification conservation conditions for shoot tip of Colocasia esculenta 'Hongxiangyu'. Journal of Plant Resources and Environment, 26(01):116-118.(In Chinese)
23. Rong Zhou, Katrine H. Kjær, Eva Rosenqvist, Carl-Otto Ottosen, Xiaqing Yu, Zhen Wu*. (2017). Physiological response to heat stress during seedling and anthesis stage in tomato genotypes differing in heat tolerance. Journal of Agronomy and Crop Science, 203(1): 68-80.
24. Rong Zhou, Xiaqing Yu, Carl-Otto Ottosen, Eva Rosenqvist, Liping Zhao, Yinlei Wang, Wengui Yu, Tongmin Zhao* and Zhen Wu*. (2017). Drought stress had a predominant effect over heat stress on three tomato cultivars subjected to combined stress. BMC Plant Biology,17: 24, doi: 10.1186/s12870-017-0974-x.
25. Rong Zhou, QianWang, Fangling Jiang, XueCao, Mintao Sun, Min Liu, ZhenWu*. (2016). Identification of miRNAs and their targets in wild tomato at moderately and acutely elevated temperatures by high-throughput sequencing and degradome analysis. Scientific Reports, 6:33777.
26. Rong Zhou, Katrine H. Kjær, Eva Rosenqvist, Xiaqing Yu, ZhenWu*, Carl-Otto Ottosen*.(2016). Physiological response to heat stress during seedling and anthesis stage in tomato genotypes differing in heat tolerance. Journal of Agronomy & Crop Science, doi:10.1111/jac.12166
27. Yuwen Zang, Fangling Jiang, Yaqi Cheng, Xiangyu Kong, Zhen Wu*. (2016). Study on the dynamic changes of the major carbohydrate content and the related enzyme activities during the microcorm development of colocasia esculenta. Acta Botanica Boreali-Occidentalia Sinica,36(04):700-705.
28. Jie Tian, Fangling Jiang, Zhen Wu*. 2015. The apoplastic oxidative burst as a key factor of hyperhydricity in garlic plantlet in vitro. Plant Cell, Tissue,and Organ Culture, 120, 571-584.
29. Min Liu, Zhen Wu*, Fangling Jiang. 2015. Selection and validation of garlic, reference genes for quantitative real-time PCR normalization Plant Cell Tissue,and Organ Culture, 122:435-444.
30. Rong Zhou, Xiaqing Yu, Katrine H. Kjær, Eva Rosenqvist, Carl-Otto Ottosen, Zhen Wu**. 2015. Screening and

validation of tomato genotypes under heat stress using Fv/Fm to reveal the physiological mechanism of heat tolerance. Environmental & Experimental Botany, 118:1-11.

31. Xue Cao, Fangling Jiang, Xu Wang, Yuwen Zang, Zhen Wu*. 2015. Comprehensive evaluation and screening for chilling-tolerance in tomato lines at the seedling stage. Euphytica,205(2):569-584.
32. Yanhai Ji, Pingbing Yu, Zhen Wu, Zhanhui Wu, Mingchi Liu.2013. Screening of Chinese Chives Cultivars Suited for Nutrient Solution Cultivation.China Vegetables,6:63-67.
33. Huaibing Zhou,Fangling Jiang,Genjin Hu,Weisheng Xu,Dong Wang,Zhen Wu*. 2013. Effects of planting density and remaining fruit cluster per plant on growth, yield and quality of large fruit tomato varieties in plastic greenhouse in spring. Jiangsu Journal of Agricultural Sciences, 29(03):626-632.
34. Bosheng Fan, Fangling Jiang, Xu Wang, Genjin Hu, Dong Wang, Zhen Wu*. 2013. Effects of source-sink regulation on plant growth, leaf antioxidative characteristics, yield and quality of muskmelon. Acta Botanica Boreali-Occidentalia Sinica, 33(04):741-746.
35. Lingna Kong, Zhen Wu,Hui Zhang, Peipei Hao. 2013. Reform and innovation of experimental teaching methods of plant production genetics in agricultural colleges and universities. Research on laboratory work in colleges and universities, 116(2): 11-13.
36. Hongmin Hu [#], Fangling Jiang [#], Xue Cao, Zhen Wu *. Guang long Wang. 2012. Cloning and expression analysis of ent-kaurene oxidase gene CKO in cucumber. Acta Horticulturae Sinica. 39（6）:1131-1140.
37. Cunhao Ming, Fangling Jiang, Guanglong Wang, Hongmin Hu, Xuechao Zhou, Zhen Wu *. 2012. Simulation model of cucumber healthy indexes based on radiation and thermal effectiveness. Transactions of the Chinese Society of Agricultural Engineering, 28, 109-113.
38. Ruizhen Ren, Zhanhui Wu, Haili Chen, Pingbin Yu, Zhen Wu, Mingchi Liu. 2012. Effects of different nutrition solution concentrations on cucumber seedling growth under seedling culture without substrate nutrient solution[J]. China Vegetables, 20:49-55.
39. Yu Li, FangLing Jiang, Cun-Hao Ming, Haiming Gu, Zhen Wu*. 2012. Effects of different ratios of residue-to-compound fertilizer on yield,quality of Pakchoi and soil fertility[J]. China Vegetables, 22:63-66.
40. Fangling Jiang, Feng Wang, Zhen Wu, Ying Li, Gongjun Shi, Jingding Hu, Xilin Hou*. 2011. Components of the Arabidopsis *CBF* cold-response pathway are conserved in non-heading Chinese cabbage. Plant Mol Biol Rep, 29(3):525-532.
41. Lin Zhang, Fangling Jiang, Chaochao Xiong, Pingping Sun, Huiqing Jin, Jie Tian, Zhen Wu*. 2011. Changes of reactive oxygen metabolism of garlic plantlet in vitro under exogenous H_2O_2 stress and the responses to AsA. Acta Horticulturae Sinica, 38(9):1707- 1716.

Published abstract:

1. Fangling Jiang, Juye Guo, Zhen Wu. 2010. The dynamic changes of inner hormones during floral differentiation in bolting garlic cultivar. 28th International Horticultural Congress.
2. Zhen Wu, Xuechao Zhou, Fangling Jiang. 2010. Observation on morphology and leaf microstructure and cell ultrastructure of cucumber leggy seedlings. 28th International Horticultural Congress.
3. Zhen Wu, Huiqing Jin, Fangling Jiang, Jie Tian. 2010.The occurrence of hyperhydricity and production and

location of endogenous reactive oxygen species in the garlic plantlet in vitro under exogenous H_2O_2 stress. 28th International Horticultural Congress.

Published book:

1. Zhen Wu, Mangling Weng, Fangling Jiang. 2010. Ready to answer any questions about new techniques of vegetable seedling. China Agriculture Press, Beijing, China. (In Chinese)
2. Zhen Wu, Fangling Jiang. 2011. The vitrification in plantlets in tissue culture, in:10000 Selected problems in sciences.Agriculture science.Science Press, Beijing, China,pp.392-396
3. Zhen Wu. 2011. Research progress on vitrification and active oxygen metabolism of plantlets in vitro, in: Jianping Xue, Plant tissue culture and factory seedling production technology. Press of University of Science and Technology of China, Hefei, China.

Projects:

1. Key genes mining and mechanism analysis of tomato salt tolerance based on GBS-GWAS strategy, Xinjiang Joint Fund of NSFC(U1903106), 2020.01-2022.12,￥570,000
2. Molecular regulatory network construction and key gene function analysis of garlic somatic embryogenesis, National Natural Science Foundation of China(31872125), 2019.01-2022.12,￥600,000
3. Analysis of the mechanism of hyperhydricity and cell membrane abnormality induced by endogenous active oxygen of garlic plantlets in vitro, National Natural Science Foundation of China(31372056), 2014.01-2017.12, ￥800,000
4. Technological innovation and integrated application of leafy vegetables (non-heading Chinese cabbage, cabbage) industry chain, Independent Innovation Fund of Agricultural Science and Technology of Jiangsu Province,(CX(15)1015), 2015.01-2017.12,￥850,000
5. Innovation and demonstration of new model of facility vegetable in southern Jiangsu, Independent Innovation Fund of Agricultural Science and Technology of Jiangsu Province, (CX(12)4044), 2012.7-2013-6,￥150,000
6. A Project Funded by the Priority Academic Program Development of Jiangsu Higher Education Institutions
7. Conservation and research on tomato resources, the Fundamental Research Funds for the Central Universities(KYZZ201809, KYZZ201909),2018.01-2020.12,￥350,000
8. Study on the techniques of Purification and Rejuvenation of ‘Majianghongsuan' and its propagation,the Fundamental Research Funds for the Central Universities(KJFP201702),￥300,000
9. Use linkage mapping to explain the genetic mechanism of tomato cuticle cracking, the Fundamental Research Funds for the Central Universities(KYZ201609),2016.01-2018.12,￥100,000
10. Integrated research and demonstration of reduced application of chemical fertilizer and pesticide technology for open field vegetable,the National Key Research and Development Program of China (No. 2018YFD0201203),2018.7-2020.12,￥565,200
11. Probing into the cell wall loosening genes that regulate tomato fruit cracking using VIGS technology,Natural Science Foundation of Jiangsu Province(BK20140712),2014.06-2018.06,￥200,000

12. Research on the technical system of high-quality and high-efficiency vegetable industrial breeding and industrial development, Science and Technology Program of Suqian(Subproject) , 2011.10-2012.10,￥40,000
13. Techniques of organic mulching in cultivation of vegetables, Three Kinds of Agricultural Projects in Jiangsu (sx (2011) zs17),2011-2012,￥40,000
14. Innovation and demonstration of low-carbon and high-efficiency recycling production model of vegetables in solar greenhouse, Science and Technology Support Program of Jiangsu (BE2011435), 2011-2013,￥90,000
15. Research on innovation and integration of high-quality, high-efficiency, cost-saving and simplified cultivation techniques for main facility vegetables, Science and Technology Support Program of Jiangsu(BE2011461), 2011-2012,￥60,000
16. Integration and application of key technologies of industrial seedling of protected vegetable, Vice Principal Investigator, Science and Technology Development Program of North Jiangsu (BN2010054), 2010.1-2011.12, ￥40,000
17. Integrated innovation, demonstration and popularization of resource-saving and effective cultivation techniques of protected vegetable in northern jiangsu,Vice Principal Investigator, Science and Technology Support Program of Jiangsu(BE2009413), 2009.01-2011.12, ￥60,000
18. Demonstration of circular economy mode of super chicken farm with biogas engineering as link, main participant ,National Science and Technology Support Program of China(2008BADC4B07), 2008.12-2011.12, ￥100,000
19. Studies on the crucial techniques of seed industrialization in main vegetable crops, main participant, National Science and Technology Support Program of China(2008BADB1B06), 2008.01-2010.09,￥280,000
20. Integrated demonstrating of crucial techniques in new rural construction of modern agriculture region in yangtze river delta, main participant, National Science and Technology Support Program of China(2008BAD96B05), 2008.12-2010.12,￥200,000
21. Studies on physiology and molecular mechanism of spindling of cucumber seedlings, main participant, Natural Science Fund Project of Jiangsu(BK2008342), 2008.01-2012.12,￥80,000
22. Integrated innovation and demonstration of crucial techniques of modern efficiency protected horticulture in southern Jiangsu, main participant , Science and Technology Support Program of Jiangsu(BE2009403), 2009.01-2011.12, ￥80,000
23. High yield and high efficiency cultivation techniques of early and long-season of thick skin melon, main participant ,Agricultural Three Items Project of Jiangsu(sx[2008]zs20), 2007.08-2009.07, ￥190,000
24. Popularization of new cultivars of protected vegetables and resource-saving and effective cultivation techniques, main participant ,Agricultural Resources Development Project of Jiangsu(2008kj-030), 2008.08-2009.07, ￥100,000

Awards:

1. 2008 present. Research and application of factory seedling technology of main horticultural crops. Scientific and technological progress award of People's Government of Jiangsu Province, The third prize, 2012.