JILU CHE

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RESEARCH INTEREST

My research focuses on harnessing beneficial plant-microbe interactions to advance sustainable agriculture and forestry, with three key directions:

- Microbial community diversity

- Ecological functions of root-associated microbiome

- Excavation of ericoid mycorrhizal fungi

EDUCATION

Ph.D Candidate in Forestry *2021.09 - Expected 2025.06*
- Nanjing Forestry University
  • Supervisor: Prof. Weilin Li

Master of Science (M.Sc.(Agr.)) in Forestry *2014.09 - 2017.06*
- Zhejiang Agriculture and Forestry University
  • Supervisor: Prof. Shuquan Yu

Bachelor of Science (B.Sc.(Agr.)) in Landscape *2009.09 - 2014.06*
- North West Agriculture and Forestry University

RESEARCH EXPERIENCE

Department of Biological Sciences, National University of Singapore *2024.01 - 2025.01*
Visiting Ph.D Student *Adviser: Prof. Ying Chang*

- Working towards the structural characteristics of microbial communities in mangrove ecosystems along the coastal zone of Singapore. We focus on the exploration of functional taxa that have the ability to promote plant growth and pollutant degradation.

Institute of Soil Science, Chinese Academy of Sciences *2020.09 - 2021.08*
Research Associate *Adviser: Prof. Xin Song*

- Working towards sustainable remediation of soil with microbial coupling thermal treatment and phytoremediation. We focus on the exploration of microorganisms that degrade PAHs and plants that bioaccumulate PFASs, which contribute to sustainable remediation.

Nanjing Agriculture University *2017.09 - 2020.08*
Research Associate *Adviser: Prof. Qingsheng Cai*

- Exploring plant responses to cadmium stress and functional genes in plant responses to cadmium stress; screening for Cd-tolerant PGPR. Explore the methods of molecular breeding or exogenous addition to alleviate cadmium stress to plants.

PUBLICATIONS

1. H. Yang, Y. Wu, **J. Che**, L. Lyu, W. Wu, F, Cao, W. Li, **(2024)**. Effects of cadmium stress on the growth, physiology, mineral uptake, cadmium accumulation and fruit quality of 'Sharpblue' blueberry, ***Scientia Horticulturae***, 337, 113593.

2. **J. Che**, Y. Wu, H. Yang, Y. Chang, W. Wu, L. Lyu, X. Wang, F, Cao, W. Li, **(2024)**. Metabolites of blueberry roots at different developmental stages strongly shape microbial community structure

and intra-kingdom interactions at the root-soil interface, ***Science of the Total Environment***, 947, 174333.

3. **J. Che**, Y. Wu, H. Yang, W. Wu, L. Lyu, W. Li, **(2024)**. Beneficial ecological networks dominate the dynamic root endosphere microbiome during long-term symbiosis with host plants, ***Plant and Soil***, 501, 289–305.

4. H. Yang, Y. Wu, **J. Che**, W. Wu, L. Lyu, W. Li, **(2024)**. LC-MS and GC-MS Metabolomics Analyses Revealed That Different Exogenous Substances Improved the Quality of Blueberry Fruits under Soil Cadmium Toxicity, ***Journal of Agricultural and Food Chemistry***, 72, 904-915.

5. M. Ali, X. Song, Q. Wang, Z. Zhang, M. Zhang, M. Min, **J. Che**, R. Li, X. Chen, Z. Tang, B. Tang, X. Huang, **(2024)**. Effects of short and long-term thermal exposure on microbial compositions in soils contaminated with mixed benzene and benzo[a]pyrene: A short communication, ***Science of the Total Environment***, 912, 16886211.

6. **J. Che**, C. Xu, X. Song, X. Ding, H. Chen, **(2024)**. Bioaccumulation of PFASs in cabbage collected near a landfill site in China: Laboratory and field investigations, ***Science of the Total Environment***, 906, 167578.

7. **J. Che**, Y. Wu, H. Yang, S. Wang, W. Wu, L. Lyu, W. Li, **(2023)**. Root Niches of Blueberry Imprint Increasing Bacterial-Fungal Interkingdom Interactions along the Soil-Rhizosphere-Root Continuum, ***Microbiology Spectrum***, 11(3), 1-15.

8. M. Ali, X. Song, Q. Wang, Z. Zhang, **J. Che**, X. Chen, Z. Tang, X. Liu, **(2023)**. Mechanisms of biostimulant-enhanced biodegradation of PAHs and BTEX mixed contaminants in soil by native microbial consortium, ***Environmental pollution***, 318, 120831.

9. J. Wang, C. Shi, D. Fang, **J. Che**, W. Wu, L. Lyu, W. Li, **(2023)**. The impact of storage temperature on the development of microbial communities on the surface of blueberry fruit, ***Foods***, 12, 1611.

10. Y. Duan, H. Yang, H. Yang, Z. Wei, **J. Che**, W. Wu, L. Lyu, W. Li, **(2023)**. Physiological and morphological responses of blackberry seedlings to different nitrogen forms, ***Plants***, 12, 1480.

11. **J. Che**, Y. Wu, H. Yang, S.Wang, W. Wu, L. Lyu, W. Li,**(2022)**. Long-term cultivation drives dynamic changes in the rhizosphere microbial community of blueberry, ***Frontiers in Plant Science***, 13, 962759.

11. X. Liu, Q. Wang, X. Song, K. Li, M. Ali, C. Wei, **J. Che**, S. Guo, X. Dou, **(2022)**. Utilization of biochar prepared by invasive plant species *Alternanthera philoxeroides* to remove phenanthrene co-contaminated with PCE from aqueous solutions, ***Biomass Conversion and Biorefinery***, 13399.

WORKING PAPERS

1. **J. Che**, Y. Wu, H. Yang, Y. Chang, W. Wu, L. Lyu, X. Wang, F, Cao, W. Li, **(2025)**. Enhanced complexity of interkingdom co-occurrence networks in blueberry rhizosphere microbial communities under soil pH stress, ***Applied Soil Ecology***, Major Revision.

2. **J. Che**, Y. Wu, Y. Chang, W. Wu, L. Lyu, X. Wang, F, Cao, W. Li, **(2025)**. Significant benefits of the rhizosphere microbiome for sustainable agriculture: a review on blueberry rhizosphere microbiome, In Preparation.

3. **J. Che**, M. Chen, M. Ng, Y, Chang, **(2025)**. Characteristics of root-associated microbial community in mangroves across coastal regions in Singapore, In Preparation.