

Ting Shi



Areas of Research

Flower development, flowering molecular biology and genomics in fruit tree, germplasm resources and genetic breeding of *Prunus mume*.

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Research Interests

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I work on the flower development, flowering molecular biology and genomics in *Prunus mume*. Some of the problems we are currently working on are described below:

1. Flower development

Reproduction is a critical stage in the flower development process, and its failure causes serious problems affecting fruit quality and yield. Pistil abortion is one of the main factors in unsuccessful reproduction and occurs in many fruit plants. In Japanese apricot, the problem of pistil abortion is very common and affects fruit quality and plant yield; however, its molecular mechanism is not clearly understood. Therefore, in the current study, we used RNA-Seq to identify the differentially expressed genes (DEGs) and pathways actively involved in pistil abortion. A total of 60 transcription factor families such as MADS-box, NAC and TCP showed their role in this process. RT-qPCR assays confirmed that the expression levels were consistent with RNA-Seq results. This study provides an alternative to be considered for further studies and understanding of pistil abortion processes in Japanese apricot, and it provides a reference related to this issue for other deciduous fruit crops.

2. Flowering

Prunus mume blooms earlier than other deciduous fruit trees, but different regions have different blooming periods. The time of anthesis is related to the dormancy period, and a certain amount of chilling promotes bud break and blooming. To identify the

relationship between blooming time and the climatic adaptation of *P. mume* cultivars in China, the nuclear and chloroplast genomes of 19 cultivars from the main cultivation areas of *P. mume* in China were resequenced. Associated with the blooming time groups, 21 selective sweep regions were identified, which could provide evidence supporting the possible model of *P. mume* domestication originating due to natural selection. Furthermore, we identified a flowering gene, *FRIGIDA-LIKE 3 (FRL3)*, seems to affect the blooming time and the climatic adaptation of *P. mume* cultivars. This study is a major step toward understanding the climatic adaptation of *P. mume* cultivars in China.

Education Background

Bachelor: Jinling Institute of Technology

Master: Nanjing Agricultural University

Doctor: Nanjing Agricultural University

Work experience

Lecturer, Nanjing Agricultural University, 2014-

Honors and Awards

Selected Publication

Shi Ting, Iqbal S, Ayaz A, et al. Analyzing Differentially Expressed Genes and Pathways Associated with Pistil Abortion in Japanese Apricot via RNA-Seq. *Genes* 2020, **11**: 1079.

Shi Ting, Luo Wenjie, Li Hantao, et al. Association between blooming time and climatic adaptation in *Prunus mume*. *Ecol Evol.* 2020;**10**(1): 292-306.

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