

# Plant Genomics

July 14-15, 2016 Brisbane, Australia

## Maize responses to photoperiod changes under controlled conditions

You-Zhi Li

Guangxi University, China

Response of maize to photoperiods affects adaption of this crop to environments. Sensitivity towards photoperiod changes has limited integration of tropical and temperate maize germplasm into existing breeding programs. We characterize the phenotypes of four temperate-adapted maize foundation parents, Huangzao 4, Chang 7-2, Ye 478 and Zheng 58 and two tropically adapted maize foundation parents, M9 and Shuang M9 throughout the growth stage under three constant photoperiod regimes in a daily cycle of 24 h at 28 °C and analyzed expression of 48 photoperiod response associated genes. Consequently, long photoperiod (LP) repressed development of the tassels of photoperiod sensitive maize lines at V9 stage and caused subsequent failure in flowering; failure of photoperiod sensitive maize lines in flowering under LP was associated with lower expression of flowering related genes; photoperiod changes could make a marked impact on spatial layout of maize inflorescence. The larger oscillation amplitude of expression of photoperiod responsive genes occurred in LP sensitive maize lines. In conclusion, failure in development of tassels at V9 stage under LP is an early indicator for judging photoperiod sensitivity. The adaptation of temperate adapted maize lines to LP is due to the better coordination of expression among photoperiod sensing genes instead of the loss of the genes. High photoperiod sensitivity of maize is due to high expression of circadian rhythm responding genes improperly early in the light.

### Biography

You-Zhi Li is a Professor at the College of Life Science and Technology, Guangxi University, China. He has obtained his PhD degree in Microbiology from the Huazhong Agriculture University and Master degree in Plant Pathology from the North West Agriculture and Forestry University (formerly named Northwestern Agricultural University). His research interests are very broad but the focus is on maize environmental adaptability. He is presently serving as the Associate Dean of the College of Life Science and Technology as well as a Principle Investigator of the State Key Laboratory for Conservation and Utilization of Subtropical Agro-bioresources, Guangxi University, China.

[dyzl@gxu.edun.cn](mailto:dyzl@gxu.edun.cn)

### Notes: