



# Ectopic expression of the *BoTFL1-like* gene of *Bambusa oldhamii* delays blossoming in *Arabidopsis thaliana* and rescues the *tfl1* mutant phenotype

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**ABSTRACT.** *TERMINAL FLOWER1 (TFL1)* homologous genes play major roles in maintaining vegetative growth and inflorescence meristem characteristics in various plant species; however, to date, the function of the bamboo *TFL1* homologous gene has not been described. In this study, a *TFL1* homologous gene was isolated from *Bambusa oldhamii* and designated as *BoTFL1-like*. Phylogenetic analysis of *TFL1* homologous genes revealed that *BoTFL1-like* shared more than 90% identity with the *TFL1* genes of other Gramineae. RT-PCR analysis showed that the expression level of *BoTFL1-like* in floral buds was almost 3.5 times higher than in vegetative buds. In *35S::BoTFL1-like* transgenic *Arabidopsis thaliana* plants, the time of flowering was significantly delayed by 5 to 9 days, and development of floral buds

and sepals was severely affected compared to wild type *Arabidopsis* plants. This suggests that the *BoTFL1-like* gene may play roles in flowering time and flower morphological structure in *B. oldhamii*. The *BoTFL1-like* gene driven by the 35S promoter almost fully rescued the phenotype of the *tfl1* mutant apart from the number of rosette inflorescences, indicating that the function of *BoTFL1-like* was similar to *TFL1* in *Arabidopsis*. We conclude the *TFL1* gene function has been conserved between *B. oldhamii* and *A. thaliana*.

**Key words:** *Bambusa oldhamii*; Gene cloning; Sequence analysis; *TERMINAL FLOWER1*; Transgenic *Arabidopsis thaliana*