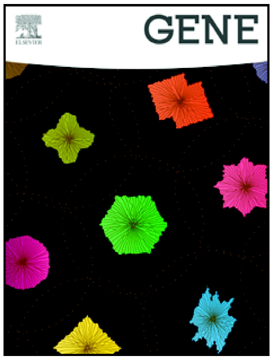

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Molecular cloning and functional characterization of *CoFT1*, a homolog of *FLOWERING LOCUS T* (*FT*) from *Camellia oleifera*

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Abstract

FLOWERING LOCUS T (*FT*) is an important integrator of flowering genetic pathways and plays crucial roles in flowering transition. The tea-oil tree (*Camellia oleifera* Abel.) is a valuable woody oil crop, but the molecular mechanisms controlling flowering are still unclear. In this study, a *FT*-like gene, *CoFT1*, was isolated and characterized from *C. oleifera*. The CoFT1 protein was localized in the nucleus and cytoplasm of *Arabidopsis* protoplasts, and exhibited no transactivation activity in yeast cells. *CoFT1* was highly expressed in mature leaves and reproductive organs, such as flower buds, flowers, flower organs, and young fruits. Its expression showed diurnal rhythms under both long-day and short-day conditions, and was photoperiod-dependent. Seasonal expression analysis revealed that the *CoFT1* transcript in leaves increased during the floral induction period. Overexpression of *CoFT1* in wild-type *Arabidopsis* resulted in precocious flowering and elevated the transcription levels of flowering related genes, such as *SOC1*, *AP1*, and *LFY*. Furthermore, the yeast two-hybrid and bimolecular fluorescence complementation assays demonstrated that CoFT1 was able to interact with