



**P 09 Genetic transformation of two local *Citrus* species by *Flowering Locus T (FT)* and *VlmybA2***

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There is a necessity for genetic improvement of local *Citrus* species to meet the national requirement and to exploit the potential export market. Delayed flowering is a main barrier for *Citrus* genetic improvement and seedling derived crop cultivation. Therefore, we attempted to improve two local *Citrus* species for early flowering through transformation by *Agrobacterium* bearing **35S:Flowering Locus T (FT)**, and **35S: VJmybA2** for enhancement of ornamental value by induction of purple pigmentation. We followed the seedling transformation as an efficient alternative method. Purple pigmentation was clear on putative *VlmybA2* seedlings of *Nasnaran (Citrus madurensis)* after 2 weeks of transformation, but they could not survive. Only one axillary shoot was observed in a putative chimeric **35S.FT** seedling out of seedlings after 4 weeks of transformation. Above plant could not survive during acclimatization. Significantly lowest plant height was observed in putative *VlmybA2* Jamanaran (*Citrus nobilis*) plants. Purple pigmentation was not evident in them. Auxin production may be altered in **35S: VlmybA2** plants resulting in lowest plant height. Inter nodal length, number of nodes and number of leaves were significantly reduced in putative **35S.FT** plants by 3 months of transformation. Fifty five percent of putative **35S: FT** plants produced axillary shoots while there were no axillary buds in control or **35S: VlmybA2** plants after 4 months of transformation. Early axillary buds and reduced intermodal lengths in putative **35S.FT** could be signs of early flowering in *Citrus*. FT being a mobile signal for flowering induction, there is a possibility that the protein produced at base of the plant due to transformation could move upward for axillary bud initiation. Our results indicate that there is a potential in **35S.FT** to alter the plant growth and structure. This experiment is being continued through morphological and molecular analysis to determine the effect of **FT** on early flowering.

**Keywords:** early flowering, FT, local *Citrus*, purple pigmentation, *VlmybA2*