

Title VIGS analysis of regulatory genes associated with pollination-induced petal senescence in *Petunia x hybrida*

Author Cai-Zhong Jiang, Jen-Chih Chen, Wouter G. van Doorn and Michael S. Reid

Citation Abstracts Book, 6th International Postharvest symposium, 8-12 April 2009, Antalya, Turkey. 256 pages.

Keyword Tobacco rattle virus; TRV; VIGS

Abstract

Tobacco rattle virus (TRV) is an effective vector for virus-induced gene silencing (VIGS) in *Petunia X hybrida*. We used VIGS as a tool for evaluating the possible regulatory role of a number of transcription factors in pollination-induced petal senescence in *petunia*. The genes encoding transcription factors were identified from a *petunia* floral EST database and included members of the AP2/EREBP, bHLH/MYC, bZIP, HB, MYB, and WRKY families. Fragments of the different transcription factor genes were included with a fragment of a gene encoding chalcone synthase (CHS) in the viral vector, and young plants were infected with the viral construct. The CHS acts as a reporter in our purple-flowered cultivar (Prime Time Blue) - white flowers or white sectors on purple flowers indicate where the host genes from which the fragments were isolated have been silenced. The time to pollination-induced petal wilting was increased by silencing a *petunia* homolog of a tomato MYB gene, two AP2/EREBP genes, and five genes in the HB family (three in the homeodomain-leucine zipper group and two in the homeodomain-PHD finger group), and one gene in the bZIP family. This initial screening suggests the possibility that, as in leaf senescence, floral senescence is the result of a regulatory network.