

Abstract:

Virus-induced gene silencing has been suggested as a powerful and rapid technique for analysis of gene function in plant growth and development (Baulcombe, 1999). Infecting *Nicotiana benthamiana* with Tobacco Rattle Virus (TRV) containing a fragment of the gene encoding phytoene desaturase, an essential enzyme in carotene synthesis, results in a photo-bleached phenotype in photosynthetic tissues. TRV has several interesting properties that could be utilized in studies of the function of candidate genes in floral senescence; it infects floral tissues, has only mild symptoms, and has a broad host range. We tested the effect of TRV containing *PDS* fragments on a range of host plants. In most cases, infection resulted in no apparent phenotype or local inoculation effects. In petunia, after a lag of several weeks, the characteristic photo-bleaching of upper portions of the plant indicated movement and silencing of the virus and of *PDS*. In preliminary tests with a TRV/*CHS* construct, the typical effects of post-transcriptional gene silencing of *CHS* in petunia – symmetrical and asymmetrical white patches on the dark purple petals – indicated the ability to use the system in petunia studies.