The p20 and p23 silencing suppressors from citrus tristeza virus are synergetic.

Natália T. Marques[1*], Ângela A. Costa[1], Tatiana R. Martins[1], Gustavo Nolasco[1]

[1]BioFig – Center for Biodiversity, Functional and Integrative Genomics, Universidade do Algarve, Campus de Gambelas, 8005-139, Faro, Portugal.
**email: nmarques@ualg.pt*

Abstract

RNA mediated silencing is a host defence mechanism against viral infection that is triggered by double stranded RNA (dsRNA). The dsRNA is cleaved by a Dicer enzyme into 21–24 nucleotide duplexes termed short-interfering RNAs (siRNAs), which then prime the degradation of cognate RNAs. Viruses encode RNA silencing suppressor proteins that interfere with the plant response. Unusually, *Citrus tristeza virus* (CTV) genome code for three suppressors, namely p20, p25 and p23. These were reported to target distinctly the single-cell and/or systemic RNA silencing response. In this work transgenic *Nicotiana benthamiana* line 16C expressing GFP has been used to analyse GFPsiRNA formation by transient expression of GFP alone or co-infiltrated with a CTV suppressor. The combined action of both p23 and p20 proteins from a mild isolate (Group M) and from a stem pitting inducing isolate (Group 3a) was assayed. Differences in the suppression activity were monitored by visual detection of green fluorescence, GFP mRNA relative levels and GFP specific siRNAS. Data at 5 days post-infiltration revealed that co-infiltration of both p20 and p23, from the same isolate, displayed a higher suppressor activity in comparison with the activity of each suppressor in single assays (with double concentration of the suppressor). Local silencing was maintained for more than 10 days post-infiltration and a markedly diminished long-range silencing was observed. These results suggest that p20 and p23 have a synergetic action.