

## SEASONAL FLUCTUATION OF LITTLE CHERRY VIRUS 1 (LChV-1) TITER IN SWEET CHERRY CULTIVARS

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### Introduction

*Little cherry virus-1* (LChV-1), a member of the recently proposed genus *Velarivirus* (Family *Closteroviridae*), is a graft-transmissible pathogen and its host range includes mainly sweet cherry and other *Prunus* species (1). It is well known that plant viruses are unevenly distributed in fruit trees and that their titer fluctuates over the year, factors that are affecting the outcome of the diagnostic process. In order to quantify and track changes of virus titers Real Time RT-qPCR assays have been developed and widely used. The objective of this work was to study LChV-1 fluctuation within sweet cherry leaves and phloem tissues throughout the year using a Real Time RT-qPCR assay developed recently by our lab (2) and to determine the most appropriate sampling period and tissue for its reliable detection.

### Materials and Methods

The viral titer fluctuation was studied in leaves and annual shoots from 8 sweet cherry trees infected with different LChV-1 isolates throughout a year. For that purpose a Real Time RT-qPCR assay has been used (2). The number of the RNA molecules in each sample was calculated by interpolation of the mean Ct value to the standard curve equation. The Pfaffl equation was used to calculate relative levels of the virus quantitation throughout the year for each tissue with the Relative expression software tool (REST) (3).

### Results and Discussion

The fluctuation of LChV-1 varied among different isolates as well as within each isolate throughout the year. Overall, viral fluctuation in leaves was higher than in shoots. The virus population in shoots increased rapidly early in spring and stayed rather stable to high levels until October. In leaves, the titer was gradually increased during spring and reached its higher values on July while it was lower in all other months. The most appropriate sampling periods for shoots and leaves have also been determined.

### References

1. Barba M., Ilardi V, Pasquini G, 2015. *Advances in Virus Research* 91: 47-83.
2. Katsiani et al., 2017. *Plant Disease* (Accepted)
3. Pfaffl MW., 2001. *Nucleic Acids Research* 29: 2002-2007.