

TOTAL L-ASCORBIC ACID CONTENT IN SEVERAL POTATO VARIETIES BEFORE AND AFTER PVYN INOCULATION

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Abstract

Being a staple food crop, the potato provide basic nutrition to many people and offer several nutritional benefits. Despite valued as carbohydrate source, tubers with higher levels of bioactive compounds (as vitamin C) could have a positive impact on the people health. The goal of this research was to evaluate the behavior of 10 potato varieties with different L ascorbic acid content after inoculation with potato virus Y (necrotic strains). Another goal of this study was to elucidate the biochemical basis responsible for different reaction to infection with potato virus Y necrotic strains PVY^N among several varieties which differ in their susceptibility or resistance to this pathogen.

The potato varieties, including new Romanian and commercial cultivars evaluated for L ascorbic acid content, were the following: Christian, Roclas, Red Lady, Marvis, Castrum, Brasovia, Hermes, Sante, Riviera and Carrera. The vitamin C content was estimated using an enzymatic method (L-ascorbic test kit, Megazyme Ltd., Bioreba).

The L ascorbic acid content was analyzed in the flesh only, with variety Hermes showing the highest content (746 mg/kg⁻¹ DW) in tubers after inoculation. Significant differences in vitamin C content were observed across the cultivars before and after virus inoculation. Excepting the cultivars Christian, Riviera and Sante, which were very resistant and resistant to mechanical inoculation, all the other varieties presented 48.6 - 100% infected plants. After 3 months from harvesting, the frequency of tubers with symptoms was between 8.2 - 34.7% for varieties Roclas, Marvis, Castrum, Brasovia and for Red Lady, Carrera, Hermes varieties this percentage was higher (69.2-98.2%).

This study provides information on level of important micronutrients as L ascorbic acid in a range of several health and PVY^N infected potato cultivars.

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Key words: *Potato, L ascorbic acid, Potato Virus Y, Necrotic strains.*

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A decorative graphic element at the top of the page, featuring a complex geometric pattern of interlocking red and blue shapes that resemble stylized 'N' or 'Z' characters. The pattern is set against a white background and is partially obscured by a dark blue horizontal bar below it.

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