

ANALYSIS OF TRIFLOXYSTROBIN IN GOLDEN DELICIOUS AND IDARET BY LIQUID CHROMATOGRAPHY-TANDEM MASS SPECTROMETRY (LC/MS/MS)

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Abstract

Apple is the most common crop cultivated in Resen region, Republic of Macedonia. In this region, apple powdery mildew caused by *Podosphaera leucotricha* (Ellis & Everh.) E. S. Salmon, and apple scab (caused by *Venturia inaequalis* (Cooke) G. Wint) are important pests in apple production. Trifloxystrobin is fungicide which acts against these pests and improves the yield of agricultural crops.

We analyzed the presence of trifloxystrobin in two varieties of apples: Golden Delicious and Idaret from two different locations: Evla and Kriveni in Resen region, Macedonia. Fungicide was analyzed in four apple development phases, or from apple of the size of a hazelnut, to the phase of harvest. Trifloxystrobin is analyzed by liquid chromatography-tandem mass spectrometry (LC-MS / MS) followed by an extraction/separation treatment with acetonitrile and the dispersive SPE - QuEChERS - method. Obtained values are compared with the maximum residues levels (MRL) according to the legislation of the Republic of Macedonia. We made a statistical processing of the data with Student's t-test.

The analysis revealed that trifloxystrobin is present in Golden Delicious on both locations with a concentration within the range of 0.04 to 0.14 mg/kg, but mainly on Kriveni location. In the Idaret from Kriveni, it is detected only in early phase of apple maturing, while in Evla there is none or is below the detection limit. The value of t-test for Golden Delicious and Idaret from both locations are 1,946173039 and 1. They are lower than the critical t-value. That means that there is a significant difference in the presence of trifloxystrobin in apples from Kriveni and Evla.

After comparing the obtained values with the MRL it can be concluded that apples from the two locations are safe for consumption.

Key words: Trifloxystrobin, Fungicides, Apples, Golden Delicious, Idaret.