

Brazil: Multi-residue analysis of lettuce

A new analytical method to determine the multi-residue level of 16 multi-class pesticides used on lettuces was developed by researchers at the Campinas State University (Brazil). They used ultra-high performance liquid chromatography and tandem mass spectrometry with a triple quadrupole mass analyser and positive-mode electro-spray ionisation. It's a quick, safe and inexpensive way to prepare samples.

The study, which followed SANTE/11945/2015 guidelines, showed that the method is selective, accurate and precise providing recoveries between 70 and 120% with standard deviations $\leq 20\%$ and quantification limits from 3 $\mu\text{g}/\text{kg}$. The method was compared with one based on high-performance liquid chromatography with tandem mass spectrometry in terms of chromatographic performance, detectability and matrix effect on five lettuce varieties.

The new method provided a 50% reduction in the time for chromatographic analysis (from 30 to 15 minutes) with a lower mobile phase flow rate (0.147 mL/min) thus reducing the consumption of the mobile phase by 25% and the injection of smaller sample amounts (1.7 μL).

Lower quantification limits were obtained for almost all pesticides studied for green-leaf lettuce. However, in relation to the matrix effect, four of the five types of lettuce studied presented higher matrix effects.

Source : *Fernanda Ribeiro, Begnini Konatu, Isabel Cristina Sales Fontes Jardim, 'Development and validation of an analytical method for multiresidue determination of pesticides in lettuce using QuEChERS-UHPLC-MS/MS', 2018, Journal of Separation Science.*

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