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VENDOR SEMINAR:

Improvements in LC-MS/MS Analysis of Anionic Polar Pesticides in Fruits and Vegetables

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Jörg Baute, Business Development Manager Food/Environmental Europe, Phenomenex

Many polar pesticides used in conventional agriculture are difficult to retain on standard C18 reversed phase HPLC columns. In addition, polar pesticides are a very diverse group of analytes which is hard to be analyzed using one standard method to identify and quantify all of them. This forces food testing laboratories analyzing samples multiple times using different methods to identify and quantify all the relevant polar pesticides in each food sample.

The purpose of the study, I will present, was the development of a fast and robust method for the LC-MS/MS determination and quantification of several common anionic polar pesticides in fruits and vegetables after sample preparation using the QuPPE method. As the samples we tested were from plant origin, we followed the QuPPE-PO-Method suggested by the EU Reference Laboratories for Residues of Pesticides-Single Residue Methods (EURL-SRM). In the frame of the study, we evaluated the effect of sample dilution, injection solvent, injection volume, and concentration of formic acid in the mobile phase on the reduction of matrix effects affecting the recovery and quantification of anionic polar pesticides including phosphonic acid, fosetyl, chlorate, perchlorate, Glyphosate, and AMPA. Presented is the resulting method allowing the identification and quantification of a variety of polar anionic pesticides including a separation of phosphonic acid from phosphoric acid in water samples.

Keywords: polar pesticides, LC-MS/MS, QuPPE

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