

**Title**

Multi-Target Screening of up to 650 Pesticides in a Single LC/MS Run by Exact Mass Ion Traces

**Authors**

Petra Decker<sup>1</sup>, Ilmari Krebs<sup>1</sup>, Lea Heintz<sup>2</sup>

<sup>1</sup>Bruker Daltonik GmbH, Bremen, Germany ;

<sup>2</sup>Bruker BioSpin GmbH, Rheinstetten, Germany

**Abstract**

ESI-(Q-)TOF-MS technology is a promising new technique for multi-target screening applications. Contrary to classical screening approaches by triple quadrupole instruments, it allows the screening of a high number of targets at the same time without loss of sensitivity, identification of unknown peaks based on accurate mass and true isotopic pattern as well as retrospective analysis of data.

Screening for several hundred of pesticides in food within one run is possible with QTOF instruments. The selectivity is based on the accurate mass, with mass traces defined within less than 0.002 Da over an excellent dynamic range of more than four orders of magnitude.

A comprehensive database of several hundred pesticides, including retention times and detailed ionization and ISCID fragmentation behavior has been built. It has been successfully applied to fast and fully automated screening of various food extract samples, with good sensitivity, in the low ppb range or even below.