

November 5, 2015 (13:30–14:30)



A Thermo Fisher Scientific Brand

VENDOR SEMINAR:

High Resolution Accurate Mass: 'Food for Thought'

High resolution accurate mass: 'Food for Thought'

Michal Godula¹, Hans G J Mol², Marc Tienstra², Paul Zomer², Jana Hajšlová³, Jana Pulkrabová³, Michal Stupák³, Dominic Roberts⁴, Paul Silcock⁴

¹ Thermo Fisher Scientific, Special Solutions Centre, Dreieich, Germany

² RIKILT - Wageningen UR, Wageningen, the Netherlands

³ University of Chemistry and Technology Prague, Czech Republic

⁴ Thermo Fisher Scientific, Manor Park, Runcorn, United Kingdom

E-mail: michal.godula@thermofisher.com

INTRODUCTION

The introduction of high resolution, accurate mass (HRAM) Orbitrap™ Technology coupled to Gas Chromatography (GC) brings a new level of performance and flexibility in GC-MS full scan acquisition and more, and perfectly complements recent developments in new MS/MS acquisition modes using LC-Orbitrap. Together these technologies have the potential to provide truly comprehensive workflow solutions, whether profiling and characterising samples; or performing simultaneously quantitative target residues and contaminant analysis whilst screening for unexpected compounds in complex samples. Furthermore, this is all in compliance with international quality control criteria and all in a single analysis.

With this potential in mind, the presentation will firstly provide a brief overview of the performance and the advantages of the new technical developments using Orbitrap technology. The first results from a proof-of-concept study into the performance of Q Exactive GC™ for the analysis of GC amenable pesticide residues in different food and feed samples, with a particular focus on selectivity and detection capability, will then be presented. Similarly the results from the analysis of the LC-amenable pesticides using the Q Exactive operated in full scan and simultaneous MS/MS, focusing on the advantages of variable Data Independent MS/MS analysis (vDIA) for improved detectability and identification will be described.

The presentation will conclude with a preliminary assessment of the performance of Q Exactive GC™ in the characterisation and profiling of extracts of whisky samples. The importance parameters such as high resolving power, excellent mass accuracy, wide linear dynamic range and automated deconvolution of HRAM spectra for the analysis of chemical components present at high and low concentrations will be discussed. The long term objective is to use such characterisation data to identify counterfeit products and for quality control to ensure the consistency of products.

This presentation will hopefully provide you with much 'Food for Thought' across a wide range of potential applications.