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UPDATE ON WORKSHOPS (11 May 2023)

MANAGING THE MATRIX MAYHEM – A COMPREHENSIVE TOOLBOX TO ADDRESS MATRIX EFFECT CHALLENGES IN MYCOTOXIN ANALYSIS WITH LC-MS/MS

Sponsored by R-Biopharm, Germany, R-Biopharm Rhone, UK, and Trilogy Analytical Laboratory, USA

Mycotoxin contaminations of food and feed have a huge economic impact and solid analytical methods for mycotoxin analysis play an important role in protecting the consumers and minimizing the economic impact. Analytical methods based on liquid chromatography-tandem mass spectrometry (LC-MS/MS) haven proven to be very effective in mycotoxin analysis. As with all analytical methods in food testing components in the matrix to be tested may interfere with the analytical method.

This workshop will focus on the challenges associated with testing mycotoxins using liquid chromatography-tandem mass spectrometry (LC-MS/MS) in complex sample matrices. The presence of matrix effects can significantly affect the accuracy and precision of mycotoxin analysis, making it difficult to obtain reliable results. The workshop will cover the different types of matrix effects that can occur during LC-MS/MS analysis, including ion suppression and enhancement, and will discuss their underlying mechanisms. Various approaches to mitigate these matrix effects will be presented, such as solid phase extraction (SPE), immunoaffinity, matrix matched calibration, and the use of certified reference materials and quality control materials. To eliminate matrix effects, without compromising the sensitivity, a clean-up of the sample is necessary. For some samples a simple extraction is sufficient, but for other, more complex samples solid phase extraction / immunoaffinity extraction can make a big difference and can reduce or even eliminate matrix effects. Stable isotope labelled standards are often used to address matrix effects. They can help to correct for matrix effects. However, the use of stable isotope labelled standards can also be limited by factors as costs and availability. Matrix matched calibration can in some cases be a more cost-effective alternative method to obtain reliable results. Certified reference materials and quality control materials to monitor the accuracy and precision of their mycotoxin analyses, and to detect and correct any issues with their methods are important additional tools. These materials can help to ensure the quality of analytical results, and to meet regulatory requirements for method validation and quality control.

Case studies will be presented to illustrate how these approaches have been successfully applied in routine testing of a large mycotoxin testing laboratory.

RAW MATERIALS SHORTAGE AND MYCOTOXINS RISK ASSESSMENT: THE ROLE OF SCREENING AND SCREENING VALIDATION

Sponsored by Gold Standard Diagnostics

Economic and political aspects combined to draught and climate change in general are impacting the raw materials availability, both worldwide or locally, and in several regions in the world a shortage of grains, vegetal commodities, feed ingredients have been reported. Changing the composition of dairy cattle diets, within the perimeters of procedural guidelines, might eventually impact the mycotoxins contamination risk, and, on the other hand, might affect the yield and the quality of milk. To mitigate the risk of using toxins-contaminated ingredients, screening test kits might be of support, only with adequate premises and an adequate validation approach.

With the relevant, valuable support of Prof. Antonio Gallo, Università Cattolica di Piacenza, the workshop will debate the challenges that farms, husbandries, and eventually laboratories might face when modifying the feed composition for livestock, with a special focus on lactating dairy cows.

Workshop led by:
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