Improved analytical methods for PAHs and Hg in selected food matrices

<u>Silvia Mallia</u>, Simon Lobsiger, Gisela Umbricht

Federal Institute of Metrology METAS, Lindenweg 50, Wabern-Bern, Switzerland
silvia.mallia@metas.ch

Contaminants in food may pose a serious health risk. For this reason, very sensitive methods are needed to detect the presence of these analytes in trace and ultra-trace amounts in complex food matrices. The national reference laboratories for processing contaminants (NRL-PC) and for metals and nitrogenous compounds (NRL-MN) in food at the Federal Institute of Metrology METAS work on the development of reference methods and reference materials for reliable food analysis. One of the major tasks of our NRLs is to compare different extraction and analytical methods for food contaminants. As a first example, we present a fast extraction/clean-up method for GC-MS/MS analysis of polycyclic aromatic hydrocarbons (PAHs) in food supplements containing botanicals. As a second example, we compare two analytical methods (ICP-MS and direct mercury analyzer) for the determination of mercury in skimmed milk and offal. Advantages and limitations of these methods are discussed. One of the future objectives of our NRLs is to develop faster extraction and clean-up processes with low solvent consumption for a large number of food contaminants.

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