Accuracy of a method based on atomic absorption spectrometry to determine inorganic arsenic in food: Outcome of the collaborative trial IMEP-41 - DTU Orbit (09/11/2019)

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A collaborative trial was conducted to determine the performance characteristics of an analytical method for the quantification of inorganic arsenic (iAs) in food. The method is based on (i) solubilisation of the protein matrix with concentrated hydrochloric acid to denature proteins and allow the release of all arsenic species into solution, and (ii) subsequent extraction of the inorganic arsenic present in the acid medium using chloroform followed by back-extraction to acidic medium. The final detection and quantification is done by flow injection hydride generation atomic absorption spectrometry (FI-HG-AAS). The seven test items used in this exercise were reference materials covering a broad range of matrices: mussels, cabbage, seaweed (hijiki), fish protein, rice, wheat, mushrooms, with concentrations ranging from 0.074 to 7.55 mg kg\(^{-1}\). The relative standard deviation for repeatability (RSD\(_r\)) ranged from 4.1 to 10.3\%, while the relative standard deviation for reproducibility (RSD\(_R\)) ranged from 6.1 to 22.8\%.

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