C-50

COMPARISON OF TWO DIFFERENT ANALYTICAL METHODS FOR DETERMINATION OF PERFLUORINATED COMPOUNDS (PFCs) IN FRESH FISH AND FISH PRODUCTS

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Perfluorinated compounds (PFCs) have become emerging food and environmental contaminants since they have been used in many common products such as waterproof clothes and shoes, packaging materials and fire-fighting foams, from which they can release to the surroundings. Till now they have been found in a wide range of concentrations both in abiotic and biotic matrices including human samples as plasma, blood and breast milk. In May 2009 perfluorooctane suphonate (PFOS) was included in the list of Stockholm convention and European Food Safety Agency (EFSA) recommended that further data on PFAS levels in food and in humans would be desirable, particularly with respect to monitoring trends in exposure. Therefore quick, sensitive, reliable and cheap method is required for monitoring not only of PFOS but also for other PFCs that have to be studied more in details.

The main aim of this study was to compare two different analytical methods used for detection of ionic PFCs in fresh fish and fish products. Two extraction techniques – shaking with methanol and ultrasonication using acetonitrile, followed by dispersive solid phase extraction clean up step with activated charcoal and ENVI-Carb were realized on PFCs interlaboratory study fish sample. In addition to sample preparation steps following measurements using liquid chromatography (LC) coupled to (*i*) time-of-flight mass spectometry (TOFMS) and (*ii*) tandem mass spectrometry with triple quadrupole type of ion analyser (MS/MS), both operated in negative electrospray ionisation mode (ESI-), were compared and detection limits estimated.

Keywords: PFCs, fish, extraction, LC-TOFMS, LC-MS/MS

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