Perfluorinated compounds in foodstuff: simple, high throughput UHPLC-QTRAP MS ultra trace analysis

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Perfluorinated compounds (PFCs), a wide group of anthropogenic substances, are widely used in industrial and consumer applications. In last decade, PFCs have become "emerging" food and environmental contaminants, since they have been found in various types of both abiotic and biotic matrices. In May 2009, PFOS (perfluorooctanesulfonic acid) and its salts were together with other 8 new halogenated persistent organic pollutants (POPs) included in the list of Stockholm convention on purpose to limit production, usage and emission release of mentioned chemicals to the environment. With regards to associated dietary intake and since only limited information are available on their occurrence in food and environment, further data on PFCs levels in humans diet would be desirable, particularly with a respect to the human exposure assessment.

Because PFCs are present at in food at ultra trace levels, a new simple high throughput and sensitive method was developed within 7FP EU project Perfood. Extraction with acetonitrile, phase partition induced by salts and dispersive SPE clean-up are used in the first step. The final identification/quantification employs UHPLC–QTRAP MS operating in negative ESI mode. The method was validated for several animal matrices with limits of quantification (LOQ) 1-12 ng/kg and repeatability below 20% for all 23 target PFCs.

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