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Preliminary results for the detection method of perfluoroalkyl substances (PFASs) residues in pork

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Abstract

The perfluoroalkyl substances (PFASs) residues, which come from environmental pollution, tend to accumulate in the food chain (EFSA, 2008; Guerranti *et al.*, 2013). 17 chemicals of PFASs family were selected for this study; only perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS) are the most known compounds based on the literature works and European legislations. Twenty frozen pork samples were collected from 7 European countries (Austria, Denmark, Germany, Holland, Italy, Poland and Spain). One gram of pork sample was deproteinized with acetonitrile, then extracted by Waters® WAX SPE (solid phase extraction) cartridges. The WAX SPE cartridge was used because in the literature there are the best results for these analytes (Taniyasu *et al.*, 2005), but regards to pork meat there is a lack of information. This method was developed and optimized in the clean-up step for validation, according to Commission Decision 2002/657/EC (European Community, 2002). All extracted samples were analyzed by liquid chromatography tandem mass spectrometry (LC-MS/MS), using methanol and 20 mM Ammonium formate as mobile phases. For validation, we use 20 blank pork samples. The results of calibration curve of each PFAS have high R² values ranging from 0.9901 to 0.9993. The Recoveries were in the range 80%-119%. The protocol of extraction was applied to the 20 European samples mentioned above and the average concentrations were from traces to 12.87 ng/g. These preliminary data don't represent a risk or an indication of high pollution but we need more analyses to define a reliable risk assessment.

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