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UNIVERSITÀ DEGLI STUDI DI MILANO
DIPARTIMENTO DI SCIENZE VETERINARIE PER LA SALUTE, LA PRODUZIONE ANIMALE E LA SICUREZZA ALIMENTARE

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 deproteined 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 at*., 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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