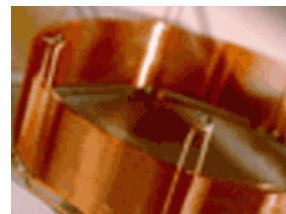


BOOK OF ABSTRACTS

10th International Symposium on **RECENT ADVANCES IN FOOD ANALYSIS**

**September 6-9, 2022
Prague, Czech Republic**

Jana Pulkrabová, Monika Tomaniová, Stefan van Leeuwen,
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Simultaneous target and non-target analysis of pesticides and aflatoxins residues using UHPLC-Q-Orbitrap-MS based on QuEChERS extraction in Brazilian baby foods

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This is to certify, the poster contribution listed above was presented within the conference program of the 10th International Symposium on Recent Advances in Food Analysis (www.rafa2022.eu), organized jointly by the University of Chemistry and Technology, Prague (UCT Prague), Czech Republic and Wageningen Food Safety Research (WFSR), part of Wageningen University & Research, The Netherlands, on 6–9 September 2022, Prague, Czech Republic.

With compliments,

Prof. Jana Hajšlová, PhD & Prof. Michel Nielen, PhD & Stefan van Leeuwen, PhD
RAFA 2022 chairs

Q19

SIMULTANEOUS TARGET AND NON-TARGET ANALYSIS OF PESTICIDES AND AFLATOXINS RESIDUES USING UHPLC-Q-ORBITRAP-MS BASED ON QUECHERS EXTRACTION IN BRAZILIAN BABY FOODS

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The aim of this study was the determination of pesticides and aflatoxins in baby food marketed in Brazil. For that purpose, ultra-high-performance liquid chromatography coupled to quadrupole-Orbitrap mass spectrometry (UHPLC-Q-Orbitrap-MS) was applied. In relation to sample preparation, our main aim was the application of a generic and simple extraction method. Thus, two different extraction procedures based on the literature, WAHSPE (water, acetonitrile, and n-heptane as solvents in combination with solid-phase extraction-based method) and QuEChERS (Quick, Easy, Cheap, Effective, Rugged, and Safe) were tested. QuEChERS methodology combined with dispersive solid-phase extraction (d-SPE) clean-up was applied and primary secondary amine (PSA), octadecylsilane (C18) and C18 with silica coated with zirconium dioxide (Z-Sep+) was selected because it simplifies the extraction of analytes without adversely affecting their recovery. Suitable performance criteria, set by the SANTE/2020/12830 guidelines, were achieved, and therefore, all targeted analytes were successfully validated. The method was applied to the analysis of 50 baby food samples, and 68% of the samples were contaminated with at least one targeted pesticide. Cypermethrin was detected at $10.3 \mu\text{g kg}^{-1}$ (above maximum residue level (MRL) established by the European Committee (EC)) in a baby sample composed of yam, banana, and strawberry. Furthermore, suspect screening analysis was performed using a homemade database containing 2424 compounds such as pesticides, mycotoxins, hormones, veterinary drugs and their metabolites. Finally, 10 pesticides and one metabolite were detected, including 5 insecticides, 3 fungicides, one growth regulator, one synergist. Additionally, one aldicarb metabolite was presented, demonstrating the suitability of the proposed approach.

Keywords: contaminants residues, suspect screening, LC-Q-Orbitrap-MS, QuEChERS, baby food

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