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ABSTRACT BOOK

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PC12: Estimates of Dietary Exposure (Spanish Population) to Plasticizers from Cereal Based Foods Contained in Plastic Packaging

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Some chemicals present in food may pose a health risk to the consumers. People are exposed to contaminants, through several sources and it is recognized that food packaging may be a potential source of contamination, through the migration of contaminants substances from the packaging into the food. The monitoring of this migration has become a priority issue in order to ensure the food safety. Total diet studies are an effective tool to estimate the levels of the population exposure to different chemicals, allowing the subsequent adoption of appropriate measures in order to protect the safety of consumers. This work present the results concerning the determination of some plasticizers in cereal based foods, contained in plastic packaging, and the estimation of the exposure. The analysed plasticizers were previously identified in the packaging itself: acetyl tributyl citrate (ATBC), diethyl phthalate (DEP), benzyl butyl phthalate (BBP), bis(2-ethylhexyl) phthalate (DEHP), diisobutyl phthalate (DIBP) and dibutyl phthalate (DBP).The foodstuffs, rice, pasta, breakfast cereal, bread, were pooled into four groups according to the population age (6-11 months, 12-35 months, 3-9 years and 10-17 years) and based on the spanish consumption data (Enalia and Enalia 2). The exposure was calculated by combining the concentration of plasticizers in the packaged foods with the consumption data.Analysis was carried out by liquid chromatography tandem mass spectrometry (LC-MS/MS). Quantification of the selected compounds was carried out using standard calibration curves and the determination coefficients were greater than 0.9990 in all cases. Similarly, the method was validated in terms of linearity, repeatability, recovery, LOD and LOQ. Recoveries were acceptable, in the range 81–108%. Results of this study indicate that consumers are exposed to plasticizers from plastic food packaging. Only DEP, DIBP and ATBC were found in all pooled samples. ATBC dietary exposure varies from 0,49 µg/kg bw/day (pool 10-17 years) to 1,7 µg/kg bw/day (pool 6-11 months), DEP from 0,06 µg/kg bw/day (10-17 years) to 0,7 µg/kg bw/day (6-11 months) and DIBP varies from 0,03 µg/kg bw/day (10-17 years) to 0,27 µg/kg bw/day (6-11 months).Further research is ongoing aimed at evaluating the exposure derived from the comsumption of other types of packaged food products.

Keywords: total diet study, migration, *LC-MS/MS,* plasticizers