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P-142 CONTAMINATION EVALUATION OF LYOPHILIZED PROCESSED-FOODS
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Introduction:
The new technological acquisitions in foodstuff field have encouraged researchers to study those transformation processes useful to the conservation of foodstuffs without losing their nourishing value and their microbiological safety. One of the conservation techniques is lyophilizing, which offers the advantage of remarkably reducing food volume while increasing its lifespan without altering its structure. However, lyophilized foodstuffs are not free from polluting agents, since conservation processes are not always effective on the latter if they are present in the primary products. Objective of the study is to estimate the presence of the tri-5 gene, and concentration of Zearalanone (ZEA), Fumonisin (F), Deoxynivalenal (DON), metals (Cd, Cr, Cu, As, and Hg), and chlorinated pesticides, both in the primary products used for the preparation of lyophilized foodstuffs and in the final products.

Methods:
The tri-5 gene search has been carried out through PCR. Mycotoxines ZEA, DON and NIV have been extracted and purified by using specific immunofinity columns and quantified by means of high performance liquid chromatography with fluorescence and UV detector. Metals (Pb, Cd, As) have been detected through atomic absorption spectrophotometry with graphite furnace while the mercury has been detected through cold atomic technique, after acid digestion. Chlorinated pesticides have been extracted through FAST-PSE, purified through GPC, identified and quantified through GC with ECD.

Results:
The tri-5 gene is always present in potatoes and always absent in potatoe.
With the air treatment a reduction of DON and NIV in both products has been obtained. The nitrogen treatment has had a single influence on the DON and in both products, in which has had a reduction to 50%. While, the NIV with the same treatment has reached the lowest percentage of reduction in both products. Cadmium has been found to inferior concentration, regarding the ingredients, in both products. Lead has been found to greater concentration in the air treatment and in both products, with both treatments. Arsenic results inferior to the sensitivity limit of method in all the samples. Mercury reaches inferior concentration in the air treatment and more elevated concentration in the nitrogen treatment. Chlorinated pesticides has been found to elevated concentrations regarding the ingredients.

Discussion and Conclusions:
The treatments influence relatively the contamination of processed-foods that, therefore, sure it depends on the first quality of the primary products.

P-143 DIOXINS LEVELS IN PEOPLE LIVING AROUND MUNICIPAL SOLID WASTE INCINERATORS IN FRANCE

Dioxins and furans are organic compounds resulting mainly from human activities such as waste incineration. They accumulate in the food chain. France has the greatest number of incineration plants in Europe, but is amongst the few countries which do not have any data on levels of dioxins in the general population (except in maternal milk).

A multicentric study has been carried out by INVS and Alfa on a random sample of approximately 1000 adult people living in the vicinity of 8 incinerators in France. Its objectives are 1) to measure the levels of dioxins in blood samples collected in the populations living around various types of municipal solid waste incinerators (MSWI) and 2) to evaluate the contribution of the dioxin contained in locally-produced food products to these levels.

The population study is composed of adults from 30 to 65 years, who have lived for at least 10 years in the study area and were not occupationally exposed to dioxins and furans. Three categories of MSWI were considered: 1) the small highly polluting ones, 2) the large highly polluting ones, and 3) the large slightly polluting ones. Moreover, in each site, three populations were studied: 1) people residing in the impact area of the incinerator's plume and eating food produced locally (poultry, eggs, milk, vegetables, ...), 2) people living in the same area but not eating locally-produced food, and 3) a general population not exposed to dioxins residing beyond 20 km from the incinerator.

The study areas around each of these incinerators were defined using a threshold of surface deposit accumulated over several years. The deposits were estimated through a modelling of atmospheric dispersion of the MSWI plume.

Exposed were assessed by blood concentrations of dioxins, furans and PCB (other persistent compounds). Sociodemographic data, eating habits, professional and environmental exposure factors were collected by interview. They will be used to assess the impact of the main risk factors for this contamination.

The field study was implemented between March and July 2005. Toxicological analysis of 35 dioxins furans and PCB as well as cadmium were performed. The statistical analysis is currently carried out using the SAS, S-Plus, Stata softwares and with the ArcGIS 9.1 GIS-ESRI. The results of the study will be presented at the conference.

First, a descriptive analysis will be performed globally and by type of incinerator. Then, risks factors on blood levels of dioxins will be presented taking into account the confounding factors. The originality of this study lies in its relatively detailed study of local food consumption.

P-144 RELIABILITY OF SPOT URINE SAMPLES
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Introduction:
The extent to which spot urine samples yield consistent, stable, and uniform results regarding over-exposure to chemicals in the workplace is often debated. Both the Occupational Safety and Health Administration (OSHA) and the American Conference of Governmental Industrial Hygienists (ACGIH) have established levels of urinary metabolites above which there is concern about overexposure to an airborne chemical. At times, spot urine samples yield consistent, stable, and uniform results indicating over-exposure to chemicals in the workplace is often debated.

Methods:
A voluntary study was conducted where a worker was exposed to low levels of benzene, toluene, and xylene for three days. The 8-hr time weighted average (TWA) airborne concentration on each day of the study was less than 1 ppm (range 0.1-0.83 ppm). Twenty-nine urine samples were collected during three days of the study and compared to thirty background samples. The concentration of t-muscimol acid (TMA) and phenol were measured.

Results:
Approximately 7% of the background samples had concentrations of phenol over the OSHA emergency benzene standard and 30% had concentrations of TMA over the ACGIH biological exposure index (BEI). Statistically, phenol corrected for specific gravity was significantly greater in the urine samples collected during the exposure period than in the urine collected during the background period (p<0.0002). However, the concentrations of uncorrected phenol, phenol corrected for creatinine, uncorrected TMA, and TMA corrected for creatinine were not statistically different from background concentrations for this volunteer (p=0.50, 0.39, 0.32, 0.48, respectively).

Discussion and Conclusions:
The results support the belief that spot urine samples are rarely reliable indicators of exposure to airborne toxicants in workers or citizens unless numerous samples are collected over several days when exposure occurred, as well as on days when no exposure occurred (e.g., background). Multiple samples are necessary because diet, metabolic differences, and intra-day variability in the concentrations of most urinary metabolites in any individual vary considerably. With respect to benzene, if 8-hr TWA airborne concentrations do not exceed 1 ppm spot urine samples are unlikely to be informative. In our experience, only when a unique metabolite or other biomarker is being studied in a person (e.g., not present in the background), and pharmacokinetic characteristics are considered, is spot urine sampling likely to be useful.