Organochlorine pesticides and polychlorinated biphenyls(PCBs) have been used intensively in agriculture and industry for a long time. They belong to a group of contaminants whose occurrence in the environment is a serious concern to environmental chemists and toxicologists due to their resistance to degradation in the environment as well as their potential toxicity. Also, the lipophilic characteristics of these substances are responsible for their ability to bioaccumulate in tissues and organs rich in lipids of men and animals through food chain. Therefore, the measure of the levels of organochlorine pesticides and PCBs in adipose tissue and liver of human populations are good markers in determining the extent of exposure and evaluating the hazards. This study was performed to compare concentrations of organochlorine pesticides(α-BHC, β-BHC, γ-BHC, δ-BHC, p,p'-DDT, p,p'-DDD, p,p'-DDE, endrin, dieldrin, aldrin) and marker PCBs(PCB nos. 28, 52, 101, 118, 138, 153, 180) in adipose tissue and liver collected at autopsies of 10 men and 10 women using gas chromatography equipped with electron capture detector and immunoassay, and to express the data on a lipid adjusted basis. From the results, the significant differences in the levels of organochlorines or PCBs between sexes, districts where they had lived and ages were also investigated.

[PA3-12] [04/18/2002 (Thr) 14:00 - 17:00 / Hall E]

Genotoxic effects of ambient air pollutants by comet assay

Kim SoungHo°, Kim YunHee, Oh SeungMin, Chung KyuHyuck

Colleage of Pharmacy, Sungkyunkwan Univ.

Single cell gel electrophoresis(SCGE) assay, comet assay is rapid, simple and sensitive technique for measuring DNA-damage with a small number of cells.
This assay enables the detection of various forms of DNA-damage in individual cell levels. It is suggest that comet assay is useful tool to evaluate the genotoxic effect of environment media.
Ambient air particulate matters are classified into two distinct modes in size distribution, namely the coarse and fine particles. Correlation between high particulate concentration and adverse effects on human populations has long been recognized. However, the toxicology of these adverse effects has not been clarified.
We investigated the genotoxic effect of PM2.5-10 collected from urban area in human pleural alveolar epithelial(A549)cells.
Genotoxicity of solvent-extractable organic compound (SEOC) in the particulate was measured by comet assay. SEOC extracts of air particulate matters were sub divided into two equal parts. The DMSO fraction would contain mainly the polycyclic aromatic hydrocarbons(PAH), while the lipid-soluble fraction would be enriched with fatty acids.
Results from comet assay show that SEOC sample induced DNA-damage .
Thus, long-term exposure non-lethal dose of air pollutants may lead to the accumulation of DNA lesions. Which may be one of the mechanisms responsible for the chronic adverse health effects of particulate air pollution.

[PA3-13] [04/18/2002 (Thr) 14:00 - 17:00 / Hall E]

The monitoring on Microbiological Hygiene of Spring Water in Seoul

Hwang YoungSook°, Kim MiSun, Ryu SeungHee, Kim YoungSoo, Seo SeungHoon

Seoul Institute of Health and Environment, College of Pharmacy, Kyunghee University

Last year(2001), outbreaks of dysentery in south korea and reports of other newly described disease associated with drinking water transmission prompted a reevaluation of source water monitoring criteria for public health protection. The field of microbial indicators was reviewed and each candidate sentinel evaluated in terms of its sensitivity, specificity. But, a clear distinction was made between source spring water monitoring and monitoring in the tap water distribution system in the metropolis.
Microbiological monitoring should be coupled with psychochemical monitoring to establish a long-term history of spring water. Because all natural spring waters vary in the amounts of heterotrophic plate count bacteria, test methods should be employed that are refractory to them. The combination of source spring water protection and regular monitoring serve as sufficient multiple health barriers of residents in Seoul. The

public health concerns about human enteric bacteria in drinking water supplies and the barriers to their practical analysis in spring water. Because spring water is directly uptaked into the human body in raw state and preserved in low temperature some period, in addition, exposed to atmosphere so it is a adorable growth condition for psychrophiles. The basic principle of water testing is that "frequent examination by simple method is more valuable than less frequent examination by a complex test or series of tests."

[PA3-14] [04/18/2002 (Thr) 14:00 - 17:00 / Hall E]

Acute and Chronic Risk Assessment on the Dietary Exposure of Chlorpyrifos

Lee Hyomin°, Yoon Eunkyung, Choi Yoonho, Lee Gunyung, Yang Ki-Hwa

National Institute of Toxicological Research

Chlorpyrifos is an organophosphorus insecticide that has been widely used in the home and on the farm. This study was conducted to quantify acute and chronic dietary intake of chlorpyrifos using residue level in food which was previously investigated by KFDA during 1995~1999 and to identify risk level whether safe or not on the dietary exposure of chlorpyrifos.
For the quantification of acute dietary intake for chlorpyrifos, mavimum food intake data on the commodities for adults presented by NHNS (National Health and nutrition Survey, 1999), maximum residue level and average body weight of adult (60kg) were regarded. For chronic exposure assessment, average intake data of adult (NHNS, 1999), average residue level of monitoring data which have been implemented from 1995 to 2000 and average body weight of adult were applied. Chronic dietary intake was estimated by summation of individual intakes.
Acute dietary intake for the single commodity was compared with acute reference dose (acute RfD) as 0.1mg/kg/day based on inhibition of erythrocyte acetylcholinesterase activity presented by WHO.
Chronic dietary intake for the sum of intakes was compared with RfD as 0.01 mg/kg/day based on inhibition of erythrocyte acetylcholinesterase activity in humans presented by WHO.
Acute dietary intake of chlorpyrifos through foods was estimated ranging from 3.2×10^{-8} mg/kg/day for millet to 3.7×10^{-5} mg/kg/day for sesame leaf. Chronic dietary intake was estimated as 5.0×10^{-6} mg/kg/day.
The risk level induced from acute dietary exposure assessment was ranged from $3.2\times10^{-7}$to 3.7×10^{-4}. The risk level induced from chronic dietary exposure assessment was 5.0×10^{-4}.
This value means that the hazardous impact of chlorpyrifos by acute or chronic dietary exposure would not be expected.

Poster Presentations - Field A4. Toxicology

[PA4-1] [04/18/2002 (Thr) 14:00 - 17:00 / Hall E]

Methamphetamine and Amphetamine Analysis in Hair Samples prepared by Cryogenic Mill

Sihn Young-Sihn°, Baeck Seung-Kyung, Kim Sun-Chun, *Han Eun-Young, *Chung Hee-Sun

The National Institute of Scientific Investigation, Taejun, *Seoul

Hair is frequently used for the analysis of the abused drugs at present due to its relative advantages in many ways over urine or blood. The deposit drugs in hair are retained almost permanently but the drugs in blood or urine are remained only for about 3 days. Hair analysis informs us the long-term drug use history of the individuals in contrast to the short-term drug use history provided from urinalysis. When the first hair analysis is failed by random error a second sample can be collected without any sample deterioration. However, in case of urine or blood the secondly collected urine or blood sample after several days is useless for the drug analysis. General sample preparation methods for hair analysis at present are 1) to use scissors to cut the hair in very small pieces and 2) to dissolve the hair in an alkaline solution. However, the scissoring and dissolving preparation methods are somewhat time consuming and the successive extraction of target drugs from these sample preparations are not perfect. We used new sample preparation method,