

$p=0.825$ and psychrotrophic bacteria was $p=0.884$ (level of significance=0.05). Depend on year, contrast to 2001 May, the significance of spring water for standard plate counts was $p=0.114$ (2002 May), $p=0.208$ (2002 Nov) and psychrotrophic bacteria was $p=0.109$ (2002 May), $p=0.213$ (2002 Dec) separately. There was no significant difference on quality of spring water using standard plate count depend on region in seoul for two years.

Poster Presentations – Field A4. Toxicology

[PA4-1] [04/17/2003 (Thr) 14:00 – 17:00 / Hall P]

Report on Trends of the Fatalities related to Drug-Toxicant and Drug Abuse in Central Area of Korea in 2002

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This report surveyed the trends of the fatalities related to the drug-toxicant (DT) and the drug abuse(DA), requested to analyze to the Central District Office of National Institute of Scientific Investigation for a year, 2002.

The mortality related to DT in men was more common than that in the women. The most common age group of DT intoxication was 30's. The causative DT, detected from the postmortem, were medicine (46.2%), pesticide (39.2%), cyanide (13.3%) and others (1.3%), in order of percentage.

The kinds of detected causative DT were paraquat (dipyridyl herbicide), cyanide (rodenticide), doxylamine (hypnotic and antihistaminic), acetaminophen (antipyretic & analgesic), caffeine (stimulant), parathion (organophosphorus insecticide and accaricide), cypermethrine (pyrethroid insecticide), chlorpheniramine (antihistamine), ibuprofen (analgesic and anti-inflammatory), endosulfan (organochlorine insecticide and accaricide), and methomyl (carbamate insecticide), in the order of frequency.

Men were more liable to DA than women, and the most common age group of DA was 30's. The detected abuse drugs(AD) were marijuana (42.3%), psychotropic (30.4%), opiate (11%), inhalant (7.9%), dextromethorphan (6.8%), and carisoprodol (1.6%).

Cannabinoid was abused by smoking, injection, oral administration, both smoking and oral administration, both smoking and injection, and methamphetamine, by injection, both smoking and oral administration, inhalation, and both oral administration and smoking, in sequence of frequency.

[PA4-2] [04/17/2003 (Thr) 14:00 – 17:00 / Hall P]

Case study of cyanide detection in fatalities by fire in Korea

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Hydrogen cyanide is one of the toxic agents with carbon monooxide in fire victims and is released by combustion of nitrogen-containing organic material such as plastic and wool. Until now there are few reports about blood cyanide concentrations in fatalities by fire in Korea. So in

this study we examined blood cyanide concentration in 12 cases of fire fatalities. Simple microdiffusion procedure was used as a analysis method of cyanide. In 12 cases of fire victims, blood cyanide concentrations averaged $2.30\mu\text{g}/\text{mL}$, with a range of $0.64\text{--}4.27\mu\text{g}/\text{mL}$.

[PA4-3] [04/17/2003 (Thr) 14:00 – 17:00 / Hall P]

Quantitative correlation of MA concentration among the hairs in forensic evidence

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This study was designed to compare the results and concentrations of methamphetamine (MA) and its metabolite amphetamine (AP) in head hair and hair collected from different parts of the body (axillae, pubis, and leg). Hair of subjects (N=15) suspected for MA abuse was simultaneously collected. Hair preparation involves washing step, fine cutting, overnight extraction, derivatization by the trifluoroacetic anhydride, and gas chromatography/ mass spectrometry (GC/MS) using selected ion monitoring. In this study, we found a good correlation of the result between head hair and hair of other parts of the body. There were some differences of MA and AP concentration in head, axillary, and pubic hair. Namely, axillary and pubic hair had the higher MA and AP concentrations than head hair. Despite the small number of subjects, this study has been proved to compare the MA results and concentrations in head, axillary and pubic hair.

[PA4-4] [04/17/2003 (Thr) 14:00 – 17:00 / Hall P]

Quantitative Analysis of amphetamines in hair by EI-GC-MS using SIM mode with uncertainty estimation

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A method using EI-GC-MS is described for the determination of amphetamines in hair. The method is applied to simultaneous quantify amphetamines (methamphetamine, amphetamine, MDMA and MDA). Drugs were extracted in 1% HCl in methanol from hair. After derivatization with TFAA, the resulting drugs were separated on HP-5MS column during a 16 min program and identified by mass spectrometry with the SIM mode (EI-GC-MS). Method validation was fully done as follow. The calibration curve ranged from 0.25 to 10 ng/mg and the coefficient determination was $R^2 > 0.99$. Within- and between run precisions were measured, using three different concentrations (low 0.8ng/mg, med 4ng/mg, high 8ng/mg). % CV of their precision were under 12.3%. Those accuracy (% bias) were 10%. The limit of detection and quantification of all analytes were 0.125 and 0.25ng/mg, respectively. The specificity in hair was observed from blank hair and dyed artificial hair. And the selectivity of amphetamines in hair was observed by spiking high concentration interferent chemicals into low QC hair samples (0.8ng/mg). After comparing with control samples, there were no interferences in this method. To value the confidence of the method, they were performed at the cut-off level 5ng/mg spiked hair samples according to the guideline of EURACHEM.