

assay. Comet assay has been applied to the detection of DNA damage due to environmental toxic materials. In particular, this assay is a novel method to assess DNA single-strand breaks. In splenic lymphocytes, the administration of the ascorbic acid and combination with melatonin reduced the tail moment in the comets compared with that of the irradiated control group showed the different values according to the administration dose. In cases of two high dose administration groups, TM values showed lower than those of low dose administration ones. Combination administration of ascorbic acid and melatonin was more effective than single administration of ascorbic acid. In blood lymphocytes, TM values showed similar compared with the splenic ones. These results indicate that ascorbic acid have a little protective effects on the radiation induced DNA damage of the mouse splenic and blood lymphocytes when assessed by the Comet assay but this can be showed a little differences of radioprotective effects according to the administration doses and combination with other antioxidant like melatonin.

[PA3-5] [ 10/18/2002 (Fri) 09:30 - 12:30 / Hall C ]

### Changes of serum immunoglobulin in the subacute oral administration of Mancozeb

Chung AeHee<sup>0</sup>, Pyo MyoungYun\*

Seoul Metropolitan Government Research Institute of Public Health and Environment<sup>0</sup>, College of Pharmacy, Sookmyung Women's University\*

Mancozeb, a polymeric complex of zinc and manganese salts of ethylene bisdithiocarbamate (EBDC), is used widely in agriculture as fungicides, and herbicides. Mancozeb has been reported to induce teratogenic and carcinogenic effect. But the immunomodulating effects of Mancozeb exposure have not been systemically evaluated. The purpose of this study was to investigate the effects of Mancozeb on immunoglobulin production. Mancozeb at dose of 250, 1000, 1500mg/kg b.w./day with or without OVA-antigen for 30 days were orally administered to female ICR mice. Mice were sacrificed and serum was collected on day 2 following administration of BPA for 30 days. Total IgG1, total IgG2a, total IgE, OVA specific IgG1, and OVA-specific IgG2a were determined and compared with those of non-treated mice. In the groups of Mancozeb with OVA antigen, total IgE, OVA-specific IgG1 and OVA-specific IgG2a were dose-dependently decreased. However, in mice treated with Mancozeb alone, OVA-specific IgG1, OVA-specific IgG2a, total IgG1, IgE, and IgG2a were not much altered. These results demonstrated the Mancozeb modulates the production of immunoglobulin.

[PA3-6] [ 10/18/2002 (Fri) 09:30 - 12:30 / Hall C ]

### Report on the trends of the Drug Abuse and the Mortalities related to Intoxication of Drug-Toxic Substances in the Central Area of Korea in 2001

Baeck SeungKyung<sup>0</sup>, Kim SunChun, Sihm YoungSihn, Son YoungMi, Park YunSin, Seo JoongSeok

National Institute of Scientific Investigation, Central District Office

This presentation reports the trends of the drug abuses (DA) and the mortalities related to drug-toxicants (MDT) in the Central area of Korea in 2001. We surveyed the DA cases and MDT, which were requested to analyze the drug-toxicants in the Central district office of National Institute of Scientific Investigation. The detected drugs on DA cases were methamphetamine, marijuana, opiates, inhalants (toluene, butane, propane), dextromethorphan, carisoprodol, benzodiazepines, nalbuphine, fenfluramine, and miscellaneous in order of cases. Men are more liable to drug abuses than women, and the most common age group was 30s. Surveys of MDT shows that the detected toxicants are paraquat (herbicide), cyanide (rodenticide or insecticide), phosphamidon (insecticide), glyphosate (herbicide), doxylamine (sedative), methomyl (insecticide), dichlorvos (insecticide), benzodiazepines (anxiolytic), and miscellaneous in order of cases. Men's intoxications by the drug-

toxicants are more occurred than women's. And most common intoxicated age group was 40s. These trends of the DA cases and the MDT in Central Area of Korea, can help the forensic toxicologists and government to plan the prevention policy of the DA cases and MDT as well as its future estimation.

[PA3-7] [ 10/18/2002 (Fri) 09:30 - 12:30 / Hall C ]

Analysis of the chemical burn-inducing components from the extraction of herb drug-mixed-medicine

Lee JuSeon<sup>o</sup>, Lim MieAe, Choi HyeYoung, Eo SangHeui, Lee HanSun, Park YooSin

국립과학수사연구소 법과학부 약독물과

Psoralen(7H-Furo[3,2-g][1]benzopyran-7-one) and angelicin(2-Oxo-[2H]-furo[2,3-h]-1-benzopyran) are angular furocoumarin with diverse photobiological effects. They are major components of *Psoralea corylifolia* L. (破古紙). *Psoralea corylifolia* L. is used for a tonic and nursing one's energy. It can be also used for loss of virility, vitiligo, a skin disease, etc.. But a well known and often appreciated 'side effects' of psoralens is the hyperpigmentation caused by this treatment.

A women who used the herbal drug-mixed-medicine named 'sobaeksu' to treat her vitiligo made a complaint against the oriental medical doctor. She complained that her skin got burned to 2nd degree by the liquid. 'sobaeksu' through a medical certificate.

So we analyzed the components of that liquid with gas chromatography and gas chromatography/mass spectrometry. It has 57.3% ethyl alcohol and two kinds of psoralens. Psoralens were psoralen and angelicin and each one of their contained quantity was 0.128mg/ml and 0.123mg/ml.

[PA3-8] [ 10/18/2002 (Fri) 09:30 - 12:30 / Hall C ]

Analysis of bufotoxins in toad venom and toad eggs

Lim MieAe<sup>o</sup>, Lee JuSeon, Eo SangHeui, Choi HyeYoung, Jeong JinIl, Lee HanSun Park YooSin

국립과학수사연구소 법과학부 약독물과

Chan Su, the dried toad venom, has been used in Asian countries as the traditional medicine for the purpose of the alleviation of pain, cardiotoxic diuresis, hemostasis and et al.. However, Chan Su is the special attention-needed medication because it is known to contain the highly toxic compounds such as bufotenine, an hallucinogen and aphrodisiac, and a series of bufadienolides, cardiotoxic steroids that produce physiological symptoms similar to digoxin.

Several cases of poisoning from the venom of toad were reported in Taiwan and the United States and one case of human poisoning from toad was also found in Korea in 1994. Severe toxicity or death has occurred after mouthing toads and following the ingestion of the entire toad, toad soup, or toad eggs.

The death of a 48-year old man ingested toad eggs has occurred this march. The toad eggs, the entire toads which had laid the eggs, and the fried eggs as well as the biological fluids given through autopsy were collected and analysed.

Bufotenine, one of the bufotoxins, was identified through GC/MS and the cardiotoxic bufadienolides, namely bufalin, cinobufagin and resibufogenin, were also detected through HPLC analysis in the toad venom. Cinobufagin was also identified in the toad eggs. However, no bufotoxins and bufadienolides were detected in the fried eggs and the biological fluids of the deceased.

[PA3-9] [ 10/18/2002 (Fri) 09:30 - 12:30 / Hall C ]

Osteoanagenesis Effect Of Hwang-Chil, a natural resources of Korea

Kim Jin Hee<sup>o</sup>, Baek Wun Bong, Shim Kyoo Jung, Choung Se Young

College of Pharmacy, Kyung Hee University, Seoul, Korea