P-87

Analysis of N-nitroso-bis(2-oxopropyl)amine (BOP) and its metabolites in pancreatic juice of Syrian golden hamsters treated with BOP

R Nishigaki1, Y Totsuka1, Y Mor2, K Masumura3, T Nohmi3, T Sugimura1 and K Wakabayashi1 (Natl. Cancer Ctr. Res. Inst.1, Gifu pharm. Univ.2, NIH3) mishiga@gan2.res.ncc.go.jp

Keywords: Pancreatic juice; Nitroso compounds; Mutagen

N-Nitroso-bis(2-oxopropyl)amine (BOP) is a potent carcinogen for the pancreatic duct in hamsters. To understand the mechanisms of BOP organotropic carcinogenicity, BOP and its metabolites, including N-nitroso(2-hydroxypropyl)(2-oxopropyl)amine (HPOP) and N-nitroso-bis(2-hydroxypropyl)amine (BHP), in pancreatic juices of BOP-treated hamsters were analyzed by HPLC. BOP was i.v. injected to Syrian golden hamsters at doses of 200 and 400 mg/kg body weight after common bile duct ligation and cannulation, and pancreatic juices were collected for 5 hours. The amounts of BOP in pancreatic juice per animal were 30 μg for 200 mg/kg and 65 μg for 400 mg/kg, respectively, corresponding to around 0.1% of the injection doses of BOP to the animals. In addition, the excretion rates of HPOP and BHP in pancreatic juices were 0.05% and 0.003% of the injection doses of BOP, respectively. Thus, it is suggested that some portions of BOP and its metabolites are excreted into pancreatic juice, and these compounds are involved in DNA adduct formations in the pancreas. We are now analyzing the mutagenic activities of pancreatic juices using Salmonella typhimurium YG7108, being a highly sensitive strain to alkylating agents, and alkylated DNA adducts in the pancreas of BOP-treated animals.

P-88

Toxic evaluation of leachate from landfill site by using several biomarkers on goldfish

Y Deguchi1, T Toyozumi1, S Masuda1, N Wu1, A Yasuhara2, S Mohri3, M Yamada2, Y Inoue2, N Kinai1 (Graduate School of Nutritional and Environmental Sciences, and COE program in the 21st century, University of Shizuoka1, Research Center for Material Cycles and Waste Management, National Institute for Environmental Studies2, Department of Environmental and Civil Engineering, Okayama University3) p4302@mail.lufu-shizuoka-ken.ac.jp

Keywords: Toxicity, Biomonitoring, Goldfish

In this study, we evaluated the toxicity of leachate from landfill site toward goldfish (Carassius auratus). Leachate contained a variety chemicals. Cationic and anionic compounds were separated from leachate by using a cation-exchange resin (DOWEX 50WX8) column and an anion-exchange resin (DEAE cellulose) column respectively. The effluent passed was collected as a non-ionic compound. The toxicities of each sample were evaluated with several biomarkers, such as micronucleus induction, DNA damage, plasma vitellogenin (VTG) synthesis, induction of hepatic CYP1A and CYP2B activities measured as the O-dealkylation of ethoxy- (EROD), methoxy- (MROD), pentoxy- (PRD) or benzoxylxy- (BROD) resorufin. The Ames test was also used. The anionic fraction showed stronger mutagenicity than that of leachate, although VTG synthesis in plasma was not observed. The cationic fraction showed neither mutagenicity nor VTG synthesis in plasma. The non-ionic fraction showed only DNA damage. Now we are evaluating the toxicities of hydrophobic and hydrophilic fractions. These data are discussed with respect to the effectiveness of biomarkers in different contaminant levels. As the result, goldfish might be a good experimental model for estimation of contamination levels in aquatic environment by using these biomarkers.

金魚を用いたin vivo試験による最終処分場浸出水の毒性評価
出口雄也1, 廣泉友康1, 増田修2, 安原昭夫2, 毛利奈乃3, 山田正人2, 井上雄三2, 木村真秀1 (静岡大学・生活健康1, 国際研2, 岡山大・環境理工3)