

[PA3-8] [10/19/2000 (Thr) 10:00 – 11:00 / [Hall B]]

Effects of bisphenol A on nitric oxide production from peritoneal macrophage in mice

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Bisphenol A(BPA) is a monomer used in the manufacture of epoxy resins and polycarbonates used in interior coatings of cans and food packaging materials. BPA has been shown to induce estrogenic activity and considered to be a probable endocrine disruptor recently. The purpose of this study was to investigate effects of BPA on nitric oxide production from peritoneal macrophage in mice. After subacute oral administration of BPA(100, 500, 1000mg/kg/day) to female ICR mice, peritoneal macrophages were obtained and cultured for 4 days with LPS. Also, normal mouse peritoneal macrophages (2x10⁶ cells/ml) were incubated in the presence of various concentration of BPA(1nM,100nM,1uM,10uM,100uM) for 4 days with LPS. Nitric oxide production was dose dependently decreased by treatment BPA in vitro but not affected in vivo.

[PA3-9] [10/19/2000 (Thr) 10:00 – 11:00 / [Hall B]]

Antiestrogenic activity of incinerator residues from school waste semi - incinerator

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It has well known that the most relevant toxic emissions such as polychlorinated dibenzo-p-dioxin (PCDDs), polychlorinated dibenzofurans(PCDFs), dioxin-like polychlorinated biphenyls(PCBs) are produced from incinerators. Induction of cytochrome P4501A catalyzed 7-ethoxyresourfin O-deethylase(EROD) activity in mammalian cell culture (EROD-microbioassay) is thought to be a selective and sensitive parameter used for the quantification of dioxin-like compounds. In Korea, several school have waste incinerator and its hazard become a social issue. The toxic emissions from several school waste incinerators were evaluated by determination of CYP1A catalytic activity and cytotoxicity using cell culture microbioassay. In addition, their antiestrogenic activity were determined by E-screen assay. The incinerator residues and soil samples were collected from the schools located in Kyunggi province in Korea from April to June 1999. The samples were extracted in a Soxhlet apparatus using toluene for 20 hours. The extracts were cleaned and fractionated with basic alumina column. In this method, basic alumina binds neutral, planar aromatic compounds, which can be eluted from the column with solvent mixtures. Two fractions(fraction I :Aliphatic hydrocarbons, nonplanar aromatic compounds-most PCBs, fraction II :Planar aromatic compounds-PAHs, PCDDs and PCDFs, so-called "TCDD-equivalents") were eluted from the column with solvent mixtures. Significantly increased EROD activities and antiestrogenic activities were observed. These results indicated that the potent toxic emissions were produced from school waste semi-incinerators.

[PA3-10] [10/19/2000 (Thr) 10:00 – 11:00 / [Hall B]]

Estrogenic activities of river waters of Korea in human

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The river water in Korea had been highly polluted, due to insufficient facilities of wastewater treatment and become social issue. After 1980s intensive effort on the recovery of water quality has been conducted. Even though water quality measured by chemical parameters such as BOD, COD, etc is improved, abnormalities of ecological organisms are still founded in the river. Therefore, there is a growing concern that a wide variety of chemicals released into the environment can disrupt the endocrine system of fish, wildlife and humans. One of in vitro assays, the E-SCREEN assay is quantitative to assess the estrogenicity of chemicals using the proliferative effect of estrogens on MCF-7 cells. This assay is a useful and sensitive method to assess environmental samples, which were mixed various estrogen-mimicking pollutants. Estrogenic activity of Gab stream and Mankyung river waters, which have been discharged domestic, industrial effluents and presumed to be contaminated various organic compounds, were determined using the E-SCREEN assay in July 2000. 50L of river water was adsorbed using XAD-2 resin column. Pollutants adsorbed to the XAD-2 resin were extracted by elution with methanol (sample I), and with ethyl acetate (sample II). XAD-2 extracts showed variable proliferation of MCF-7 BUS cells. RPP, RPE, and EEQ were useful to assess quantitative determination of total estrogenic activity in the river waters.

[PA3-11] [10/19/2000 (Thr) 10:00 – 11:00 / [Hall B]]

Monitoring of River Water Pollution using EROD –microbioassay

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So far, investigation of environmental pollution has been achieved in field study. This remains the most exhaustive approach, current dimensions of environmental researches and their inherent complexity require that relatively inexpensive and simple laboratory procedures are developed to make possible the screening of large numbers of sites and samples. At this point, microbioassay has been highlighted. The purpose of this study is to evaluate the water pollution using EROD-microbioassay. The methods were optimized and validated for the sensitive and quantitative determination of total toxic effects of the river water samples. The EROD-microbioassay was executed in rat hepatoma cell line, H4IIE and focused to detect PAHs, PCBs and dioxinlike components in the water. Gab stream and Mankyung river were selected for this study. 50L of river water was adsorbed using XAD-2 resin column. Pollutants adsorbed to the XAD-2 resin were extracted by elution with methanol (sample I), and with ethyl acetate (sample II). Total toxic effects of extracts were determined by EROD-microbioassay. Gab-downstream water sample showed the highest EROD activity. There is rare site relation between the water and sediment sample in EROD activity. At this point, we presumed that the river water environmental in Korea were polluted with various toxic chemicals.

[PA3-12] [10/19/2000 (Thr) 10:00 – 11:00 / [Hall B]]

Immunohistochemical Characterization for Apoptotic Mechanism in Bile Duct – Ligated Rats

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