

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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