

## Session IV-A

### **HUMAN HEALTH RISK ASSESSMENT BY DIOXINS-CONTAMINATED FISH CONSUMPTION IN KOREA**

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Environmental contaminants in fish pose a potential human health hazard. The objective of this study is the assessment of human risk by dioxins-contaminated fish consumption in Korea. Sampling strategy was designed by considering several factors such as fish consumption rate, lipid content, and catch region. Thirty two fish samples including fish, shellfish and processed fish were collected and pooled from three commercial fisheries markets, Noryangjin, Garak-dong and Sorae in the vicinity of the Capital area. The amount of the fish consumption by the collected fish contributes to about 80 percentage of total fish consumption for recent 5 years in Korea.

The chemical residues of Dioxins/Furans and dioxin-like PCBs were determined. Fish consumption rate and consumer body weight were calculated or cited from the previous survey results. Tools of human risk assessment in this study were based on the US EPA (United States Environmental Protection Agency) methodology. Risk-based fish consumption limits for carcinogenic health endpoint were calculated.

Consumption limit shows the maximum allowable number of fish meals per unit time that may be safely eaten. Based on the TEQ-WHO values, no consumption is recommended for eight of thirty two fish samples

including Herring and dried anchovy because of high TEQ values, less than one meal per month was acceptable for the next eight fish samples, and unrestricted fish consumption (> 16 meals per month) was allowable for 12.5 percentage of the lowest contaminated fish samples. Daily uptake rate of TEQ was highest in dried anchovy with 66 percentage of the TEQ contribution due to high consumption and contamination and followed by mackerel and herring with 10 and 5 percentage of the TEQ contribution, respectively. TEQ contribution of dioxin-like PCBs was more than 50%. This market survey shows that the current consumption of dioxin-contaminated fish in Korea may cause a potential human health problem.