Hepatic P450 Enzyme Activity, Tissue Morphology and Histology of Mink (Mustela vison) Exposed to Polychlorinated Dibenzo-P-dioxins (PCDDs) and Dibenzofurans (PCDFs)

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Abstract
Dose- and time-dependent effects of environmentally relevant concentrations of 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD), 2,3,7,8-tetrachlorodibenzofuran (TCDF), 2,3,4,7,8-pentachlorodibenzofuran (PeCDF), and a mixture of two congeners (TCDD and PeCDF) on the activities of hepatic P450 enzymes, tissue morphology, and histology of adult female mink were determined under controlled conditions. Three doses of TCDD (0.13, 0.5, or 2 ng TEQ/kg bw), or TCDF (9.5 or 30 ng TEQ/kg bw) or a mixture of doses of TCDD and TCDF (0.13 or 0.5 ± 9.5 or 30 ng TEQ/kg bw) were administered to two groups of 180 adult female mink for 180 days. In controls, bled at the termination of the study, there was a significant increase in hepatic AhR expression, osteosclerotic oocyte (EROD) and methoxy sclerotic oocyte (MROD) numbers, and in liver weight relative to control. There were no significant differences in morbidity, growth, reproduction, kit growth, and survival. Environ. Sci. Technol. 30:283-291

Discussion
PCDF and PeCDF Concentrations in Liver
The liver concentration of TCDF was the lowest among the five polychlorinated dibenzofurans (PCDFs) and dibenzofurans (PCDFs) among the two congeners. There were no significant histological or morphological changes. The effects of TCDF and PCDF Concentrations in Liver

Results
Concentrations of PCDF in Liver

Materials and Methods

References

Conclusions

Figure 1. Dose-Response of Epidermal Growth Factor on EROD and MROD Activity for Hepatic P450 Enzymes in Mink (Mustela vison) Exposed to Polychlorinated Dibenzo-p-dioxins (PCDDs) and Dibenzofurans (PCDFs)

Table 1. Effects of 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) and 2,3,7,8-tetrachlorodibenzofuran (TCDF) on hepatic microsomal enzyme activities in mink (Mustela vison).

The EROD and MROD measures for the TCDF-conger were similar whether administered singularly or as part of a mixture (Figure 6).