

Estrogenic and Dioxin-like Activity of Influent and Effluent of the Industrial Wastewater Treatment Plant

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The response of environmental pollutants can be detected bioanalytically focusing on the source and matrices of concern. Cell culture bioassays are rapid and inexpensive, and thus have great potential for determination of environmental pollution. We have examined the estrogenic and dioxin-like activities of industrial wastewater using E-screen assay and EROD microbioassay. Influent and effluent wastewater were collected from four different industrial wastewater treatment plants, such as cosmetics, paints, textile producing and metal coating plant, and extracted using solid-phase extraction with Oasis@HLB plus cartridge. Pollutants adsorbed to the cartridge were eluted with MTBE. MCF-7 cells were treated with extracts showed various estrogenic potential. The textile wastewater showed strong estrogenic activity and the others showed weak estrogenic activity. No effect was observed in the wastewater from paints producing plant. All extracts showed CYPIA inducing effects, indicating these samples contain dioxin-like chemicals. Bioanalytical results of effluents compared with influents could give us information about the incomplete wastewater treatment and biological potency caused by pollutants. [Supported by a Grant from the Korea Science and Engineering Foundation]