

Construction of Risk Information Database for Risk Assessment on Endocrine Disruptors

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Introduction

Risk Assessment consist of four steps such as hazard identification, exposure assessment, dose-response assessment, risk characterization. Each step needs various information for execution. The purpose of this study is idenfication of informaton to conduct risk assessment on endocrine disruptors and collection of data.

Methods and Materials

Subjected chemical is 67 endocrine disruptors proposed World Wildlife Fund and input data is searched from research report of govermental/international agency, articles in scientific journals and database based on health information or toxicological information produced by USEPA/USFDA/USDA such as IRIS, HSDB, CCRIS, ChemIDplus, GeneTox. Database system developed by visual basic.

Results and Conclusions

User condition of database is very easy and helpful for risk assessors.

Database contents included in data for each step of risk assessment such as hazard identification(physico-chemical properties, hazard ranking, toxicity, metabolism in human), exposure assessment(Release pattern in environment, environmental fate, level in environment, human exposure, environmental fate mechanism), dose-response assessment / risk estimation (cancer potency & dose-response data, reference dose & dose-response data, benchmark dose & dose-response data, ADI(acceptable daily intake) & TDI(tolerable daily intake), and risk management(regulatory information et al.).

Table 1. Contents of Database for Risk Assessment on EDCs

Contents		Items
Hazard Identification	Physico-chemical Properties	CAS No. / Molecular weight / Structure/ Appearance / Vapor pressure / Octanol-Water Partition Coefficient factor / Bioconcentration factor / Boiling point / Flash point / Melting Point / Solubility in water at 20 / Henry's Law Constant
	Hazard Ranking	Classification of IARC, U.S.EPA et al.
	Toxicity	Acute Toxicity Chronic Toxicity - General toxicity, Reproductive toxicity & Endocrine toxicity, Teratogenicity, Mutagenicity, Neurotoxicity, Genotoxicity, Carcinogenicity
	Metabolism	Metabolism & Metabolite Biological half-life
Exposure Assessment	Release pattern Environmental Fate	Release pattern Fate in environment media (Water, Soil, Atmosphere)
	Level in Environment	Atmosphere / Water / Soil / Sediment / Food / Human Breast Milk / Others
	Human Exposure	Probable routes of Human exposure Body Burden Average Daily Intake General population Occupational Exposure
	Environmental Fate Mechanism	Biodegradation Biotransformation Abiotic degradation Soil adsorption Volatilization from Water/Soil Bioconcentration
Dose-Response Assessment & Risk Characterization	Cancer potency & Dose-Response Data	Experimental Animal Experimental duration Tumor type Exposure route Mathematical model & Dose- response data
	Reference Dose & Dose-Response Data	NOAEL / LOAEL Experimental Animal Experimental duration Toxicity end point Exposure route Uncertainty factor & Modifying factor
	Benchmark Dose & Dose-Response Data	Experimental Animal Experimental duration Toxicity end point Exposure route Mathematical model & Dose-response data
Regulatory Information	ADI(Acceptable Daily Intake) & TDI(Tolerable Daily Intake) Regulatory Information	ADI(Acceptable Daily Intake & TDI(Tolerable Daily Intake) Regulatory Information

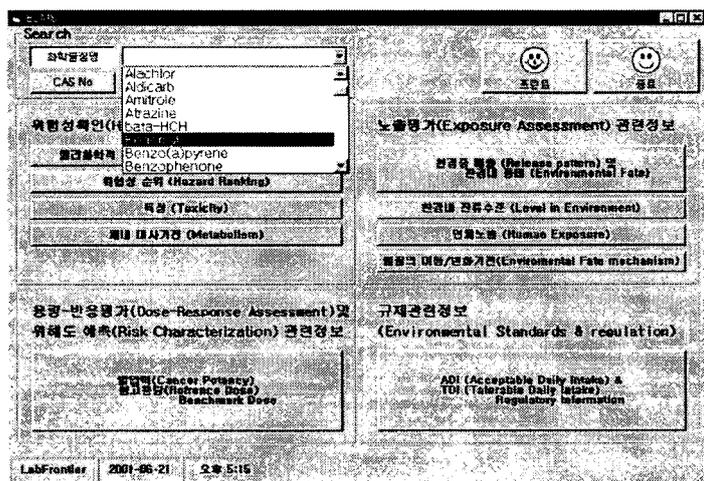


Fig 2. Main Frame of Database for Risk Assessment of EDCs

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