



Utilizing automated and semi-automated data analytic tools for curating data in the ECOTOX Knowledgebase

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15-19 November 2020

Identifying Empirical Evidence: ECOTOX Knowledgebase

www.epa.gov/ecotox

Curated database providing single chemical environmental toxicity data for aquatic life, terrestrial plants and wildlife

- Comprehensive literature searches
- Literature review
- Data extraction

[ECOTOX presentations/posters](#)

J. Olker ID: 1.14.16

C. Elonen ID: 5.17.09

www.epa.gov/ecotox

ECOTOX Knowledgebase


Home Search Explore Help Contact Us

Data last updated Sep 15, 2020 See update totals	Recent chemicals with full searches completed and data extracted Carbaryl Clofibrate Dibutyl phthalate Dichloropropanes Di-ethylhexyl phthalate	Gemfibrozil Inorganic Chlorates Mancozeb Methomyl Metrafenone	Octamethylcyclotetrasiloxane Per- and Polyfluoroalkyl Substanc... TBBPA (4,4'-(1-Methylethylidene)b... Wy14643	Total in database 12,223 Chemicals	13,266 Species
				50,932 References	1,018,565 Results

WELCOME TO ECOTOX VERSION 5!
Please click here to provide feedback so that we can continue to improve your experience.

About ECOTOX

The ECOTOXicology knowledgebase (ECOTOX) is a comprehensive, publicly available knowledgebase providing single chemical environmental toxicity data on aquatic life, terrestrial plants and wildlife.



[Learn More](#)

Disclaimer: You should consult the original scientific paper to ensure an understanding of the context of the data retrieved from ECOTOX.

Getting Started

- Use [Search](#) if you know exact parameters or search terms (chemical, species, etc.)
- Use [Explore](#) to see what data may be available in ECOTOX (including data plots)
- [ECOTOX Quick User Guide](#) (2 pp, 141 K)
- [ECOTOX User Guide](#) (89 pp, 663 K)
- [ECOTOX Terms Appendix](#)

Other Links

- [Limitations](#)
- [Frequent Questions](#)
- [Other Tools/Databases](#)
- [Recent Additions](#)

[Get Updates via Email](#)

Download

Download the entire database as an ASCII file via the button below.

[Download ASCII Data](#)



Uses of the ECOTOX Knowledgebase in Environmental Decision Making

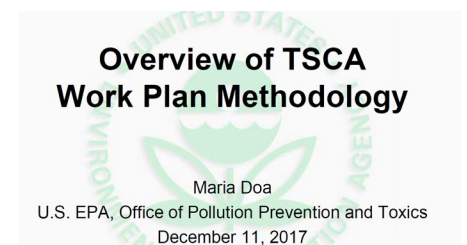
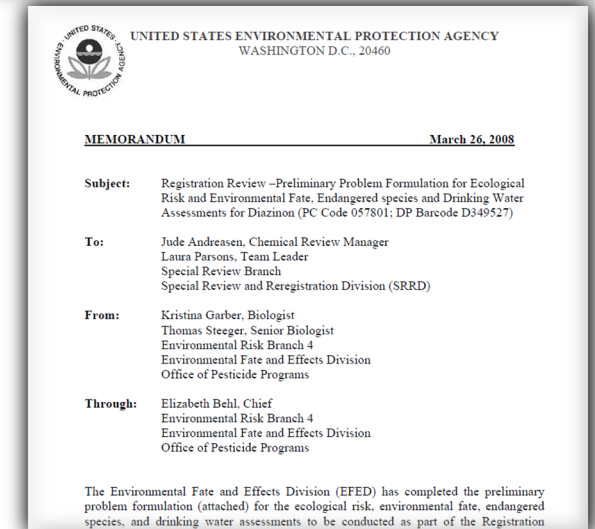
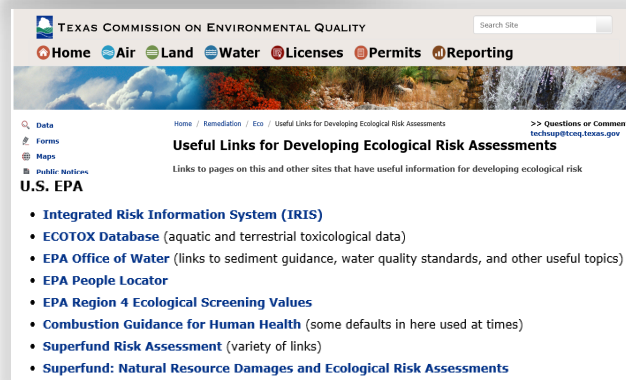
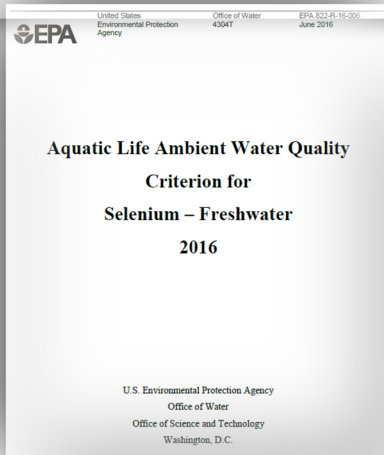
Used for Ambient Water Quality Criteria for Aquatic Life since 1985.

Used for Ecological Risk Assessment for Office of Pesticides for chemical registration and re-registration (FY19 – 30 chemicals).

Used by Regions and States for hazardous waste site assessments and in emergency response

Providing ecological hazard data for the prioritization and assessment of chemicals for TSCA/Lautenberg Act

Providing ecological toxicity data for PFAS to researchers, EPA ERA Forum, DoD Tri-Services ERA Work Group, and others



Ecological Hazard

Ecological hazard data are extracted from the EPA ToxValDB database where it had been compiled from the EPA ECOTOX database. Although data are available for a variety of species, only data for aquatic species are used in the current illustration. The data can come from any of the following study types: mortality:acute, mortality:chronic, reproductive:acute, reproductive:chronic, growth:acute, growth:chronic (all from ECOTOX). The types of effect levels are LD_{xx}/LC_{xx}/EC_{xx}/ED_{xx} where xx can range from 1% to 100%, and LOEL/NOEL/LOEC/NOEC. Values must be in units of mg/L. For each chemical, the lowest toxicity value was separately determined for acute and chronic studies, regardless of species. The



Need for high volume rapid data identification for assessment purposes

- The accelerated pace of chemical risk assessment for ecological receptors
- Discovery of “new” chemicals of ecotoxicological concern
- Increase in number and diversity of journals
- Changing landscape of toxicity data used for ERA
- Decreasing dependency of traditional whole animal testing for ERA
- Development of tools to expedite gathering of information to focus shortened time frames on data integration and professional judgement
- Development of tools that can sort rapidly through BROAD keyword searches (e.g. chemical name)
- Digital formats of journals allow for use of data analytic applications
- Shift from apical endpoints to NAMs requires transparent development of controlled vocabulary for systematic data curation
- Providing a means to take full advantage of existing data before conducting new toxicity studies



ECOTOX Data Curation Pipeline

Chemical verification
and development of
search terms

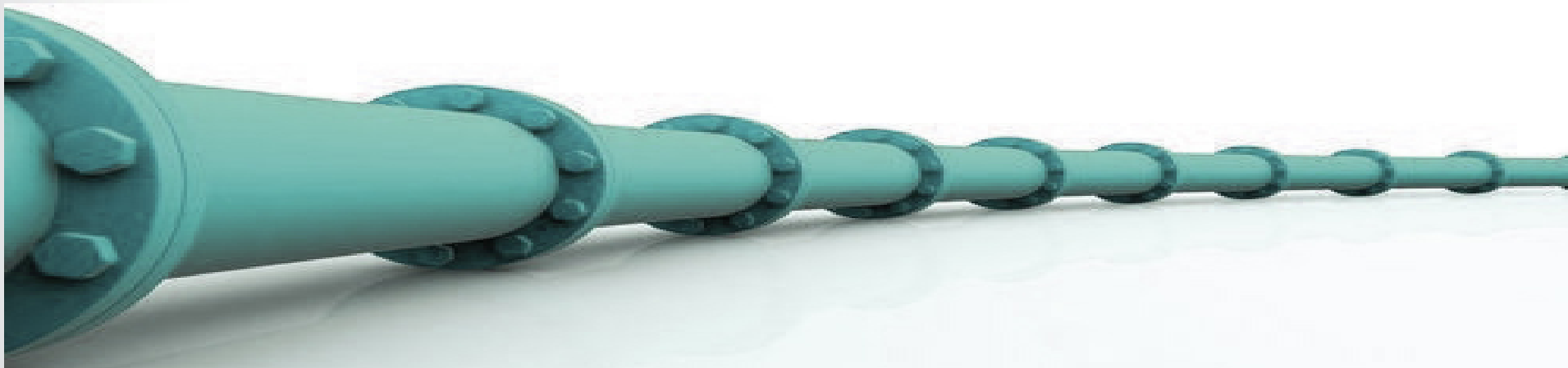
Conduct literature
searches

Identify and acquire
potentially
applicable studies

Review literature
for applicability to
ECOTOX

Extract data into
ECOTOX
Knowledgebase

Data Evaluation





Chemical verification and development of search terms



Ecotox Task 1 - Search Engine(s) Search

Provided: Sep. 4th, 2020

Save message and link number numerical sorting added: Sep. 23rd, 2020

Search terms:

Documents to parse (max 100)

Fixed Flags set

fate

transport

degrad*

metaboli*

dissipat*

convert

conversion

route

Fate

Degrad*

Metab*

User added flags

CASRN

Directed search sites

California Department of Pesticide Regulation	https://www.cdpr.ca.gov/docs/chemical/monster2.htm
EPA Chemistry Dashboard	https://comptox.epa.gov/dashboard
University of Hertfordshire PPDB: Pesticide Properties DataBase	https://sitem.herts.ac.uk/aeru/ppdb/en/search.htm
RED documents	https://archive.epa.gov/pesticides/reregistration/web/html/status.html
Office of Pesticide Programs Pesticide Chemical Search	https://ofmpub.epa.gov/apex/pesticides/f?p=CHEMICALSEARCH:1
Food and Agriculture Organization of the United Nations	http://www.fao.org/home/en/
World Health Organization	http://apps.who.int/pesticide-residues-jmpr-database/
Cornell University Exttoxnet	http://pmep.cce.cornell.edu/profiles/exttoxnet/index.html
PAN Pesticides Database	http://www.pesticideinfo.org/Search_Chemicals.jsp

Computer Assisted Search Term Generation

Enter Chemical Name

Select Search engine (e.g. Google) for
web scrubbing

Enter fixed/default or other optional
“flags” or “tags to assist in finding
synonyms or related terms.

Application-Programing Interface (API) to
query established online chemical
identification resources to return
synonyms, product formulation names,
alternate CASRN, etc.



Chemical verification and development of search terms

Text mining:
highlights
flags/tags within
document

Users more
rapidly find
associated terms

In this example,
Metabolites are
identified

Page

Page 49 of 97

4.1.2 Distribution

(a) Humans

[Poklis et al. \(1980\)](#) detected diazinon in tissues (blood, bile, adipose, liver, brain, and kidney) after intentional oral ingestion of diazinon. No other data on tissue distribution of diazinon in humans were available to the Working Group.

(b) Experimental systems

In experimental animals, diazinon is widely distributed to tissues after absorption. The elimination half-life of diazinon in the blood of male Wistar rats given intraperitoneal doses of 20 mg/kg bw or 100 mg/kg bw was estimated to be 4 hours and 6 hours, respectively ([Tomokuni et al., 1985](#)). Similarly, immediately after administration of intravenous (10 mg/kg bw) and oral (80 mg/kg bw) doses in rats, plasma concentrations of diazinon indicated half-lives of 4.7 and 2.9 hours, respectively ([Wu et al., 1996](#)). Most diazinon in the plasma (89%) is bound non-covalently to albumin and other plasma proteins ([Wu et al., 1996](#); [Poet et al., 2004](#)). By 8 hours after intravenous administration (20 mg/kg bw) to rats, the concentration of diazinon was significantly higher in the kidney than in the liver, or brain ([Tomokuni et al., 1985](#)). After intravenous dosing (1 or 10 mg/kg bw), diazinon was distributed and eliminated rapidly in male Sprague-Dawley rats, and concentrations of diazinon in saliva were comparable to plasma concentrations of non-protein-bound diazinon ([Lu et al., 2003](#)).

4.1.3 Metabolism

(a) Overview of metabolism of diazinon

Organophosphate pesticides are subject to similar metabolic pathways in humans and experimental animals in vivo ([Casida & Quistad, 2004](#)); see also Section 4.1.3 of the *Monograph on Malathion* in the present volume. Biotransformation of organophosphates occurs primarily in the liver, and to a lesser extent in

the small intestine, after oral exposure ([Barr & Angerer, 2006](#)). After absorption by the dermal or oral route, diazinon is rapidly biotransformed by several enzymes – including cytochrome P450 (CYP), paraoxonases, and carboxylesterases (CES) – to water-soluble metabolites that are rapidly eliminated (see [Fig. 4.1](#)). Both desulfuration and dearylation of diazinon are mediated by CYP. The bioactive diazoxon metabolite can be detoxified by paraoxonase (PON1)-catalysed reactions ([Costa et al., 2013](#)), yielding alcohol and diethylphosphate products. Alternatively, diazoxon can be subject to inhibition of CES function ([Crow et al., 2012](#); [Fig. 4.1](#)). The oxon metabolite can escape detoxication by CES or PON1 in the liver and instead covalently modify (and inhibit) various serine hydrolase enzymes, including the B-esterase targets butyrylcholinesterase, acetylcholinesterase, and CES ([Casida & Quistad, 2004](#); see [Fig. 4.2](#)). The bioactive oxon metabolite is generated by CYP-catalysed desulfuration ([Buratti et al., 2005](#); [Barr & Angerer, 2006](#)). If the oxon is not degraded by hepatic paraoxonase or carboxylesterases, it can escape the liver and instead covalently modify (and inhibit) various serine hydrolase enzymes, including the B-esterase targets butyrylcholinesterase, acetylcholinesterase, and carboxylesterases ([Casida & Quistad, 2004](#); see [Fig. 4.2](#)). Generation of the oxon metabolite is a bioactivation reaction, because the oxon is a much more potent inhibitor of B-esterases than the parent compound ([Casida & Quistad, 2004](#)). In general, analytical measurement of the oxons in blood is difficult due to the small quantities of metabolite that are formed and its relative instability ([Timchalk et al., 2002](#)). Nevertheless, the oxons are potent inhibitors of serine hydrolases, exhibiting bimolecular rate constants of inhibition varying from 10^3 to 10^7 M⁻¹s⁻¹, depending on the hydrolase and the specific oxon ([Casida & Quistad, 2004](#); [Crow et al., 2012](#)). Most important with respect to the insecticidal and toxicological activity of the oxon is acetylcholinesterase, the



26	0
27	0
28	0
29	0

[Angerer, 2006](#)). After absorption by the dermal or oral route, diazinon is rapidly biotransformed by several enzymes – including cytochrome P450 (CYP), paraoxonases, and carboxylesterases (CES) – to water-soluble metabolites that are rapidly eliminated (see [Fig. 4.1](#)). Both desulfuration and dearylation of diazinon are mediated by CYP. The bioactive diazoxon metabolite can be detoxified by paraoxonase (PON1)-catalysed reactions ([Costa et al., 2013](#)), yielding alcohol and diethylphosphate products. Alternatively, diazoxon can be subject to inhibition of CES function ([Crow et al., 2012](#); [Fig. 4.1](#)). The oxon metabolite can escape detoxication by CES or PON1 in the liver and instead covalently modify

55	0
56	5
57	3
58	2
59	1



Conduct
literature
searches

WR002 ECOTOX Literature Search for Diazinon 2019

Anita Pomplun, GDIT	MEMORANDUM	
Anne Pilli, GDIT	To:	Colleen Elonen, EPA
Arne Anderson, GDIT	From:	Brian Kinziger, GDIT
Brian Kinziger, GDIT	CC:	Anne Pilli, GDIT
Chris Suomi, GDIT	CC:	Arne Anderson, GDIT
Colleen Elonen, EPA	Search Conducted by:	Conductor
Gage Sachs, GDIT	Document Drafted by:	Drafter
Jennifer Olker, EPA		
Jennifer Olsen, GDIT		
John Frisch, GDIT	Project:	WR002 ECOTOX
Kara Tudor, GDIT	Chemical:	Diazinon
Katie Nehiba, GDIT	Report Year:	2019
Travis Karschnik, GDIT	Chemicals of Concern:	chem of concern
Tyler Gephart, GDIT	UNIFY Title Search String:	

Conducted in Abstract Sifter Plus*

Center for Computational Toxicology and Exposure, EPA's PubMed Abstract Sifter. The United States Environmental Protection Agency's Center for Computational Toxicology Exposure. Software.

<https://doi.org/10.23645/epacomptox.10324379.v1>

*Customized for Ecotoxicology

Quota Check

3

Literature Search
Terms

diazinon

Hero

Proquest

PubAg

PubMed

Science Direct
FT

Science Direct
TK

Scopus

Springer

Theses

USGS

Web of
Science

Send



Conduct literature searches

Web Services Automated searches of several citation index databases

- 1.) PubMed
- 2.) PubAg - Agricola
- 3.) Proquest
- 4.) Science Direct –Title & Keywords
- 5.) Science Direct – Full Text
- 6.) Theses: PMC library of dissertations and theses
- 7.) Web of Science
- 8.) USEPA Hero database
- 9.) Full text of Springer Nature articles
- 10.) Scopus-Elsevier title abstract and Key words
- 11.) USGS collection of employee pubs

Enter Query

Select a source then enter a query and click on Submit

- ☐ PubMed
- ☐ PubAg
- ☐ Proquest
- ☐ Sci Dir TK
- ☐ Sci Dir FT
- ☐ Theses
- ☐ WOS
- ☐ Hero
- ☐ Springer
- ☐ Scopus
- ☒ USGS

Diazinon
Diazoxon
DETP

This option queries the US Geological Survey collection of publications by employees.


☒ Delete then add

☐ Append

☐ Retrieve pmids (slower)

Submit

Exit



When this form goes away, your query is done.



A		B		C		D		E	
						Run a query			
Version 2_10_1		Sifter terms and frequency counts							
				human	eco	toxic	Pu		
Doc ID	PMID								
33097675	33097675	1	0	0					
33084996	33084996	0	1	0					
33078633	33078633	0	0	0					
33057151	33057151	0	0	0					
33037899	33037899	10	0	8					
33037524	33037524	3	0	0					
32985641	32985641	0	1	0					
32980654	32980654	0	1	1					
32971289	32971289	0	0	0					
32964385	32964385	1	0	3					
32944385	32944385	3	0	0					
32943215	32943215	0	0	16					
32919961	32919961	0	0	0					
32911022	32911022	0	0	3					
32900191	32900191	0	1	2					
32875636	32875636	0	0	0					
32865346	32865346	0	0	2					
32846350	32846350	1	0	0					
32829131	32829131	0	1	0					
32806438	32806438	0	1	1					
32797826	32797826	0	2	0					
32787525	32787525	0	0	4					
32786544	32786544	4	0	5					
32767961	32767961	1	0	2					
32764256	32764256	0	0	0					
32739347	32739347	0	1	0					
32730898	32730898	1	0	5					
32721694	32721694	0	0	2					
32679376	32679376	0	0	0					

Duplicate han

Conduct literature searches

A

[-> Click here to find duplicates by Column A identifier](#)

B

[-> Click here to find duplicates by Column B identifier](#)

DOI

[-> Click here to find duplicates by DOI](#)

Summarize

[<-Click here to summarize Main sheet results](#)

Summarize
by batch

[<-Click here to summarize batch results](#)

Export
Main to
RIS

[<-Click here to send all Main sheet rows to RIS](#)

[illegible]



Identify and
acquire potentially
applicable studies

SWIFT-Review - [L:\Priv\ECOTOX Searches\PFAS\PFAS Quarterly Update April 2020\ECOTOX PFAS Quarterly Update April 2020 All Downloads.ris]

File Tools Reports Help

Tag Browser Search Browse MeSH Tree Heatmap Browser Prioritized Lists

Evidence Stream

Tag	Code(s)	Count
* Ecotoxicity (animal and plant)		10686
Human		8162
Animal (all)		8098
Environmental Fate (beta)		7730
Animal (human health models)		6226
In Vitro		4024
Plant		2066
[No Tag]		1688
Physical Chemistry (beta)		637

Document Preview Pie Chart Bar Chart

Cellular Response of Freshwater Green Algae to Perfluorooctanoic Acid Toxicity

Xu, D.; Li, C.; Chen, H.; Shao, B.. *Ecotoxicol. Environ. Saf.* (2013)

▼ Abstract

No Abstract available

▼ Health Outcomes

Mortality (100%)

▼ Topic Models

Topic 58: toxicity, pfoa, pfos, effects, mixtures, acid, acute, perfluorooctanoic, combined, mixture (87%)

Topic 61: model, pfoa, exposure, data, pharmacokinetic, pfos, based, modeling, pbpk, concentrations (13%)

Showing 10686 of 18831 loaded documents (1 selected; 0 total included; 0 total training docs.)

Score	Training Item?	Included?	RefID	Title	Year	Authors	Journal
1	■	■	s89	Cellular Response of Freshwater Green Algae to Perfluoro...	2013	Xu, D.; Li, C.; Chen, H.; Shao, B.	Ecotoxicol. Environ. Saf.
0.818	□	□	s743	Toxicity of Polyfluorinated and Perfluorinated Compounds...	2012	Ding, G.; Wouterse, M.; Baerselman, R.; P...	Arch. Environ. Contam. Toxicol.
0.293	□	□	s8218	Cellular response of freshwater green algae to perfluoro...	2013	Xu, Dongmei; Li, Chandan; Chen, Hong; S...	Ecotoxicology and Environmental Safety
0.293	□	□	s4662	Cellular response of freshwater green algae to perfluoro...	2013	Xu, D.; Li, C.; Chen, H.; Shao, B.	Ecotoxicol Environ Saf
0.293	□	□	s17595	Cellular response of freshwater green algae to perfluoro...	2013	Xu, Dongmei; Li, Chandan; Chen, Hong; S...	Ecotoxicology and environmental safety
0.293	□	□	s1317	Cellular response of freshwater green algae to perfluoro...	2013	Xu, D. M.; Li, C. D.; Chen, H.; Shao, B.	Ecotoxicology and Environmental Safety
0.293	□	□	s10301	Cellular response of freshwater green algae to perfluoro...	2013	Xu, Dongmei; Li, Chandan; Chen, Hong; S...	Ecotoxicology and environmental safety
0.293	□	□	s10300	Cellular response of freshwater green algae to perfluoro...	2013	Xu, Dongmei; Li, Chandan; Chen, Hong; S...	Ecotoxicology and environmental safety
0.293	□	□	s15351	Cellular response of freshwater green algae to perfluoro...	2013	Xu, D. M.; Li, C. D.; Chen, H.; Shao, B.	Ecotoxicology and Environmental Safety
0.283	□	□	s8293	Spatial distribution, seasonal variation and risks of legacy...	2019	Wang, Yuan; Shi, Yali; Cai, Yaqi	Science of The Total Environment
0.283	□	□	s1485	Spatial distribution, seasonal variation and risks of legacy...	2019	Wang, Y.; Shi, Y. L.; Cai, Y. Q.	Science of the Total Environment
0.283	□	□	s17668	Spatial distribution, seasonal variation and risks of legacy...	2019	Wang, Yuan; Shi, Yali; Cai, Yaqi	Science of the total environment

SWIFT Review Evidence
stream filters to limit
content to Ecological Taxa

SWIFT REVIEW

Desktop Version (1.21)

Search Strategies

swift-review@edome.com

All references loaded in Swift Review and Evidence Stream “Filter” applied.

Ecotoxicity evidence stream identifies titles and abstracts with Ecologically relevant Taxa

In this example, 18,631 References were reduced to 10,686 by applying the evidence stream filter

Ecotoxicity (animal and plant)

tiab :("Norway Rat" OR "Rattus norvegicus" OR "Rainbow Trout" OR "Oncorhynchus mykiss" OR "Water Flea" OR "Daphnia magna" OR "Zebra Danio" OR "Danio rerio" OR "Fathead Minnow" OR "Pimephales promelas" OR "House Mouse" OR "Mus musculus" OR "Common Carp" OR "Cyprinus carpio" OR "Bluegill" OR "Lepomis macrochirus" OR "Domestic Chicken" OR "Gallus domesticus" OR "Japanese Medaka" OR "Oryzias latipes" OR "Mallard Duck" OR "Anas platyrhynchos" OR "Goldfish" OR "Carassius auratus" OR "Corn" OR "Zea mays" OR "African Clawed Frog" OR "Xenopus laevis" OR "Green Algae" OR "Pseudokirchneriella subcapitata" OR "Honey Bee" OR "Apis mellifera" OR "Bread Wheat" OR "Triticum aestivum" OR "Soybean" OR "Glycine max" OR "Northern Bobwhite Quail" OR "Colinus virginianus" OR "Water Flea" OR "Ceriodaphnia dubia" OR "Nile Tilapia" OR "Oreochromis niloticus" OR "Rice" OR "Oryza sativa" OR "Channel Catfish" OR "Ictalurus punctatus" OR "Yellow Fever Mosquito" OR "Aedes aegypti" OR "Earthworm" OR "Eisenia fetida" OR "Silver

~25,000 Scientific & common names from all species
with toxicity data identified in ECOTOX Knowledgebase +
Generic species habitat tags (e.g. AQUATIC, AVIAN
TERRESTRIAL, BENTHIC)



Identify and
acquire potentially
applicable studies

SWIFT ACTIVE SCREENER **EcoTox Project**

setac PFAS

hoff.c

Screen Reference

+ Add New Review

Currently Screening: Level 1 - Title & Abstract



Inclusion Color
Exclusion Color

5655175: The presence of MWCNTs reduces developmental toxicity of PFOS in early life stage of zebrafish

Wang, S., Zhuang, C., Du, J.; Environ Pollut; Pg201-209; 2017

[Web Link](#)

Both carbon nanotubes (CNTs) and perfluorooctane sulfonate (PFOS) are used widely. There is considerable concern regarding their ecotoxicity. CNTs might interact with PFOS in water and result in different impacts compared with those after single exposures. To our knowledge, the developmental toxicity of PFOS in the presence of multi-walled carbon nanotubes (MWCNTs) in the early life stage of zebrafish (from 3 h post fertilization (hpf) to 96 hpf) was investigated for the first time in this study. The embryos and larvae were exposed to PFOS (0.2, 0.4, 0.8, and 1.6 mg/L), MWCNTs (50 mg/L), and a mixture of both. Compared with PFOS exposure, the adverse effects induced by PFOS on the hatching rate of zebrafish embryos and the heart rate and body length of zebrafish larvae were reduced in the presence of MWCNTs, and mortality and malformation were also alleviated. In addition, zebrafish larvae exposed to PFOS showed decreased activities of superoxide dismutase, catalase, and glutathione peroxidase, as well as decreased levels of reactive oxygen species and malondialdehyde, in the presence of MWCNTs, indicating that oxidative stress and lipid peroxidation was relieved. Thus, the presence of MWCNTs reduces the developmental toxicity of PFOS in the early life stage of zebrafish.

Include/Exclude Question

Include this reference? *

- ☐ Yes, include the reference
☒ No, exclude the reference

EcoTox

Exclusion Reasons *

- ☐ Chem Methods
☐ Human Health
☐ Fate
☐ Review
☐ Bacteria
☐ Non English
☐ Survey
☒ Mixture
☐ In Vitro
☐ Abstract
☐ Refs Checked

Save and Next

The reference will be excluded

Display Instructions

Ecotox Modifications to Swift-Active Screener

~ 100,000 abstracts from ECOTOX Knowledgebase archives were used to develop algorithms to prioritize TIABs most likely for inclusion for language learning models AND if excluded, predict exclusionary reasons status

B.Howard 5.17.04

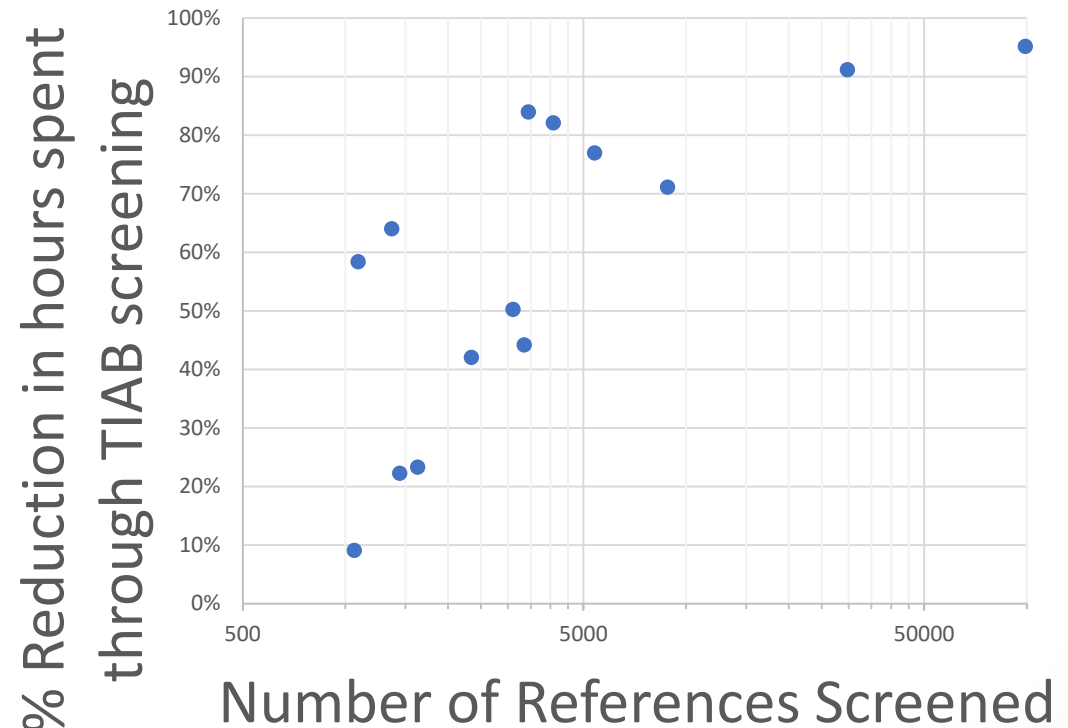
A Web-Based Literature Identification Platform for the ECOTOXicology Knowledgebase, Powered by Deep Learning.



Measurable improvement in Efficiency using analytic tools

	# Refs	# of Hrs	Baseline normalized hrs/5000 refs	% change
Baseline	5000	127	127	0%
	Actual # Refs	Actual # of hrs		
PFAS	3443	14	87	-84%
Gemfibrozil	1369	13	35	-64%
Methomyl	1630	32	41	-23%
Clofibrate	5386	32	137	-77%
Chlorates	2345	35	60	-42%
Wy14643	1089	12	28	-58%
Carbaryl	8830	65	224	-71%
Dicamba	3106	39	79	-50%
Dicloran	1061	25	27	-9%
Clothianidin	1444	29	37	-22%
Thiamethoxam	3350	48	85	-44%
Phthalic acid	4076	19	104	-82%
Asbestos	29768	66	756	-91%
Nitrates	98902	120	2512	-95%

% Reduction in Level of Effort through TIAB screening



Average of 58% reduction in hours spent through TIAB screening / 5000 references



Extract data into
ECOTOX
Knowledgebase

Test

Print Excel Add Result Copy Test Copy Test Copy Test Delete Test Close

Errors: 0 Warnings: 0

Reference **Skim** *Nine-Year Response of Douglas-Fir and the Mixed Hardwood-Shrub Complex to Chemical and Manual Release Treatments on an ICHmw2 Site near Salmon Arm, by Simard, S., and J. Heinemann, 1996* ECOREF#: 179843

ID	Chemical	Habitat	Species	Age	Lifestage	Study Type	Exposure Type	Test Location	#Results	Create Date	Modified Date	Expand
2231248	38641940 - Vision	Soil	3795 - Pseudotsuga menziesii	NR	NR	NR	H5	FIELDN	1	10/30/2019	10/30/2019	
2231249	38641940 - Vision	Soil	3214 - Betula papyrifera	NR	NR	NR	H5	FIELDN	1	10/30/2019	10/30/2019	

Chemical Information **Species Information** **Test Information** **Habitat Information (Soil)**

Study Duration: 9 (Mean), NR (Min), NR (Max), yr (Unit), Comments
Exposure Duration: 9 (Mean), NR (Min), NR (Max), yr (Unit), Comments
Concentration Types: A
Exposure Type: ENV - HS
Media Type: NAT
Media Comments: BRUNISOLIC GRAY LUVIS
Doses: 3 (Mean), NR (Min), NR (Max), Comments
Doses:

Dose Number	Control	Conc	Type	Dose	Unit	Organism #	Statistical Method	Stat Value	Comments
1	C	A	0	Al kg/ha	NR	NR	NR		
2		A	1.07	Al kg/ha	NR	NR	NR		
3		A	2.14	Al kg/ha	NR	NR	NR		

Experimental Design: RANDOMIZED COMPLETE BLOCK DESIGN
Additional Comments:
Application Frequency: 1 (Mean), NR (Min), NR (Max), X (Unit), Comments
Control/Dose Types: B, C
Test Type: NR
Test Location: FIELDN
Test Method: NR
Other Effects: MANUAL CUTTING
-- Select --

Cancel Save Save and Add Copy Save and Continue Save and Add Result

ECOTOX data curation in UNIFY

- Up to 250 fields of controlled vocabulary
- Computationally assisted
- Consistent extraction



Extract data into
ECOTOX
Knowledgebase



- Next priority is to develop automated/semi-automated capabilities for data extraction from identified .PDF documents
- Existing Controlled Vocabulary ready made for “Entity Definitions”

Automated/Semi-Automated Data Extraction

Quick Match match whole word ☒ ignore case ☒
ignore punctuation ☒ auto quick match ☒ 15013 Wehr 1987

Entities Groups Relations

+ Chemical (105)

- species (1)

T105. epiphytes

+ Dose (21)

Name of new entity...

Create New Entity Type

Collapse All Expand All

Toggle Spans

Save and Proceed

Validate Annotations

Save Template

Remove Annotations

}~Aquatic Botany, 29 (1987) 261-274 f }~fl, Elsevier Science Publishers B.V..
Amsterdam - Printed in The Netherlands 261
I
FACTORS AFFECTING ACCUMULATION AND LOSS OF ZINC BY THE AQUATIC MOSS
RHYNCHOSTEGIUM RIPARIOIDES (HEDW.) C. JENS.
J.D. WEHR¹, M.G. KELLY and B.A. WHITTON¹ Department of Botany, University of
Durham, Durham DH1 3LE (Gt. Britain)
I (Accepted for publication 24 August 1987) ABSTRACT
i Wehr, J.D., Kelly, M.G. and Whitton, B.A., 1987. Factors affecting
accumulation and loss of zinc by the aquatic moss *Rhynchostegium riparioides*
(Hedw.) C. Jens. *Aquat. Bot.*, 29: 261-274.
t Reciprocal transplant.s of the moss *Rhynchostegium riparioides* (Hedw.) C.
Jens. between populations from streams with high (0.27mg l⁻¹) and low (0.05
mg l⁻¹) concentrations of Zn showed
I that Zn uptake over the first 12 h was twice as fast as loss and reached an



Developing Data Evaluation Tools

WHAT'S NEXT?

Collaboration with
USEPA's Office of Water

Manage Existing DERs Collapse

Office of Water DER Template

[Preview DER](#) [Return to Dashboard](#) Sharpe, R.L., J.P. Benskin, A.H. Laarman, S.L. MacLeod, J.W. Martin, C.S. Wong, and G.G. Goss. 2010. Perfluorooctane Sulfonate Toxicity, Isomer-Specific Accumulation, and Maternal Transfer in Zebrafish (*Danio rerio*) and Rainbow Trout (*Oncorhynchus mykiss*). Environ. Toxicol. Chem. 29(9): 1957-1966. ECOTOX Ref. No. 151619

DER ID: 345
Last Modified: 10/19/2020 14:11 By: Steve Erickson

[Save](#) Workflow Status: Assigned To:

Data Evaluation Report on the Effects of Potassium perfluorooctanesulfonate on Fish *Danio rerio*

The DER template below has been populated with ECOTOX data coded in UNIFY. Fill in any supplemental information to prepare the DER for the Risk Assessor's evaluation.

Part A: Overview Collapse

I. Test Information

Chemical

CAS Name: Potassium perfluorooctanesulfonate
CAS Number: 2795393
Purity: 98
[UNIFY purity comments are also displayed if valued.]
Storage Conditions:
Solubility in Water (units):

General Notes:

The concentration of PFOS in any experiment was always well below its reported solubility in water (~500 mg/L) [26]. [26] Beach SA, Newsted JL, Coady K, Giesy JR. 2006. Ecotoxicological evaluation of perfluorooctanesulfonate (PFOS). Rev Environ Contam Toxicol 186:133-174.

☒ Controlled Experiment (manipulated)
☐ Field Study/Observation (not manipulated)

Primary Reviewer: Date: ☐ EPA ☒ Contractor [Sign Electronically](#)
QA Reviewer: Date: ☐ EPA ☐ Contractor [Sign Electronically](#)
Secondary Reviewer: Date: ☐ EPA ☐ Contractor [Sign Electronically](#)
(At least one reviewer should be from EPA for sensitive taxa)

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Citation:
Indicate: author(s), year, study title, journal, volume, and pages (e.g., Slonim, A.R. 1973. Acute toxicity of beryllium sulfate to the common guppy. J. Wat. Pollut. Contr. Fed. 45(10): 2110-2122).
Sharpe, R.L., J.P. Benskin, A.H. Laarman, S.L. MacLeod, J.W. Martin, C.S. Wong, and G.G. Goss. 2010. Perfluorooctane Sulfonate Toxicity, Isomer-Specific Accumulation, and Maternal Transfer in Zebrafish (*Danio rerio*) and Rainbow Trout (*Oncorhynchus mykiss*). Environ. Toxicol. Chem. 29(9): 1957-1966. ECOTOX Ref. No. 151619

Companion Papers:

- Application pulls objective data extracted from existing records
- UNIFY platform now has ability for curators to add subjective observations
- Allows multiple reviewers
 - Primary
 - QA
 - Secondary



Acknowledgements - Coauthors

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Tyler Gephart

Thank you!

hoff.dale@epa.gov

*Mention of software packages platforms is
not an endorsement.