Package: OpenFoodTox (via r-universe)

August 13, 2024

Type Package

Title EFSA OpenFoodTox Data Made Accessible as an R Package

Version 0.1.3

Date 2024-07-22

Description Provides convenient access to data extracted from some of the spreadsheet files made available by the chemical hazards database of the European Food Safety Authority (EFSA), accessible via <https://www.efsa.europa.eu/en/data-report/chemical-hazards-database-openfoodtox>.

Depends R (>= 3.5.0)

Imports dm, dplyr

Suggests knitr, rmarkdown, here, DiagrammeR, DiagrammeRsvg, testthat (>= 3.0.0), readxl

BugReports https://github.com/jranke/openfoodtox/issues

URL https://agroscope-ch.github.io/openfoodtox

License GPL

LazyData yes

LazyDataCompression xz

RoxygenNote 7.3.1.9000

Roxygen list(markdown = TRUE)

Encoding UTF-8

Language en-GB

Config/testthat/edition 3

VignetteBuilder knitr

Repository https://agroscope-ch.r-universe.dev

RemoteUrl https://github.com/agroscope-ch/openfoodtox

RemoteRef HEAD

RemoteSha b6e6f79870fecdef58015d05805a58493aba7001

Contents

`oft` *Connected tables of data published in OpenFoodTox*

Description

This data object was created to facilitate the access to the list of so-called 'reference points' published as part of the OpenFoodTox datasets (Carnesecchi et al. 2023). These reference points are linked to substance characterisations and the outputs of the European Food Safety Authority (EFSA) in which the data were published. Also, a table of 'reference values' is included, which is also linked to substance characterisations and EFSA outputs. Other data tables published as part of OpenFoodTox are not included in this R package.

Usage

```
oft
```

Format

list A dm object

Details

See `vignette("OpenFoodTox")` for a description of the contents of the individual tables.

The R code used to create this data object is installed with this package in the 'dataset_generation' directory.

Source

Carnesecchi E, Mostrag A, Ciacci A, Roncaglioni A, Tarkhov A, Gibin D, Sartori L, Benfenati E, Yang C, Dorne JLCM (2023). OpenFoodTox: EFSA's chemical hazards database (Version 5). Zenodo. doi:10.5281/zenodo.8120114

Dorne JLCM, Richardson J, Livaniou A, Carnesecchi E, Ceriani L, Baldin R, Kovarich S, Pavan M, Saouter E, Biganzoli F, Pasinato L, Zare Jeddi M, Robinson TP, Kass GEN, Liem AKD, Toropov AA, Toropova AP, Yang C, Tarkhov A, Georgiadis N, Di Nicola MR, Mostrag A, Verhagen H, Roncaglioni A, Benfenati E, Bassan A. EFSA's OpenFoodTox: An open source toxicological database on chemicals in food and feed and its future developments. Environ Int. 2021 Jan;146:106293. doi:10.1016/j.envint.2020.106293

See Also

species_group

Examples

```
library(dm, warn.conflicts = FALSE)
library(dplyr, warn.conflicts = FALSE)

# Show the relational structure of the data tables (only works in online HTML help)
dm_draw(oft, view_type = "all")

# List species used in aquatic tests
oft$reference_points |>
  dplyr::filter(Study == "Ecotox (water compartment)") |>
  select(Species) |>
  unique() |>
  arrange(Species) |>
  print(n = Inf)

# Collect endpoints on green algae
green_algae_endpoints <- oft$reference_points |>
  dplyr::filter(Species %in% oft_aq_green_algae) |>
  select(Substance, Species, DurationDays, Endpoint, qualifier, value, unit, Effect)
print(green_algae_endpoints)

# Show aquatic endpoints for spinosad
oft$reference_points |>
  dplyr::filter(Study == "Ecotox (water compartment)") |>
  dplyr::filter(grepl("^Spinos", Substance)) |>
  arrange(Species) |>
  select(Substance, Species, DurationDays, Endpoint, qualifier, value, unit, Effect)

# Check substance characterisation of spinosad (no useful information available)
oft$substance_characterisation |>
  dplyr::filter(grepl("^Spinos", Substance))

# List species used in terrestrial tests
oft$reference_points |>
  dplyr::filter(Study == "Ecotox (soil compartment)") |>
```

```
  select(Species) |>
  unique() |>
  arrange(Species) |>
  print(n = Inf)

# Show terrestrial endpoints for spinosad
oft$reference_points |>
  dplyr::filter(Study == "Ecotox (soil compartment)") |>
  dplyr::filter(grepl("^Spinos", Substance)) |>
  arrange(Species) |>
  select(Substance, Species, DurationDays, Endpoint, qualifier, value, unit, Effect)

# Show terrestrial endpoints for terbuthylazine
oft$reference_points |>
  dplyr::filter(Study == "Ecotox (soil compartment)") |>
  dplyr::filter(grepl("^Terbuthyl", Substance)) |>
  arrange(Species) |>
  select(Substance, Species, DurationDays, Endpoint, qualifier, value, unit, Effect)

# Show terrestrial endpoints for florasulam (an example where terrestrial plant data are available)
oft$reference_points |>
  dplyr::filter(Study == "Ecotox (soil compartment)") |>
  dplyr::filter(grepl("^Floras", Substance)) |>
  arrange(Species) |>
  select(Substance, Species, DurationDays, Endpoint, qualifier, value, unit, Effect)
```

`oft_aq_cyanobacteria` *Aquatic Cyanobacteria*

Description

Aquatic Cyanobacteria

Usage

```
oft_aq_cyanobacteria
```

Format

An object of class `character` of length 4.

See Also

Other oft_species_group: `oft_aq_diatom_algae`, `oft_aq_fish`, `oft_aq_green_algae`, `oft_aq_invertebrates`, `oft_aq_macrophytes`, `oft_aq_primary_producers`, `oft_arthropods`, `oft_bees`, `oft_birds`, `oft_earthworms`, `oft_mammals`, `oft_other`, `oft_plants`, `oft_soil_macroorganisms`

Examples

```
print(oft_aq_cyanobacteria)
```

oft_aq_diatom_algae *Aquatic diatoms*

Description

Aquatic diatoms

Usage

```
oft_aq_diatom_algae
```

Format

An object of class `character` of length 3.

See Also

Other oft_species_group: `oft_aq_cyanobacteria`, `oft_aq_fish`, `oft_aq_green_algae`, `oft_aq_invertebrates`, `oft_aq_macrophytes`, `oft_aq_primary_producers`, `oft_arthropods`, `oft_bees`, `oft_birds`, `oft_earthworms`, `oft_mammals`, `oft_other`, `oft_plants`, `oft_soil_macroorganisms`

Examples

```
print(oft_aq_diatom_algae)
```

oft_aq_fish *Fish*

Description

Fish

Usage

```
oft_aq_fish
```

Format

An object of class `character` of length 24.

See Also

Other oft_species_group: `oft_aq_cyanobacteria`, `oft_aq_diatom_algae`, `oft_aq_green_algae`, `oft_aq_invertebrates`, `oft_aq_macrophytes`, `oft_aq_primary_producers`, `oft_arthropods`, `oft_bees`, `oft_birds`, `oft_earthworms`, `oft_mammals`, `oft_other`, `oft_plants`, `oft_soil_macroorganisms`

Examples

```
print(oft_aq_fish)
```

`oft_aq_green_algae` *Aquatic green algae*

Description

Aquatic green algae

Usage

```
oft_aq_green_algae
```

Format

An object of class `character` of length 8.

See Also

Other oft_species_group: `oft_aq_cyanobacteria`, `oft_aq_diatom_algae`, `oft_aq_fish`, `oft_aq_invertebrates`, `oft_aq_macrophytes`, `oft_aq_primary_producers`, `oft_arthropods`, `oft_bees`, `oft_birds`, `oft_earthworms`, `oft_mammals`, `oft_other`, `oft_plants`, `oft_soil_macroorganisms`

Examples

```
print(oft_aq_green_algae)
```

`oft_aq_invertebrates` *Aquatic invertebrates*

Description

Aquatic invertebrates

Usage

```
oft_aq_invertebrates
```

Format

An object of class `character` of length 21.

See Also

Other oft_species_group: oft_aq_cyanobacteria, oft_aq_diatom_algae, oft_aq_fish, oft_aq_green_algae, oft_aq_macrophytes, oft_aq_primary_producers, oft_arthropods, oft_bees, oft_birds, oft_earthworms, oft_mammals, oft_other, oft_plants, oft_soil_macroorganisms

Examples

```
print(oft_aq_invertebrates)
```

---

oft_aq_macrophytes *Aquatic macrophytes*

Description

Aquatic macrophytes

Usage

```
oft_aq_macrophytes
```

Format

An object of class character of length 10.

See Also

Other oft_species_group: oft_aq_cyanobacteria, oft_aq_diatom_algae, oft_aq_fish, oft_aq_green_algae, oft_aq_invertebrates, oft_aq_primary_producers, oft_arthropods, oft_bees, oft_birds, oft_earthworms, oft_mammals, oft_other, oft_plants, oft_soil_macroorganisms

Examples

```
print(oft_aq_macrophytes)
```

---

oft_aq_primary_producers *Aquatic primary producers*

Description

Aquatic primary producers

Usage

```
oft_aq_primary_producers
```

Format

An object of class character of length 25.

See Also

Other oft_species_group: oft_aq_cyanobacteria, oft_aq_diatom_algae, oft_aq_fish, oft_aq_green_algae, oft_aq_invertebrates, oft_aq_macrophytes, oft_arthropods, oft_bees, oft_birds, oft_earthworms, oft_mammals, oft_other, oft_plants, oft_soil_macroorganisms

Examples

```
print(oft_aq_primary_producers)
```

---

oft_arthropods *Beneficial Arthropods*

Description

Beneficial Arthropods

Usage

```
oft_arthropods
```

Format

An object of class character of length 12.

See Also

Other oft_species_group: oft_aq_cyanobacteria, oft_aq_diatom_algae, oft_aq_fish, oft_aq_green_algae, oft_aq_invertebrates, oft_aq_macrophytes, oft_aq_primary_producers, oft_bees, oft_birds, oft_earthworms, oft_mammals, oft_other, oft_plants, oft_soil_macroorganisms

Examples

```
print(oft_arthropods)
```

oft_bees *Bees*

Description

Bees

Usage

```
oft_bees
```

Format

An object of class `character` of length 1.

See Also

Other oft_species_group: `oft_aq_cyanobacteria`, `oft_aq_diatom_algae`, `oft_aq_fish`, `oft_aq_green_algae`, `oft_aq_invertebrates`, `oft_aq_macrophytes`, `oft_aq_primary_producers`, `oft_arthropods`, `oft_birds`, `oft_earthworms`, `oft_mammals`, `oft_other`, `oft_plants`, `oft_soil_macroorganisms`

Examples

```
print(oft_bees)
```

oft_birds *Birds*

Description

Birds

Usage

```
oft_birds
```

Format

An object of class `character` of length 17.

See Also

Other oft_species_group: `oft_aq_cyanobacteria`, `oft_aq_diatom_algae`, `oft_aq_fish`, `oft_aq_green_algae`, `oft_aq_invertebrates`, `oft_aq_macrophytes`, `oft_aq_primary_producers`, `oft_arthropods`, `oft_bees`, `oft_earthworms`, `oft_mammals`, `oft_other`, `oft_plants`, `oft_soil_macroorganisms`

Examples

```
print(oft_birds)
```

oft_earthworms *Earthworms*

Description

Earthworms

Usage

```
oft_earthworms
```

Format

An object of class `character` of length 5.

See Also

Other oft_species_group: `oft_aq_cyanobacteria`, `oft_aq_diatom_algae`, `oft_aq_fish`, `oft_aq_green_algae`, `oft_aq_invertebrates`, `oft_aq_macrophytes`, `oft_aq_primary_producers`, `oft_arthropods`, `oft_bees`, `oft_birds`, `oft_mammals`, `oft_other`, `oft_plants`, `oft_soil_macroorganisms`

Examples

```
print(oft_earthworms)
```

oft_group_species *Group species names occurring in reference points*

Description

Convenience function to group species into fish, aquatic invertebrates, aquatic primary producers, birds, mammals, bees, earthworms, arthropods and plants. The entries 'Unspecified' and 'not reported' are translated to NA.

Usage

```
oft_group_species(species)
```

Arguments

`species`	The species name, i.e. the Species column in the referenec point table

Value

A species group name

Examples

```
library(dplyr)
oft$reference_points |>
  dplyr::filter(Substance == "Thiacloprid") |>
  mutate(Species_group = oft_group_species(Species)) |>
  select(Substance, Species, Species_group, Endpoint, qualifier, value, unit, Effect)
```

---

oft_mammals *Mammals*

Description

Mammals

Usage

```
oft_mammals
```

Format

An object of class `character` of length 17.

See Also

Other oft_species_group: `oft_aq_cyanobacteria`, `oft_aq_diatom_algae`, `oft_aq_fish`, `oft_aq_green_algae`, `oft_aq_invertebrates`, `oft_aq_macrophytes`, `oft_aq_primary_producers`, `oft_arthropods`, `oft_bees`, `oft_birds`, `oft_earthworms`, `oft_other`, `oft_plants`, `oft_soil_macroorganisms`

Examples

```
print(oft_mammals)
```

---

oft_other *Other*

Description

Other

Usage

```
oft_other
```

Format

An object of class `character` of length 2.

See Also

Other oft_species_group: oft_aq_cyanobacteria, oft_aq_diatom_algae, oft_aq_fish, oft_aq_green_algae, oft_aq_invertebrates, oft_aq_macrophytes, oft_aq_primary_producers, oft_arthropods, oft_bees, oft_birds, oft_earthworms, oft_mammals, oft_plants, oft_soil_macroorganisms

Examples

```
print(oft_other)
```

---

oft_plants *Plants*

Description

Plants

Usage

```
oft_plants
```

Format

An object of class character of length 27.

See Also

Other oft_species_group: oft_aq_cyanobacteria, oft_aq_diatom_algae, oft_aq_fish, oft_aq_green_algae, oft_aq_invertebrates, oft_aq_macrophytes, oft_aq_primary_producers, oft_arthropods, oft_bees, oft_birds, oft_earthworms, oft_mammals, oft_other, oft_soil_macroorganisms

Examples

```
print(oft_plants)
```

---

oft_soil_macroorganisms *Soil macroorganisms*

Description

Soil macroorganisms

Usage

```
oft_soil_macroorganisms
```

Format

An object of class `character` of length 7.

See Also

Other oft_species_group: `oft_aq_cyanobacteria`, `oft_aq_diatom_algae`, `oft_aq_fish`, `oft_aq_green_algae`, `oft_aq_invertebrates`, `oft_aq_macrophytes`, `oft_aq_primary_producers`, `oft_arthropods`, `oft_bees`, `oft_birds`, `oft_earthworms`, `oft_mammals`, `oft_other`, `oft_plants`

Examples

```
print(oft_soil_macroorganisms)
```

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