

Package ‘ezec’

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Title Easy Interface to Effective Concentration Calculations

Version 1.0.1

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Description Because fungicide resistance is an important phenotypic trait for fungi and oomycetes, it is necessary to have a standardized method of statistically analyzing the Effective Concentration (EC) values. This package is designed for those who are not terribly familiar with R to be able to analyze and plot an entire set of isolates using the 'drc' package.

Depends R (>= 3.2.0)

Imports drc, dplyr

License GPL-3

URL <https://github.com/grunwaldlab/ezec>

BugReports <https://github.com/grunwaldlab/ezec/issues>

LazyData true

Suggests testthat, readxl, knitr, rmarkdown

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 dummydata

dummydata

Description

dummydata

Usage

data(dummydata)

Format

a data frame with 96 rows and 7 columns representing two isolates tested for Metalaxyl resistance over 6 concentrations with 8 replicates per concentration. Each rep number were conducted in separate weeks. The First sample is real and the second is fake.

 EC_table

Function to generate a table of EC values from a data frame of multiple isolates.

Description

Function to generate a table of EC values from a data frame of multiple isolates.

Usage

```
EC_table(x, form = NULL, model = "LL.3", response = c(10, 50, 90),
  idcol = "ID", result = "df", plot = TRUE, ...)
```

Arguments

x	a data frame that has at least the columns listed in the form argument (e.g. "response" and "dose", see examples).
form	a formula specifying the column names for the response and dose. Defaults to NULL.
model	one of 4 options: <ul style="list-style-type: none"> • LL.3 = Log Logistic 3 parameter with a lower limit of 0. • LL.4 = Log Logistic 4 parameter with lower limit estimated. • W1.4 = Weibul 4 parameter type 1. • W2.4 = Weibul 4 parameter type 2.
response	a numeric vector specifying what EC values you want to calculate.
idcol	the name of the column that identifies the samples (case sensitive).

`result` What result do you want returned? Default is "df" for a data frame of summary values. If you want the models returned, choose "model". If you want the summary output of the model, choose "summary".

`plot` if TRUE, a curve will be plotted for each sample.

`...` parameters passed on to `read.table` if `x` is a file name.

Value

a data frame that contains EC estimates and standard errors in columns and samples in rows.

Author(s)

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Examples

```
data(dummydata)
# Using 3 parameter Log-Logistic Model (default)
EC_table(dummydata, form = response ~ dose)

# Using 4 parameter Weibull Model.
EC_table(dummydata, form = response ~ dose, model = "W2.4")

# This function really only needs three columns.
newdat <- dummydata[c("ID", "dose", "response")]
EC_table(newdat, form = response ~ dose)

# We can rename them, too.
colnames(newdat) <- c("identity", "dosage", "growth")
EC_table(newdat, form = growth ~ dosage, idcol = "identity")
```

ezec

*The **ezec** package for easy EC calculation.*

Description

The **ezec** package for easy EC calculation.

Introduction

The package **ezec** is not a revolutionary work. It simply is a wrapper for the **drc** package that makes life a little easier when it comes to calculating a simple EC 50. The main function of the package is `EC_table`. This function will do as it says and automatically produce a table to EC values for each isolate in your sample.

Data format

Data is expected to exist in a table with at least three columns:

- Sample ID
- Dosage
- Response value (Growth)

Any other columns in your data are optional. An example data set is [dummydata](#).

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