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
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BugReports https://github.com/grunwaldlab/ezec/issues
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**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.

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**EC_table**

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

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**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:
  - 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.

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")

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type 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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