Package ‘CCWeights’

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Type Package
Title Perform Weighted Linear Regression for Calibration Curve
Version 0.1.6
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Description Automated assessment and selection of weighting factors for accurate quantification using linear calibration curve.
   In addition, a ‘shiny’ App is provided, allowing users to analyze their data using an interactive graphical user interface, without any programming requirements.
Depends R (>= 3.5.0)
Imports plotly, dplyr, stats, magrittr, shiny, bs4Dash, fresh, DT,
   tools, readxl, rmarkdown, readr
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doCalibration  
**Perform Calibration**

**Description**
Perform calibration

**Usage**
doCalibration(DF, weights = NULL)

**Arguments**
- **DF** data frame, it must contain a column named 'Concentration' and a column named 'Response'
- **weights** default is NULL

**Value**
dataframe, the quantification result

**Author(s)**
Yonghui Dong

**Examples**
```r
Concentration <- rep(c(10, 50, 100, "unknown"), each = 3)
Response <- c(133, 156, 177, 6650, 7800, 8850, 13300, 15600, 17700, 156, 1450, 1400)
DF <- cbind.data.frame(Concentration = Concentration, Response = Response)
result <- doCalibration(DF)
```

doEvaluation  
**Evaluate Different Weighting Factors**

**Description**
Evaluate different weighting factors.

**Usage**
doEvaluation(DF, p = 0.05, userWeights = NULL)
doFtest

Perform F Test

Description
perform F test to evaluate homoscedasticity.

Usage
doFtest(DF, p = 0.01, lower.tail = FALSE)

Arguments
  DF        data frame, it must contain a column named 'Concentration' and a column named 'Response'
  p        p-value
  lower.tail        default is FALSE

Value
dataframe, F test result

Author(s)
Yonghui Dong
Examples

Concentration <- rep(c(10, 50, 100, 500), each = 3)
Response <- c(133, 156, 177, 1300, 1450, 1600, 4000, 3881, 3700, 140000, 139000, 140000)
DF <- cbind.data.frame(Concentration, Response)
result <- doFtest(DF, p = 0.01)

Performance Weighted Linear Regression

Description

Perform weighted linear regression and evaluate by using summed residual.

Usage

doWlm(DF, weights = NULL)

Arguments

DF data frame, it must contain a column named 'Concentration' and a column named 'Response'

weights the weights used in linear regression, default is NULL. User can easily define weights, e.g., "1/x", "1/x^2", "1/y"

Value

list, weighted linear regression result

Author(s)

Yonghui Dong

Examples

Concentration <- rep(c(10, 50, 100, 500), each = 3)
Response <- c(133, 156, 177, 1300, 1450, 1600, 4000, 3881, 3700, 140000, 139000, 140000)
DF <- cbind.data.frame(Concentration = Concentration, Response = Response)
result <- doWlm(DF, weights = "1/x^2")
Description

Two example data set: one with internal standards (IS), and one without IS

Usage

expData

Format

A list with 2 data frames:

noSTD  the example data without IS
STD    the example data with IS

runGui

Description

Run CCWeights Gui.

Usage

runGui()

Value

Gui

Author(s)

Yonghui Dong

Examples

if(interactive()){}}
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