

# Package ‘statdecideR’

July 23, 2025

**Title** Automated Statistical Analysis and Plotting with CLD

**Version** 0.1.6

**Description** A lightweight tool that provides a reproducible workflow for selecting and executing appropriate statistical analysis in one-way or two-way experimental designs. The package automatically checks for data normality, conducts parametric (ANOVA) or non-parametric (Kruskal-Wallis) tests, performs post-hoc comparisons with Compact Letter Displays (CLD), and generates publication-ready boxplots, faceted plots, and heatmaps. It is designed for researchers seeking fast, automated statistical summaries and visualization. Based on established statistical methods including Shapiro and Wilk (1965) <[doi:10.2307/2333709](https://doi.org/10.2307/2333709)>, Kruskal and Wallis (1952) <[doi:10.1080/01621459.1952.10483441](https://doi.org/10.1080/01621459.1952.10483441)>, Tukey (1949) <[doi:10.2307/3001913](https://doi.org/10.2307/3001913)>, Fisher (1925) <ISBN:0050021 ham (2016) <ISBN:978-3-319-24277-4>.

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**Encoding** UTF-8

**RoxygenNote** 7.3.2

**Depends** R (>= 4.1)

**Imports** ggplot2, dplyr, agricolae, effectsize, stringr, stats

**NeedsCompilation** no

**Author** Subhradip Bhattacharjee [aut, cre] (ORCID: <<https://orcid.org/0000-0003-2330-2979>>),  
Bappa Das [aut, ctb] (ORCID: <<https://orcid.org/0000-0003-1286-1492>>),  
Parveen Kumar [aut, ctb] (ORCID: <<https://orcid.org/0000-0001-9352-8303>>),  
Rakesh Kumar [aut, ctb] (ORCID: <<https://orcid.org/0000-0002-9711-0964>>),  
Amitava Panja [aut, ctb] (ORCID: <<https://orcid.org/0000-0002-6226-2933>>),  
Pritam Roy [aut, ctb],  
Divyacrotu Majumder [aut, ctb],  
Susanta Dutta [aut, ctb] (ORCID: <<https://orcid.org/0000-0003-0885-9744>>),  
Indian Council of Agricultural Research [cph]

**Maintainer** Subhradip Bhattacharjee <[subhradip25@gmail.com](mailto:subhradip25@gmail.com)>

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df_nonparam	<i>Example Data for Non-parametric test</i>
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### Description

An example dataset of pollen collection by honeybee at different times and different months.

### Usage

df\_nonparam

### Format

An object of class `data.frame` with 132 rows and 3 columns.

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run_statdecide	<i>Run Statistical Decision Workflow</i>
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### Description

Automatically checks normality, selects appropriate test (ANOVA or Kruskal-Wallis), performs post-hoc, and visualizes results with compact letter display (CLD). Returns all results as an object with optional console output.

### Usage

```
run_statdecide(data, dep_var, group_vars, cld_offset = 5, verbose = TRUE)
```

### Arguments

data	A data frame.
dep_var	Character. Name of the dependent variable.
group_vars	Character vector. One or two grouping variables.
cld_offset	Numeric. Vertical offset to place CLD labels above the boxplot (default: 5).
verbose	Logical. Whether to print progress messages and results (default: TRUE).

**Value**

A list containing:

**normality\_test** Results of Shapiro-Wilk test

**main\_effects** Results for each main effect

**interaction** Interaction results (if 2 group\_vars)

**plots** List of ggplot objects

**facet\_plot** Faceted ggplot (if 2 group\_vars)

**heatmap** Heatmap ggplot (if 2 group\_vars)

**Examples**

```
# Silent operation
results <- run_statdecide(data = df_nonparam, dep_var = "Pollen",
                        group_vars = c("Month", "Time"), verbose = FALSE)

# With console output
run_statdecide(data = df_nonparam, dep_var = "Pollen", group_vars = "Month")
```

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\* **datasets**

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