

# 1 Description of the data

Plants in the Cabbage family (Brassicaceae) make very specific defense compounds when under attack by herbivores. These compounds are called glucosinolates of which about 120 different species exist. To simulate a herbivore attack and elicit the plant to make glucosinolates, the plant hormone jasmonic acid (JA) was applied to either the roots (Root induced) or to the leaves (Shoot induced) of cabbage plants (*B. oleracea*). The glucosinolate levels for 11 different glucosinolates were measured at 1, 3, 7 and 14 days after treatment. This measurement was destructive so that for each time-point different plants were analyzed. Each measurement was repeated 5 times. Besides the two treatments there was also a control group that received no JA treatment. The data presented here includes the measurements of eleven different glucosinolates 1, 3, 7 and 14 days after treatment of the root induced, shoot induced and control group.

Each variable corresponds with a column in the data matrix as shown in table 1

Variable (column)	Glucosinolate
1	PRO
2	RAPH
3	ALY
4	GNL
5	GNA
6	4OH
7	GBN
8	GBC
9	4MeOH
10	NAS
11	NEO

Table 1: Variables and abbreviations of glucosinolates that are included in the data matrix.

The data is delivered in the form of a Matlab data structure `Data.mat` and also as comma separated values (csv) file `Data.csv`. The Matlab data structure comprises three arrays. The measured glucosinolate levels are in the data matrix `X`, a treatment matrix `F` and a list with the abbreviations of the glucosinolates. `X` is a  $60 \times 11$  matrix. Each column represents the measured values of one of the glucosinolates as shown in table 1. Each row corresponds to a time-treatment combination. Which row corresponds to which time-treatment combination can be seen from the rows of the matrix `F`. The first column of `F` gives the time of measurement, 1: day one; 2: day three; 3: day seven; 4: day 14. The second column of `F` gives the treatment, 1: control; 2: root induced; 3: shoot induced. As an example how to apply this, let us look at row 26 of the matrix `F`. This elements in this row are 2 and 3. The '2' in the first column corresponds to the time, hence the measurement was made on day three, the '3' in the second column corresponds to the treatment shoot induced. Now we know that row 26 in the data matrix was measured on

day three on a shoot induced plant. Likewise, row 51 has the data on a measurement on day 14 on a root induced plant.

## 1.1 Reference

More on the data can be found in:

Jansen JJ, van Dam NM, Hoefsloot HCJ, Smilde AK.

*Crossfit analysis: a novel method to characterize the dynamics of induced plant responses.*

BMC Bioinformatics 2009, 10:425