Use of Gas Chromatography-(Time-Of-Flight) Mass Spectrometry for Analysis of Metabolites from Solanum Species


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A metabolite profiling technique using a high throughput GC-Time-Of-Flight (TOF) MS for data acquisition, followed by automated data analysis, has been developed for measuring the metabolite distribution within plants.

We are using this approach to study substantial and unintended effects of genetic modification in Solanum species. In addition, metabolite variation within Solanum germplasm collections is being measured with the objective of exploring phytochemical diversity and relating metabolite distribution to phenotypic characteristics.

Figure 1. Total Ion Chromatograms (TIC) of polar and non-polar extracts of freeze dried potato tubers

Figure 2. Examples of the deconvolution of co-eluting analytes using Selected Ion Chromatograms (SIC).

Figure 3. Optimization of methoximation reaction conditions

Figure 4. Linearity of analysis.