

Analysis of Metabolites from Solanum Species using Gas Chromatography-(Time-Of-Flight) Mass Spectrometry and Automated Data Analysis

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Metabolite profiling of plant species using high throughput GC-MS techniques, linked to automated data processing, is becoming a highly useful tool for the study of metabolite distribution within plant populations. We have developed a metabolite profiling technique based on the use of GC-Time-Of-Flight (TOF) MS for data acquisition, followed by automated data analysis using a combination of the AMDIS™ and Xcalibur™ software programmes.

The profiling technique is being used to measure metabolite variation within Solanum germplasm collections in an attempt to relate metabolite distribution to phenotypic characteristics and to look for phytochemical diversity.

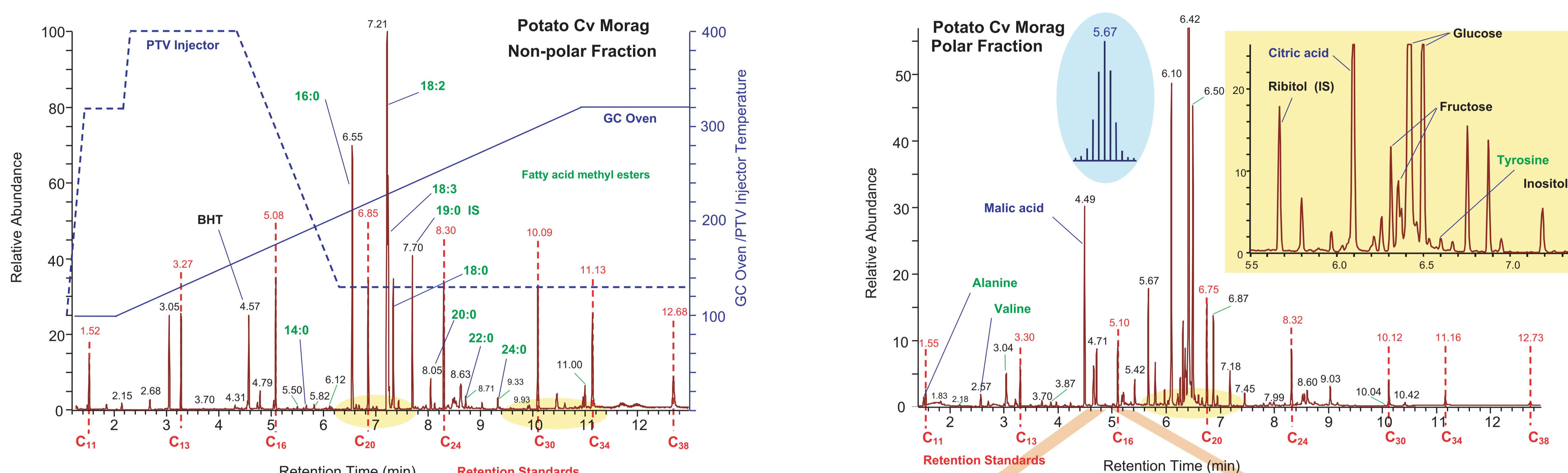
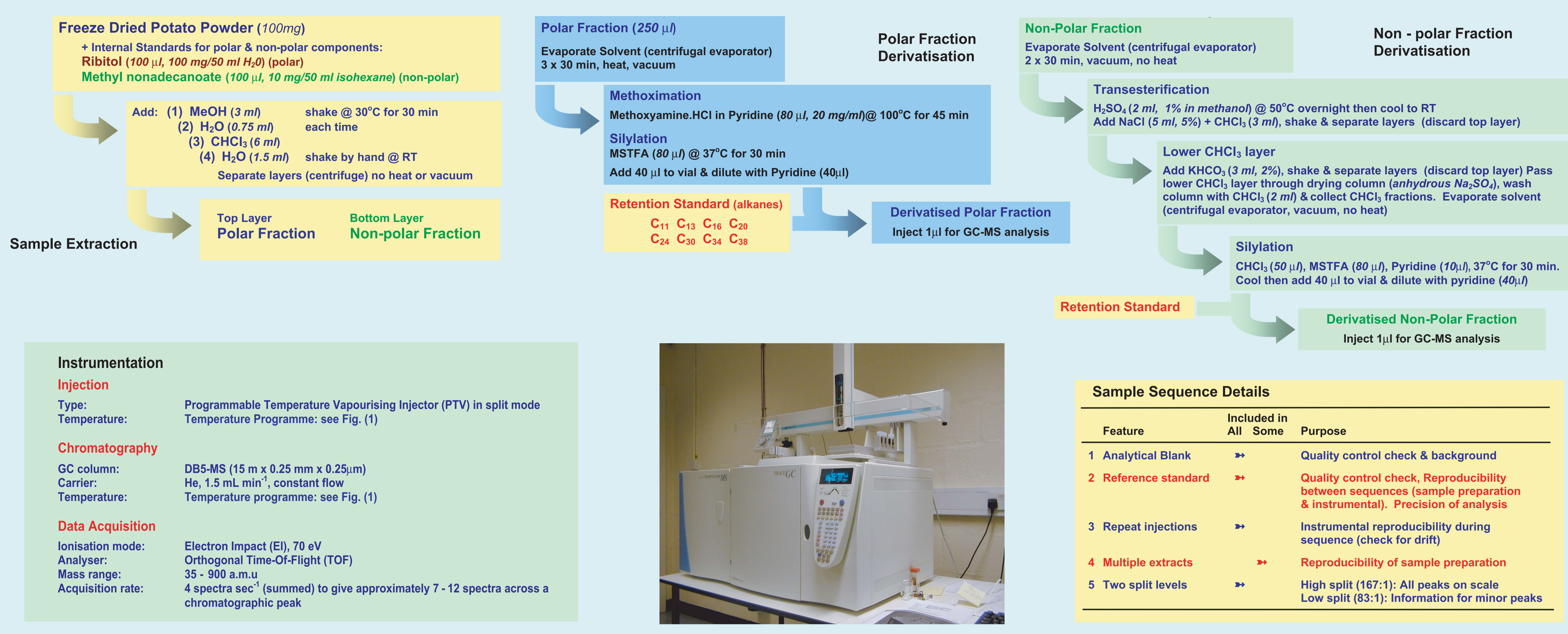


Figure 1. Total Ion Chromatograms (TIC) of polar and non-polar extracts of freeze dried potato tubers

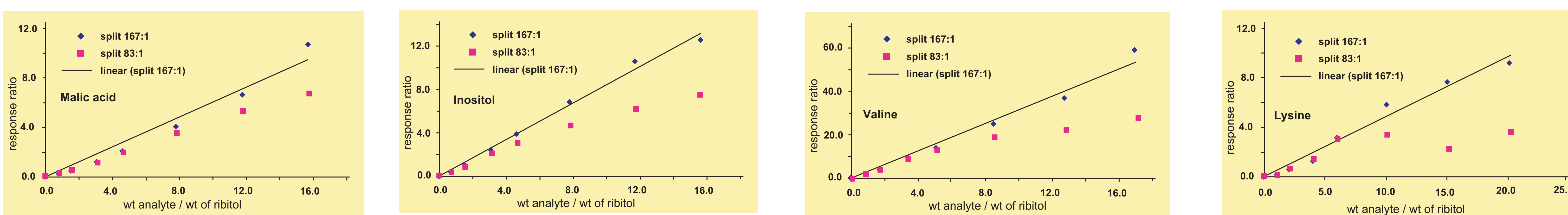
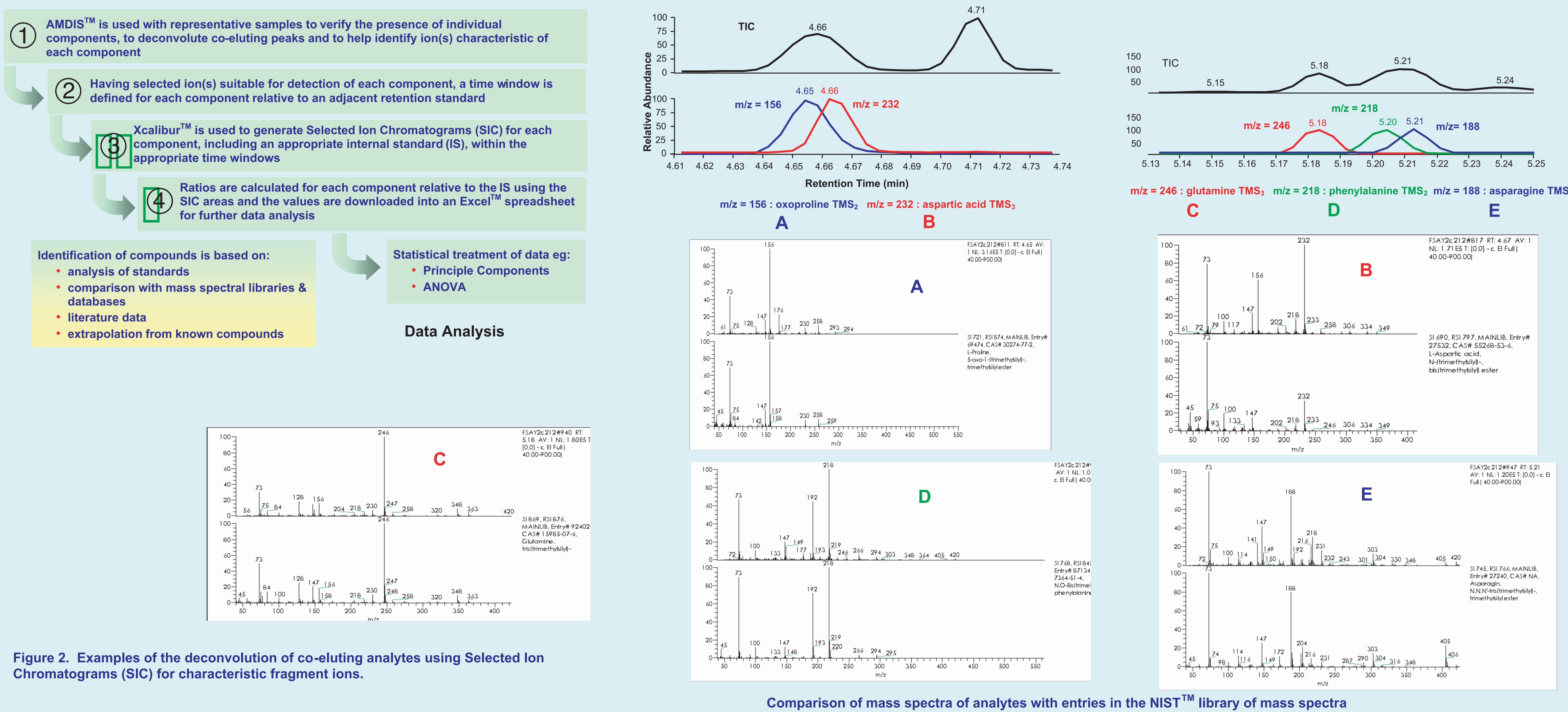


Figure 3. Linearity of analysis
 At a split ratio of 167:1 variation in analyte levels gives a linear response relative to a fixed amount of the internal standard. At a split of 83:1 the response becomes non-linear at higher analyte concentrations. Data shown is for representative non-polar analytes

- Characteristics of profiling technique:
- Short analysis times & high sample throughput
 - Reproducible analyses
 - Linearity of response
 - 300 – 600 metabolites detected at higher sample loadings

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