LC-MS-BASED METHOD FOR THE DETERMINATION OF PHOSPHORYLATED INTERMEDIATES FROM PLANT TISSUES

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The aim of plant metabolomics is to provide comprehensive analysis of the complex metabolic state in plant tissues by studying the metabolome. The metabolome is defined as the complete set of low molecular weight molecules present in a cell or organism, which participates in metabolic reactions and pathways, required for growth, maintenance and normal function [1].

Phosphorylated carbohydrates are one subclass of the metabolome and are central compounds in plant metabolism. They are important intermediates in cellular energy metabolic pathways, such as glycolysis, the pentose phosphate pathway and starch and sucrose synthesis in plants [2, 3].

Our project seeks to develop a new HPLC method to selectively detect and quantitate a range of phosphorylated carbohydrates from plant tissues using a trichloroacetic acid (TCA)/ether extraction. We have set up and optimised an LC system for separating sugars and sugar phosphates by means of porous graphitic carbon (PGC) columns interfaced on-line with electrospray ionisation (ESI) tandem mass spectrometry. This presentation will describe details of our experimental system and recent data on the application of this method to the analysis of plant tissue extracts.

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[3] Jan C. van Dam *et al.*, *Analytica Chimica Acta* **460** (2002) 209