Comparison of Two Methods, UHPLC-UV and UHPLC-MS/MS, for the Quantification of Polyphenols in Cider Apple Juices

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Mots-clés	LC-MSn [7], LC-UV [8], Malus [9], phenolic [10]
Résumé en anglais	The aim of this study was to develop faster and more efficient phenotyping methods for in-depth genetic studies on cider apple progeny. The UHPLC chromatographic system was chosen to separate polyphenolic compounds, and quantifications were then simultaneously performed with a UV-PDA detector and an ESI-triple quadrupole mass analyzer (SRM mode). Both quantification methods were validated for 15 major compounds using two apple juice samples, on the basis of linearity, limits of detection and quantification, recovery and precision tests. The comparison between UV and SRM quantifications in 120 different samples of a cider apple progeny showed an excellent correlation for major compounds quantified with both methods. However, an overestimation was revealed for five compounds with the UV detector and the mass analyzer. Co-elution and matrix effects are discussed to explain this phenomenon. SRM methods should therefore be considered with restrictions in some cases for quantification measurements when several phenolic compounds are simultaneously quantified in complex matrices such as apple juices. For both methods, analyses were carried out over short periods of time while maintaining a high quality for the simultaneous quantification of phenolic compounds in apple juice. Each method is relevant for more in-depth genetic studies of the polyphenol content of apple juice.
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