P85. Analysis of acids and sugars in fruit-based drinks by SEC-UV-RI

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Beverage industry produces a large and diverse range of soft drinks, beverages containing flavorings and/or fruit juices (sodas and fruit juices), of which the quality and safety must be monitored to protect and satisfy customers. From the raw ingredients to the final product, quality control is needed to ensure product safety, quality, labelling, regulatory compliance and consistency. The development of analytical techniques for simultaneous analysis of different compounds essential to control the product quality, as an alternative to several independent traditional reference methods, is of major importance. Therefore, the present work reports the application of size exclusion chromatography (SEC), which allows carrying out analysis free of organic solvents, using two detectors coupled in series - Ultraviolet (UV) and Refractive Index (RI) - for the simultaneous analysis of acidifiers (citric, tartaric, lactic, acetic, malic and ascorbic acids, by UV), and sweeteners (sucrose, glucose and fructose by RI), in commercial non-alcoholic beverages with different levels of added fruit juice. Ascorbic acid is used as a stabilizer in the soft drinks, improving the beverage shelf-life stability due to its antioxidant properties.

The results showed that the simultaneous calibrations for acid compounds (UV) and for glucose (RI) were straight-forward. On the other hand, for sucrose and fructose simultaneous analysis, the calibrations (RI) were more complex since the predictive models established had to take into account malic and tartaric acids interferences, regardless the good resolution between the peaks of sucrose and fructose.

Finally, the results for sample analysis showed that all the sugars evaluated were present in the juice drinks as well as the citric, tartaric, malic and ascorbic acids. In all samples, lactic and acetic acids were not detected.