

Ion chromatography for carbohydrate analysis and more

4 new App Notes on anions and cations in beer, organic acids in wine, carbohydrates in coffee, and GOS analysis in novel foods

Herisau, April 2021

Metrohm is pleased to support the food and beverage industry with 4 applications utilizing ion chromatography with pulsed amperometric detection (PAD) for the fully automated determination of multiple GOSs (β -galactooligosaccharides) and carbohydrates in novel foods and instant coffee, respectively, key anions and cations in beer, and organic acids in wine.

Foodstuffs are a difficult matrix to analyze as matrices are often solid and many liquids contain particles that pose a challenge to any kind of chromatographic method. At the same time, regulations require the food and beverage industry to comply with numerous norms and standards. Metrohm ion chromatography with automated inline sample preparation (e.g., inline ultrafiltration, inline dialysis, inline matrix elimination) addresses the matrix challenge most effectively. Moreover, ion chromatography makes it possible to determine multiple similar compounds (e.g., various carbohydrates) with a single analysis in compliance with the latest AOAC standards. Metrohm applications exemplifying the efficiency and versatility of ion chromatography with Metrohm Inline Sample Preparation (MISP):

- Quality labels of novel foods – Improvement on AOAC 2001.002: GOS analysis with IC-PAD
- Quality assurance of instant coffee – Free and total carbohydrate determination with IC-PAD according to AOAC 996.04 and ISO 11292
- Anions and cations in beer – Streamlining beverage analysis with ion chromatography
- Assessing wine quality with IC – Organic acid analysis using suppressed conductivity detection

The 4 new App Notes can be downloaded as a package from a dedicated page on the Metrohm website.



IC APPLICATION NOTE P-087

Quality labels for novel foods

Improvement on AOAC 2001.02: GOS analysis with IC-PAD

In the past several years, interest has increased in food additives and dietary supplements including prebiotics like β -galactooligosaccharides (known as GOSs). The GOSs are chains of galactose units with an optional glucose end [1, 2]. They show bifidogenic effects, i.e. they support growth and well-being of non-pathogenic gut bacteria [1]. Initially discovered as major constituents of colostrum (present up to 12 g/L), GOSs are added as a prebiotic supplement to infant formulas to achieve similar beneficial effects.

Increasing consumer awareness regarding healthy eating habits has led to the ongoing growth of

global probiotic and GOS markets. Similarly, increased demand regarding food quality has led to stricter, more comprehensive rules for food labeling and safety (e.g., EU 2015/2283). The determination of total GOS contents in food, supplements, or raw products is thus essential to fulfill such requirements.

This Application Note presents an update to the standard AOAC method for total GOS determination in foodstuffs. With the same principle (enzymatic hydrolysis of complex GOS molecules followed by chromatographic analysis of simple carbohydrates), analytical method efficiency was improved in favor of laboratory time and running costs.

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Weblink: news.metrohm.com

Keywords: Ion chromatography, carbohydrates, foodstuffs, beverages, beer, wine

Branches: Beverage analysis

Image:

About Metrohm

Metrohm is one of the world's most trusted manufacturers of high-precision instruments for laboratory and process analysis. The company was founded in 1943 by engineer Bertold Suhner in Herisau, Switzerland, where it is headquartered to this day. Metrohm offers a comprehensive portfolio of analytical technologies ranging from titration and ion chromatography to near-infrared and Raman spectroscopy, as well as several other techniques. Metrohm sells its products and provides services through its own local subsidiaries and exclusive distributors in more than 120 countries worldwide. Our mission in a nutshell is helping customers from virtually every industry analyze and maintain the quality of their products at every stage in the manufacturing process and beyond. Since 1982, Metrohm has been owned 100% by the non-profit Metrohm Foundation. This foundation keeps to its purpose to support charitable, philanthropic, and cultural projects in eastern Switzerland and, above all, ensure the independence of the company.

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