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Food Chemistry

Volume 107, Issue 1, 1 March 2008, Pages 449-463

Analytical Methods

Application of gas chromatography-olfactometry (GC-O) in analysis and quality assessment of alcoholic beverages - A review

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<https://doi.org/10.1016/j.foodchem.2007.08.058>

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Abstract

In recent years, intensive studies have been carried out regarding the sensory activity of the individual components of the odours of various alcoholic beverages and the dependence between the odour and the chemical composition of the volatile fraction of these products, using gas chromatography with olfactometric detection (GC-O). GC-O is a technique based on sensory evaluation of the eluate from the chromatographic column. Quantitative and qualitative odour evaluation is possible thanks to the presence of a specially constructed attachment, a so-called olfactometric port.

Olfactogram appearance depends on the analyte isolation procedure and the quantitative

method used. In this work, a discussion and comparison of the most often used methods of alcoholic beverage sample preparation are presented, including solvent and solventless methods, as well as quantitative methods, such as the detection frequency methods, dilution to threshold methods and direct intensity methods.

Specific focus is placed on the utilization of the techniques discussed in the analysis and evaluation of the quality of alcoholic beverages. The paper presents numerous examples of studies aimed at determining the dependence between the composition and content of volatile compounds and the organoleptic properties of products such as beer, wine and spirits, as well as the identification and comparison of compounds responsible for the aroma of various alcoholic beverages or those responsible for unwanted odours.



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Keywords

Gas chromatographyâ€“olfactometry; Alcoholic beverages; Odour; Volatile compounds

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