A Comparison of Columns of Different Polarity for Resolving Volatile Esters and Higher Alcohols

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Overview
This poster demonstrates the use of GC columns of different polarities for the analysis of whiskies. In particular, the higher the polarity of the column used, the better the resolution of compounds that contain polar functional groups such as hydroxyls. The analysis of whisky is an important aspect for product differentiation, as well as for optimising the changes to the final product.

Introduction
Analysis of whisky involves the extraction and separation of volatile compounds and non-volatile flavour components. Academic and commercial interest in this area is increasing due to the potential for product differentiation and the need for monitoring the final product quality. Different suppliers of columns have different claims on the basis of the type of polarities they offer, and it is important to determine which column is best for each type of analysis.

Materials and Methods
A Thermo Scientific TRACE™ 1300 GC was used with a Rxi-5Sil column (25 m x 0.25 mm, 0.25 µm). The internal standard was 1-octanol, and the sample sizes used were 1 µl for each analysis.

Results
Comparison of Different Columns of Volatile Esters and Higher Alcohols

Compounds of Interest
Acetaldehyde
Ethanol
Methyl propanoate
Ethyl propanoate
3-methylbutanol
2-methylbutanol
Ethyl acetate
3-methylbutanol
2-methylbutanol

Compounds Measured
Acetaldehyde
Ethanol
Methyl propanoate
Ethyl propanoate
3-methylbutanol
2-methylbutanol
Ethyl acetate
3-methylbutanol
2-methylbutanol

Compounds of Interest
Acetaldehyde
Ethanol
Methyl propanoate
Ethyl propanoate
3-methylbutanol
2-methylbutanol
Ethyl acetate
3-methylbutanol
2-methylbutanol

Conclusions
The decision on which column to use for volatile esters and higher alcohols is crucial for product differentiation. Choosing the right column will ensure that the final product meets the required standards for quality assurance.

References
For additional information, please visit the Thermo Fisher Scientific website.

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