Agilent Technologies

Agilent J&W DB-1

A collection of citations to advance your research

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Energy and chemicals

Applications of planar microfluidic devices and gas chromatography for complex problem solving

Journal of Separation Science, **36**, 182-191 (2012)
Jim Luong *et al.*

Tags
LOWOX, VF-1ms, DB-1, HP-INNOWax, PoraBOND Q, HP-PLOT Q, Capillary Flow Union, 6890N GC, 7890A GC, energy and chemicals, refining

Abstract
A wide range of Agilent J&W GC columns and instruments were used in a comprehensive examination of microfluidic devices for hydrocarbon analysis. Published by John Wiley and Sons Ltd.

Determination of trace ethylene glycol in industrial solvents and lubricants using phenyl boronic acid derivatization and multidimensional gas chromatography

Analytica Chimica Acta, **805**, 101-106 (2013)
J. Luong *et al.*

Tags
DB-1, VF-200ms, Ultra Inert liner, 6890N GC, 5975B MSD, energy and chemicals, petrochemicals

Abstract
Agilent J&W GC columns in an Agilent GC/MSD system was used to characterize trace ethylene glycol in industrial solvents and lubricants. Published by Elsevier B. V.

Multidimensional GC using planar microfluidic devices for the characterization of phenolic antioxidants in fuels

Journal of Separation Science, **36**, 2738-2745 (2013)
J. Luong *et al.*

Tags
DB-1, VF-200ms, Ultra Inert liner, 6890N GC, 5975B MSD, energy and chemicals, petrochemicals

Abstract
Agilent J&W GC columns in an Agilent GC/MSD system was used to formulate a multidimensional GC method using planar microfluidic devices for Deans switching for the characterization of sterically hindered phenolic compounds used as antioxidants in fuels. Published by Elsevier B. V.

Environmental

Application of Proton-Transfer-Reaction Mass Spectrometry to the Assessment of Odorant Removal in a Biological Air Cleaner for Pig Production

Journal of Agricultural and Food Chemistry, **60**, 2599-2606 (2012)
Michael J. Hansen *et al.*

Tags
DB-1, HP-INNOWax, 7890A GC, 355 SCD, 6890N GC, 5973 MSD, environmental, air analysis

Abstract
There is an urgent need to develop odor reduction technologies for animal production facilities, and this requires a reliable measurement technique for estimating the removal of odorants. The purpose of the present experiment was to investigate the application of proton-transfer-reaction mass spectrometry (PTR-MS) for continuous measurements at a biofilter from SKOV A/S installed at a pig production facility. PTR-MS was able to handle the harsh conditions with high humidity and dust load in a biofilter and provide reliable data for the removal of odorants, including the highly odorous sulfur compounds. The biofilter removed 80–99% of carboxylic acids, aldehydes, ketones, phenols, and indoles and ca. 75% of hydrogen sulfide. However, only ~0–15% of methanethiol and dimethyl sulfide was removed. In conclusion, PTR-MS is a promising tool that can be used to improve the development of biological air cleaning and other odor reduction technologies toward significant odorants. Reprinted with permission from the Journal of Agricultural and Food Chemistry © 2012 American Chemical Society.

Moraxella Species Are Primarily Responsible for Generating Malodor in Laundry

Applied and Environmental Microbiology, **78**, 3317-3324 (2012)
Hiromi Kubota *et al.*

Tags
DB-FFAP, DB-1, 6890N GC, 5973 MSD, environmental, air analysis

Abstract
A major component of laundry malodor in japan is 4-methyl-3-hexenoic acid (4M3H), quantified by Agilent J&W GC columns fitted to an Agilent 6890N/5975 GC/MS. Published by the American Society for Microbiology.

Evaluation of Single Column Trapping/Separation and Chemiluminescence Detection for Measurement of Methanethiol and Dimethyl Sulfide from Pig Production

Journal of Analytical Methods in Chemistry, (2012)
Michael Jørgen Hansen *et al.*

Tags
DB-1, 7890A GC, 355 SCD, environmental, air analysis

Abstract
Reduced sulfur compounds are considered to be important odorants from pig production due to their low odor threshold values and low solubility in slurry. The objective of the present study was to investigate the use of a portable method with a single silica gel column for trapping/separation coupled with chemiluminescence detection (SCTS-CL) for measurement of methanethiol and dimethyl sulfide in sample air from pig production. Proton-transfer-reaction mass spectrometry (PTR-MS) was used to evaluate the trapping/separation. The silica gel column used for the SCTS-CL efficiently collected hydrogen sulfide, methanethiol and dimethyl sulfide. The measurement of methanethiol by SCTS-CL was clearly interfered by the high concentration of hydrogen sulfide found in pig production, and a removal of hydrogen sulfide was necessary to obtain reliable results. Air samples taken from a facility with growing-finishing pigs were analyzed by SCTS-CL, PTR-MS, and a gas chromatograph with sulfur chemiluminescence detection (GC-SCD) to evaluate the SCTS-CL. The difference between the concentrations of methanethiol and dimethyl sulfide measured with SCTS-CL, PTR-MS, and GC-SCD was below 10%. In conclusion, the SCTS-CL is a portable and low-cost alternative to the commercial methods that can be used to measure methanethiol and dimethyl sulfide in sample air from pig production.

Direct and simultaneous determination of trace-level carbon tetrachloride, peroxyacetyl nitrate, and peroxypropionyl nitrate using gas chromatography-electron capture detection

Journal of Chromatography A, **1266**, 110-115 (2012)
Gen Zhang *et al.*

Tags
DB-210, DB-5, DB-1, HP-1, 5890 GC, environmental, air analysis

Abstract
The authors describe a novel method for measuring atmospheric carbon tetrachloride, peroxyacetyl nitrate, and peroxypropionyl nitrate directly and simultaneously in air using GC/ECD with an Agilent J&W DB-1 GC column. Published by Elsevier B. V.

Food testing and agriculture

Characterization of a Novel Fructosyltransferase from *Lactobacillus reuteri* That Synthesizes High-Molecular-Weight Inulin and Inulin Oligosaccharides

Applied and Environmental Microbiology, **68**, 4390-4398 (2002)
S. A. F. T. van Hijum *et al.*

Tags
CP-Sil 43 CB, DB-1, food testing and agriculture, dietary supplements, natural compounds and additives

Abstract
Partially methylated alditol acetates were analyzed by gas-liquid chromatography on an Agilent J&W CP-Sil 43 CB column and by gas-liquid chromatography-mass spectrometry on an Agilent J&W DB-1 column. Published by the American Society for Microbiology.

Pressurized hot water extraction coupled to molecularly imprinted polymers for simultaneous extraction and clean-up of pesticides residues in edible and medicinal plants of the Okavango Delta, Botswana

Molecular Imprinting, **1**, 55-64 (2013)
Janes Mokgadi *et al.*

Tags
DB-1, 6890, food testing and agriculture, pesticides, small molecule pharmaceuticals and generics, traditional medicines

Abstract
Organochlorine pesticides residue levels in various edible and medicinal plants of the Okavango Delta, Botswana were analyzed using an Agilent J&W DB-1 GC column fitted to an Agilent 6890 gas chromatograph with an electron capture detector. Published by De Gruyter.

Materials testing and research

Chemical Composition of French Mimosa Absolute Oil

Journal of Agricultural and Food Chemistry, **58**, 1844-1849 (2010)
Rodolphe Perriot *et al.*

Tags
HP-20M, HP-1, DB-1, DB-XLB, 5890A GC, 6890N GC, 5973 MS, 5971 MS, materials testing and research, consumer products

Abstract
Since decades mimosa (*Acacia dealbata*) absolute oil has been used in the flavor and perfume industry. Today, it finds an application in over 80 perfumes, and its worldwide industrial production is estimated five tons per year. Here we report on the chemical composition of French mimosa absolute oil. Straight-chain analogues from C6 to C26 with different functional groups (hydrocarbons, esters, aldehydes, diethyl acetals, alcohols, and ketones) were identified in the volatile fraction. Most of them are long-chain molecules: (*Z*)-heptadec-8-ene, heptadecane, nonadecane, and palmitic acid are the most abundant, and constituents such as 2-phenethyl alcohol, methyl anisate, and ethyl palmitate are present in smaller amounts. The heavier constituents were mainly triterpenoids such as lupenone and lupeol, which were identified as two of the main components. (*Z*)-Heptadec-8-ene, lupenone, and lupeol were quantified by GC–MS in SIM mode using external standards and represents 6%, 20%, and 7.8% (*w*/*w*) of the absolute oil. Moreover, odorant compounds were extracted by SPME and analyzed by GC-sniffing leading to the perception of 57 odorant zones, of which 37 compounds were identified by their odorant description, mass spectrum, retention index, and injection of the reference compound.

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