Agilent J&W DB-WAX

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Energy and chemicals

Urban energy mining from sewage sludge

*Chemosphere, 90*, 1508-1513 (2013)
E. E. Kwon *et al.*

**Tags**
DB-5ht, DB-WAX, 7890A GC, 5975C MSD, energy and chemicals, biofuels and alternative energy

**Abstract**
Lipids from sewage sludge were converted into biodiesel via transesterification and assayed with Agilent J&W GC columns and GC/MS instruments. Published by Elsevier B. V.

Used frying oil for biodiesel production over kaolinite as catalyst

*International Journal of Chemical and Biological Engineering, 4*, 35-38 (2011)
Jorge Ramírez-Ortiz *et al.*

**Tags**
DB-WAX, 6890N GC, energy and chemicals, biofuels and alternative energy

**Abstract**
Biodiesel production with used frying fat by transesterification reaction with methanol, using a commercial kaolinite thermally-activated solid acid catalyst was investigated. The surface area, the average pore diameter and pore volume of the kaolinite catalyst were 10 m$^2$/g, 13.0 nm and 30 mm$^3$/g, respectively. The optimal conditions for the transesterification reaction were determined to be oil/methanol, in a molar ratio 1:31, temperature 160 ºC and catalyst concentration of 3% (w/w). The yield of fatty acid methyl esters (FAME) was 92.4% after 2 h of reaction. This method of preparation of biodiesel can be a positive alternative for utilizing used frying corn oil for feedstock of biodiesel combined with the inexpensive catalyst.

Robust and sensitive analysis of methanol and ethanol from cellulose degradation in mineral oils

Jocelyn Jalbert *et al.*

**Tags**
VF-624ms, DB-WAX, DB-624, 7890A GC, 5975C MS, energy and chemicals, power generation

**Abstract**
Method parameters for the analysis of cellulose-derived methanol and ethanol were developed on a range of Agilent J&W GC columns of differing polarity. Published by Elsevier B. V.
Environmental

Full evaporation dynamic headspace and gas chromatography–mass spectrometry for uniform enrichment of odor compounds in aqueous samples

Nobuo Ochiai *et al.*

**Tags**
DB-5, DB-WAX, 5975T LTM Column Module, 7890 GC, 5975C MSD, environmental, air analysis

**Abstract**
FEDHS was superior to standard dynamic headspace sampling in an investigation of odor compounds in water. Agilent J&W GC columns and a low thermal mass (LTM) module were employed. Published by Elsevier B. V.

Comprehensive analysis of the toxic and refractory pollutants in acrylonitrile–butadiene–styrene resin manufacturing wastewater by gas chromatography spectrometry with a mass or flame ionization detector

Bo Lai *et al.*

**Tags**
DB-WAX, HP-5ms, 7890 GC, 5975 MS, environmental, water analysis

**Abstract**
Agilent J&W GC columns and instruments were used to detect and confirm the identity of 37 compounds in wastewater from ABS resin manufacturing. Published by Elsevier B. V.

Occurrence and distribution of benzothiazole in the Schwarzbach watershed (Germany)

*Journal of Environmental Monitoring, 13, 2838-2843* (2011)
Elke Fries, Tilman Gocht, Jörg Klasmeier

**Tags**
Bond Elut PPL, DB-WAX, 6890N GC, environmental, emerging contaminants

**Abstract**
The authors used Agilent Bond Elut PPL as an analyte concentrator from a large volume of water for benzothiazole, with a check for breakthrough and analytical recoveries. Analysis was accomplished using an Agilent J&W DB-WAX column in an Agilent 6890 GC. Published by the Royal Institute for Chemistry.
Study To Elucidate Formation Pathways of Selected Roast-Smelling Odorants upon Extrusion Cooking

Tomas Davidek et al.

Abstract
The formation pathways of the N-containing roast-smelling compounds 2-acetyl-1-pyrroline, 2-acetyl-1(or 3),4,5,6-tetrahydropyridine, and their structural analogues 2-propionyl-1-pyrroline and 2-propionyl-1(or 3),4,5,6-tetrahydropyridine were studied upon extrusion cooking using the CAMOLA approach. The samples were produced under moderate extrusion conditions (135 °C, 20% moisture, 400 rpm) employing a rice-based model recipe enriched with flavor precursors ([U-13C6]-d-glucose, d-glucose, glycine, l-proline, and l-ornithine). The obtained data indicate that the formation of these compounds upon extrusion follows pathways similar to those reported for nonsheared model systems containing d-glucose and l-proline. 2-Acetyl-1-pyrroline is formed (i) by acylation of 1-pyrroline via C2 sugar fragments (major pathway) and (ii) via ring-opening of 1-pyrroline incorporating C3 sugar fragments (minor pathway), whereas 2-propionyl-1-pyrroline incorporates exclusively C3 sugar fragments. 2-Acetyl-1(or 3),4,5,6-tetrahydropyridine and the corresponding propionyl analogue incorporate C3 and C4 sugar fragments, respectively. In addition, it has been shown that the formation of 2-acetyl-1-pyrroline in low-moisture systems depends on the pH value of the reaction mixture. Reprinted with permission from the Journal of Agricultural and Food Chemistry. ©2013 American Chemical Society.

Food testing and agriculture

Arbuscular mycorrhizal fungi associated with Artemisia umbelliformis Lam, an endangered aromatic species in Southern French Alps, influence plant P and essential oil contents

Mycorrhiza, 21, 523-535 (2011)
Marie-Noëlle Binet et al.

Abstract
Essential oils from artemisia were analyzed using Agilent J&W DB-5ms Ultra Inert and DB-WAX GC columns fitted to an Agilent 6890N GC with 5973 MSD. Published by Springer.
Identification and Behavioral Evaluation of Sex Pheromone Components of the Chinese Pine Caterpillar Moth, *Dendrolimus tabulaeformis*

*PLoS ONE, 7* (2012)

Xiang-Bo Kong *et al.*

**Tags**

DB-5ms, DB-WAX, 7890 GC, food testing and agriculture, pesticides

**Abstract**

Sex pheromone was collected from calling female *D. tabulaeformis* by headspace solid phase microextraction (SPME) and by solvent extraction of pheromone glands. Extracts were analyzed by coupled gas chromatography/mass spectrometry (GC-MS) and coupled GC-electroantennographic detection (GC-EAD), using antennae from male moths. Five components from the extracts elicited antennal responses. These compounds were identified by a combination of retention indices, electron impact mass spectral matches, and derivatization as (Z)-5-dodecenyl acetate (Z5-12:OAc), (Z)-5-dodeceny alcohol (Z5-12:OH), (5Z,7E)-5,7-dodecadien-1-yl acetate (Z5,E7-12:OAc), (5Z,7E)-5,7-dodecadien-1-yl propionate (Z5,E7-12:OPr), and (5Z,7E)-5,7-dodecadien-1-ol (Z5,E7-12:OH).

Behavioral assays showed that male *D. tabulaeformis* strongly discriminated against incomplete and aberrant blend ratios. The correct ratio of Z5,E7-12:OAc, Z5,E7-12:OH, and Z5,E7-12:OPr was essential for optimal upwind flight and source contact. The two monoenes, Z5-12:OAc and Z5-12:OH, alone or binary mixtures, had no effect on behavioral responses when added to the optimal three-component blend. ©The Authors.

**Purification of vetiver alcohols and esters for quantitative high-performance thin-layer chromatography determination in Haitian vetiver essential oils and vetiver acetates**


Lionel Paillat *et al.*

**Tags**

VF-WAXms, VF-1ms, DB-WAX, CP-Sil 5 CB, CP-WAX 52 CB, 7890 GC, 5975C MSD, 6890N GC, 5973N MS, food testing and agriculture, dietary supplements, natural compounds and additives

**Abstract**

GC/MS and comprehensive GC x GC/MS analysis, using a range of Agilent J&W columns fitted to different Agilent GC/MS systems, was used to quantify alcohols and acetates in Haitian vetiver essential oils. Published by Elsevier B. V.
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<th>Title</th>
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<td>Rapid analysis of cyclamate in foods and beverages by gas chromatography-electron capture detector (GC-ECD)</td>
<td><em>Food Chemistry</em>, <strong>134</strong>, 2424-2429 (2012)</td>
<td>Shengbing Yu <em>et al.</em></td>
<td>HP-5, DB-5ms, DB-WAX, 6890N GC, 7683B Autosampler, food testing and agriculture, food processing and packaging</td>
<td>Several Agilent J&amp;W GC columns, fitted to an Agilent 6890N/5973 MSD, were used in a successful investigation of artificial sweeteners in food. Published by Elsevier B. V.</td>
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<td>Regional sensory and chemical characteristics of Malbec wines from Mendoza and California</td>
<td><em>Food Chemistry</em>, <strong>143</strong>, 256-267 (2014)</td>
<td>Ellena S. King <em>et al.</em></td>
<td>DB-WAX, 6890N, 6890 GC, 5975 MSD, food testing and agriculture, food authenticity</td>
<td>The authors used an Agilent J&amp;W DB-WAX GC column, fitted to an Agilent 6890/5975 GC/MSD, to distinguish between Malbec grapes from California and Argentina, based on their chemical and sensory characteristics. Published by Elsevier B. V.</td>
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<td>3-Methyl-2-butene-1-thiol: Identification, analysis, occurrence and sensory role of an uncommon thiol in wine</td>
<td><em>Talanta</em>, <strong>99</strong>, 225-231 (2012)</td>
<td>Felipe San-Juan <em>et al.</em></td>
<td>Bond Elut ENV, VF-5ms, DB-WAX, Vac Elut 20, food testing and agriculture, food authenticity</td>
<td>Agilent Bond Elut ENV was used for solid phase extraction of a highly uncommon odorant, 3-methyl-2-butene-1-thiothiol, in wine. Specific steps in the process call out for derivatization and eluting compounds. The multi-dimensional GC-olfactometry (GC-O) technique used Agilent J&amp;W GC columns. Published by Elsevier B. V.</td>
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Small molecule pharmaceuticals

Inhalation of the Essential Oil of Piper guineense from Cameroon Shows Sedative and Anxiolytic-Like Effects in Mice

Joan Manjuh Tankam, Michiho Ito

**Abstract**
Qualitative analysis of *Piper guineense* essential oil was achieved using an Agilent 6850 GC equipped with an Agilent 5975 MSD and Agilent J&W CP-Chirasil-Dex CB and HP-INNOWax GC columns, a DB-WAX column was used for quantitative analysis. Published by the Pharmaceutical Society of Japan.

Biocatalyst activity of entomogenous fungi: stereoselective reduction of carbonyl compounds using tochukaso and related species

K. Ishihara *et al.*

**Abstract**
Agilent J&W CP-Chirasil-Dex CB and DB-WAX GC columns were used in a study of the stereoselective reduction of -keto esters and aromatic-keto amides from fungi.

Preparation of Chiral Hydroxy Esters Using Actinobacteria: Biocatalyst Activity of Marine-Derived Micromonospora and Streptomyces Strains

*Open Journal of Applied Sciences, 3*, 116-122 (2013)
K. Ishihara *et al.*

**Abstract**
Agilent J&W CP-Chirasil-Dex CB and DB-WAX GC columns were used in a study of the potential for marine-derived actinomycetes to act as biocatalysts. Published by SciRes.