

Bibliography of Aminex[®] References

This annotated reference list is a categorized bibliography of commonly analyzed compounds, from sugars, sugar derivatives, organic acids, and cell metabolites, all the way through numerous by-products and end products of metabolism that are analyzed on Aminex HPLC columns in food and beverage industries, and in chemical, pharmacological, and medical disciplines.

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General Methods Index

1. Widiastuti, R., Haddad, P. R. and Jackson, P. E., *J. Chrom.*, **602**, 43-50 (1992).
Approaches to Gradient Elution in Ion-Exclusion Chromatography of Carboxylic Acids.
2. Glod, B. K., Haddad, P. R. and Alexander, P. W., *J. Chrom.*, **595**, 149-154 (1992).
Ion-Exclusion Chromatography Using Mobile Phases Containing B-Cyclodextrin.
3. Glod, B. K., Haddad, P. R. and Alexander, P. W., *J. Chrom.*, **589**, 209-214 (1992).
Potentiometric Detection of Carboxylic Acids and Inorganic Anions in Ion-Exclusion Chromatography Using Camphorsulphonic Acid as Eluant.
4. Clement, A., Yong, D. and Brechet, C., *J. Liq. Chrom.*, **15**, 805-817 (1992).
Simultaneous Identification of Sugars by HPLC Using Evaporative Light Scattering Detection (ELSD). and Refractive Index (RI). Application to Plant Tissues.
5. Haddad, P. R. and Jackson, P. E., *J. Chrom.*, **447**, 155-163 (1988).
Studies on Sample Preconcentration in Ion Chromatography.VIII. Preconcentration of Carboxylic Acids Prior to Ion-Exclusion Separation.
6. Baker, J. O., Tucker, M. Y., Lastick, S. M. and Himmel, M. E., *J. Chrom.*, **437**, 387-397 (1988).
Degradation of Ketoses During Aqueous HPLC on Lead-Form Cation-Exchange Resins.
7. Rumsby, G., Belloque, J., Ersser, R. S. and Seakins, J. W. T., *Clinica Chimica Acta*, **163**, 171-183 (1987).
Effect of Temperature and Sample Preparation on Performance of Ion-Moderated Partition Chromatography of Organic Acids in Biological Fluids.
8. Blake, J. D., Clarke, M. L. and Richards, G. N., *J. Chrom.*, **398**, 265-277 (1987).
Determination of Organic Acids in Sugar Cane Process Juice by HPLC: Improved Resolution Using Dual Aminex HPX-87H Cation-Exchange Columns Equilibrated to Different Temperatures.
9. Baker, J. O. and Himmel, M. E., *J. Chrom.*, **357**, 161-181 (1986).
Separation of Sugar Anomers by Aqueous Chromatography on Calcium- and Lead-Form Ion-Exchange Columns. Application to Anomeric Analysis of Enzyme Reaction Products.
10. Morris, C. E., *J. High Resol. Chrom. & Chrom. Commun.*, **9**, 415-416 (1986).
Dual-Column Chromatography for Peak Identification in Ion-Moderated Partition HPLC.
11. Bonn, G., *J. Chrom.*, **322**, 411-424 (1985).
HPLC Elution Behaviour of Oligosaccharides, Monosaccharides and Sugar Degradation Products on Series-Connected Ion-Exchange Resin Columns Using Water as the Mobile Phase.
12. Hicks, K. B., Lim, P. C. and Haas, M. J., *J. Chrom.*, **319**, 159-171 (1985).
Analysis of Uronic and Aldonic Acids, Their Lactones and Related Compounds by HPLC on Cation-Exchange Resins.
13. Makkee, M., Kieboom, A. P. G. and van Bekkum, H., *Int. Sugar J.*, **87**, 55-58 (1985).
HPLC Analysis of Reaction Mixtures Containing Monosaccharides and Alditols.
14. Pecina, R., Bonn, G., Burtscher, E. and Bobleter, O., *J. Chrom.*, **287**, 245-258 (1984).
HPLC Elution Behaviour of Alcohols, Aldehydes, Ketones, Organic Acids and Carbohydrates on a Strong Cation-Exchange Stationary Phase.
15. Jupille, T., Gray, M., Black, B. and Gould, M., *Amer. Lab.*, **13**, 80-86 (1981).
Ion Moderated Partition HPLC.
16. Rajakyla, E., *J. Chrom.*, **218**, 695-701 (1981).
Separation and Determination of Some Organic Acids and Their Sodium Salts by HPLC.
17. Verhaar, L. A. Th. and Kuster, B. F. M., *J. Chrom.*, **210**, 279-290 (1981).
Improved Column Efficiency in Chromatographic Analysis of Sugars on Cation-Exchange Resins by Use of Water-Triethylamine Eluants.
18. Turkelson, V. T. and Richards, M., *Anal. Chem.*, **50**, 1420-1423 (1978).
Separation of the Citric Acid Cycle Acids by Liquid Chromatography.
19. Goulding, R. W., *J. Chrom.*, **103**, 229-239 (1975).
Liquid Chromatography of Sugars and Related Polyhydric Alcohols on Cation-Exchangers.

Miscellaneous Food And Beverage Index

20. Noffsinger, J. B., Emery, M., Hoch, D. J. and Dokladalova, J., *J. Assoc. Off. Anal. Chem.*, **73**, 51-53 (1990).
Liquid Chromatographic Determination of Polydextrose in Food Matrixes.
21. Kim, H.-J., *J. Assoc. Off. Anal. Chem.*, **73**, 216-222 (1990).
Determination of Sulfite in Foods and Beverages by Ion Exclusion Chromatography with Electrochemical Detection: Collaborative Study.

22. Jinap, S. and Dimick, P. S., *Pertanika*, **13**, 107-111 (1990).
Analysis of Non-volatile Organic Acids in Fermented and Dried Cocoa Beans by HPLC.
 23. Mattiuz, E. L. and Perone, R. A., *LC-GC*, **4**, 552-561 (1986).
Analysis of Trace Levels of Organic Acids in Nutritive Sweeteners.
 24. Kubadinow, N., *Zuckerindustrie*, **111**, 37-44 (1986).
HPLC as Control Method for the Processing of Sorghum.
 25. Clarke, M. A. and Tsang, W. S. C., *Int. Sugar J.*, **86**, 215-220 (1984).
HPLC in Sugar Factories and Refineries.
 26. De Bruijn, J. M., Kieboom, A. P. G., van Bekkum, H. and van der Poel, P. W., *Int. Sugar J.*, **86**, 195-199 (1984).
Analysis of Carboxylic Acids Formed by Alkaline Degradation of Invert Sugar.
 27. Nassos, P. S., Schade, J. E., King, Jr., A. D. and Stafford, A. E., *J. Food Sci.*, **49**, 671-674 (1984).
Comparison of HPLC and GC Methods for Measuring Lactic Acid in Ground Beef.
 28. Ashoor, S. H. and Knox, M. J., *J. Chrom.*, **299**, 288-292 (1984).
Determination of Organic Acids in Foods by HPLC.
 29. Ashoor, S. H. and Welty, J., *J. Chrom.*, **287**, 452-456 (1984).
Determination of Organic Acids in Foods by HPLC: Lactic Acid.
 30. Ashoor, S. H. and Welty, J., *J. Assoc. Off. Anal. Chem.*, **67**, 885-887 (1984).
Liquid Chromatographic Determination of Acetic Acid in Foods.
 31. Monk, P. R. and Iland, P. G., *Food Technol. Austral.*, **36**, 16-17 (1984).
Ion-Exclusion Chromatography of Carboxylic Acids with Conductimetric Estimation. I. Methodology.
 32. Slavin, J. L. and Marlett, J. A., *J. Agric. Food Chem.*, **31**, 467-471 (1983).
Evaluation of HPLC for Measurement of the Neutral Saccharides in Neutral Detergent Fiber.
 33. Engel, C. E., Olinger, P. M. and Bernetti, R., *J. Assoc. Off. Anal. Chem.*, **65**, 1366-1369 (1982).
HPLC Determination of Minor Saccharides in Corn Sugar: Collaborative Study.
 34. Samarco, E. C. and Parente, E. S., *J. Assoc. Off. Anal. Chem.*, **65**, 76-78 (1982).
Automated HPLC System for Determination of Mannitol, Sorbitol, and Xylitol in Chewing Gums and Confections.
 35. Brobst, K. M. and Scobell H. D., *Stärke/Starch*, **34**, 117-121 (1982).
Modern Chromatographic Methods for the Analysis of Carbohydrate Mixtures.
 36. Charles D. F., *Int. Sugar J.*, **83**, 195-199 (1981).
Analysis of Sugars and Organic Acids.
 37. Nagel, C. W., Brekke, C. J. and Leung, H. K., *J. Food Sci.*, **47**, 342-343 (1981).
Humectant Analysis of Intermediate Moisture Meat by HPLC.
 38. Dokladalova, J., Barton, A. Y. and Mackenzie, E. A., *J. Assoc. Off. Anal. Chem.*, **63**, 664-666 (1980).
High Pressure Liquid Chromatographic Determination of Sorbitol in Bulk Sorbitol.
 39. Davis, W. A. and Hartford, C. G., *Liq. Chrom. Anal. of Food and Bev.*, **2**, 353-362 (1979).
HPLC of Carbohydrate Products.
- ## Dairy Products
40. Bouzas, J., Kantt, C. A., Bodyfelt, F. and Torres, J. A., *J. Food Sci.*, **56**, 276-278 (1991).
Simultaneous Determination of Sugars and Organic Acids in Cheddar Cheese by HPLC.
 41. Haggerty, R. J., Luedecke, L. O., Nagel, C. W. and Massey, L. K., *J. Food Sci.*, **49**, 1194-1195 (1984).
Effect of Selected Yogurt Cultures on the Concentration of Orotic Acid, Uric Acid and A Hydroxymethylglutaric-Like Compound in Milk After Fermentation.
 42. Lavanchy, P. and Steiger, G., *Spec. Publ. R. Soc. Chem.*, **49**, 317-318 (1984).
Determination of Orotic Acid and of Other Carboxylic Acids in Milk and Dairy Products by HPLC.
 43. Huffman, L. M. and Kristoffersen, T., *New Zealand J. Dairy Sci. Technol.*, **19**, 151-162 (1984).
Role of Lactose in Cheddar Cheese Manufacturing and Ripening.
 44. Brons, C. and Olieman, C., *J. Chrom.*, **259**, 79-86 (1983).
Study of the HPLC Separation of Reducing Sugars, Applied to the Determination of Lactose in Milk.
 45. Jager, H. and Tschager, E., *Milchwirtschaftliche Berichte*, **75**, 105-108 (1983).
Determination of Organic Acids in Cheese Using HPLC.
 46. Pirisino, J. F., *J. Food Sci.*, **48**, 742-754 (1983).
HPLC Determination of Lactose, Glucose and Galactose in Lactose-Reduced Milk.
 47. Richmond, M. L., Barfuss, D. L., Harte, B. R., Gray, J. I. and Stine, C. M., *J. Dairy Sci.*, **65**, 1394-1400 (1982).
Separation of Carbohydrates in Dairy Products by HPLC.

48. Marsili, R. T., *J. Chrom. Sci.*, **19**, 451-456 (1981).
Monitoring Bacterial Metabolites in Cultured Buttermilk by HPLC and Headspace Gas Chromatography.
49. Marsili, R. T., Ostapenko, H., Simmons, R. E. and Green, D. E., *J. Food Sci.*, **46**, 52-57 (1981).
HPLC Determination of Organic Acids in Dairy Products.

Components of Fruits and Vegetables

50. Graham, W. D. and Annette, D., *J. Chrom.*, **594**, 187-194 (1992).
Determination of Ascorbic and Dehydroascorbic Acid in Potatoes (*Solanum tuberosum*). and Strawberries Using Ion-Exclusion Chromatography.
51. Sharma, D. D., D'Souza, V. F. and McConnell, M. B., *Can. Inst. Food Sci. Technol.*, **21**, 435-437 (1988).
Identification and Quantification of Sugars in Winter-Hardy Apples by HPLC.
52. Lee, H. S. and Wrolstad, R. E., *J. Assoc. Off. Anal. Chem.*, **71**, 789-794 (1988).
Apple Juice Composition: Sugar, Nonvolatile Acid, and Phenolic Profiles.
53. Gancedo, M. C. and Luh, B. S., *J. Food Sci.*, **51**, 571-573 (1986).
HPLC Analysis of Organic Acids and Sugars in Tomato Juice.
54. Picha, D. H., *J. Food Sci.*, **50**, 1189-1190 (1985).
HPLC Determination of Sugars in Raw and Baked Sweet Potatoes.
55. Picha, D. H., *J. Agric. Food Chem.*, **33**, 743-745 (1985).
Organic Acid Determination in Sweet Potatoes by HPLC.
56. Schwarzenbach, R., *Mitt. Gebiete Lebensm. Hyg.*, **75**, 51-59 (1984).
Direct Determination of Carboxylic Acids in Fruit and Vegetable Juices by HPLC.
57. Bushway, R. J., Bureau, J. L. and McGann, D. F., *J. Food Sci.*, **49**, 75-81 (1984).
Determinations of Organic Acids in Potatoes by HPLC.
58. McFeeters, R. F., Thompson, R. L. and Fleming, H. P., *J. Assoc. Off. Anal. Chem.*, **67**, 710-714 (1984).
Liquid Chromatographic Analysis of Sugars, Acids and Ethanol in Lactic Acid Vegetable Fermentations.
59. Evans, R. H., van Soestbergen, A. W. and Ristow, K. A., *J. Assoc. Off. Anal. Chem.*, **66**, 1517-1520 (1983).
Evaluation of Apple Juice Authenticity by Organic Acid Analysis.
60. Andersson, R. and Hedlund, B., *Z. Lebensm. Unters. Forsch.*, **176**, 440-443 (1983).
HPLC Analysis of Organic Acids in Lactic Acid Fermented Vegetables.

61. Mattick, L. R. and Moyer, J. C., *J. Assoc. Off. Anal. Chem.*, **66**, 1251-1255 (1983).
Composition of Apple Juice.
62. Wrolstad, R. E., Culbertson, J. D., Cornwell, C. J. and Mattick, L. R., *J. Assoc. Off. Anal. Chem.*, **65**, 1417-1423 (1982).
Detection of Adulteration in Blackberry Juice Concentrates and Wines.
63. Reyes, F. G. R., Wrolstad, R. E. and Cornwell, C. J., *J. Assoc. Off. Anal. Chem.*, **65**, 126-131 (1982).
Comparison of Enzymic, Gas-Liquid Chromatographic, and HPLC Methods for Determining Sugars and Organic Acids in Strawberries at Three Stages of Maturity.
64. Chen, P. M., Richardson, D. G. and Mellenthin, W. M., *J. Amer. Soc. Hort. Sci.*, **107**, 807-812 (1982).
Differences in Biochemical Composition between 'Beurre d'Anjou' and 'Bosc' Pears during Fruit Development and Storage.

Wine And Beer Analysis

65. Leubolt, R. and Klein, H., *J. Chrom.*, **640**, 271-277 (1993).
Determination of Sulphite and Ascorbic Acid by HPLC with Electrochemical Detection.
66. Klein, H. and Leubolt, R., *J. Chrom.*, **640**, 159-270 (1993).
Ion-Exchange High-Performance Liquid Chromatography in the Brewing Industry.
67. Caputi, Jr, A., Christensen, E., Biedenweg, N. and Miller, S., *J. Assoc. Off. Anal. Chem. Internat.*, **75**, 379-383 (1992).
Liquid Chromatographic Method for Determination of Glycerol in Wine and Grape Juice: Collaborative Study.
68. Frayne, R. F., *Am. J. Enol. Vitic.*, **37**, 281-287 (1986).
Direct Analysis of the Major Organic Components in Grape Must and Wine Using HPLC.
69. Franta, B. D., Mattick, L. R. and Sherbon, J. W., *Am. J. Enol. Vitic.*, **37**, 269-274 (1986).
The Analysis of Pentoses in Dry Wine by HPLC with Post-Column Derivatization.
70. Belleau, G. and Dadic, M., *Amer. Soc. Brew. Chem.*, **43**, 47-53 (1985).
Application of HPLC in Brewing.II. Analysis of Total Carbohydrate in Beer.
71. Pfeiffer, P. and Radler, F., *Z. Lebensm. Unters. Forsch.*, **181**, 24-27 (1985).
Determination of Organic Acids, Sugars, Glycerol and Ethanol in Wine by HPLC with a Cation Exchange Resin.
72. McCord, J. D., Trousdale, E. and Ryu, D. D. Y., *Am. J. Enol. Vitic.*, **35**, 28-29 (1984).
An Improved Sample Preparation Procedure for the Analysis of Major Organic Components In Grape Must and Wine by HPLC.

73. Dadic, M. and Belleau, G., *Amer. Soc. Brew. Chem.*, **40**, 141-146 (1982).
Application of HPLC in Brewing. I. Determination of Carbohydrates and Alcohol.
74. Cieslak, M. E. and Herwig, W. C., *J. Amer. Soc. Brew. Chem.*, **40**, 43-46 (1982).
Determination of Ethanol in Malt Beverages Using HPLC.
75. Munroe, J. H., *Amer. Soc. Brew. Chem.*, **38**, 84-87 (1980).
Fermentable Carbohydrates in Wort.
76. Pomes, A. F., *Amer. Soc. Brew. Chem.*, **38**, 67-70 (1980).
Corn Syrup Rapid Method Fermentables by HPLC.
77. Stanek, R., Gain, R. E., Glover, D. D. and Larsen, B., *Biomed. Chrom.*, **6**, 231-235 (1992).
High Performance Ion Exclusion Chromatographic Characterization of the Vaginal Organic Acids in Women with Bacterial Vaginosis.
78. Linke, H. A. B. and Moss, S. J., *Z. Ernaehrungswiss.*, **31**, 147-154 (1992).
Quantitation of Carbohydrate Sweeteners and Organic Acids in Human Oral Fluid Using HPLC Analysis.
79. Ruo, T. I., Wang, Z., Dordal, M. S. and Atkinson, Jr., A. J., *Clinica Chimica Acta*, **204**, 217-222 (1991).
Assay of Insulin in Biological Fluids by HPLC with Pulsed Amperometric Detection.
80. Margolis, S. A., Paule, R. C. and Ziegler, R. G., *Clin. Chem.*, **36**, 1750-1755 (1990).
Ascorbic and Dehydroascorbic Acids Measured in Plasma Preserved with Dithiothreitol or Metaphosphoric Acid.
81. Chong, W. K., Mills, G. A., Weavind, G. P. and Walker, V., *J. Chrom.*, **487**, 147-153 (1989).
HPLC Method for the Rapid Profiling of Plasma and Urinary Organic Acids.
82. Haas, R. H., Breuer, J. and Hammen, M., *J. Chrom.*, **425**, 47-57 (1988).
HPLC Measurement of Selected Blood Citric Acid Cycle Intermediates.
83. Brown, G. K., Haan, E. A., Kirby, D. M., Scholem, R. D., Wraith, J. E., Rogers, J. G. and Danks, D. M., *Eur. J. Pediatr.*, **147**, 10-14 (1988).
"Cerebral" Lactic Acidosis: Defects in Pyruvate Metabolism with Profound Brain Damage and Minimal Systemic Acidosis.
84. Lippe, G., Trevisan, R., Nosadini, R., Fabris, R. and Deana, R., *Clin. Biochem.*, **20**, 275-279 (1987).
3-Hydroxy-3-Methylglutaric, Adipic, and 2-Oxoglutaric Acids Measured by HPLC in the Plasma from Diabetic Patients.
85. Del Grosso, A. V. and May, J. C., *J. Assoc. Off. Anal. Chem.*, **70**, 825-828 (1987).
Gas Chromatographic, Liquid Chromatographic and Titrimetric Procedures for Determination of Glycerin in Allergenic Extracts and Diagnostic Antigens: Comparative Study.
86. Mononen, I., *J. Chrom.*, **381**, 219-224 (1986).
Detection of Sialuria by Cation-Exchange HPLC.
87. Halls, H. J. and Teubner, J. K., *Clin. Chem.*, **32**, 1979 (1986).
Liquid-Chromatographic Determination of Organic Acids in Plasma.
88. Buchanan, D. N. and Thoene, J. G., *Clin. Chem.*, **32**, 169-171 (1986).
Photodiode Array Detection for Liquid Chromatographic Profiling of Carboxylic Acids in Physiological Fluids: 3-Hydroxy-3-Methylglutaric Aciduria.
89. Buchanan, D. N. and Thoene, J. G., *J. Chrom.*, **344**, 23-32 (1985).
Photodiode Array Ultraviolet Spectrophotometric Profiling of Carboxylic Acids in Physiological Fluids.
90. Allen, K. R., Khan, R. and Watson, D., *Clin. Chem.*, **31**, 561-563 (1985).
Use of a Diode Array Detector in Investigation of Neonatal Organic Aciduria.
91. Wilson, T.D., *J. Liq. Chrom.*, **8**, 1629-1650 (1985).
HPLC Determination of Lactic Acid in Milrinone Injection and Oral Solution Using Ion-Exchange Sample Preparation Methods.
92. Oefner, P., Bonn, G. and Bartsch, G., *J. Liq. Chrom.*, **8**, 1009-1023 (1985).
Ultrafiltration and HPLC Analysis of Seminal Carbohydrates, Organic Acids and Sugar Alcohols.
93. Daish, P. and Leonard, J. V., *Clinica Chimica Acta*, **146**, 87-91 (1985).
Rapid Profiling of Plasma Organic Acids by HPLC.
94. Bennett, M. J. and Bradey, C. E., *Clin. Chem.*, **30**, 542-546 (1984).
Simpler Liquid Chromatographic Screening for Organic Acid Disorders.
95. Warner, T. G., Robertson, A. D. and O'Brien, J. S., *Clin. Chem. Acta*, **127**, 313-326 (1983).
Diagnosis of GM1 Gangliosidosis Based on detection of Urinary Oligosaccharides with HPLC.
96. Buchanan, D. N. and Thoene, J. G., *Anal. Biochem.*, **124**, 108-116 (1982).
Dual-Column HPLC Urinary Organic Acid Profiling.
97. Wong, S. H., Kalache, G. and Morse, E. E., *J. Liq. Chrom.*, **4**, 1831-1845 (1981).
HPLC Assay of D-Glucose in Erythrocytes.

Clinical Applications

98. Buchanan, D. N. and Thoene, J. G., *J. Liq. Chrom.*, **4**, 1587-1600 (1981).
HPLC Urinary Organic Acid Profiling: Role of the Ultraviolet and Amperometric Detectors.
99. Buchanan, D. N. and Thoene, J. G., *J. Liq. Chrom.*, **4**, 1219-1224 (1981).
Analysis of Alpha-Ketocarboxylic Acids by Ion Exchange HPLC with UV and Amperometric Detection.
100. Silver, H. K. B. and Karim, K. A., *J. Chrom.*, **224**, 381-388 (1981).
HPLC Quantitation of N-Acetylneuraminic Acid in Malignant Melanoma and Breast Carcinoma.
101. Kuo, J. C. and Yeung, E. S., *J. Chrom.*, **223**, 321-329 (1981).
Determination of Carbohydrates in Urine by HPLC and Optical Activity Detection.
109. Krausse, R. and Ullmann, U., *Zbl. Bakt. Hyg., A*, **260**, 342-360 (1985).
Studies on the Identification of Campylobacter Species Using Biochemical Tests and HPLC.
110. Adams, R. F., Jones, R. L. and Conway, P. L., *J. Chrom.*, **336**, 125-137 (1984).
High-Performance Liquid Chromatography of Microbial Acid Metabolites.
111. Loh, W. H.-T., Santoro, N., Miller, R. H. and Tuovinen, O. H., *J. Gen. Microbiol.*, **130**, 1051-1059 (1984).
Comparison of Gas-Liquid and HPLC, and Mass Spectrometry, for the Detection of Organic Acids in Culture Media of Azospirillum brasilense and Desulfovibrio desulfuricans.
112. Guerrant, G. O., Lambert, M. A. and Moss, C. W., *J. Clin. Microbiol.*, **16**, 355-360 (1982).
Analysis of Short-Chain Acids from Anaerobic Bacteria by HPLC.

Clinical-Bacterial Identification

102. Paavilainen, S. and Korpela, T., *J. Chrom.*, **634**, 273-280 (1993).
Comparison of High-Performance Liquid and Gas Chromatography in the Determination of Organic Acids in Culture Media of Alkaliphilic Bacteria.
103. Radin, L., Sivori, S., Eftimiadi, C. and Lucarelli, C., *Biomed. Chrom.*, **6**, 115-119 (1992).
HPLC Strategy Suitable for the Analysis of Exopolysaccharides Extracted from Pathogenic Bacteria.
104. Krausse R. and Ullmann, U., *Zbl. Bakt. Hyg., A*, **276**, 1-8 (1991).
A Modified Procedure for the Identification of Anaerobic Bacteria by HPLC - Quantitative Analysis of Short-Chain Fatty Acids.
105. Williams, J. W., Saravolac, E. G. and Taylor, N. F., *Microchem. J.*, **43**, 2-9 (1991).
The Use of HPLC in the Identification and Quantification of Cell Wall and Lipopolysaccharide Components in Gram Negative Bacteria.
106. Radin, L., Arzese, A., Lucarelli, C. and Botta, G. A., *J. Chrom.*, **459**, 331-335 (1988).
Rapid Identification of Bacteroides Species by HPLC.
107. Krausse, R. and Ullmann, U., *Zbl. Bakt. Hyg., A*, **265**, 340-352 (1987).
Identification of Anaerobic Bacteria Using HPLC.
108. Buchanan, D. N. and Thoene, J. G., *Biomed. Chrom.*, **1**, 38-40 (1986).
Early Identification of Isovaleric Aciduria Using Photodiode Array Detection for Liquid Chromatographic Profiling of Urinary Carboxylic Acids.
113. Ehrlich, G. G., Goerlitz, D. F., Bourell, J. H., Eisen, G. V. and Godsy, E. M., *Appl. Environ. Microbiol.*, **42**, 878-885 (1981).
LC Procedure for Fermentation Product Analysis in the Identification of Anaerobic Bacteria.

Oligosaccharides Analysis

114. Ortega, F., *Analytica Chimica Acta*, **257**, 79-87 (1992).
Selective Determination of Dextrins by Liquid Chromatography with Postcolumn Enzymic Reaction, Using Co-Immobilized Enzymes.
115. Wood, P. J., Weisz, J. and Blackwell, B. A., *Cereal Chem.*, **68**, 31-39 (1991).
Molecular Characterization of Cereal B-D-Glucans. Structural Analysis of Oat B-D-Glucan and Rapid Structural Evaluation of B-D-Glucans from Different Sources by HPLC of Oligosaccharides Released by Lichenase.
116. Hicks, K. B. and Hotchkiss, Jr., A. T., *J. Chrom.*, **441**, 382-386 (1988).
HPLC of Plant-Derived Oligosaccharides on a New Cation-Exchange
117. Derler, H., Hoermeyer, H. F. and Bonn, G., *J. Chrom.*, **440**, 281-286 (1988).
HPLC Analysis of Oligosaccharides. I. Separation on an Ion-Exchange Stationary Phase of Low Cross-Linking.
118. Van Riel, J. A. M. and Olieman, C., *J. Chrom.*, **362**, 235-242 (1986).
HPLC of Sugars on a Mixed Cation-Exchange Resin Column.
119. Brunt, K., *J. Chrom.*, **246**, 145-151 (1982).
Rapid Separation of Linear and Cyclic Glucosaccharides on a Cation-Exchange Resin Using a Calcium Ethylenediaminetetraacetate Solution as Eluant.

120. Schmidt, J., John, M. and Wandrey, C., *J. Chrom.*, **213**, 151-155 (1981).
Rapid Separation of Malto-, Xylo- and Cello-Oligosaccharides (DP 2-9). on Cation-Exchange Resin Using Water as Eluant.
121. Scobell, H. D. and Brobst, K. M., *J. Chrom.*, **212**, 51-64 (1981).
Rapid High-Resolution Separation of Oligosaccharides on Silver Form Cation-Exchange Resins.
122. Fitt, L. E., Hassler, W. and Just, D. E., *J. Chrom.*, **187**, 381-389 (1980).
A Rapid and High-Resolution Method to Determine the Composition of Corn Syrups by Liquid Chromatography.
123. Kiser, D. L. and Hagy, R. L., *Liquid Chromatographic Analysis of Food and Beverages*, Volume 2, 363-378 (1979).
Estimation of Dextrose Equivalent Value of Starch Hydrolysates from Liquid Chromatographic Values.

Cellulose And Wood Components

124. Marko-Varga, G., Gorton, L., Dominguez, E. and Barcelo, D., *Chromatographia*, **36**, 381-398 (1993).
Enzyme Based Detection Systems in Column Liquid Chromatography - Extension of Selectivity and Sensitivity.
125. Kaar, W. E., Cool, L. G., Merriman, M. M. and Brink, D. L., *J. Wood Chem. Technol.*, **11**, 447-463 (1991).
The Complete Analysis of Wood Polysaccharides Using HPLC.
126. Olsson, L., Mandenius, C. F. and Vole, J., *Anal. Chem.*, **62**, 2688-2691 (1990).
Determination of Monosaccharides in Cellulosic Hydrolysates Using Immobilized Pyranose Oxidase in a Continuous Amperometric Analyzer.
127. Voragen, A. G. J., Schols, H. A., Searle-van Leeuwen, M. F. and Beldman, G., *J. Chrom.*, **370**, 113-120 (1986).
Analysis of Oligomeric and Monomeric Saccharides from Enzymatically Degraded Polysaccharides by HPLC.
128. Patrick, D. W. and Kracht, W. R., *J. Chrom.*, **318**, 269-278 (1985).
Single-Valve, Single-Pump, HPLC Column-Switching Analysis of Hydrolyzed Wood Components.
129. Schwald, W., Concin, R., Bonn, G. and Bobleter, O., *Chromatographia*, **20**, 35-40 (1985).
Analysis of Oligomeric and Monomeric Carbohydrates from Hydrothermal Degradation of Cotton-Waste Materials Using HPLC and GPC.
130. Pettersen, R. C., Schwandt, V. H. and Effland, M. J., *J. Chrom. Sci.*, **22**, 478-484 (1984).
An Analysis of the Wood Sugar Assay Using HPLC: A Comparison with Paper Chromatography.

131. Bonn, G., Pecina, R., Burtscher, E. and Bobleter, O., *J. Chrom.*, **287**, 215-221 (1984).
Separation of Wood Degradation Products by High-Performance Liquid Chromatography.
132. Paice, M. G., Jurasek, L. and Desrochers, M., *Tappi*, **65**, 103-106 (1982).
Simplified Analysis of Wood Sugars.
133. Wentz, F. E., Marcy, A. D. and Gray, M. J., *J. Chrom. Sci.*, **20**, 349-352 (1982).
Analysis of Wood Sugars in Pulp and Paper Industry Samples by HPLC.

Plant Biochemistry

134. Landolt, W., Pfenninger, I. and Luethy-Krause, B., *Trees*, **3**, 85-88 (1989).
The Effect of Ozone and Season on the Pool Sizes of Cyclitols in Scots Pine (*Pinus Sylvestris*).
135. Lenherr, A., Mabry, T. J. and Gretz, M. R., *J. Chrom.*, **388**, 455-458 (1987).
Differentiation Between Glucose, Mannose, Allose and Galactose in Plant Glycosides by HPLC Analysis.
136. Timpa, J. D. and Burke, J. J., *J. Agric. Food Chem.*, **34**, 910-913 (1986).
Monitoring Organic Acids and Carbohydrates in Cotton Leaves by HPLC.
137. Martillotti, F. and Puppo, S., *Ann. Ist. Sper. Zootec.*, **18**, 1-10 (1985).
Liquid Chromatographic Determination of Organic Acids in Silages and Rumen Fluids.
138. Canale, A., Valente, M. E. and Ciotti, A., *J. Sci. Food Agric.*, **35**, 1178-1182 (1984).
Determination of Volatile Carboxylic Acids and Lactic Acid in Aqueous Acid Extracts of Silage by HPLC.
139. McBee, G. G. and Manes, N. O., *J. Chrom.*, **264**, 474-478 (1983).
Determination of Sucrose, Glucose and Fructose in Plant Tissue by HPLC.

Fermentation Monitoring

140. Gey, M., Rietzschel, A. and Nattermueller, W., *Acta. Biotechnol.*, **11**, 511-519 (1991).
Characterization of Biotechnological Processes and Products Using HPLC. VII. Determination of Organic Compounds in Sulphite Liquor.
141. Marko-Varga, G., Dominguez, E., Hahn-Haegerdal, B., Gorton, L., Irth, H., De Jong, G. J., Frei, R. W. and Brinkman, U. A. Th., *J. Chrom.*, **523**, 173-188 (1990).
On-Line Sample Clean-Up of Fermentation Broths and Substrates Prior to the LC Separation of Carbohydrates.

142. Marko-Varga, G., Dominguez, E., Hahn-Haegerdal, B. and Gorton, L., *J. Chrom.*, **506**, 423-441 (1990).
Selective Post-Column Liquid Chromatographic Determination of Sugars in Spent Sulphite Liquor with Two Enzymatic Electrochemical Detectors in Parallel.
143. Plaga, A., Stuempfel, J. and Fiedler, H.-P., *Appl. Microbiol. Biotechnol.*, **32**, 45-49 (1989).
Determination of Carbohydrates in Fermentation Processes by HPLC.
144. Marko-Varga, G. A., *Anal. Chem.*, **61**, 831-838 (1989).
Determination of Mono- and Oligosaccharides in Fermentation Broths by LC Separation and Amperometric Detection Using Immobilized Enzyme Reactors and a Chemically Modified Electrode.
145. Marko-Varga, G., *J. Chrom.*, **408**, 157-170 (1987).
HPLC Separation of Some Mono- and Disaccharides with Detection by a Post-Column Enzyme Reactor and a Chemically Modified Electrode.
146. Ross, L. F. and Chapital, D. C., *J. Chrom. Sci.*, **25**, 112-117 (1987).
Simultaneous Determination of Carbohydrates and Products of Carbohydrate Metabolism in Fermentation Mixtures by HPLC.
147. Lazarus, R. A. and Seymour, J. L., *Anal. Biochem.*, **157**, 360-366 (1986).
Determination of 2-Keto-L-Gulonic and Other Ketoaldonic and Aldonic Acids Produced by Ketogenic Bacterial Fermentation.
148. Anderson, A. W. and Tsao, G. T., *Biotech. Bioeng.*, **26**, 374-376 (1984).
Analysis of 2-Keto-Gulonic Acid and Fermentation Substrates by HPLC.
149. Bonn, G. and Bobleter, O., *Chromatographia*, **18**, 445-448 (1984).
HPLC Analyses of Plant Biomass Hydrolysis and Fermentation Solutions.
150. Tan, K. H., Ferguson, L. B. and Carlton, C., *J. Appl. Biochem.*, **6**, 80-90 (1984).
Conversion of Cassava Starch to Biomass, Carbohydrates and Acids by *Aspergillus niger*.
151. Russell, J. B. and van Soest, P. J., *Appl. Environ. Microbiol.*, **47**, 155-159 (1984).
In Vitro Ruminant Fermentation of Organic Acids Common in Forage.
152. Masson, S., Sciaky, M., Desmoulin, F., Fontanarava, E. and Cozzone, P. J., *J. Chrom.*, **563**, 231-242 (1991).
Simple Cation-Exchange HPLC Optimized to the Measurement of Metabolites in the Effluents from Perfused Rat Livers Using Refractive Index and Ultraviolet Detectors.
153. Weigang, F., Reiter, M., Jungbauer, A. and Katinger, H., *J. Chrom.*, **497**, 59-68 (1989).
HPLC Determination of Metabolic Products for Fermentation Control of Mammalian Cell Culture: Analysis of Carbohydrates, Organic Acids and Orthophosphate Using Refractive Index and Ultraviolet Detectors.
154. Creek, K. E., Shankar, S. and DeLuca, L. M., *Arch. Biochem. Biophys.*, **254**, 482-490 (1987).
In Vivo Formation of Tritium-Labeled Lactic Acid from [2-3H]Mannose or [15-3H]Retinol by Hamster Intestinal Epithelial Cells.
155. Tedesco, J. L., *BioTechniques*, **5**, 46-51 (1987).
Analysis of Glucose and Lactic Acid in Cell Culture Media by Ion-Moderated Partitioning HPLC.
156. Jessop, N. S. and Scaife, J. R., *Biochem. Soc. Transactions*, **13**, 1222-1223 (1985).
HPLC Separation of Tricarboxylic Acid Cycle Organic Acids.
157. Stikkelman, R. M., Tjioe, T. T., van der Wiel, J. P. and van Rantwijk, F., *J. Chrom.*, **322**, 220-222 (1985).
HPLC Separation of Glucose-1-Phosphate, Fructose, Sucrose and Inorganic Orthophosphate.
158. Womersley, C., Drinkwater, L. and Crowe, J. H., *J. Chrom.*, **318**, 112-116 (1985).
Separation of Tricarboxylic Acid Cycle Acids and Other Related Organic Acids in Insect Haemolymph by HPLC.
159. Stimler, N. P., *Anal. Biochem.*, **142**, 103-108 (1984).
HPLC Quantitation of Collagen Biosynthesis in Explant Cultures.

Bacteria And Yeast Studies

160. Himanen, J.-P., *J. Chrom.*, **607**, 1-6 (1992).
Determination of Glycerol in Bacterial Cell Wall Teichoic Acid by HPLC.
161. Bell, D. J., Blake, J. D., Prazak, M., Rowell, D. and Wilson, P. N., *J. Inst. Brew.*, **97**, 307-315 (1991).
Studies on Yeast Differentiation Using Organic Acid Metabolites. Part 2: Studies on the Organic Acid Metabolites Produced by Yeasts Grown on Glucose.
162. Zhang, J., Wolfe, S. and Demain, A. L., *Current Microbiol.*, **18**, 361-367 (1989).
Carbon Source Regulation of ACV Synthetase in *Cephalosporium acremonium* C-10.
163. Sutherland, I. W. and Kennedy, A. F. D., *Appl. Environ. Microbiol.*, **52**, 948-950 (1986).
Comparison of Bacterial Lipopolysaccharides by HPLC.
164. Karr, D. B., Waters, J. K. and Emerich, D. W., *Appl. Environ. Microbiol.*, **45**, 1339-1344 (1983).
Analysis of Poly-B-Hydroxybutyrate in *Rhizobium japonicum* Bacteroids by Ion-Exclusion HPLC and UV Detection.

Metabolite Analysis

152. Masson, S., Sciaky, M., Desmoulin, F., Fontanarava, E. and Cozzone, P. J., *J. Chrom.*, **563**, 231-242 (1991).
Simple Cation-Exchange HPLC Optimized to the Measurement of Metabolites in the Effluents from Perfused Rat Livers Using Refractive Index and Ultraviolet Detectors.

Glycoproteins and Glycoconjugates

165. Hull, S. R., Sugarman, E. D., Spielman, J. and Carraway, K. L., *J. Biol. Chem.*, **266**, 13580-13586 (1991).

Biosynthetic Maturation of an Ascites Tumor Cell Surface Sialomucin. Evidence for O-Glycosylation of Cell Surface Glycoprotein by the Addition of New Oligosaccharides During Recycling.

166. Walsh, M. T., Watzlawick, H., Putnam, F. W., Schmid, K. and Brossmer, R., *Biochem.*, **29**, 6250-6257 (1990).

Effect of the Carbohydrate Moiety on the Secondary Structure of B2-Glycoprotein

I. Implications for the Biosynthesis and Folding of Glycoproteins.

167. Lohmander, L. S., Hascall, V. C., Yanagishita, M., Kuetner, K. E. and Kimura, J. H., *Arch. Biochem. Biophys.*, **250**, 211-227 (1986).

Post-Translational Events in Proteoglycan Synthesis: Kinetics of Synthesis of Chondroitin Sulfate and Oligosaccharides on the Core Protein.

168. Lohmander, L. S., *Anal. Biochem.*, **154**, 75-84 (1986).

Analysis by HPLC of Radioactively Labeled Carbohydrate Components of Proteoglycans.

169. Yanagishita, M. and Hascall, V. C., *J. Biol. Chem.*, **260**, 5445-5455 (1985).

Effects of Monensin on the Synthesis, Transport, and Intracellular Degradation of Proteoglycans in Rat Ovarian Granulosa Cells in Culture.

170. Blaschek, W., *J. Chrom.*, **256**, 157-163 (1983).

Complete Separation and Quantification of Neutral Sugars from Plant Cell Walls and Mucilages by HPLC.

Nucleic Acids

171. Gornicki, P., Judek, M., Wolanski, A. and Krzyzosiak, W. J., *Eur. J. Biochem.*, **155**, 371-375 (1986).

Hypermodified Nucleoside Carboxyl Group as a Target Site for Specific tRNA Modification.

172. Tukalo, M. A., Vasil'eva, I. G., Matsuka, G. Kh. and Vlassov, V. V., *Bioorg. Khim.*, **10**, 58-67 (1984).

The Primary Structure of fRNA-leu from Cow Mammary Gland. Oligonucleotides of T1 RNase Digest. The Reconstruction of the Total Nucleotide Sequence.

173. Rahn, R. O., *J. Inorg. Biochem.*, **21**, 311-321 (1984).

Chromatographic Analysis of the Adducts Formed in DNA Complexed with cis-Diamminedichloroplatinum (II).

174. Rahn, R. O., Chang, S. S. and Hoeschele, J. D., *J. Inorg. Biochem.*, **18**, 279-290 (1983).

Adducts Formed Between Beoxyguanosine and cis-Dichlorodiamineplatinum.

175. Wild, C. P., Smart, G., Saffhill, R. and Boyle, J. M., *Carcinogenesis*, **4**, 1605-1609 (1983).

Radioimmunoassay of O6-Methyldeoxyguanosine in DNA of Cells Alkylated in vitro and in vivo.

176. Bergman, K., *Arch. Toxicol.*, **54**, 181-193 (1983).

Interactions of Trichloroethylene with DNA in vitro and with RNA and DNA of Various Mouse Tissues in vivo.

177. Bergman, K., *Arch. Toxicol.*, **49**, 117-129 (1982).

Reactions of Vinyl Chloride with RNA and DNA of Various Mouse Tissues in Vivo.

178. Gombar, C. T., Zubroff, J., Strahan, G. D. and Magee, P. N., *Cancer Res.*, **43**, 5077-5080 (1983).

Measurement of 7-Methylguanine as an Estimate of the Amount of Dimethylnitrosamine Formed Following Administration of Aminopyrine and Nitrite to Rats.

179. Tuck, M. T. and Cox, R., *Carcinogenesis*, **3**, 431-434 (1982).

Ethionine Inhibits in vivo Methylation of Nuclear Proteins.

Miscellaneous Applications

180. Saska, M., Clarke, S. J., Wu, M. D. and Iqbal, K., *J. Chrom.*, **590**, 147-151 (1992).

Glucose-Fructose Equilibria on Dowex Monosphere 99 CA Resin under Overloaded Conditions.

181. Karsten, U., Thomas, D. N., Weykam, G., Daniel, C., Kirst, G. O., *Plant Physiol. Biochem.*, **29**, 373 (1991).

A Simple and Rapid Method for Extraction and Separation of Low Molecular Weight Carbohydrates from Macroalgae Using HPLC.

182. Petrusova, M., Petrus, L. and Lattova, E., *Carbohydr. Res.*, **215**, 199-202 (1991).

Chromatography of 1-Deoxy-1-Nitroalditols on a Cation-Exchange Resin in the Lanthanum Form.

183. Wang, W. T., Safar, J. and Zopf, D., *Anal. Biochem.*, **188**, 432-435 (1990).

Analysis of Inositol by High-Performance Liquid Chromatography.

184. Angers, D. A., Nadeau, P. and Mehuys G. R., *J. Chrom.*, **454**, 444-449 (1988).

Determination of Carbohydrate Composition of Soil Hydrolysates by HPLC.

185. Butler, E. C. V., *J. Chrom.*, **450**, 353-360 (1988).

Determination of Inorganic Arsenic Species in Aqueous Samples by Ion-Exclusion Chromatography With Electrochemical Detection.

186. Sasaki, K., Hicks, K. B. and Nagahashi, G., *Carbohydr. Res.*, **183**, 1-9 (1988).

Separation of Eight Inositol Isomers by Liquid Chromatography under Pressure Using a Calcium-Form, Cation-Exchange Column.

187. Ivey, J. P. and Haddad, P. R., *J. Chrom.*, **391**, 309-314 (1987).
Determination of Dimethylsulphoxide Using Ion-Exchange Chromatography with Ultraviolet Absorption Detection.
188. Stevens, T. S. and Chritz, K. M., *Anal. Chem.*, **59**, 1716-1720 (1987).
Determination of Water by Liquid Chromatography Using Conductometric Detection.
189. Chiu, K. G., *J. High Res. Chrom. & Chrom. Commun.*, **9**, 57-58 (1986).
Analysis of Mixtures of Cyanovaleric and Other Carboxylic Acids by Liquid Chromatography.
190. Hicks, K. B., *Carbohydr. Res.*, **145**, 312-318 (1986).
A Simple L.C. Method for the Direct Analysis of Sugar Acids and Their Lactones.
191. Cheetham, N. W. H. and Punruckvong, A., *Carbohydr. Polymers*, **5**, 399-406 (1985).
An HPLC Method for the Determination of Acetyl and Pyruvyl Groups in Polysaccharides.
192. Baker, J. O., Tucker, M. P. and Himmel, M. E., *J. Chrom.*, **346**, 93-109 (1985).
Noble, Diatomic and Aliphatic Gas Analysis by Aqueous HPLC.
193. Denutte, H., Slegers, G., Goethals, P., van de Castelee, C. and de Leenheer, A., *Int. J. Appl. Radiat. Isot.*, **36**, 82-84 (1985).
Remote-Controlled, Photosynthetic Preparation of HPLC-Purified [¹¹C] Glucose.
194. Gruen, M. and Loewus, F. A., *Anal. Biochem.*, **130**, 191-198 (1983).
Determination of Ascorbic Acid in Algae by HPLC on Strong Cation-Exchange Resin with Electrochemical Detection.
195. Schlabach, T. D. and Robinson, J., *J. Chrom.*, **282**, 169-177 (1983).
Improvements in Sensitivity and Resolution with the Cyanoacetamide Reaction for the Detection of Chromatographically Separated Reducing Sugars.
196. Pauls, R. E. and Weight, G. J., *J. Chrom.*, **254**, 171-177 (1983).
Liquid Chromatographic Determination of Acetic Acid Trapped in Charcoal Tubes.
197. Tyagi, J. S., Merlino, G. T., deCrombrugge, B. and Pastan, I., *J. Biol. Chem.*, **257**, 13001-13008 (1982).
Chicken Embryo Extracts Contain a Factor That Preferentially Blocks the Accumulation of RNA Polymerase II Transcripts in a Cell-free System.
198. Hokse, H., *J. Chrom.*, **189**, 98-100 (1980).
Analysis of Cyclodextrins by High-Performance Liquid Chromatography.
199. Fitt, L.E., *J. Chrom.*, **152**, 243-246 (1978).
Convenient, In-Line Purification of Saccharide Mixtures in Automated HPLC.

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