



ELSEVIER

Journal of Chromatography A, 747 (1996) B115–B234

JOURNAL OF
CHROMATOGRAPHY A

Bibliography Section

Liquid Column Chromatography**1. REVIEWS AND BOOKS**

- 1005 Giebelmann, R.: Unsubstituierter Kieselgel als Umkehrphase in der Chromatographie basischer Wirkstoffe. *Pharmazie*, 50 (1995) 715-718.
- 1006 Guyard, C.: (Chromatography: a quiet revolution). *Recherche*, 26 (1995) 196; *C.A.*, 123 (1995) 217014a - a review without refs.
- 1007 Hatano, H.: Progress chromatography and electrophoresis for technological analysis: chemical speciation and characterization. In: Hatano, H. and Hanai, T. (Editors), *Int. Symp. Chromatogr., 35th Anniv. Res. Group Liq. Chromatogr. Jpn.*, World Scientific, Singapore, 1995, pp. 3-7; *C.A.*, 123 (1995) 357627c - a review without refs.
- 1008 Hatrik, S. and Hrouzek, J.: (Criteria used in the optimization of chromatographic separation). *Chem. Listy*, 89 (1995) 410-417; *C.A.*, 123 (1995) 274738p - a review with 57 refs.
- 1009 Hosoda, M. and Sakai, Y.: (Solvents for liquid chromatography). *Kuromatogurafi*, 16 (1995) 45-48; *C.A.*, 123 (1995) 305610x - a review without ref.
- 1010 Ladisch, M.R. and Velayudhan, A.: Scale-up techniques in bioseparation processes. *IFT Basic Symp. Ser.*, 10 (1995) 113-138; *C.A.*, 123 (1995) 254748p - a review with many refs.
- 1011 Li, Q., Grandmaison, E.W., Hsu, C.C., Taylor, D. and Goosen, M.F.A.: Interparticle and intraparticle mass transfer in chromatographic separation. *Bioseparation*, 5 (1995) 189-202; *C.A.*, 124 (1996) 4149g - a review with many refs.
- 1012 Mueller, W.: (Trends in biopolymer chromatography). *GIT Spez. Chromatogr.*, 14 (1994) 70-71; *C.A.*, 123 (1995) 279984a - a review with 7 refs.
- 1013 Provder, T., Barth, H.G. and Urban, M.W. (Editors): Chromatographic characterization of polymers: hyphenated and multidimensional techniques. In: *Adv. Chem. Ser.*, ACS, Washington, 1995, 294 p.; *C.A.*, 123 (1995) 200150u.
- 1014 Shearer, R.L.: Flameless sulphur chemiluminescence detection. *Chem. Anal. (N.Y.)*, 131 (1995) 35-69; *C.A.*, 123 (1995) 245666h - a review with 56 refs.
- 1015 Vasilenko, I.A.: (Physical methods of analysis in biotechnology, biology, and medicine). *Ross. Khim. Zh.*, 38 (1994) 81-86; *C.A.*, 123 (1995) 269432e - a review with 31 refs.
- 1016 Zhao, G.L. and Wang, G.L.: Ion-exclusion chromatography. *Mater. Eng. (N.Y.)*, 9 (1995) 65-85; *C.A.*, 123 (1995) 217324b - a review with 118 refs.

See also 1017, 1045, 1080, 1092, 1105, 1108, 1124, 1135, 1158, 1176, 1189, 1190, 1202, 1208, 1211, 1220, 1224, 1230, 1267, 1299, 1318, 1319, 1324, 1325, 1329, 1330, 1332, 1337, 1338, 1342, 1345, 1347, 1351, 1355, 1360, 1374, 1383, 1408, 1486, 1528, 1596, 1650, 1666, 1687, 1689, 1693, 1698, 1712, 1935, 1956, 1976, 2059, 2124, 2132, 2133, 2134, 2135, 2136, 2140, 2142, 2144, 2253, 2339, 2343, 2378.

2. FUNDAMENTALS, THEORY AND GENERAL**2a. General**

- 1017 Arkhipov, D.B. and Belen'kii, B.G.: Analysis of trends in the development of instrumental separation techniques: 1952-1993. *J. Anal. Chem.*, 50 (1995) 738-748; *C.A.*, 123 (1995) 305225a - a review with 54 refs.
- 1018 Berezkin, V.G.: On the new definition of chromatography. *J. Anal. Chem.*, 50 (1995) 617-618; *C.A.*, 123 (1995) 238692k.
- 1019 Berthod, A., Deroux, J.M. and Bully, M.: Liquid polarity and stationary-phase retention in countercurrent chromatography. *ACS Symp. Ser.*, 593 (1995) 16-34; *C.A.*, 123 (1995) 217386y.
- 1020 Cao, G. and Hoshino, T.: Analysis of overlapped chromatographic peaks by multichannel electrochemical detection. *J. Chromatogr. A*, 722 (1996) 151-156.
- 1021 Cserhati, T. and Forgacs, E.: Use of liquid chromatography for the determination of interactions between bioactive compounds. *Biomed. Chromatogr.*, 9 (1995) 157-161; *C.A.*, 123 (1995) 192667a.
- 1022 Dolan, J.W.: A second shot at some troubleshooting problems. *LC-GC Int.*, 9 (1996) 16-20.
- 1023 Economou, A., Fielden, P.R. and Packham, A.J.: Deconvolution of overlapping chromatographic peaks by means of fast Fourier and Hartley transforms. *Analyst (Cambridge)*, 121 (1996) 97-104.
- 1024 Edwards, C. and Hammond, K.: Increased productivity in fine chemical and pharmaceutical industries. *Spec. Chem. 1995*, 15 (1995) 163-164; *C.A.*, 123 (1995) 290955n.
- 1025 Elaissari, A., Chanventeau, G., Huguenard, C. and Pefferkorn, E.: Surface area exclusion chromatography: influence of localized and mobile adsorption processes. *J. Colloid Interface Sci.*, 173 (1995) 221-230; *C.A.*, 123 (1995) 297942q.

- 1026 García, R., Porcar, I., Figueruelo, J.E., Soria, V. and Camos, A.: Solution properties of polyelectrolytes. XII. Semi-quantitative approach to mixed electrostatic and hydrophobic polymer-gel interactions. *J. Chromatogr. A*, 721 (1996) 203-212.
- 1027 Gerstner, J.A., Londo, T., Hunt, T., Morris, J., Pedroso, P. and Hamilton, R.: Take another look at displacement chromatography. *CHEMTECH*, 25 (1995) 27-32; *C.A.*, 124 (1996) 4231c.
- 1028 Hambleton, P., Lough, W.J., Maltas, J. and Mills, M.J.: Unusual analyte adsorption effects on inert LC components. *J. Liq. Chromatogr.*, 18 (1995) 3205-3217.
- 1029 Hayashi, Y., Matsuda, R. and Poe, R.B.: Measurement precision and 1/f noise in analytical instruments. *J. Chromatogr. A*, 722 (1996) 157-167.
- 1030 Jupille, T., Dolan, J. and Lewis, J.: Rapid evaluation of HPLC method robustness. *Am. Lab. (Shelton)*, 27 (1995) 20u-20w; *C.A.*, 123 (1995) 358075h.
- 1031 Kaiser, R.E.: System suitability in chromatography. *Chem. Anal. (Warsaw)*, 40 (1994) 481-494; *C.A.*, 123 (1995) 323104q.
- 1032 Kanazawa, H., Yamamoto, K., Matsushima, Y., Takei, N., Kikuchi, A., Sakurai, Y. and Okano, T.: Temperature-responsive chromatography using poly(N-isopropylacrylamide)-modified silica. *Anal. Chem.*, 68 (1996) 100-105.
- 1033 Kim, Y.J.: Modeling of non-ideal displacement separation in immobilized metal ion affinity chromatography. *Biotechnol. Tech.*, 9 (1995) 623-628; *C.A.*, 123 (1995) 222044q.
- 1034 Kovats, E.sz.: Height equivalent of a theoretical plate, HETP, and plate number of a chromatographic column, N.: *ACH-Models Chem.*, 131 (1995) 731-737; *C.A.*, 123 (1995) 208648v.
- 1035 Lewis, J.A., Snyder, L.R. and Dolan, J.W.: Initial experiments in high-performance liquid chromatographic method development. II. Recommended approach and conditions for isocratic separation. *J. Chromatogr. A*, 721 (1996) 15-29.
- 1036 McDowall, R.D.: The good, the bad, and the ugly. *LC-GC Int.*, 8 (1995) 692-693.
- 1037 Nimura, N., Itoh, H. and Kinoshita, T.: (Construction of separation field based on a difference of separation mechanism between proteins and low-molecular-weight compounds). *Kuromatogurafi*, 16 (1995) 180-183; *C.A.*, 123 (1995) 250301q.
- 1038 Seaver, C., Przybytek, J. and Roelofs, N.: Solvent selection, Part III - Solvent life and degradation. *LC-GC Int.*, 8 (1995) 688-691.
- 1039 Snyder, L.R. and Dolan, J.W.: Initial experiments in high-performance liquid chromatographic method development. I. Use of a starting gradient run. *J. Chromatogr. A*, 721 (1996) 3-14.
- 1040 Tejada-Mansir, A., Montesinos-Cisneros, R.M. and Guzman, Z.R.: (Liquid chromatography: unit operation of a bioprocess). *Rev. Soc. Quim. Mex.*, 39 (1995) 166-176; *C.A.*, 123 (1995) 334020k.
- 1041 Thomas, J.D.R.: Illustrating chemical principles by teaching chromatography and electrophoresis. *Fresenius J. Anal. Chem.*, 354 (1996) 136-139.
- 1042 Velayudhan, A., Hendrickson, R.L. and Ladisch, M.R.: Simultaneous concentration and purification through gradient deformation chromatography. *AIChE J.*, 41 (1995) 1184-1193; *C.A.*, 123 (1995) 228815p.
- 1043 Vigdergauz, M.S.: Chromatography in regions along the Volga. *J. Anal. Chem. (Transl. of Zh. Anal. Khim.)*, 50 (1995) 665-668; *C.A.*, 123 (1995) 338461c.
- 1044 Vigdergauz, M.S., Artyunov, Yu. I., Kolosova, E.A. and Kurbatova, S.V.: Interpolation treatment of signals from chromatographic detectors. *J. Anal. Chem.*, 50 (1995) 758-764; *C.A.*, 123 (1995) 358065e.
- 1045 Ward, T.J. and Ward, K.D.: Solubilization in micellar separations. *Surfactant Sci.*, 55 (1995) 517-540; *C.A.*, 124 (1996) 11382f - a review with 115 refs.
- 1046 Zhong, G. and Guiochon, G.: Optimum liquid and solid-phase velocity for minimum shock layer thickness in counter-current chromatography. *J. Chromatogr. A*, 721 (1996) 187-201.

See also 1007, 1008, 1015, 1087, 1102, 1151, 1232, 2154.

2b. Thermodynamics and theoretical relationships

- 1047 Athanasopoulou, A. and Karaiskakis, G.: Potential barrier gravitational field-flow fractionation for the analysis of polydisperse colloidal samples. *Chromatographia*, 40 (1995) 734-736.
- 1048 Azaoui, K. and Morin-Allory, L.: Quantitative structure-retention relationship for the investigation of the retention mechanism in high performance liquid chromatography using apolar eluent with a very low content of polar modifiers. *Chromatographia*, 40 (1995) 690-696.
- 1049 Balakotaiah, V. and Chang, H.-C.: Dispersion of chemical solutes in chromatographs and reactors. *Philos. Trans. R. Soc. London, Ser. A*, 351 (1995) 39-75; *C.A.*, 123 (1995) 290733p.
- 1050 Berezkin, V.G.: On the resolution-chromatographic parameters relationship of two compounds. *Chem. Anal. (Warsaw)*, 40 (1995) 265-269; *C.A.*, 123 (1995) 274772v.
- 1051 Chee, K.K., Wong, M.K. and Lee, H.K.: Optimization by orthogonal array design of solid phase extraction of organochlorine pesticides from water. *Chromatographia*, 41 (1995) 191-196.
- 1052 Foucault, A.P., Camacho, F.E., Bordier, C.G. and Goffic, F.: Model based on Stokes' law as a simple way to describe the flow pattern of the mobile phase in centrifugal partition chromatography. *ACS Symp. Ser.*, 593 (1995) 62-75; *C.A.*, 123 (1995) 267332y.
- 1053 Fuchs, G., Nicoud, R.M. and Perrut, M.: Applications of the simulated moving bed technology for optical isomers purification. *Riv. Ital. EPPOS*, 4 (1993) 56-65; *C.A.*, 124 (1996) 11567v.
- 1054 Gadam, S.D., Gallant, S.R. and Cramer, S.M.: Transient profiles in ion-exchange displacement chromatography. *AIChE J.*, 41 (1995) 1676-1686; *C.A.*, 123 (1995) 237611w.
- 1055 Gennaro, M.C., Giacosa, D., Abrigo, C. and Marengo, E.: Temperature dependence of retention in reversed-phase ion-interaction chromatography. *J. Chromatogr. Sci.*, 33 (1995) 360-364.
- 1056 Grunenber, J. and Herges, R.: Prediction of chromatographic retention values (R_M) and partition coefficients ($\log P_{oct}$) using a combination of semiempirical self-consistent reaction field calculations and neutral networks. *J. Chem. Inf. Comput. Sci.*, 35 (1995) 905-911; *C.A.*, 123 (1995) 328841n.
- 1057 Hayashi, Y. and Matsuda, R.: Prediction of precision from signal and noise measurement: mathematical relationship between integration domain and precision. *Chromatographia*, 41 (1995) 75-83.

- 1058 Hayashi, Y., Matsuda, R. and Poe, R.B.: Prediction of precision from signal and noise measurement in liquid chromatography: limit of detection. *Chromatographia*, 41 (1995) 66-74.
- 1059 Heinisch, S. and Rocca, J.L.: Optimization of a multisolvent composition in RPHPLC: generalization to non-ideal peaks. *Chromatographia*, 41 (1995) 544-552.
- 1060 Kaczmarek, K. and Zapala, W.: Mass transfer in liquid adsorption chromatography. *Acta Chromatogr.*, 4 (1995) 70-82; *C.A.*, 123 (1995) 290823t.
- 1061 Kaliszan, R.: Quantitative structure-retention relationships and chromatographic determination of hydrophobicity. *Mater. Eng.*, 9 (1995) 87-103; *C.A.*, 123 (1995) 227378m.
- 1062 Kuldvee, R.: System peak in ion chromatography. *Eesti Tead. Akad. Toim., Keem.*, 44 (1995) 140-148; *C.A.*, 123 (1995) 357733j.
- 1063 Lebedev, Yu.Ya.: (Chromatography theory for slowly diffusing substances. Regime types). *Zh. Fiz. Khim.*, 69 (1995) 1080-1084; *C.A.*, 123 (1995) 267307u.
- 1064 Lebedev, Yu.Ya.: (Chromatography theory for slowly diffusing substances. System of regimes and criteria for two-component chromatography). *Zh. Fiz. Khim.*, 69 (1995) 757-760; *C.A.*, 123 (1995) 238643v.
- 1065 Medina-Hernandez, M.J., Catala-Icardo, M. and Garcia-Alvarez-Coque, M.C.: Correlation between hydrophobicity of amino acids and retention data in reversed-phase liquid chromatography with micellar eluents. *Chromatographia*, 41 (1995) 455-461.
- 1066 Menet, J.-M., Rolet-Menet, M.C., Thiebaut, D. and Rosset, R.: Orbital turns per theoretical plate for countercurrent chromatography device comparison. *ACS Symp. Ser.*, 593 (1995) 35-46; *C.A.*, 123 (1995) 290698f.
- 1067 Rodriguez Delgado, M.A., Sánchez, M.J., González, V. and García Montelongo, F.: Role of temperature in the behavior of PAHs in micellar liquid chromatography. Thermodynamic aspects. *J. Chromatogr. Sci.*, 33 (1995) 647-653.
- 1068 Wang, F.A., Song, J.C., Guo, Y.C., Wang, Y.H. and Zhao, Y.: Rule of intersection point between retention of homologs and column temperature in reversed-phase liquid chromatography. *Microchem. J.*, 52 (1995) 200-204; *C.A.*, 124 (1996) 44360a.
- 1069 Xie, Y.L., Baeza-Baeza, J.J., Torres-Lapasio, J.R., Garcia-Alvarez-Coque, M.C. and Ramis-Ramos, G.: Modelling and prediction of retention in high-performance liquid chromatography by using neural networks. *Chromatographia*, 41 (1995) 435-444.
- 1070 Zhou, S.: (Discussion on the chromatographic elution curve equation). *Huaxue Tongbao*, (1995) 53-55; *C.A.*, 123 (1995) 338542e.
- 1071 Zimina, T.M., Smith, R.M., Meyers, P. and King, B.W.: Effect of kinematic viscosity of the slurry on the packing efficiency of PEEK microbore columns for liquid chromatography. *Chromatographia*, 40 (1995) 662-668.
- 2c. *Relationship between structure and chromatographic behaviour*
- 1072 Cserháti, T. and Forgács, E.: Influence of the physicochemical parameters of propargylamine derivatives on their retention on β -cyclodextrin polymer-coated support. *J. Liq. Chromatogr.*, 18 (1995) 2783-2799.
- 1073 Kaliszan, R., Nasal, A. and Turowski, M.: Quantitative structure-retention relationships in the examination of the topography of the binding site of antihistamine drugs on α_1 -acid glycoprotein. *J. Chromatogr. A*, 722 (1996) 25-32.
- For additional information see *C.A.*:
123 (1995) 334011h.
- See also 1209, 1973, 2173, 2197.
- 2d. *Measurement of physico-chemical and related values*
- 1074 Berezkina, L.G., Mel'nikova, S.V., Astakhova, G.V. and Mironova, E.B.: (Chromatographic study of interaction between phosphorus, oxygen and water vapor). *Zh. Fiz. Khim.*, 69 (1995) 1854-1857; *C.A.*, 124 (1996) 38680p.
- 1075 Bodzek, M. and Korus, I.: Characterization of ultrafiltration membranes using gel permeation chromatography. *Chem. Anal. (Warsaw)*, 40 (1995) 153-162; *C.A.*, 123 (1995) 238633s.
- 1076 Chen, L., Ni, E., Yang, S., Peng, H., Huang, X. and Fang, X.: (Reliable determination of molecular weights of polymers by GPC intrinsic viscosity method). *Fenxi Ceshi Xuebao*, 14 (1995) 24-28; *C.A.*, 123 (1995) 341806z.
- 1077 Klimchak, R.J. and Wang, S.: Convenient experimental determination of adsorption isotherms in a hydrophobic interaction chromatography system. *Biotechnol. Tech.*, 9 (1995) 731-736; *C.A.*, 123 (1995) 309307b.
- 1078 Nwankwo, E.O. and Abbott, S.D.: A simplified and efficient SEC/GPC linear calibration technique using broad-range standards. *J. Appl. Polym. Sci.*, 58 (1995) 191-195; *C.A.*, 123 (1995) 229525f.
- 1079 Singh, P., Anliker, M., Smith, G.A., Zavortink, D. and Maibach, H.I.: Transdermal iontophoresis and solute penetration across excised human skin. *J. Pharm. Sci.*, 84 (1995) 1342-1346.
- For additional information see *C.A.*:
123 (1995) 200368w, 200399g;
124 (1996) 38495g.
- See also 1064, 1120, 1142, 1184, 1198, 1211, 1239, 1242, 1254, 1346, 1987, 2129, 2131, 2132, 2135, 2136, 2140, 2142, 2416.

For additional information see *C.A.*:

123 (1995) 209624j, 245727d, 274790z.

See also 1033, 1106, 1119, 1134, 1146, 1149, 1226, 1252, 1322, 1474, 1654, 1784, 1968, 2417.

3. GENERAL TECHNIQUES

3a. Apparatus and accessories

- 1080 Behnert, J. and Sudhoff, G.: (Fit for fittings). *LaborPraxis*, 19 (1995) 54-55; *C.A.*, 123 (1995) 358062b - a review with 2 refs.

- 1081 Bjorklund, M.C. and Carr, R.W.: The simulated countercurrent moving bed chromatographic reactor: a catalytic and separative reactor. *Catal Today*, 25 (1995) 159-168; C.A., 123 (1995) 202841n.
- 1082 Kaufmann, M., Schwarz, T. and Bartholmes, P.: (Use of hollow fiber membrane modules in column chromatography). *GIT Spez. Chromatogr.*, 14 (1994) 13-16; C.A., 123 (1995) 192641n.
- 1083 Manz, A.: Apparatus and process for rapid separation of fluid substances by capillary liquid chromatography preferably using rotor-type internal pumping. *Eur. Pat. Appl. EP 670,489* (Cl. G01N30/02), 06 Sep. 1995, CH Appl. 94/633, 03 Mar. 1994; 15 p.; C.A., 123 (1995) 328712w.
- 1084 Ocvirk, G., Verpoorte, E., Manz, A., Grasserbauer, M. and Widmer, H.M.: High performance liquid chromatography partially integrated onto a silicon chip. *Anal. Methods Instrum.*, 1995, 2 (1995) 74-82; C.A., 124 (1996) 44343x.
- 1085 Stevenson, R.: The world of separation science: PITTCON® '95. *Int. Lab.*, 25, No. 6 (1995) 8A-8Q.
- 1086 Tong, D., Bartle, K.D., Clifford, A.A. and Robinson, R.E.: Unified chromatograph for gas chromatography, supercritical fluid chromatography and micro-liquid chromatography. *Analyst (Cambridge)*, 120 (1995) 2461-2467.
- 1087 Van Straten, M.A., Vermeer, E.A. and Claessens, H.A.: A first step towards miniaturized HPLC systems in analytical routine laboratories. *LC-GC Int.*, 9 (1996) 42-50.
- 1088 Yokomizo, Y., Nokihara, K., Yamamoto, R., Harada, A., Kashiwagi, K. and Togawa, Y.: (Construction of a bio-micro-capillary liquid chromatograph, BMLC-10, for bio-micro-separation). *Shimadzu Hyoron*, 52 (1995) 41-49; C.A., 123 (1995) 192645s.
- 1089 Zoorob, G., Tomlinson, M., Wang, J. and Caruso, J.: Evaluation of the direct injection nebulizer in the coupling of high-performance liquid chromatography to inductively coupled plasma mass spectrometry. *J. Anal. At. Spectrom.*, 10 (1995) 853-858; C.A., 124 (1996) 44247u.
- For additional information see C.A.:
123 (1995) 193027d, 208361j, 274840r, 328741e, 357964k, 357998z, 358002g;
124 (1996) 11521a, 20639x.
- See also 1098, 1172, 1235, 1559.
- 3b. *Detectors and detection reagents*
- 1090 Cepas, J., Silva, M. and Perez-Bendito, D.: Zero-dead-volume peroxyoxalate chemiluminescence detection in liquid chromatography. *Anal. Chem.*, 67 (1995) 4376-4379.
- 1091 Gebhardt, J.A. and Aue, W.A.: Converting a single-channel flame photometric detector to triple-channel operation. *J. Chromatogr. A*, 721 (1996) 365-368.
- 1092 Ma, M., Han, H. and Liu, G.: (Laser-induced fluorescence detector - a highly sensitive detector for high-performance liquid chromatography (HPLC) and high-performance capillary electrophoresis (HPCE)). *Sepu*, 13 (1995) 257-261; C.A., 123 (1995) 274740h - a review with 48 refs.
- 1093 Marteau, P. and Zanier, N.: An application of Raman spectroscopy in the petroleum industry. *Spectroscopy (Eugene)*, 10 (1995) 26-28; C.A., 123 (1995) 318288y.
- 1094 Matsunaga, H., Santa, T., Hagiwara, K., Homma, H., Imai, K., Uzu, S., Nakashima, K. and Akiyama, S.: Development of an efficient amino acid sequencing method using fluorescent Edman reagent 7-[(N,N-dimethylamino)sulfonyl]-2,1,3-benzoxadiazol-4-yl isothiocyanate. *Anal. Chem.*, 67 (1995) 4276-4282.
- 1095 Rutan, S.C., Gui, M., Agbodjan, A., Poe, R.B., Pompano, J., Scharnhorst, E. and Chen, J.: Chemometric methods for improvement of fluorescence detection methods in thin-layer and liquid chromatography. In: Hatano, H. and Hanai, T. (Editors), *Int. Symp. Chromatogr., 35th Anniv. Res. Group Liq. Chromatogr. Jpn.*, World Scientific, Singapore, 1995, pp. 29-33; C.A., 124 (1996) 44342w.
- 1096 Sanchez, F.C., Toft, J., van den Bogaert, B. and Massart, D.L.: Orthogonal projection approach applied to peak purity assessment. *Anal. Chem.*, 68 (1996) 79-85.
- 1097 Shamsi, S.A.: Reversed phase/ion chromatography and capillary electrophoresis of ion compounds with indirect detection (photometric detection, naphthalenesulphonate). Avail. *Univ. Microfilms Int.*, Order No. DA9530111, 1995, 304 p.; C.A., 123 (1995) 358089r.
- 1098 Tom-Moy, M., Doherty, T.P., Baer, R.L. and Spira-Solomon, D.: Use of an acoustic wave device as a liquid chromatography detector. *ACS Symp. Ser.*, 613 (Biosensor and Chemical Sensor Technology) (1995) 9-18; C.A., 124 (1996) 24989j.
- 1099 Yamaguchi, M., Hara, S. and Obata, K.: 5,6-Dimethoxy-2-(4'-hydrazinocarbonylphenyl)benzothiazole as a highly sensitive and stable fluorescence derivatization reagent for carboxylic acids in high performance liquid chromatography. *J. Liq. Chromatogr.*, 18 (1995) 2991-3006.
- For additional information see C.A.:
123 (1995) 217378x, 309883v, 357921u;
124 (1996) 20607k.
- See also 1014, 1044, 1057, 1058, 1085, 1206, 1266, 1269, 1303, 1314, 1316, 1317, 1329, 1330, 1335, 1336, 1370, 1495, 1525, 1552, 1554, 1578, 1620, 1707, 1957, 1971, 2268, 2312, 2350, 2361, 2367, 2378, 2403.
- 3c. *Sorbents and columns, packing procedures*
- 1100 Bargmann-Leyder, N., Tambute, A. and Caude, M.: A comparison of LC and SFC for cellulose- and amylose-derived chiral stationary phases. *Chirality*, 7 (1995) 311-325; C.A., 124 (1996) 37821y.
- 1101 Bee-Gim, L. and Chi-Bun, C.: Characterization of chiral adsorbents on the chromatographic separation of praziquantel enantiomers. *Ind. Eng. Chem. Res.*, 35 (1996) 169-175; C.A., 124 (1996) 15570p.
- 1102 Boos, K.-S., Vielhauer, S. and Rudolphi, A.: Alkyl-diol silica (ADS): a new family of reversed phase precolumn packing materials for LC-integrated sample clean-up in biomedical analysis. In: Hatano, H. and Hanai, T. (Editors), *Int. Symp. Chromatogr., 35th Anniv. Res. Group Liq. Chromatogr. Jpn.*, World Scientific, Singapore, 1995, pp. 145-156; C.A., 123 (1995) 329117t.

- 1103 Brindle, R., Albert, K., Morgan, E.D., Martin, P. and Wilson, I.D.: Solid state NMR and extraction studies on "phenyl"-bonded stationary phases used for solid phase extraction. *J. Pharm. Biomed. Anal.*, 13 (1995) 1305-1312.
- 1104 Crini, G., Torri, G., Lekchiri, Y., Martel, B., Janus, L. and Morcellet, M.: High performance liquid chromatography of structural isomers using a cyclodextrin-poly(allylamine) coated silica columns. *Chromatographia*, 41 (1995) 424-430.
- 1105 Dugay, J., Jardy, A. and Doury-Berthod, M.: (Cation analysis by ion chromatography. I. Stationary phases and separation methods). *Analisis*, 23 (1995) 183-195; *C.A.*, 124 (1996) 20419a - a review with 162 refs.
- 1106 Engelhardt, H. and Cunat-Walter, M.A.: Polymer encapsulated stationary phases with improved efficiency. *Chromatographia*, 40 (1995) 657-661.
- 1107 Fairbank, R.W., Xiang, Y. and Wirth, M.J.: Use of methyl spacers in a mixed horizontally polymerized stationary phase. *Anal. Chem.*, 67 (1995) 3879-3885.
- 1108 Felix, G.: (Protein-based chiral stationary phases). *Analisis*, 23 (1995) M20-M22; *C.A.*, 123 (1995) 305619g - a review with 9 refs.
- 1109 Felix, G. and Descorps, V.: Evaluation of the loadability of an immobilized protein chiral stationary phase. *Chromatographia*, 40 (1995) 680-683.
- 1110 Frey, R. and Cummings, L.: (Hydroxylapatite. A well-tried separation technique gets a new chance). *CLB, Chem. Labor Biotech.*, 46 (1995) 279-282; *C.A.*, 124 (1996) 4119x.
- 1111 Fujima, H., Kitamura, H., Nakamura, C., Kitagawa, H., Wada, H. and Haginaka, J.: (Chromatographic properties of a pepsin-conjugated column and optimization of enantiomeric resolution). *Kuromatogurafi*, 16 (1995) 124-125; *C.A.*, 124 (1996) 37820x.
- 1112 Fukunaga, N., Kaneko, T., Liu, F. and Aschaf, T.: (Improved resolving power using a new HPLC phase with unique selectivity). *Kuromatogurafi*, 16 (1995) 144-147; *C.A.*, 123 (1995) 328566b.
- 1113 Ikarashi, Y., LeRoy Blank, C., Suda, Y., Kawakubo, T. and Maruyama, Y.: Application of a novel, plastic formed carbon as a precolumn packing material for the liquid chromatographic determination of acetylcholine and choline in biological samples. *J. Chromatogr. A*, 718 (1995) 267-272.
- 1114 Ishimura, K., Fukunaga, K., Ohta, T., Nakamura, H., Irie, T. and Uekama, K.: Preparation of β -cyclodextrin sulfate-immobilized hydrophilic vinyl-polymer gel as a selective, high recovery and stable adsorbent for high-performance affinity chromatography of heparin-binding substances. *Chromatographia*, 41 (1995) 349-352.
- 1115 Jaroniec, M.: Studies of the interfacial properties of chemically bonded phases by sorption and liquid chromatography. *J. Chromatogr. A*, 722 (1996) 19-24.
- 1116 Jedrzejewski, P.T. and Taylor, L.T.: Comparison of silica-, alumina-, and polymer-based stationary phases for reversed-phase liquid chromatography. *J. Chromatogr. Sci.*, 33 (1995) 438-445.
- 1117 Kanda, T., Shirota, O., Ohtsu, Y. and Yamaguchi, M.: Synthesis and characterization of polymer-coated mixed-functional stationary phases with several different hydrophobic groups for direct analysis of biological samples by liquid chromatography. *J. Chromatogr. A*, 722 (1996) 115-121.
- 1118 Kempe, M. and Mosbach, K.: Receptor binding mimetics: a novel molecularly imprinted polymer. *Tetrahedron Lett.*, 36 (1995) 3563-3566; *C.A.*, 123 (1995) 245714x.
- 1119 Klatte, S.J. and Beck, T.L.: Molecular dynamic simulations of tethered alkane chromatographic stationary phases. *J. Phys. Chem.*, 99 (1995) 16024-16032; *C.A.*, 123 (1995) 323009n.
- 1120 Li, Z., Rutan, S. and Dong, S.: Wetting of octadecylsilylated silica in methanol-water eluents. *Anal. Chem.*, 68 (1996) 124-129.
- 1121 Loh, K.-C. and Wang, D.I.C.: Characterization of pore size distribution of packing materials used in perfusion chromatography using a network model. *J. Chromatogr. A*, 718 (1995) 239-255.
- 1122 Manz, T. and Tittgen, J.: Chromatography stationary phases. *Ger. Offen.* DE 4,403,940 (Cl. BO1D15/08), 10 Aug. 1995, Appl. 08 Feb. 1994; 12 pp.; *C.A.*, 123 (1995) 222288x.
- 1123 McNeff, C. and Carr, P.W.: Synthesis and use of quaternized polyethylenimine-coated zirconia for high-performance anion-exchange chromatography. *Anal. Chem.*, 67 (1995) 3886-3892.
- 1124 Meehan, E.: Semirigid polymer gels for size exclusion chromatography. *Chromatogr. Sci. Ser.*, 69 (1995) 25-46; *C.A.*, 123 (1995) 200159d - a review with 30 refs.
- 1125 Mingalyov, P.G. and Fadeev, A.Yu.: Activated silica supports for preparation of chromatographic sorbents. A comparative study of silicas containing attached epoxy, tosyloxy and halogen groups. *J. Chromatogr. A*, 719 (1996) 291-297.
- 1126 Mueller, E.: Packing materials for use in gel permeation chromatography. *Ger. Offen.* DE 4,334,353 (Cl. C08F291/08), 13 Apr. 1995, Appl. 08 Oct. 1993; 5 p.; *C.A.*, 123 (1995) 199828n.
- 1127 Mueller, E., Gensert, R. and Poguntke, P.: Packing materials for use in ion-exchange chromatography. *Ger. Offen.* DE 4,333,821 (Cl. C08F8/36), 06 Apr. 1995, Appl. 04 Oct. 1993; 7 p.; *C.A.*, 123 (1995) 199826k.
- 1128 Nozu, T.: Porous silicanes, their use as fillers for column chromatography, and their preparation. *Jpn. Kokai Tokkyo Koho JP 07,113,011 [95,113,011]* (Cl. G0879/00), 02 May 1995, Appl. 93/260,022, 18 Oct. 1993; 8 p.; *C.A.*, 123 (1995) 230814f.
- 1129 Okamoto, M., Kakamu, H., Nobuhara, K. and Ishii, D.: Effect of silver-modified silica on retention and selectivity in normal-phase liquid chromatography. *J. Chromatogr. A*, 722 (1996) 81-85.
- 1130 Pesek, J.J., Matyska, M.T., Williamsen, E.J. and Tam, R.: Variable-temperature, solid phase NMR studies of bonded liquid crystal stationary phases for HPLC. *Chromatographia*, 41 (1995) 301-310.
- 1131 Pirkle, W.H. and Murray, P.G.: Observations relevant to the differential intercalation of enantiomers between the strands of brush-type chiral stationary phases. *J. Chromatogr. A*, 719 (1996) 299-305.
- 1132 Pursch, M., Strohschein, S., Händel, H. and Albert, K.: Temperature dependent behavior of C_{30} interphases. A solid-state NMR and LC-NMR study. *Anal. Chem.*, 68 (1996) 386-393.
- 1133 Sarker, M., Katti, A.M. and Guiochon, G.: Consolidation of the packing material in chromatographic columns under dynamic axial compression. II. Consolidation and breakage of several packing materials. *J. Chromatogr. A*, 719 (1996) 275-289.

- 1134 Seibert, D.S. and Poole, C.F.: Influence of solvent effects on retention in reversed-phase liquid chromatography and solid-phase extraction using a cyanopropylsiloxane-bonded, silica-based sorbent. *Chromatographia*, 41 (1995) 51-60.
- 1135 Svec, F., Ching Wang, Q. and Frechet, J.M.J.: Rods of macroporous polymers prepared by *in situ* polymerization as efficient continuous media for preparative HPLC separations. *Am. Lab. (Shelton)*, 27 (1995) 24M-N, 24P, 24R; *C.A.*, 124 (1996) 10280j - a review with 24 refs.
- 1136 Tanaka, M., Yoshingaga, M., Ito, M. and Ueda, H.: Preparation and retention behavior of cyclodextrin-bonded stationary phases on a silica support without an unreacted spacer chain. *Anal. Sci.*, 11 (1995) 227-231; *C.A.*, 123 (1995) 226681s.
- 1137 Tani, K. and Suzuki, Y.: Influence of titania matrix on retention behaviour in reversed-phase liquid chromatography. *J. Chromatogr. A*, 722 (1996) 129-134.
- 1138 Tokuda, T., Mori, M. and Yamada, T.: Size-exclusion chromatography on polyhydroxymethacrylate gel with dimethylformamide as eluent. *J. Chromatogr. A*, 722 (1996) 123-127.
- 1139 Tokuda, T., Mori, M., Yonemoto, S. and Yamada, T.: Gel permeation chromatography on polyhydroxymethacrylate gel using dimethylformamide as eluent. In: Hatano, H. and Hanai, T. (Editors), *Int. Symp. Chromatogr., 35th Anniv. Res. Group Liq. Chromatogr. Jpn.*, World Scientific, Singapore, 1995, pp. 281-294; *C.A.*, 1224 (1996) 9853s.
- 1140 Vidyasankar, A., Dhal, P.K., Plunkett, S.D. and Arnold, F.H.: Selective ligand-exchange adsorbents prepared by template polymerization. *Biotechnol. Bioeng.*, 48 (1995) 431-436; *C.A.*, 124 (1996) 4153d.
- 1141 Wang, J., Li, X. and Dong, P.: (Preparation of novel nonporous silica packings for high performance liquid chromatography and their applications to the separation of biopolymers). *Sepu*, 13 (1995) 361-364; *C.A.*, 123 (1995) 280030t.
- 1142 Yang, M.-H. and Chen, I.-L.: Selectivity of liquid chromatography on chemically bonded phenylsilicone stationary phases. In: Hatano, H. and Hanai, T. (Editors), *Int. Symp. Chromatogr., 35th Anniv. Res. Group Liq. Chromatogr. Jpn.*, World Scientific, Singapore, 1995, pp. 599-603; *C.A.*, 124 (1996) 44351y.
- 1143 Yang, M.-H., Chang, K.-C. and Lin, J.-Y.: Multifunctional ion-exchange stationary phases for high-performance liquid chromatography. *J. Chromatogr. A*, 722 (1996) 87-96.
- 1144 Zhang, Y. and El Rassi, Z.: High performance micellar liquid chromatography with silica microparticles having surface-bound cationic surfactant moieties. I. Comparison with octadecylsilica and applications to the separation of dansyl amino acids, herbicides, and catecholamines. *J. Liq. Chromatogr.*, 18 (1995) 3373-3396.

For additional information see *C.A.*:

- 123 (1995) 203547q, 245717a, 257889w, 260995h, 274728k, 274777a, 296679x, 317666h, 317715y, 328743g, 328934v, 340623a, 344681r, 351277s, 358013m, 358017r, 358189y;
124 (1996) 20445f, 25207q, 32176g, 44389s, 44391m, 44394q.

See also 1005, 1032, 1045, 1053, 1194, 1197, 1204, 1205, 1207, 1210, 1212, 1213, 1218, 1223, 1225, 1234, 1236, 1242, 1243, 1244, 1248, 1262, 1270, 1272, 1306, 1320, 1322, 1358, 1368, 1424, 1465, 1497, 1532, 1545, 1562, 1563, 1574, 1661, 1663, 1762, 1779, 1799, 1916, 1991, 2102, 2120, 2138, 2146, 2175, 2349.

3d. Quantitative analysis

1145 Selinger, K.A.: Inspection by variables as an acceptance criterion in bioanalysis - a proposal. *J. Pharm. Biomed. Anal.*, 13 (1995) 1427-1436.

See also 1257, 1574, 1657, 1955, 2000, 2401.

3e. Preparative scale chromatography

1146 Dalton, J.C., Gupta, S., Bruley, M.D., Kang, K.A. and Bruley, D.F.: Liquid chromatographic process identification using pulse testing techniques. Applications to column standardization and scale-up. *J. Chromatogr. A*, 718 (1995) 1-8.

1147 Henke, H.: (Preparative low-pressure liquid chromatography in practice). *Labor Praxis*, 19 (1995) 62-69; *C.A.*, 123 (1995) 202946g.

1148 Ito, Y., Shinomiya, K., Fales, H.M., Weisz, A. and Scher, A.L.: The pH-zone-refining countercurrent chromatography. A new technique for preparative separation. *ACS Symp. Ser.*, 593 (1995) 156-183; *C.A.*, 123 (1995) 267100w.

1149 Lettner, H.P., Kaltenbrunner, O. and Jungbauer, A.: HEPT in process ion-exchange chromatography. *J. Chromatogr. Sci.*, 33 (1995) 451-457.

For additional information see *C.A.*:
123 (1995) 323100k.

See also 1172, 1273, 1277, 1559, 1587.

3f. Programmed temperature, pressure, vapors, gradients

1150 Barbosa, J., Bergés, R. and Sanz-Nebot, V.: Solvatochromic parameter values and pH in aqueous-organic mixtures used in liquid chromatography. Prediction of retention of a series of quinolones. *J. Chromatogr. A*, 719 (1996) 27-36.

1151 Jiménez, O., García, M.A. and Marina, M.L.: A model describing the effect on retention of the addition of alcohols to the mobile phase in micellar liquid chromatography. *J. Chromatogr. A*, 719 (1996) 15-26.

1152 Luo, R.G.: Engineering studies of gradient elution chromatography for biomolecule separations (axial dispersions surface adsorption, mass transfer). In: *Univ. Microfilms Int.*, Order No. DA9519844, 1994, 217 p.; *C.A.*, 123 (1995) 203213c.

1153 Zhu, P.-L., Snyder, L.R. and Dolan, J.W.: Improved baselines in gradient elution. *J. Chromatogr. A*, 718 (1995) 429-435.

For additional information see *C.A.*:
123 (1995) 328937y.

See also 1068, 1163, 1567, 2123.

4. SPECIAL TECHNIQUES

4a. Automation

- 1154 Knauer, W. and Webster, G.: (Optimized online solvent recycling by a HPLC data system). *GIT Fachz. Lab.*, 39 (1995) 350-356; *C.A.*, 123 (1995) 231934g.

For additional information see *C.A.*:
123 (1995) 328929x.

See also 1157, 1161, 1266, 2205, 2217, 2267, 2317.

4b. Computerization and modelling

- 1155 Frink, R.: Customizing a chromatography data system using Microsoft programming tools. *LC-GC*, 13 (1995) 728-732; *C.A.*, 123 (1995) 227288g.

- 1156 Gaillaume, Y. and Guinchart, C.: Modelling retention in reversed phase liquid chromatography in relation to temperature and solvent composition. Application to the separation of seven *p*-hydroxybenzoic esters. *J. Liq. Chromatogr.*, 18 (1995) 34090-3422.

- 1157 Huber, L.: Laboratory accreditation. Part 3: Validation and calibration of equipment. *Int. Lab.*, 25, No. 6 (1995) 9-12.

- 1158 Lipkowitz, K.B.: Modelling enantiodifferentiation in chiral chromatography. In: Subramanian, G. (Editor), *Pract. Approach Chiral Sep. Liq. Chromatogr.*, VCH, Weinheim, 1994, pp. 19-55; *C.A.*, 123 (1995) 217319d - a review with 66 refs.

- 1159 Lochmüller, C.H., Reese, C. and Hsu, S.-H.: Reversed-phase LC retention prediction in water-methanol-THF using factor-analytical modeling. *J. Chromatogr. Sci.*, 33 (1995) 640-646.

- 1160 Martínez-Vidal, J.L., Parrilla, P., Fernández-Alba, A.R., Carreño, R. and Herrera, F.: A new sequential procedure for the efficient and automated location of optimum conditions in high performance liquid chromatography (HPLC). *J. Liq. Chromatogr.*, 18 (1995) 2969-2989.

- 1161 McDowall, R.D.: Not another LIMS project? *LC-GC Int.*, 9 (1996) 21-26.

- 1162 McGuffin, V.L. and Wu, P.: Three-dimensional molecular simulation of chromatographic separations. *J. Chromatogr. A*, 722 (1996) 3-17.

- 1163 McGuffin, V.L., Wu, P. and Hopkins, D.L.: Three-dimensional computer simulation of chromatographic and electrophoretic separations. In: Hatano, H. and Hanai, T. (Editors), *Int. Symp. Chromatogr., 35th Anniv. Res. Group Liq. Chromatogr. Jpn.*, World Scientific, Singapore, 1995, pp. 45-69; *C.A.*, 123 (1995) 357661j.

- 1164 Ouchi, G.I.: How data bunching affects data acquisition and peak detection. *LC-GC*, 13 (1995) 714-719; *C.A.*, 123 (1995) 227287f.

- 1165 Roussel, C., Piras, P., Plugariu, C. and Ionascu, L.: (Significance of a molecular data management system in helping to make decision in chiral chromatography). *Analusis*, 23 (1995) M22-M26; *C.A.*, 123 (1995) 305709m.

- 1166 Scanlon, M.G.: Data handling in HPLC and use of computers. In: Kruger, J.E. and Bietz, J.A. (Editors), *High-Perform. Liq. Chromatogr. Cereal Legume Proteins*, American Association of Cereal Chemists, St. Paul, 1994, pp. 67-96; *C.A.*, 124 (1996) 24946t.

- 1167 Slonecker, P.J., Li, X., Ridgway, T.H. and Dorsey, J.G.: Informational orthogonality of two-dimensional chromatographic separations. *Anal. Chem.*, 68 (1996) 682-689.

- 1168 Ueki, M. and Yamaguchi, Y.: Laboratory Information Management System (LIMS) for chromatography. In: Hatano, H. and Hanai, T. (Editors), *Int. Symp. Chromatogr., 35th Anniv. Res. Group Liq. Chromatogr. Jpn.*, World Scientific, Singapore, 1995, pp. 497-501; *C.A.*, 123 (1995) 357662k.

For additional information see *C.A.*:

123 (1995) 351101e, 351299a;

124 (1996) 20605h, 44255v.

See also 1025, 1030, 1052, 1054, 1056, 1096, 1154, 1178, 1222, 2019, 2029, 2149, 2173, 2353, 2404.

4c. Combination with other physico-chemical techniques (MS, IR etc.)

- 1169 Anacleto, J.F., Ramaley, L., Benoit, F.M., Boyd, R.K. and Quilliam, M.A.: Comparison of liquid chromatography/mass spectrometry interfaces for the analysis of polycyclic aromatic compounds. *Anal. Chem.*, 67 (1995) 4145-4154.

- 1170 Bryant, D.K., Kingswood, M.D. and Belenguer, A.: Determination of liquid chromatographic peak purity by electrospray ionization mass spectrometry. *J. Chromatogr. A*, 721 (1996) 41-51.

- 1171 Cabalin, L.M., Rupérez, A. and Laserna, J.J.: Flow-injection analysis and liquid chromatography: surface-enhanced Raman spectrometry detection by using a windowless flow cell. *Anal. Chim. Acta*, 318 (1996) 203-210.

- 1172 Fujii, Y. and Sasagawa, T.: (A novel preparative isoelectric focusing apparatus). *Kuromatogurafi*, 16 (1995) 158-159; *C.A.*, 123 (1995) 323096p.

- 1173 Griffiths, L.: Optimization of NMR and HPLC conditions for LC-NMR. *Anal. Chem.*, 67 (1995) 4091-4095.

- 1174 Jansen, D. and Bloedorn, W.: (Simplified species analysis by coupling of ion chromatography with inductively coupled plasma (ICP) optical emission spectroscopy (OES) and ICP mass spectrometry). *GIT Fachz. Lab.*, 39 (1995) 654-661; *C.A.*, 123 (1995) 374591k.

- 1175 Knebel, N.G., Sharp, S.R. and Madigan, M.J.: Quantification of the anti-HIV drug saquinavir by high-speed online high performance liquid chromatography/tandem mass spectrometry. *J. Mass Spectrom.*, 30 (1995) 1149-1156; *C.A.*, 123 (1995) 217605u.

- 1176 Korhammer, S.A. and Bernreuther, A.: Hyphenation of high-performance liquid chromatography (HPLC) and other chromatographic techniques (SFC, GPC, GC, CE) with nuclear magnetic resonance (NMR): a review. *Fresenius J. Anal. Chem.*, 354 (1996) 131-135.

- 1177 Maslowska, J. and Bazalak, G.: (Complementarity of spectroscopic and chromatographic methods for determination of stability constants of complexes). *Politech. Lodz., Technol. Chem. Spozyw.*, 708 (1995) 41-49; *C.A.*, 124 (1996) 16339g.

- 1178 Moore, J., Solanki, P. and McDowall, R.D.: Validation of quantitative liquid chromatography-mass spectrometry software for Good Laboratory Practice compliance. *Lab. Autom. Inf. Manage.*, 31 (1995) 43-46; C.A., 123 (1995) 280221f.
- 1179 Okamura, K., Sumida, Y., Fujiwara, Y., Terada, S., Kim, H. and Hashimoto, K.: Chiral recognition in high performance liquid chromatography/atmospheric pressure chemical ionization mass spectrometry. *J. Mass Spectrom. Soc. Jpn.*, 43 (1995) 97-105; C.A., 123 (1995) 245718b.
- 1180 Pergantis, S.A., Heithmar, E.M. and Hiners, T.A.: Microscale flow injection and microbore high-performance liquid chromatography coupled with inductively coupled plasma mass spectrometry via a high-efficiency nebulizer. *Anal. Chem.*, 67 (1995) 4530-4535.
- 1181 Señoráns, F.J., Reglero, G. and Herraiz, M.: Use of a programmed temperature injector for on-line reversed-phase liquid chromatography-capillary gas chromatography. *J. Chromatogr. Sci.*, 33 (1995) 446-450.
- 1182 Sidemann, U.G., Gavaghan, C., Carless, H.A.J., Spraul, M., Hofmann, M., Lindon, J.C., Wilson, I.D. and Nicholson, J.K.: 750-MHz Directly coupled HPLC-NMR: application to the sequential characterization of the positional isomers and anomers of 2-, 3-, and 4-fluorobenzoic acid glucuronides in equilibrium mixtures. *Anal. Chem.*, 67 (1995) 4441-4445.
- 1183 Tutula, V.E. and de Haseth, J.A.: Particle beam LC/FT-IR spectrometry studies of biopolymer conformations in reversed-phase HPLC separations: native globular proteins. *Anal. Chem.*, 68 (1996) 629-638.
- 1184 Von Helden, G., Wyttenbach, T. and Bowers, M.T.: Inclusion of a MALDI ion source in the ion chromatography technique: conformational information on polymer and biomolecular ions. *Int. J. Mass Spectrom. Ion Processes*, 146/147 (1995) 349-364; C.A., 123 (1995) 315053g.
- 1185 Zhang, X. and Jiang, X.: Study on the combination of electrography and ion chromatography. *Am. Lab. (Shelton)*, 27 (1995) 36N, 36P; C.A., 123 (1995) 217121h.
- 1187 Berezin, V.B., Lakhtin, V.M. and Yamskov, I.A.: (Affinity chromatography sorbent incorporating concanavalin A groupings immobilized as complexes with cobalt). *Prikl. Biokhim. Mikrobiol.*, 31 (1995) 400-404; C.A., 124 (1996) 4223b.
- 1188 Brockman, A.H. and Orlando, R.: Probe-immobilized affinity chromatography/mass spectrometry. *Anal. Chem.*, 67 (1995) 4581-4585.
- 1189 Deshpande, S.S.: Affinity chromatography. *IFT Basic Symp. Ser.*, 10 (1995) 297-332; C.A., 123 (1995) 254752k - a review with many refs.
- 1190 Johnson, R.D. and Arnold, F.H.: Multipoint binding and heterogeneity in immobilized metal affinity chromatography. *Biotechnol. Bioeng.*, 48 (1995) 437-443; C.A., 123 (1995) 333963h - a review with 51 refs.
- 1191 Kauvar, L.M. and Lyttle, M.H.: Preparation of glutathione analogs useful for characterizing and inhibiting glutathione transferases. *PCT Int. Appl. WO 95 08,563 (Cl. CO7K5/037)*, 30 Mar. 1995, US Appl. 126,229, 24 Sep. 1993; 86 pp.; C.A., 123 (1995) 314537f.
- 1192 Krishnamurthy, R., Madurawe, R.D., Bush, K.D. and Lumpkin, J.A.: Conditions promoting metal-catalyzed oxidations during immobilized Cu-iminodiacetic acid metal affinity chromatography. *Biotechnol. Prog.*, 11 (1995) 643-650; C.A., 123 (1995) 309663q.
- 1193 Lee, W.-C., Hsiao, C.-C. and Ruaan, R.-C.: Affinity chromatography of glucose-specific lectin using silica-based support. *J. Chem. Technol. Biotechnol.*, 64 (1995) 66-72; C.A., 123 (1995) 226256h.
- 1194 Matoba, K. and Hiura, H.: Affinity chromatograph stationary phase for separation of high molecular weight biosubstance. *Jpn. Kokai Tokkyo Koho JP 07,191,007 [95,191,007] (Cl. GO1n30/48)*, 28 Jul. 1995, Appl. 93/352,414, 27 Dec. 1993; 4 pp.; C.A., 123 (1995) 250652e.
- 1195 Mislovicova, D., Chudinova, M., Vikartovska, A. and Gemeiner, P.: Lectin-glycoenzyme column chromatography monitored by enzyme flow microcalorimetry. *J. Chromatogr. A*, 722 (1996) 143-149.
- 1196 Mislovicova, D., Kovacova, M., Petro, M. and Bozek, P.: Effect of dextran filling in macroporous HEMA sorbent on its behavior in dye-affinity chromatography. *J. Liq. Chromatogr.*, 18 (1995) 3061-3075.
- 1197 Nedic, O., Lalic, R. and Balaz, J.: Phytopathogenic bacteria as ligand carriers in affinity chromatography. *J. Serb. Chem. Soc.*, 60 (1995) 909-913; C.A., 123 (1995) 280251r.
- 1198 Renard, J., Vidal-Madjar, C. and Lapresle, C.: Determination by chromatographic methods of the adsorption rate constant of HSA on immobilized polyclonal and monoclonal antibodies. *J. Colloid Interface Sci.*, 174 (1995) 61-67; C.A., 123 (1995) 309778f.
- 1199 Schisla, D.K., Carr, P.W. and Cussler, E.L.: Hollow fiber array affinity chromatography. *Biotechnol. Prog.*, 11 (1995) 651-658; C.A., 123 (1995) 309683w.
- 1200 Wu, X., Li, X., Chu, A. and Liu, G.: Affinity chromatography of pharmaceutical compound as ligand for the purification of protein. In: *Int. Symp. Bioanal. Chem., Proc., 1st 1995*, Chinese Chemical Society, Beijing, 1995, pp. 102-103; C.A., 124 (1996) 4221z.

For additional information see C.A.:
123 (1995) 270333e, 270799m.

See also 1089, 1094, 1188, 1240, 1249, 1251, 1256, 1285, 1290, 1306, 1317, 1371, 1373, 1405, 1429, 1436, 1439, 1440, 1446, 1448, 1457, 1471, 1477, 1478, 1492, 1494, 1496, 1498, 1499, 1508, 1521, 1523, 1582, 1587, 1588, 1589, 1873, 1937, 1953, 1954, 1987, 2023, 2029, 2040, 2083, 2091, 2094, 2107, 2117, 2139, 2143, 2145, 2151, 2165, 2169, 2210, 2229, 2245, 2277, 2278, 2284, 2286, 2305, 2321, 2327, 2332, 2339, 2351, 2368, 2379, 2390, 2393, 2398, 2399.

4d. Affinity chromatography (advances)

1186 Beer, D.J., Yates, A.M., Randles, S.C. and Jack, G.W.: A comparison of the leakage of a monoclonal antibody from various immunoaffinity chromatography matrixes. *Bioseparation*, 5 (1995) 241-247; C.A., 123 (1995) 336831z.

For additional information see C.A.:
123 (1995) 279752y, 280288h, 309634f.

See also 1033, 1280, 1325, 1382, 1553, 1585, 1597, 1603, 1612, 1666, 1668, 1677, 1708, 1709, 1715, 1737, 1778, 1783, 1789, 1799, 1858, 1865, 1912, 1920, 1935, 2037, 2387.

4f. Trace analysis and preseparation techniques

1201 Parks, O.W., Lightfield, A.R. and Maxwell, R.J.: Effect of sample matrix dehydration during supercritical fluid extraction on the recoveries of drug residues from fortified chicken liver. *J. Chromatogr. Sci.*, 33 (1995) 654-657.

1202 Uden, P.C.: Determination of trace elements by chromatographic methods employing atomic plasma emission spectroscopic detection. In: Alfassi, Z.B. (Editor), *Determ. Trace Elem.*, VCH, Weinheim, 1994, pp. 425-460; C.A., 123 (1995) 217001u - a review with 124 refs.

See also 1103, 1507, 1576, 2153, 2372, 2383, 2400.

4g. Enantiomers, separation

1203 Aldrich-Wright, J.R., Greguric, I., Vagg, R.S., Vickery, K. and Williams, P.A.: Development of DNA-immobilised chromatographic stationary phases for optical resolution and DNA-affinity comparison of metal complexes. *J. Chromatogr. A*, 718 (1995) 436-443.

1204 Allenmark, S.G., Andersson, S., Moeller, P. and Sancher, D.: A new class of network-polymeric chiral stationary phases. *Chirality*, 7 (1995) 248-256; C.A., 123 (1995) 358086n.

1205 Armstrong, D.W., Liu, Y. and Ekborgott, K.H.: A covalently bonded teicoplanin chiral stationary phase for HPLC enantioseparations. *Chirality*, 7 (1995) 474-497; C.A., 124 (1996) 4212x.

1206 Brightwell, M., Pawlowska, M. and Zukowski, J.: HPLC resolution of hydroxyl carboxylic acid enantiomers using 2-quinoxaloyl chloride as a new precolumn derivatizing agent. *J. Liq. Chromatogr.*, 18 (1995) 2765-2781.

1207 Capka, M., Bartlova, M., Krause, H.W., Schmidt, U., Fischer, C. and Oehme, G.: Efficient preparation of supports for enantioselective separation. *Am. Biotechnol. Lab.*, 13 (1995) 13-14; C.A., 123 (1995) 274764u.

1208 Corradini, R., Dossena, A., Galaverna, G., Marchelli, R. and Palla, G.: Chiral recognition by chromatographic methods. In: *Semin. Org. Synth. Summer Sch. "A. Corbella", 19th*, Societa Chimica Italiana, Rome, 1994, pp. 79-103; C.A., 123 (1995) 350439j - a review with 105 refs.

1209 De Julián-Ortiz, J.V., García-Domenech, R., Gálvez Alvarez, J., Soler Roca, R., García-March, F.J. and Antón-Fos, G.M.: Use of topological descriptors in chromatographic chiral separations. *J. Chromatogr. A*, 719 (1996) 37-44.

1210 Francotte, E. and Zhang, T.: Supramolecular effects in the chiral discrimination of meta-methylbenzoyl cellulose in high-performance liquid chromatography. *J. Chromatogr. A*, 718 (1995) 257-266.

1211 Francotte, E. and Zhanh, T.: Molecular and supramolecular effects in chromatography on cellulose-based chiral stationary phases. *Analysis*, 23 (1995) M13-M20; C.A., 124 (1996) 44338z - a review with 14 refs.

1212 Glad, M., Reinholdson, P. and Mosbach, K.: Molecularly imprinted composite polymers based on trimethylolpropane trimethacrylate (TRIM) particles for efficient enantiomeric separations. *React. Polym.*, 25 (1995) 47-54; C.A., 123 (1995) 314433u.

1213 Grieb, S., Matlin, S., Belenguer, A., Ritchie, H. and Ross, P.: Chiral HPLC with cellulose tris(3,5-dimethylphenyl carbamate)-coated porous graphitic carbon. *J. High Resolut. Chromatogr.*, 18 (1995) 761-763.

1214 Itoh, E., Nishida, Y., Horie, H., Ohru, H. and Meguro, H.: (Development of a new chiral derivatizing reagent, (+)-2-methyl- β -naphthyl-1,3-benzodioxole-4-carboxylic acid, for enantiomer analysis of amino acids). *Bunseki Kagaku*, 44 (1995) 739-746; C.A., 124 (1996) 4207z.

1215 Janado, M., Yano, Y., Umura, M. and Kondo, Y.: Differential interactions of cyclodextrins with hydrophobic derivatives of Sepharose CL-4B. *J. Solution Chem.*, 24 (1995) 587-600; C.A., 123 (1995) 286419y.

1216 Kirkland, K.M.: Optimization of chiral selectivity on cellulose-based high-performance liquid chromatographic columns using aprotic mobile-phase modifiers. *J. Chromatogr. A*, 718 (1995) 9-26.

1217 Nah, T.H., Cho, E.H., Jang, M.D., Lee, Y.K. and Park, J.H.: Binding forces contributing to reversed-phase liquid chromatographic retention on a β -cyclodextrin bonded phase. *J. Chromatogr. A*, 722 (1996) 41-46.

1218 Ôi, N., Kitahara, H., Matsushita, Y. and Kisu, N.: Enantiomer separation by gas and high-performance liquid chromatography with tripeptide derivatives as chiral stationary phases. *J. Chromatogr. A*, 722 (1996) 229-232.

1219 Okamoto, M., Ueda, Y., Takahashi, K.-i., Nakazawa, H. and Doi, T.: Direct enantiomeric separation of platelet-activating factor receptor antagonist SM-10661 by ligand-exchange high-performance liquid chromatography with copper(II) N,S-dioctyl-D-penicillamine complex. *Biosci., Biotechnol., Biochem.*, 59 (1995) 1740-1741; C.A., 123 (1995) 296734m.

1220 Okamoto, Y. and Yashima, E.: (Resolution of enantiomers). *Kagaku to Kyoiku*, 43 (1995) 695-699; C.A., 124 (1996) 28963u - a review with 7 refs.

1221 Pirkle, W.H. and Selness, S.R.: Chiral recognition studies: intra- and intermolecular $^1\text{H}\{^1\text{H}\}$ -nuclear Overhauser effects as effective tools in the study of biomolecular complexes. *J. Org. Chem.*, 60 (1995) 3252-3256; C.A., 123 (1995) 227536m.

1222 Roussel, C., Popescu, C. and Shibata, T.: Factorial design approach to studying the high-performance liquid chromatographic chiral separation of N-arylthiazolin-2-(thio)one atropisomers on CHIRALCEL OJ. *J. Chromatogr. A*, 722 (1996) 177-188.

1223 Sinibaldi, M., Castellani, L., Federici, F., Messina, A., Girelli, A.M., Lentini, A. and Tesarova, E.: New organic monosized microspheres for use in enantiomer separations by high-performance liquid chromatography. *J. Liq. Chromatogr.*, 18 (1995) 3187-3203.

1224 Villani, C.: Critical survey covering the years 1989-93: Direct resolution of enantiomers by chromatographic techniques. In: *Semin. Org. Synth., Summer Sch. "A Corbella", 19th*, Societa Chimica Italiana, Rome, 1994, pp. 331-351; C.A., 123 (1995) 328784w - a review with 222 refs.

- 1225 Zhang, T. and Francotte, E.: Chromatographic properties of composite chiral stationary phases based on cellulose derivatives. *Chirality*, 7 (1995) 425-433; *C.A.*, 123 (1995) 350443f.

For additional information see *C.A.*:

- 123 (1995) 217337h, 323092j, 323093k;
124 (1996) 28995f.

- See also 1053, 1100, 1101, 1108, 1109, 1111, 1118, 1131, 1136, 1158, 1165, 1179, 1261, 1396, 1415, 1424, 1459, 1538, 1540, 1543, 1550, 1562, 1563, 1564, 1578, 1580, 1581, 1582, 1965, 1979, 1986, 1991, 2010, 2034, 2144, 2149, 2161, 2162, 2163, 2168, 2184, 2185, 2188, 2189, 2191, 2193, 2195, 2197, 2201, 2209, 2219, 2222, 2237, 2241, 2255, 2263, 2326, 2328.

4h. Other special techniques

- 1226 Chen, F., Ma, H., Freiser, H. and Muralidharan, S.: Kinetics of extraction and back-extraction of nickel dodecylsilylaldoxime and its correlation with centrifugal partition chromatographic efficiencies. *Langmuir*, 11 (1995) 3235-3245; *C.A.*, 123 (1995) 297302f.
- 1227 Common, G.: (A well through-out low pressure liquid chromatography (LPLC) concept). *LaborPraxis*, 19 (1995) 54-58; *C.A.*, 123 (1995) 305632f.
- 1228 Evans, L.L. and Burns, M.A.: Countercurrent gradient chromatography: a continuous focusing technique. *Biotechnol. Bioeng.*, 48 (1995) 461-475; *C.A.*, 124 (1996) 4228g.
- 1229 Goupy, J., Menet, J.-M., Shinomiya, K. and Ito, Y.: Cross-axis coil planet centrifuge. Use experimental design to determine optimal settings. *ACS Symp. Ser.*, 593 (1995) 47-61; *C.A.*, 123 (1995) 290581n.
- 1230 Ishii, D.: (Miniaturization in chromatography-beginning and future). *Kuromatogurafi*, 16 (1995) 202-205; *C.A.*, 123 (1995) 322589q - a review with 8 refs.
- 1231 Janca, J.: Isoperichoric focusing and field-flow fractionation. *Int. Lab.*, 25, No. 7 (1995) 8A-8H.
- 1232 Kanazawa, H., Yamamoto, K., Kashiwase, Y., Matsushima, Y., Takai, N., Okano, T. and Sakurai, Y.: Temperature-responsive chromatography using NIPAM modified silica. In: Hatano, H. and Hanai, T. (Editors), *Int. Symp. Chromatogr., 35th Anniv. Res. Group Liq. Chromatogr. Jpn.*, World Scientific, Singapore, 1995, pp. 587-591; *C.A.*, 123 (1995) 280028y.
- 1233 Martin, D.G.: Optimization of countercurrent chromatography solvent systems. *ACS Symp. Ser.*, 593 (1995) 78-86; *C.A.*, 123 (1995) 267333z.
- 1234 Pazourek, J. and Chmelík, J.: Experimental study on the separation of silica gel supports by gravitational field-flow fractionation. II. Sample preparation, stop-flow procedure and overloading effect. *J. Chromatogr. A*, 16 (1995) 259-265.
- 1235 Ray, A.K. and Carr, R.W.: Experimental study of a laboratory-scale simulated countercurrent moving bed chromatographic reactor. *Chem. Eng. Sci.*, 50 (1995) 2195-2202; *C.A.*, 123 (1995) 285027g.
- 1236 Schmidt-Traub, H. and Strube, J.: Continuous counterflow chromatography with desorption and/or regeneration using microwaves. *Ger. Offen.* DE 4,414,599 (Cl. B01J20/34), 02 Nov. 1995, Appl. 27 Apr. 1994; 7 p.; *C.A.*, 123 (1995) 344685v.

- 1237 Svec, F. and Frechet, J.M.J.: "Molded" rods of macroporous polymer for preparation separations of biological products. *Biotechnol. Bioeng.*, 48 (1995) 476-480; *C.A.*, 124 (1996) 25012x.

- 1238 Vissers, J.P.C., Claessens, H.A. and Coufal, P.: Calculation of retention factors in capillary electrochromatography from chromatographic and electrophoretic data. *J. High Resolut. Chromatogr.*, 18 (1995) 540-544.

- 1239 Wallis, K.H. and Mueller, R.H.: Determination of the surface hydrophobicity of colloidal dispersions by mini-hydrophobic interaction chromatography. *Drugs Made Ger.*, 38 (1995) 66-69; *C.A.*, 123 (1995) 265952b.

For additional information see *C.A.*:

- 123 (1995) 305716m;
124 (1996) 32921w.

- See also 1025, 1032, 1037, 1045, 1046, 1066, 1148, 1167, 1277, 1438, 1658, 1784, 2128, 2333, 2369, 2371, 2387, 2390.

5. HYDROCARBONS AND HALOGEN DERIVATIVES

5b. Cyclic hydrocarbons, fullerenes

- 1240 Jinno, K., Matsui, H., Ohta, H., Saito, Y., Nakagawa, K., Nagashima, H. and Itoh, K.: Separation and identification of higher fullerenes in soot extract by liquid chromatography-mass spectrometry. *Chromatographia*, 41 (1995) 353-360.
- 1241 Krahl, J., Badahir, M. and Munack, A.: (Determination of polycyclic aromatic hydrocarbons (PAH) in the exhaust gases of diesel engines). *GIT Fachz. Lab.*, 39 (1995) 542-544; *C.A.*, 123 (1995) 236211d.
- 1242 Ohta, H., Saito, Y. and Jinno, K.: (Temperature effect on the separation of fullerenes in liquid chromatography using alkyl chain bonded stationary phases). *Kuromatogurafi*, 16 (1995) 190-191; *C.A.*, 124 (1996) 44262v.
- 1243 Saito, Y., Ohta, H., Terasaki, H., Katoh, Y., Nagashima, H., Itoh, K. and Jinno, K.: (Microcolumn LC separation of polycyclic aromatic hydrocarbons with a chemically bonded C₆₀ stationary phase). *Kuromatogurafi*, 16 (1996) 192-195; *C.A.*, 124 (1996) 20462j.
- 1244 Saito, Y., Ohta, H., Terasaki, H., Katoh, Y., Nagashima, H., Jinno, K. and Itoh, K.: Separation of polycyclic aromatic hydrocarbons with a C₆₀ bonded silica phase in microcolumn liquid chromatography. *J. High Resolut. Chromatogr.*, 18 (1995) 569-572.
- 1245 Sanagi, M.M., Ahmad, U.K., Hassan, K. and Musa, G.: Alkylbenzenes as a retention-index scale in reversed-phase high-performance liquid chromatography. *J. Chromatogr. A*, 722 (1996) 59-68.
- 1246 Takeuchi, T., Miwa, T., Hu, R. and Chu, J.: Retention behavior of aromatic hydrocarbons and dansylamino acids in reversed-phase liquid chromatography with cation-exchange-induced stationary phases. *J. High Resolut. Chromatogr.*, 18 (1995) 745-748.
- 1247 Vocanson, F., Lamartine, R., Duchamp, C. and Regnoof de Vains, J.B.: Reversed-phase liquid chromatography of a *p*-tert-butylcalixerenes. *Chromatographia*, 41 (1995) 204-206.

- 1248 Yang, M.-H., Chen, I.-L. and Wu, D.-H.: Chemically bonded phenylsilicone stationary phases for the liquid chromatographic separation of polycyclic aromatic hydrocarbons and cyclosiloxanes. *J. Chromatogr. A*, 722 (1996) 97-105.

For additional information see C.A.:

123 (1995) 207911b, 217410b, 318202r, 344819s, 357436q.

See also 1067, 1093, 1151, 1169, 2087, 2349.

5c. Halogen derivatives

- 1249 Grimvall, E., Östman, C. and Nilsson, U.: Determination of polychlorinated biphenyls in human blood plasma by on-line and off-line liquid chromatography-gas chromatography. *J. High Resolut. Chromatogr.*, 18 (1995) 685-691.
- 1250 Letcher, R.J., Norstrom, R.J. and Bergman, A.: An integrated analytical method for determination of polychlorinated aryl methyl sulfone metabolites and polychlorinated hydrocarbon contaminants in biological matrices. *Anal. Chem.*, 67 (1995) 4155-4163.

See also 2089.

5d. Complex hydrocarbon mixtures (incl. analysis of tars, bitumens and mineral oils)

- 1251 Beens, J. and Tjissen, R.: An online coupled HPLC-HRGC system for the quantitative characterization of oil fractions in the middle distillate range. *J. Microcolumn Sep.*, 7 (1995) 345-354; *C.A.*, 123 (1995) 345229m.
- 1252 Hayashi, J.-i., Amamoto, S., Kusakabe, K. and Morooka, S.: Examination of change in coal gel structure due to solvent swelling by size exclusion chromatography. *Energy Fuels*, 9 (1995) 1035-1037; *C.A.*, 123 (1995) 291398v.
- 1253 Johnson, B.R., Bartle, K.D., Herod, A.A. and Kandiyoti, R.: Improved size exclusion chromatography of coal derived materials using N-methyl-2-pyrrolidone as mobile phase. *Prepr. Pap. - Am. Chem. Soc., Div. Fuel Chem.*, 40 (1995) 457-460; *C.A.*, 123 (1995) 233056w.
- 1254 Koenecke, I. and Severin, D.: (Gel permeation chromatographic investigations on high boiling petroleum fractions). *Erdoel, Erdgas, Kohle*, 111 (1995) 421-422; *C.A.*, 124 (1996) 12042g.
- 1255 Lee, F.S.-C.: Characterization of petroleum residue components fractionated by high vacuum short-path distillation and gel permeation chromatography. *Prepr. Pap. - Am. Chem. Soc., Div. Fuel Chem.*, 40 (1995) 497-503; *C.A.*, 123 (1995) 232970c.
- 1256 Mao, J.W.Z.: Identification and characterization of nitrogenous species in Brazilian petroleum by particle beam LC/MS (diesel oil). Avail. *Univ. Microfilms Int.*, Order No. DA9526569, 1994, 128 p.; *C.A.*, 123 (1995) 345219h.
- 1257 Shu, Y.Y., Dowdall, J.E., Chiu, C. and Lao, R.C.: Interference of transformer oil matrixes to the internal standards on PCB quantification. *Int. J. Environ. Anal. Chem.*, 60 (1995) 185-194; *C.A.*, 123 (1995) 232950w.

For additional information see C.A.:

123 (1995) 318282s.

6. ALCOHOLS

- 1258 Gutsche, B., Biermann, M., Falkowski, J. and Hill, K.: Column chromatography for separation of components of polyol ester mixtures. *Ger. Offen.* DE 4,335,461 (Cl. C07C67/58), 20 Apr. 1995, Appl. 18 Oct. 1993; 5 p.; *C.A.*, 123 (1995) 232031x.
- 1259 Liu, L.K., Wong-Leung, M.Y.L., Lee, A.W.M. and Li, K.C.: Simultaneous determination of primary and secondary aliphatic alcohols by reversed-phase ion-pair chromatography. *Anal. Proc.*, 32 (1995) 271-272; *C.A.*, 123 (1995) 245768t.
- 1260 Park, H.G., Chang, H.N. and Dordick, J.S.: Enzymic polytransesterification of aromatic diols in organic solvents. *Biotechnol. Lett.*, 17 (1995) 1085-1090; *C.A.*, 124 (1996) 8344q.
- 1261 Rees, G.D., Robinson, B.H. and Stephenson, G.R.: Preparative-scale kinetic resolutions catalysed by microbial lipases immobilised in AOT-stabilised microemulsion-based organogels: cryoenzymology as a tool for improving enantioselectivity. *Biochim. Biophys. Acta*, 1259 (1995) 73-81.

For additional information see C.A.:

123 (1995) 260393k.

See also 1218, 1511.

7. PHENOLS

- 1262 Antipenko, E.M. and Kuznetsov, P.V.: (Polymer affinity adsorbents in the study of physiologically active substances. VI. Perspectives of the liquid chromatography of tannins). *Khim.-Farm. Zh.*, 29 (1995) 53-60; *C.A.*, 124 (1996) 24965y.
- 1263 Barroso, C.G., Rodriguez, M.C., Guillen, D.A., Zorro, L. and Perez-Bustamante, J.A.: Analysis of the main polyphenolic compounds in Brandy de Jerez. *Colloq.-Inst. Natl. Rech. Agron.*, 69(Polyphenols 94) (1995) 257-258; *C.A.*, 123 (1995) 283883j.
- 1264 Birkett, A.M., Jones, G.P. and Muir, J.G.: Simple high-performance liquid chromatographic analysis of phenol and *p*-cresol in urine and feces. *J. Chromatogr. B*, 674 (1995) 187-191.
- 1265 Brauer, B. and Funke, T.: (Detection and determination of phenols in aqueous migration solutions from plastic utensils). *Dtsch. Lebensm.-Rundsch.*, 91 (1995) 146-147; *C.A.*, 123 (1995) 196864k.
- 1266 Burenstedt, E., Emmeus, J., Gorton, L., Marko-Varga, G., Dominguez, E., Ortega, F., Narbaez, A., Irth, H., Lutz, M., Puig, D. and Barcelo, D.: Optimization and validation of an automated solid phase extraction technique coupled on-line to enzyme-based biosensor detection for the determination of phenolic compounds in surface water samples. *Chromatographia*, 41 (1995) 207-215.
- 1267 Himmel, M.E., Mlynar, J. and Sarkanen, S.: Size exclusion chromatography of lignin derivatives. *Chromatogr. Sci. Ser.*, 69 (1995) 353-379; *C.A.*, 123 (1995) 202465z - a review with 66 refs.
- 1268 Klampfl, C.W. and Spanos, E.: Separation of priority pollutant phenols on chemically modified poly(styrene-divinylbenzene) resins by high-performance liquid chromatography. *J. Chromatogr. A*, 715 (1995) 213-218.

- 1269 Landzettel, W.J., Hargis, K.J., Caboot, J.B., Adkins, K.L., Strein, T.G., Veening, H. and Becker, H.-D.: High-performance liquid chromatographic separation and detection of phenols using 2-(9-anthrylethyl) chloroformate as a fluorophoric derivatizing reagent. *J. Chromatogr. A*, 718 (1995) 45-51.
- 1270 Lee, S.-L., Den, T.-G., Liang, X., Lintelmann, J. and Kettrup, A.: Special selectivity of phenolic derivatives on a novel poly(4-methyl-5-vinylthiazole) stationary phase by reversed phase liquid chromatography. *J. High Resolut. Chromatogr.*, 18 (1995) 671-674.
- 1271 Mangas, J.J., Suarez, B., Picinelli, A., Blanco, D., Delage, E. and Drilleau, J.F.: Extraction and HPLC determination of phenolic compounds of low molecular weight in cider solid-phase apple juice. *Colloq.-Inst. Natl. Rech. Agron.*, 69(Polyphenols 94) (1995) 473-474; *C.A.*, 123 (1995) 283894p.
- 1272 Monde, T., Kamiyuki, T., Kuroda, T., Mikumo, K., Ohkawa, T. and Fukube, H.: High-performance liquid chromatographic separation of phenols on a fluorocarbon-bonded silica gel column. *J. Chromatogr. A*, 722 (1996) 273-280.
- 1273 Ossipov, V., Nurmi, K., Lopenon, J., Haukioja, E. and Pihlaja, K.: High-performance liquid chromatographic separation and identification of phenolic compounds from leaves of *Betula pubescens* and *Betula pendula*. *J. Chromatogr. A*, 721 (1996) 59-68.
- 1274 Pocurull, E., Calull, M., Marcé, R.M. and Borrull, F.: Determination of phenolic compounds at low $\mu\text{g l}^{-1}$ levels by various solid-phase extractions followed by liquid chromatography and diode-array detection. *J. Chromatogr. A*, 719 (1996) 105-112.
- 1275 Pocurull, E., Marce, R.M. and Borrull, F.: Improvement of on-line solid-phase extraction for determining phenolic compounds in water. *Chromatographia*, 41 (1995) 521-526.
- 1276 Shahidi, F. and Amarowicz, R.: Chromatographic separation of individual tea catechins and evaluation of their antioxidant activity. *Colloq.-Inst. Natl. Rech. Agron.*, 69(Polyphenols 94) (1995) 185-186; *C.A.*, 123 (1995) 283882h.
- 1277 Sliemstad, R., Marston, A. and Hostettmann, K.: Preparative separation of phenolic compounds from *Picea abies* by high-speed counter current chromatography. *J. Chromatogr. A*, 719 (1996) 438-443.
- 1278 Tomas-Barberan, F.A., Ferreres, F., Gil, M.I., Garcia-Viguera, C. and Tomas-Lorente, F.: Analysis of honey phenolic compounds by CE and HPLC. Its application to honey characterization. *Colloq.-Inst. Natl. Rech. Agron.*, 69(Polyphenols 94) (1995) 273-274; *C.A.*, 123 (1995) 254852t.
- 1279 Zulfizarov, O.S. and Yurchenko, V.V.: (Chromatographic determination of monohydric phenols in the presence of primary aromatic amines as azo derivatives). *Khim. Tekhnol. Vody*, 16 (1994) 385-387; *C.A.*, 123 (1995) 237352n.

For additional information see C.A.:
123 (1995) 358199b.

See also 1287, 2121, 2347.

8. SUBSTANCES CONTAINING HETEROCYCLIC OXYGEN

8a. Flavonoids

- 1280 Bongartz, D. and Hesse, A.: Selective extraction of quercetin in vegetable drugs and urine by off-line coupling of boronic acid affinity chromatography and high-performance liquid chromatography. *J. Chromatogr. B*, 673 (1995) 223-230.
- 1281 Conde, E., Cadahia, E. and Garcia-Vallejo, M.C.: HPLC analysis of flavonoids and phenolic acid and aldehyde in *Eucalyptus* spp. *Chromatographia*, 41 (1995) 657-660.
- 1282 Gu, X. and Li, L.: (Measurement of rutin in leaves of *Ginkgo biloba* with reversed-phase HPLC). *Sepu*, 13 (1995) 216-217; *C.A.*, 123 (1995) 28731w.
- 1283 Hierman, A.: (Phytochemical characterization of *Epilobium angustifolium* and its differentiation from other *Epilobium* species by TLC and HPLC). *Sci. Pharm.*, 63 (1995) 135-144; *C.A.*, 124 (1996) 15575u.
- 1284 Pietta, P.G., Gardana, C., Mauri, P.L., Maffei-Facino, R. and Carini, M.: Identification of flavonoid metabolites after oral administration to rats of a *Ginkgo biloba* extract. *J. Chromatogr. B*, 673 (1995) 75-80.
- 1285 Rath, G., Toure, A., Nianga, M., Wolfender, J.L. and Hostettmann, K.: Characterization of C-glycosylflavones from *Dissotis rotundifolia* by liquid chromatography - UV diode array detection - tandem mass spectrometry. *Chromatographia*, 41 (1995) 332-342.
- 1286 Sustacha, K., Chacón, M., Lucero, M.L. and Orjales, A.: Determination of ipriflavone and its synthetic impurities by high-performance liquid chromatography using diode-array detection. *J. Chromatogr. A*, 719 (1996) 245-250.
- 1287 Vennat, B., Arvouet-Grand, A., Gross, D. and Purrat, A.: Qualitative and quantitative analysis of flavonoids and identification of phenolic acids from a propolis extract. *J. Pharm. Belg.*, 50 (1995) 438-444; *C.A.*, 123 (1995) 266259t.

For additional information see C.A.:
123 (1995) 266317k.

See also 2121, 2332.

8b. Aflatoxins and other mycotoxins

- 1288 Cepeda, A., Franco, C.M., Fente, C.A., Vázquez, B.I., Rodríguez, J.L., Prognon, P. and Mahuzier, G.: Postcolumn excitation of aflatoxins using cyclodextrins in liquid chromatography for food analysis. *J. Chromatogr. A*, 721 (1996) 69-74.
- 1289 Danier, H.J., Ranfft, K. and Grassmann, E.: (Quantitative determination of aflatoxin B₁ in dairy cattle feeds by ELISA). *Agribiol. Res.*, 47 (1994) 256-265; *C.A.*, 123 (1995) 196896x.
- 1290 Kussak, A., Nilsson, C.-A., Andersson, B. and Langridge, J.: Determination of aflatoxins in dust and urine by liquid chromatography/electrospray-ionization tandem mass spectrometry. *Rapid Commun. Mass Spectrom.*, 9 (1995) 1234-1237; *C.A.*, 123 (1995) 308271y.
- 1291 Meredith, F.I., Bacon, C.W., Plattner, R.D. and William, P.: Preparative LC isolation and purification of fumonisin B₁ from rice culture. *J. Agric. Food Chem.*, 44 (1996) 195-198; *C.A.*, 124 (1996) 23406e.

- 1292 Moollan, R.W., Rae, B. and Verbeck, A.: Some comments on the determination of microcystin toxins in water by high-performance liquid chromatography. *Analyst (Cambridge)*, 121 (1996) 233-238.
- 1293 Sobolev, V.S., Cole, R.J., Dorner, J.W. and Yagen, B.: Isolation, purification, and liquid chromatographic determination of stilbene phytalexins in peanuts. *J. Assoc. Off. Anal. Chem.*, 78 (1995) 1177-1182.
- 1294 Sydenham, E.W., Shephard, G.S., Thiel, P.G., Bird, C. and Miller, B.M.: Determination of fumonisins in corn: evaluation of competitive immunoassay and HPLC techniques. *J. Agric. Food Chem.*, 44 (1996) 159-164; *C.A.*, 124 (1996) 28269x.
- For additional information see *C.A.*:
123 (1995) 283852y.
- 8c. *Other compounds with heterocyclic oxygen (incl. tannins)*
- 1295 Gawdzik, J., Kawka, S., Mardarowicz, M., Suprynowicz, Z. and Wolski, T.: Supercritical fluid extraction of furanocoumarins from the fruits of *Archangelica* off. Hoffm. *J. High Resolut. Chromatogr.*, 18 (1995) 781-783.
- 1296 Lertsiri, S., Fujimoto, K. and Miyazawa, T.: Pyrone hydroperoxide formation during the Maillard reaction and its implication in biological systems. *Biochim. Biophys. Acta*, 1245 (1995) 278-284.
- 1297 Lim, C.K.: Analysis of aryltetrahydronaphthalene lignans and their glucoside conjugates in podophyllin resin by high-performance liquid chromatography. *J. Chromatogr. A*, 722 (1996) 267-271.
- 1298 Rittgerodt, B.: (Furfural and hydroxymethylfurfural determination in foods). *GIT Spez. Chromatogr.*, 14 (1994) 79-80; *C.A.*, 123 (1995) 283906u.
- 1299 Shkarenda, V.V. and Kuznetsov, P.V.: (Present status of liquid column chromatography of coumarins. II. High-performance liquid chromatography of coumarin derivatives). *Khim. Prir. Soedin.*, (1993) 71-88; *C.A.*, 123 (1995) 221992k - a review with 156 refs.
- See also 1302, 1398, 1476, 1551.
9. OXO COMPOUNDS, ETHERS, EPOXIDES AND QUINONES
- 1300 Borhan, B., Mebrahtu, T., Nazarian, S., Kurth, M.J. and Hammock, B.D.: Improved radiolabeled substrates for soluble epoxide hydrolase. *Anal. Biochem.*, 231 (1995) 188-206.
- 1301 Chen, H.-M., Scott, B.K., Braun, K.P. and Peterson, C.M.: Validated fluorimetric HPLC analysis of acetaldehyde in hemoglobin fractions separated by cation exchange chromatography: three new peaks associated with acetaldehyde. *Alcohol: Clin. Exp. Res.*, 19 (1995) 939-944; *C.A.*, 124 (1996) 25014z.
- 1302 Ferioli, V., Vezzadini, F., Rustichelli, C. and Gamberini, G.: High-performance liquid chromatography of dihydroxyacetone as its bis-2,4-dinitrophenylhydrazone derivative. *Chromatographia*, 41 (1995) 61-65.
- 1303 Finckh, B., Kontush, A., Commentz, J., Hübner, C., Burdelski, M. and Kohlschütter, A.: Monitoring of ubiquinol-10, ubiquinone-10, carotenoids and tocopherols in neonatal plasma microsomes using high-performance liquid chromatography with coulometric electrochemical detection. *Anal. Biochem.*, 232 (1995) 210-216.
- 1304 Gori, G., Bartolucci, G.B., Sturaro, A., Parvoli, G., Doretti, L., Troiano, R. and Casetta, B.: High-performance liquid chromatographic determination of urinary 2,5-hexanedione as mono-2,4-dinitrophenylhydrazone using ultraviolet detection. *J. Chromatogr. B*, 673 (1995) 165-172.
- 1305 Hagege, D., Feutry, S., Krsnik-Rasol, M., Poder, D. and Menez, J.F.: Estimation of free and bound MDA in plant extracts: comparison between spectrophotometric and HPLC methods. In: Kader, J.-C. and Mazliak, P. (Editors), *Plant Lipid Metab.*, [Pap. Int. Meet. Plant Lipids], 11th 1994, Kluwer, Dordrecht, 1995, pp. 259-261; *C.A.*, 123 (1995) 192718t.
- 1306 Kamido, H., Kuksis, A., Marai, L. and Myher, J.J.: Lipid ester-bound aldehydes among copper-catalyzed peroxidation products of human plasma lipoproteins. *J. Lipid Res.*, 36 (1995) 1876-1885.
- 1307 Liu, Y.-M., Miao, J.-R. and Toyo'oka, T.: Determination of 4-hydroxy-2-nonenal by precolumn derivatization and liquid chromatography with laser fluorescence detection. *J. Chromatogr. A*, 719 (1996) 450-456.
- 1308 Meister, J. and Engelhardt, H.: (Analysis of free formaldehyde in formaldehyde-donor solution). *LaborPraxis*, 19 (1995) 28-31; *C.A.*, 123 (1995) 349843e.
- 1309 Owies, L., Katona, T., Monteferrante, J.A., Zodda, J.P. and Eakins, M.N.: Determination of the impurity profile of 1,2-cyclohexanedione dioxime by high-performance liquid chromatography. *J. Chromatogr. A*, 719 (1996) 307-313.
- 1310 Pappas, P.W. and Morrison, S.E.: Benzoquinones of the beetles, *Tribolium castaneum* and *Tribolium confusum*. *Prepar. Biochem.*, 25 (1995) 155-168.
- 1311 Royer, I., Alvinerie, P., Armand, J.P., Ho, L.K., Wright, M. and Monsarrat, B.: Paclitaxel metabolites in human plasma and urine: identification of 6 α -hydroxytaxol, 7-epitaxol and taxol hydrolysis products by liquid chromatography/atmospheric-pressure chemical ionization mass spectrometry. *Rapid Commun. Mass Spectrom.*, 9 (1995) 495-502; *C.A.*, 123 (1995) 47294x.
- 1312 Tsai, T.-H., Chou, C.-J. and Chen, C.-F.: Glucuronidation of magnolol assessed using HPLC/fluorescence. *Planta Med.*, 61 (1995) 491-492; *C.A.*, 124 (1996) 15620a.
- See also 1247, 1281, 1298, 1535, 1554, 1999, 2338, 2347.
10. CARBOHYDRATES
- 10a. *Mono and oligosaccharides. Structural studies*
- 1313 Balachandran, C. and Arumugan, C.: Biochemical and cytochemical transformations in germinating coconut (*Cocos nucifera* Linn.) *J. Am. Oil Chem. Soc. (JAOCS)*, 72 (1995) 1385-1391.

- 1314 Blikstad, I., Fägerstam, L.G., Bhikhabhai, R. and Lindblom, H.: Detection and characterization of oligosaccharides in column effluents using surface plasmon resonance. *Anal. Biochem.*, 233 (1996) 42-49.
- 1315 Caram-Lelham, N., Sundeloef, L.-O. and Andersson, T.: Preparative separation of oligosaccharides from κ -carrageenan, sodium hyaluronate, and dextran by Superdex 30 prep. grade. *Carbohydr. Res.*, 273 (1995) 71-76; *C.A.*, 124 (1996) 9241r.
- 1316 Casella, I.G., Destradis, A. and Desimoni, E.: Colloidal gold supported onto glassy carbon substrates as an amperometric sensor for carbohydrates in flow injection and liquid chromatography. *Analyst (Cambridge)*, 121 (1996) 249-254.
- 1317 Chase, G.W., Jr., Akoh, C.C. and Eitenmiller, R.R.: Liquid chromatographic analysis of sucrose polyester in saled dressing by evaporative light-scattering mass detection. *J. Assoc. Off. Anal. Chem.*, 78 (1995) 1324-1327.
- 1318 Churms, S.C.: Recent progress in carbohydrate separation by high-performance liquid chromatography based on hydrophilic interaction. *J. Chromatogr. A*, 720 (1996) 75-91 - a review with 76 refs.
- 1319 Churms, S.C.: Recent progress in carbohydrate separation by high-performance liquid chromatography based on size exclusion. *J. Chromatogr. A*, 720 (1996) 151-166 - a review with 70 refs.
- 1320 Corradini, C., Corradini, D., Huber, C.G. and Bonn, G.K.: High-performance anion-exchange chromatography of carbohydrates using a new resin and pulsed amperometric detection. *Chromatographia*, 41 (1995) 511-515.
- 1321 Dendene, K., Guihard, L. and Bariou, B.: Column chromatography separation of lactulitol and lactitol. *Fr. Demande FR 2,711,654 (Cl. CO7H1/06)*, 05 May 1995, Appl. 93/12,982, 26 Oct. 1993; 15 pp.; *C.A.*, 123 (1995) 314390c.
- 1322 Dendene, K., Guihard, L., Balannec, B. and Bariou, B.: Study of the separation of lactose, lactulose and galactose by liquid chromatography using cationic ion-exchange resin column. *Chromatographia*, 41 (1995) 561-567.
- 1323 Durst, R., Wrolstad, R.E. and Krueger, D.A.: Sugar, nonvolatile acid $^{13}\text{C}/^{12}\text{C}$ ratio, and miceral analysis for determination of the authenticity and quality of red raspberry juice composition. *J. Assoc. Off. Anal. Chem.*, 78 (1995) 1195-1204.
- 1324 El Rassi, Z.: Recent progress in reversed-phase and hydrophobic interaction chromatography of carbohydrate species. *J. Chromatogr. A*, 720 (1996) 93-118 - a review with 206 refs.
- 1325 Endo, T.: Fractionation of glycoprotein-derived oligosaccharides by affinity chromatography using immobilized lectin columns. *J. Chromatogr. A*, 720 (1996) 251-261 - a review with 66 refs.
- 1326 Fan, J.-Q., Huyanh, L.H. and Lee, Y.C.: Purification of 2-aminopyridine derivatives of oligosaccharides and related compounds by cation-exchange chromatography. *Anal. Biochem.*, 232 (1995) 65-68.
- 1327 Foldhazi, R.G.: (High performance liquid chromatographic separation of carbohydrates in honey). *Elelmiszervizsgalati Kozl.*, 41 (1995) 41-48; *C.A.*, 123 (1995) 226149a.
- 1328 Frias, J., Price, K.R., Fenwick, G.R., Hedley, C.L., Sørensen, H. and Vidal-Valverde, C.: Improved method for the analysis of α -galactosides in pea seeds by capillary zone electrophoresis. Comparison with high-performance liquid chromatography-triple-pulsed amperometric detection. *J. Chromatogr. A*, 719 (1996) 213-219.
- 1329 Hase, S.: Precolumn derivatization for chromatographic and electrophoretic analyses of carbohydrates. *J. Chromatogr. A*, 720 (1996) 173-182 - a review with 89 refs.
- 1330 Honda, S.: Postcolumn derivatization for chromatographic analysis of carbohydrates. *J. Chromatogr. A*, 720 (1996) 183-199 - a review with 68 refs.
- 1331 Huang, X., Pot, J.J. and Kok, W.T.: Determination of sugars by liquid chromatography and amperometric detection with a cuprous oxide modified electrode. *Chromatographia*, 40 (1995) 684-689.
- 1332 Imanari, T., Toida, T., Koshiishi, I. and Toyoda, H.: High-performance liquid chromatographic analysis of glycosaminoglycan-derived oligosaccharides. *J. Chromatogr. A*, 720 (1996) 275-293 - a review with 134 refs.
- 1333 Inamoto, Y., Hiraga, Y., Hanai, T. and Kinoshita, T.: The development of a sensitive myo-inositol analyzer using a liquid chromatograph with a post-label fluorescence detector. *Biomed. Chromatogr.*, 9 (1995) 146-149; *C.A.*, 123 (1995) 4848p.
- 1334 Jham, G.N.: High-performance liquid chromatographic quantitation of phloridzin in apple seed, leaf and callus. *J. Chromatogr. A*, 719 (1996) 444-449.
- 1335 Kano, K., Takagi, K., Inoue, K., Ikeda, T. and Ueda, T.: Copper electrodes for stable subpicomole detection of carbohydrates in high-performance liquid chromatography. *J. Chromatogr. A*, 721 (1996) 53-57.
- 1336 Kerhervé, P., Charrière, B. and Gadel, F.: Determination of marine monosaccharides by high-pH anion-exchange chromatography with pulsed amperometric detection. *J. Chromatogr. A*, 718 (1995) 283-289.
- 1337 Koizumi, K.: High-performance liquid chromatographic separation of carbohydrates on graphitized carbon columns. *J. Chromatogr. A*, 720 (1996) 119-126 - a review with 13 refs.
- 1338 Lee, Y.C.: Carbohydrate analyses with high-performance anion-exchange chromatography. *J. Chromatogr. A*, 720 (1996) 137-149 - a review with 67 refs.
- 1339 McGuire, J.M., Elliott, M.A., Elliott, H.G. and Smith, K.D.: The resolution of oligosaccharides by high pH anion exchange chromatography. *Carbohydr. Res.*, 270 (1995) 63-69; *C.A.*, 123 (1995) 228709g.
- 1340 Monden, T., Nakamura, H. and Murai, A.: The sugar composition and partial structure of the self-induced endogenous elicitor from potato. *Biochem. Biophys. Res. Commun.*, 215 (1995) 768-773.
- 1341 Nishikawa, T., Suzuki, S., Kubo, H. and Ohtani, H.: On-column isomerization of sugars during high-performance liquid chromatography: analysis of the elution profile. *J. Chromatogr. A*, 720 (1996) 167-172.
- 1342 Oku, H. and Nagatani, S.: (Pattern analysis of sugar chains). *Gurikobaioiroji Shirizu*, 5 (1994) 76-92; *C.A.*, 123 (1995) 309611w - a review with 14 refs.
- 1343 Ottneeder, H. and Marx, R.: Collaborative study concerning determination of glucose, fructose, glycerol, and ethanol in wine by HPLC ion exchange chromatography and RI detection. *Wein-Wiss.*, 50 (1995) 67-70; *C.A.*, 123 (1995) 337698y.
- 1344 Pérez-Vendrell, A.M., Guasch, J., Francesch, M., Molina-Cano, J.L. and Brufau, J.: Determination of β -(1-3),(1-4)-D-glucans in barley by reversed-phase high-performance liquid chromatography. *J. Chromatogr. A*, 718 (1995) 291-297.

- 1345 Prime, S., Dearnley, J., Ventom, A.M., Parekh, R.B. and Edge, C.J.: Oligosaccharide sequencing based on exo- and endoglycosidase digestion and liquid chromatographic analysis of the products. *J. Chromatogr. A*, 720 (1996) 263-274 - a review with 92 refs.
- 1346 Quan, L.: The determination of molecular weight distribution of sugar in a few natural polysugar by HPLC. *Int. Symp. Bioanal. Chem., Proc. 1st*, Chinese Chemical Society, Beijing, 1995, pp. 146-147; *C.A.*, 124 (1996) 15580s.
- 1347 Rice, K.G. and Corradi da Silva, M.L.: Preparative purification of tyrosinamide N-linked oligosaccharides. *J. Chromatogr. A*, 720 (1996) 235-249 - a review with 34 refs.
- 1348 Ruan, S., Raj, B.K.M., Furukawa, K. and Lloyd, K.O.: Analysis of melanoma cells stable transfected with β 1,4GalNAc transferase (G_{M2}/G_{D2} synthase) cDNA: relative glycosyltransferase levels play a dominant role in determining ganglioside expression. *Arch. Biochem. Biophys.*, 323 (1995) 11-18.
- 1349 Schumacher, D. and Kroh, L.W.: A rapid method for separation of anomeric saccharides using a cyclodextrin bonded phase and for investigation of mutarotation. *Food Chem.*, 54 (1995) 353-356; *C.A.*, 123 (1995) 312419v.
- 1350 Simms, P.J., Hotchkiss, A.T., Jr., Irwin, P.L. and Hicks, K.B.: High-performance liquid chromatographic separation of oligogalacturonic acids on a cyclomaltoheptaose (β -cyclodextrin) bonded-phase column. *Carbohydr. Res.*, 278 (1995) 1-9; *C.A.*, 124 (1996) 11287d.
- 1351 Stefansson, M. and Westerlund, D.: Ligand-exchange chromatography of carbohydrates and glycoconjugates. *J. Chromatogr. A*, 720 (1996) 127-136 - a review with 35 refs.
- 1352 Stuckel, J.G. and Low, N.H.: Maple syrup authenticity analysis by anion-exchange liquid chromatography with pulsed amperometric detection. *J. Agric. Food Chem.*, 43 (1995) 3046-3051; *C.A.*, 123 (1995) 337703w.
- 1353 Sugahara, K., Tsuda, H., Yoshida, K., Yamada, S., de Beer, T. and Vliegenthart, J.F.G.: Structure determination of the octa- and decaaccharide sequences isolated from the carbohydrate-protein linkage region of porcine intestinal heparin. *J. Biol. Chem.*, 270 (1995) 22914-22923.
- 1354 Suzuki, M., Sakamoto, R. and Aoyagi, T.: Rapid carbohydrate analysis of wood pulps by ion chromatography. *Tappi J.* 1995, 78 (1995) 174-177; *C.A.*, 123 (1995) 317255y.
- 1355 Takahashi, N.: Three-dimensional mapping of N-linked oligosaccharides using anion-exchange, hydrophobic and hydrophilic interaction modes of high-performance liquid chromatography. *J. Chromatogr. A*, 720 (1996) 217-225 - a review with 20 refs.
- 1356 Xu, G., Xu, Y. and Chang, L.: Preparation of oligosaccharides from the enzymic hydrolyzates of Konjac glucomannan by low-pressure liquid chromatography. In: *Int. Symp. Bioanal. Chem., Proc., 1st 1995*, Chinese Chemical Society, Beijing, 1995, pp. 104-105; *C.A.*, 123 (1995) 334033s.
- 1357 Yamada, H.: (Specific determination of 3-deoxyglucosone, the intermediate in advanced Maillard reaction, *in vivo*). *Kobe Daigaku Igakubu Kiyu*, 55 (1995) 99-107; *C.A.*, 123 (1995) 280022s.
- See also 1182, 1364, 1376, 1378, 1386, 1552, 1615, 1759, 2304, 2341.
- 10b. *Polysaccharides, mucopolysaccharides, lipopolysaccharides*
- 1358 Arslanov, Sh.S., Rakhmanberdiev, G.R., Mirkamilov, T.M. and Abidova, F.: (Effect of cellulose activation on its heterogeneous solid-phase reaction with a urea-orthophosphoric acid mixture). *Zh. Prikl. Khim. (S. Peterburg)*, 68 (1995) 508-512; *C.A.*, 123 (1995) 202509s.
- 1359 Colburn, P., Dietrich, C.P. and Buonassisi, V.: Alterations of heparan sulfate moieties in cultured endothelial cells exposed to endotoxin. *Arch. Biochem. Biophys.*, 325 (1996) 129-138.
- 1360 Conner, A.H.: Size exclusion chromatography of cellulose and cellulose derivatives. *Chromatogr. Sci. Ser.*, 69 (1995) 331-352; *C.A.*, 123 (1995) 260102q - a review with 138 refs.
- 1361 Gahm, K.-H.: Spectroscopic and chromatographic investigation of derivatized cyclodextrins. *Avail. Univ. Microfilms Int.*, Order No. DA9506205, 1994, 189 p.; *C.A.*, 123 (1995) 217365r.
- 1362 Hannesson, H.H. Hagner-McWhirter, A., Tiedemann, K., Lindahl, U. and Malmström, A.: Biosynthesis of dermatan sulphate. De-fructosylated *Escherichia coli* K4 capsular polysaccharide as a substrate for the D-glucuronyl C-5 epimerase, and an indication of a two-base reaction mechanism. *Biochem. J.*, 313 (1996) 589-596.
- 1363 Haseley, S.R. and Wilkinson, S.G.: Structural studies of the putative O-specific polysaccharide of *Acinetobacter baumannii* O2 containing 3,6-dideoxy-3-N-(D-3-hydroxybutyryl)amino-D-galactose. *Eur. J. Biochem.*, 233 (1995) 899-906.
- 1364 Kitagawa, H., Kinoshita, A. and Sugahara, K.: Microanalysis of glycosaminoglycan-derived disaccharides labeled with the fluorophore 2-aminoacridone by capillary electrophoresis and high-performance liquid chromatography. *Anal. Biochem.*, 232 (1995) 114-121.
- 1365 Kuraya, N. and Hase, S.: Analysis of pyridylaminated O-linked sugar chains by two-dimensional sugar mapping. *Anal. Biochem.*, 233 (1996) 205-211.
- 1366 Lidholt, K., Eriksson, I. and Kjellen, L.: Heparin proteoglycans synthesized by mouse mastocystoma contain chondroitin sulphate. *Biochem. J.*, 311 (1995) 233-238.
- 1367 Maaheimo, H., Renkonen, R., Turunen, J.P., Penttilä, L. and Renkonen, O.: Synthesis of a divalent sialyl Lewis x O-glycan, a potent inhibitor of lymphocyte-endothelium adhesion. Evidence that multivalency enhances the saccharide binding to L-selection. *Eur. J. Biochem.*, 234 (1995) 616-625.
- 1368 Narita, H., Takeda, Y., Takagaki, K., Nakamura, T., Harata, S. and Endo, M.: Identification of glycosaminoglycans using high-performance liquid chromatography on a hydroxyapatite column. *Anal. Biochem.*, 232 (1995) 133-136.
- 1369 Robles, M.D., Matés, J.M. and Niell, F.X.: Determination of the degree of polymerization of agar-type polysaccharides by a high performance liquid chromatography method. *J. Liq. Chromatogr.*, 18 (1995) 3175-3185.
- 1370 Timpa, J.D.: Characterization by size-exclusion chromatography with refractive index and viscometry. Cellulose, starch, and plant cell wall polymers. *Adv. Chem. Ser.*, 247 (1995) 141-150; *C.A.*, 123 (1995) 260131y.

For additional information see *C.A.*:
123 (1995) 309678y, 358193v.

- 1371 Tuffal, G., Ponthys, C., Picard, C., Riviere, M. and Puzo, G.: Structural elucidation of novel methylglucose-containing polysaccharides from *Mycobacterium xenopi*. *Eur. J. Biochem.*, 233 (1995) 377-383.
- 1372 Wang, R., Klegerman, M.E., Marsden, I., Sinnott, M. and Groves, M.J.: An anti-neoplastic glycan isolated from *Mycobacterium bovis* (BCG vaccine). *Biochem. J.*, 311 (1995) 867-872.

For additional information see C.A.:
123 (1995) 260259w.

See also 1332, 1340, 1342, 1346, 1354, 2141, 2175.

10c. Glycoproteins and their constituents

- 1373 Apffel, A., Chakel, J., Udiavar, S., Hancock, W.S., Souders, C. and Pungor, E., Jr.: Application of capillary electrophoresis, high-performance liquid chromatography, on-line electrospray mass spectrometry and matrix-assisted laser desorption ionization-time of flight mass spectrometry to the characterization of single-chain plasminogen activator. *J. Chromatogr. A*, 717 (1995) 41-60.
- 1374 Chakel, J.A., Apffel, J.A. and Hancock, W.S.: Improvement in the characterization of glycopeptides and glycoproteins using liquid-phase separations and mass spectrometry. *LC-GC*, 13 (1995) 866-876; C.A., 123 (1995) 321792p - a review with 13 refs.
- 1375 Davies, J.R., Hovenberg, H.W., Linden, C.-J., Howard, R., Richardson, P.S., Sheehan, J.K. and Carlstedt, I.: Mucins in airway secretion from healthy and chronic bronchitis subjects. *Biochem. J.*, 313 (1996) 431-439.
- 1376 Davies, M.J. and Hounsell, E.F.: Comparison of separation modes of high-performance liquid chromatography for the analysis of glycoprotein- and proteoglycan-derived oligosaccharides. *J. Chromatogr. A*, 720 (1996) 227-233.
- 1377 De Paolis, A.M., Advani, J.V. and Sharma, B.G.: Characterization of erythropoietin dimerization. *J. Pharm. Sci.*, 84 (1995) 1280-1284.
- 1378 Dell, A., Morris, H.R., Easton, R.L., Panico, M., Patankar, M., Oehninger, S., Koistinen, R., Koistinen, H., Seppala, M. and Clark, G.F.: Structural analysis of the oligosaccharides derived from glycodefin, a human glycoprotein with potent immunosuppressive and contraceptive activities. *J. Biol. Chem.*, 270 (1995) 24116-24126.
- 1379 Garcia, R., Rodriguez, R., Montesino, R., Besada, V., Gonzalez, J. and Cremata, J.A.: Concanavalin A- and wheat germ agglutinin-conjugated lectins as a tool for the identification of multiple N-glycosylation sites in heterologous protein expressed in yeast. *Anal. Biochem.*, 231 (1995) 342-348.
- 1380 Girardet, J.-M., Coddeville, B., Plancke, Y., Strecker, G., Campagna, S., Spik, G. and Linden, G.: Structure of glycopeptides isolated from bovine milk component PP3. *Eur. J. Biochem.*, 234 (1995) 939-946.
- 1381 Heegaard, N.H.H., Mortensen, H.D. and Roepstorff, P.: Demonstration of a heparin-binding site in serum amyloid P component using affinity capillary electrophoresis as an adjunct technique. *J. Chromatogr. A*, 717 (1995) 83-90.
- 1382 Islam, K.N., Takahashi, M., Higashiyama, S., Myint, T., Uozumi, N., Kayanoki, Y., Kaneto, H., Kosaka, H. and Taniguchi, N.: Fragmentation of ceruloplasmin following non-enzymatic glycation reaction. *J. Biochem. (Tokyo)*, 118 (1995) 1054-1060.
- 1383 O'Neill, R.A.: Enzymatic release of oligosaccharides from glycoproteins for chromatographic and electrophoretic analysis. *J. Chromatogr. A*, 720 (1996) 201-215 - a review with 101 refs.
- 1384 Ohtaki, N. and Inoue, S.: Chromatographic behavior of iron-binding glycoproteins on metaphosphate columns. In: Hatano, H. and Hanai, T. (Editors), *Int. Symp. Chromatogr., 35th Anniv. Res. Group Liq. Chromatogr. Jpn*, World Scientific, Singapore, 1995, pp. 641-646; C.A., 123 (1995) 280029z.
- 1385 Preobrazhensky, A.A., Voronina, A.S., Kaliberda, E.N. and Vovk, T.S.: (Ontogenetic expression of neurochordin D, a specific glycoprotein of human brain). *Biokhimiya (Moscow)*, 60 (1995) 1838-1843.
- 1386 Raju, T.S., Ray, M.K. and Stanley, P.: LEC18, a dominant chinese hamster ovary glycosylation mutant synthesizes N-linked carbohydrates with a novel core structure. *J. Biol. Chem.*, 270 (1995) 20394-20302.
- 1387 Schulte, S. and Stoffel, W.: UDP galactose:ceramide galactosyltransferase and glutamate/aspartate transporter. Copurification, separation and characterization of the two glycoproteins. *Eur. J. Biochem.*, 233 (1995) 947-953.
- 1388 Sohma, H., Matsushima, N., Watanabe, T., Hattori, A., Kuroki, Y. and Akino, T.: Ca²⁺-Dependent binding of annexin IV to surfactant protein A and lamellar bodies in alveolar type II cells. *Biochem. J.*, 312 (1995) 175-181.
- 1389 Takahashi, H., Azumi, K. and Yokosawa, H.: A novel membrane glycoprotein involved in ascidian hemocyte aggregation and phagocytosis. *Eur. J. Biochem.*, 233 (1995) 778-783.
- 1390 Zhang, W.-M., Leinonen, J., Kalkkinen, N., Dowell, B. and Stenman, U.-H.: Purification and characterization of different molecular forms of prostate-specific antigen in human seminal fluid. *Clin. Chem. (Washington)*, 41 (1995) 1567-1573.

See also 1193, 1648, 1769.

11. ORGANIC ACIDS AND LIPIDS

11a. Organic acids and simple esters

- 1391 Aluoch-Orwa, J., Quintens, I., Roets, E. and Hoogmartens, J.: Quantitative analysis of methyl and propyl p-hydroxybenzoate esters in ointment preparations by liquid chromatography on poly(styrene-divinylbenzene). *Eur. J. Pharm. Sci.*, 3 (1995) 301-308; C.A., 123 (1995) 322211k.
- 1392 Bengoechea, L., Hernandez, T., Quesada, C., Bartolome, B., Estrella, I. and Gomez-Cordoves, C.: Structure of hydroxycinnamic acid derivatives established by high-performance liquid chromatography with photodiode-array detection. *Chromatographia*, 41 (1995) 94-98.
- 1393 Bernhardt, T.G., Cannistraro, P.A., Bird, D.A., Doyle, K.M. and Laposata, M.: Purification of fatty acid ethyl esters by solid-phase extraction and high-performance liquid chromatography. *J. Chromatogr. B*, 675 (1996) 189-196.

- 1394 Chen, P., Nie, L.-H. and Yao, S.-Z.: Determination of lactic acid and pyruvic acid in serum and cerebrospinal fluid by ion-exclusion chromatography with a bulk acoustic wave detector. *J. Chromatogr. B*, 673 (1995) 153-158.
- 1395 Defilippi, A., Piancone, G., Prandtatter, A. and Tibaldi, G.P.: (Honey quality: ion chromatographic determination of formic acid). *Ind. Aliment. (Pinerolo)*, 34 (1995) 495-497; *C.A.*, 123 (1995) 226156a.
- 1396 Galaverna, G., Panto, F., Dossena, A., Marchelli, R. and Bigi, F.: Chiral separation of unmodified α -hydroxy acids by ligand exchange HPLC using chiral copper(II) complexes of (S)-phenylalaninamide as additives to the eluent. *Chirality*, 7 (1995) 331-336; *C.A.*, 123 (1995) 309664r.
- 1397 Gherardi, S., Sacconi, G., Trifir, A. and Calza, M.: Use of ion chromatography for organic acid determination in fruit juices. *Fruit Process.*, 5 (1995) 206-212; *C.A.*, 123 (1995) 254813f.
- 1398 Grosheny, B., Isengard, H.D. and Philipp, O.: (Determination of twelve organic acids and 5-hydroxymethylfurfural in fruit juices by HPLC). *Dtsch.-Lebensm.-Rundsch.*, 91 (1995) 137-140; *C.A.*, 123 (1995) 196863j.
- 1399 Hampson, A.J., Hill, W.A.G., Zan-Phillips, M., Makriyannis, A., Leung, E., Eglen, R.M. and Bornheim, L.M.: Anandamide hydroxylation by brain lipoxygenase: metabolite structures and potencies at the cannabinoid receptor. *Biochim. Biophys. Acta*, 1259 (1995) 173-179.
- 1400 Harms, J., Radau, B. and Krueger, E.: (Determination of oxalic acid in malt, wort, and beer by HPLC). *Monatsschr. Brauwiss.*, 47 (1994) 356-359; *C.A.*, 123 (1995) 196845e.
- 1401 Hayashi, M.: Determination of organic acids in foods by HPLC with postcolumn pH buffered electric conductivity detection. *GIT Spez. Chromatogr.*, 15 (1995) 64-67; *C.A.*, 123 (1995) 196861g.
- 1402 Hempel, G. and Blaschke, G.: Enantioselective determination of zopiclone and its metabolites in urine by capillary electrophoresis. *J. Chromatogr. B*, 675 (1995) 139-146.
- 1403 Hildebrandt, E., Albanesi, J.P., Falck, J.R. and Campbell, W.B.: Regulation of calcium influx and catecholamine secretion in chromaffin cells by a cytochrome P 450 metabolite of arachidonic acid. *J. Lipid Res.*, 36 (1995) 2599-2608.
- 1404 Holadova, K. and Hajslova, J.: A comparison of different ways of sample preparation for the determination of phthalic acid esters in water and plant matrixes. *Int. J. Environ. Anal. Chem.*, 59 (1995) 43-57; *C.A.*, 123 (1995) 283876j.
- 1405 Hou, C.T.: Production of hydroxy fatty acids from unsaturated fatty acids by *Flavobacterium* sp. D55 hydratase, a C-10 positional- and *cis* unsaturation-specific enzyme. *J. Am. Oil Chem. Soc. (AOCS)*, 72 (1995) 1265-1270.
- 1406 Khaskhali, M.H., Bhangar, M.I. and Khand, F.D.: Simultaneous determination of oxalic and citric acids in urine by high-performance liquid chromatography. *J. Chromatogr. B*, 675 (1996) 147-151.
- 1407 Lawrence, J.F., Rousel, S. and Ménard, C.: Liquid chromatographic determination of okadaic acid and dinophysistoxin-1 in shellfish after derivatization with 9-chloromethylanthracene. *J. Chromatogr. A*, 721 (1996) 359-364.
- 1408 Li, N. and Zhu, M.: (Advancement in applications of chromatography to the research of heteropoly acids). *Sepu*, 13 (1995) 316-319; *C.A.*, 123 (1995) 357629e - a review with 19 refs.
- 1409 Lipscomb, J.C., Mahle, D.A., Brashear, W.T. and Barton, H.A.: Dichloroacetic acid: metabolism of cytosol. *Drug Metab. Disp.*, 23 (1995) 1202-1205.
- 1410 Márquez-Ruiz, G. and Dobarganes, M.C.: Assessments on the digestibility of oxidized compounds from [1-¹⁴C]linoleic acid using a combination of chromatographic techniques. *J. Chromatogr. B*, 675 (1996) 1-8.
- 1411 Miwa, H. and Yamamoto, M.: Determination of mono-, poly- and hydroxy-carboxylic acid profiles of beverages as their 2-nitrophenylhydrazides by reversed-phase ion-pair chromatography. *J. Chromatogr. A*, 721 (1996) 261-268.
- 1412 Montaña, A., Sánchez, A.M. and Rehano, L.: Determination of benzoic and sorbic acids in packaged vegetable products. Comparative evaluation of methods. *Analyst (Cambridge)*, 120 (1995) 2483-2487.
- 1413 Noguchi, A.: (Determination of fumaric acid in mixed feed by high performance liquid chromatography). *Shiryō Kenkyū Hokoku (Tokyo Hishiryō Kenshō)*, 20 (1995) 104-114; *C.A.*, 123 (1995) 283867g.
- 1414 Özden, S., Küçükislamoglu, M. and Özden, T.: Determination of carboxylic acids in *Consolida* species by high performance liquid chromatography. *Pharmazie*, 50 (1995) 818-820.
- 1415 Péter, A. and Fülöp, F.: High-performance liquid chromatographic method for the separation of isomers of *cis*- and *trans*-2-amino-cyclopentane-1-carboxylic acid. *J. Chromatogr. A*, 715 (1995) 219-226.
- 1416 Qu, F., Mou, S., Hou, X., Shen, D., Li, J. and Sun, J.: (Determination of organic acids in wheat root by ion chromatography). *Sepu*, 13 (1995) 395-397; *C.A.*, 123 (1995) 280031u.
- 1417 Razynska, A., Matheson-Urbaitis, B., Fronticelli, C., Collins, J.H. and Bucci, E.: Stabilization of the tetrameric structure of human and bovine hemoglobins by pseudocrosslinking with muconic acid. *Arch. Biochem. Biophys.*, 326 (1996) 119-125.
- 1418 Saito, M., Ushijima, T., Sasamoto, K., Ohkura, Y. and Ueno, K.: 2-(5-Hydrazinocarbonyl-2-oxazolyl)-5,6-dimethoxybenzothiazole as a precolumn fluorescence derivatization reagent for carboxylic acids in high-performance liquid chromatography and its application to the assay of fatty acids in human serum. *J. Chromatogr. B*, 674 (1995) 167-175.
- 1419 Sloot, W.N. and Gramsbergen, J.B.P.: Detection of salicylate and its hydroxylated adducts 2,3- and 2,5-dihydroxybenzoic acids as possible indices for *in vivo* hydroxyl radical formation in combination with catechol- and indoleamines and their metabolites in cerebrospinal fluid and brain tissue. *J. Neurosci. Methods*, 60 (1995) 141-149; *C.A.*, 123 (1995) 329102j.
- 1420 Suzuki, T. and Matsuyama, Y.: Determination of free fatty acids in marine phytoplankton causing red tides by fluorometric high-performance liquid chromatography. *J. Am. Oil Chem. Soc. (AOCS)*, 72 (1995) 1211-1214.
- 1421 Toschi, T.G., Stante, F., Capella, P. and Lercker, G.: Study on position and geometric configuration of methyl linoleate hydroperoxide isomers obtained by thermo-oxidation: chromatographic analyses of their corresponding hydroxy derivatives. *J. High Resolut. Chromatogr.*, 18 (1995) 764-766.
- 1422 Toyo'oka, T., Takahashi, M., Suzuki, A. and Ishii, Y.: Determination of free fatty acids in blood tagged with 4-(2-carboxylopyridin-1-yl)-7-(N,N-dimethylaminosulfonyl)-2,1,3-benzoxadiazole, by high-performance liquid chromatography with fluorescence detection. *Biomed. Chromatogr.*, 9 (1995) 162-170; *C.A.*, 123 (1995) 250293p.

- 1423 Uang, Y.-S., Kang, F.-L. and Hsu, K.-Y.: Determination of caffeic acid in rabbit plasma by high-performance liquid chromatography. *J. Chromatogr. B*, 673 (1995) 43-49.
- 1424 Vaccher, C., Berthelot, P. and Debaert, M.: GABA-B agonists: enantiomeric resolution of 4-amino-3-(5-chlorothien-2-yl)butyric acid and analogues on chiral crown ether stationary phase. *J. Chromatogr. A*, 715 (1995) 361-365.
- For additional information see C.A.:
123 (1995) 200207t, 274803f, 349989g.
- See also 1099, 1129, 1143, 1156, 1182, 1206, 1218, 1281, 1287, 1323, 1425, 1427, 1441, 1455, 1480, 1517, 1554, 1555, 2366, 2368, 2408, 2417.
- 11b. *Prostaglandins*
- 1425 Gronert, K., Virk, S.M. and Herman, C.A.: Thrombocytes are the predominant source of endogenous sulfidopeptide leukotrienes in the American bullfrog (*Rana catesbeiana*). *Biochim. Biophys. Acta*, 1259 (1995) 203-210.
- 1426 Matijevic-Aleksic, N., Sanduja, S.K., Wang, L.-H. and Wu, K.K.: Differential expression of thromboxane A synthase and prostaglandin H synthase in megakaryocytic cell line. *Biochim. Biophys. Acta*, 1269 (1995) 167-175.
- 1427 Rosolowsky, M. and Campbell, W.B.: Synthesis of hydroxyeicosatetraenoic (HETEs) and epoxyeicosatrienoic acids (EETs) by cultured bovine coronary artery endothelial cells. *Biochim. Biophys. Acta*, 1299 (1996) 267-277.
- See also 1403, 2233.
- 11c. *Lipids and their constituents*
- 1428 Adosraku, R.K., Smith, J.D., Nicolaou, A. and Gibbons, W.A.: *Tetrahymena thermophila*: analysis of phospholipids and phosphonolipids by high-field ¹H-NMR. *Biochim. Biophys. Acta*, 1299 (1996) 167-174.
- 1429 Akoh, C.C., Jennings, B.H. and Lillard, D.A.: Enzymatic modification of trilinolein: incorporation of n-3 polyunsaturated fatty acids. *J. Am. Oil Chem. Soc. (AOCS)*, 72 (1995) 1317-1321.
- 1430 Balestrieri, C., Camussi, G., Giovane, A., Iorio, E.L., Quagliuolo, L. and Servillo, L.: Measurement of platelet-activating factor acetylhydrolase activity by quantitative high-performance liquid chromatography determination of coumarin-derivatized 1-O-alkyl-2-sn-lysoglycerol-3-phosphorylcholine. *Anal. Biochem.*, 233 (1996) 145-150.
- 1431 Bhabhe, M.D. and Athawale, V.D.: Gel permeation chromatographic method for monitoring the transesterification reaction in a two-step chemoenzymatic synthesis of urethane oil based on vegetable oils. *J. Chromatogr. A*, 718 (1995) 299-304.
- 1432 Bornaz, S., Fanni, J. and Parmentier, M.: Filtration in hydrophobic media. 2. A triglyceride partition phenomenon as observed by tangential filtration of butter oil. *J. Am. Oil Chem. Soc. (AOCS)*, 72 (1995) 1143-1148.
- 1433 Bornaz, S., Fanni, J. and Parmentier, M.: Filtration in hydrophobic media: 1. Evidence of molecular selection by crossflow filtration of butter oil. *J. Am. Oil Chem. Soc. (AOCS)*, 72 (1995) 1139-1142.
- 1434 Chow, C.-Y. and Heath, T.D.: Rapid diffusion of the lipid phosphorus of phosphatidylglycerol liposomes through polycarbonate membranes is caused by the oxidation of the unsaturated fatty acids. *Biochim. Biophys. Acta*, 1239 (1995) 168-176.
- 1435 De Meulenaer, B., van der Meeren, P., Vanderdeelen, J. and Baert, L.: Optimization of a chromatographic method for the gram-scale preparative fractionation of soybean phospholipids. *Chromatographia*, 41 (1995) 527-531.
- 1436 Doods, P.F., Chou, S.C., Ranasinghe, A. and Coleman, R.A.: Metabolism of fenbufen by cultured 3T3-L1-adipocytes: synthesis and metabolism of xenobiotic glycerolipids. *J. Lipid Res.*, 36 (1995) 2493-2503.
- 1437 Duan, R.-D., Nyberg, L. and Nilsson, Å.: Alkaline sphingomyelinase activity in rat gastrointestinal tract distribution and characteristics. *Biochim. Biophys. Acta*, 1259 (1995) 49-55.
- 1438 Ezaki, M., Witztum, J.L. and Steinberg, D.: Lipoperoxides in LDL incubated with fibroblasts that overexpress 15-lipoxygenase. *J. Lipid Res.*, 36 (1995) 1996-2004.
- 1439 Foglia, T.A., Conkerton, E.J. and Sonnet, P.E.: Regioselective analysis triacylglycerols by lipase hydrolysis. *J. Am. Oil Chem. Soc. (AOCS)*, 72 (1995) 1275-1279.
- 1440 Grob, K. and Bronz, M.: Online LC-GC transfer via a hot vaporizing chamber and vapor discharge by overflow; increased sensitivity for the determination of mineral oil in foods. *J. Microcolumn Sep.*, 7 (1995) 421-427; C.A., 124 (1996) 7305r.
- 1441 Heron, S. and Tchaplaj, A.: (Use of a molecular interaction model for optimizing the separation of triglycerides and fatty acids in reversed phase liquid chromatography. (Establishment of fingerprints characteristic of different fatty acids)). *Ol., Corps Gras, Lipides*, 1 (1994) 219-228; C.A., 123 (1995) 226173d.
- 1442 Konishi, H., Neff, W.E. and Mounts, T.L.: Oxidative stability of soybean oil products obtained by regioselective chemical interesterification. *J. Am. Oil Chem. Soc. (AOCS)*, 72 (1995) 1393-1398.
- 1443 Lagana, A., Pardo-Martínez, B., Marino, A., Fago, G. and Bizzarri, M.: Determination of serum total lipid and free N-acetylneuraminic acid in genitourinary malignancies by fluorimetric high performance liquid chromatography. Relevance of free N-acetylneuraminic acid as tumour marker. *Clin. Chim. Acta*, 243 (1995) 165-179.
- 1444 Linko, Y.Y., Lämsä, M., Huhtala, A. and Rantanen, O.: Lipase biocatalysis in the production of esters. *J. Am. Oil Chem. Soc. (AOCS)*, 72 (1995) 1293-1299.
- 1445 Mannesse, M.L.M., Boots, J.-W.P., Dijkman, R., Slotboom, A.J., van der Hijden, H.T.W.M., Egmond, M.R., Verheij, H.M. and de Haas, G.H.: Phosphonate analogues of triacylglycerols are potent inhibitors of lipase. *Biochim. Biophys. Acta*, 1259 (1995) 56-64.
- 1446 Mc Neill, G.P. and Sonnet, P.E.: Low-calorie triglyceride synthesis by lipase-catalyzed esterification of monoglycerides. *J. Am. Oil Chem. Soc. (AOCS)*, 72 (1995) 1301-1307.
- 1447 Miyazawa, T., Kunika, H., Fujimoto, K., Endo, Y. and Kaneda, T.: Chemiluminescence detection of mono-, bis-, and tris-hydroperoxy triacylglycerols present in vegetable oils. *Lipids*, 30 (1995) 1001-1006; C.A., 124 (1996) 7303p.

- 1448 Neff, W.E. and Byrdwell, W.C.: Soybean oil triacylglycerol analysis by reversed-phase high-performance liquid chromatography coupled with atmospheric pressure chemical ionization mass spectrometry. *J. Am. Oil Chem. Soc. (IAOSC)*, 72 (1995) 1185-1191.
- 1449 Norberg, P., Nilsson, R., Nyiredy, S. and Liljenberg, C.: Glucosylceramides of oat root plasma membranes - physicochemical behaviour in natural and in model systems. *Biochim. Biophys. Acta*, 1299 (1996) 80-86.
- 1450 Nota, G., Musso, S.S., Naviglio, D., Romano, R. and di Matteo, M.: (Rapid determination of fat content in wheat flour by instrumental techniques). *Riv. Ital. Sostanze Grasse*, 72 (1995) 263-268; *C.A.*, 124 (1996) 7273d.
- 1451 Piretti, M.V., Pagliuca, G. and Tarozzi, G.: Simultaneous reversed-phase high-performance liquid chromatographic separation of non-polar isoprenoid lipids and their determination. *J. Chromatogr. B*, 674 (1995) 177-185.
- 1452 Powel, W.S., Gravel, S. and Gravelle, F.: Formation of a 5-oxo metabolite of 5,8,11,14,7-eicosapentaenoic acid and its effects on human neutrophils and eosinophils. *J. Lipid Res.*, 36 (1995) 2590-2598.
- 1453 Previati, M., Bertolaso, L., Tamarin, M., Bertognolo, V. and Capitani, S.: Low nanogram range quantitation of diglycerides and ceramides by high-performance liquid chromatography. *Anal. Biochem.*, 233 (1996) 108-114.
- 1454 Retterstøl, K., Woldseth, B. and Christophersen, B.O.: Studies on the metabolism of [1-¹⁴C]5,8,11-eicosatrienoic (Mead) acid in rat hepatocytes. *Biochim. Biophys. Acta*, 1259 (1995) 82-88.
- 1455 Ruiz, G.M., Margari, M.T. and Dobarganes, M.C.: Quantitation and distribution of altered fatty acids in frying fats. *J. Am. Oil Chem. Soc. (IAOSC)*, 72 (1995) 1171-1176.
- 1456 Shah, J., Atienza, J.M., Duclos, R.I., Rawlings, A.V., Dong, Z. and Shipley, G.G.: Structural and thermotropic properties of synthetic C 16:0 (palmitoyl) ceramide: effect of hydration. *J. Lipid Res.*, 36 (1995) 1936-1944.
- 1457 Shah, J., Atienza, J.M., Rawlings, A.V. and Shipley, G.G.: Physical properties of ceramides: effect of fatty acid hydroxylation. *J. Lipid Res.*, 36 (1995) 1945-1955.
- 1458 Soudant, P., Marty, Y., Moal, J. and Samain, J.F.: Separation of major polar lipids in *Pecten maximus* by high-performance liquid chromatography and subsequent determination of their fatty acids using gas chromatography. *J. Chromatogr. B*, 673 (1995) 15-26.
- 1459 Takagi, T. and Ando, Y.: Stereospecific analysis of monounsaturated triacylglycerols in cocoa butter. *J. Am. Oil Chem. Soc. (IAOSC)*, 72 (1995) 1203-1206.
- 1460 Takagi, T., Nakahara, K. and Ichikawa, K.: High-performance liquid chromatographic analysis of positional isomers of dipalmitolein in palm oil as halogen adducts. *Yukagaku*, 44 (1995) 966-970; *C.A.*, 124 (1996) 7318x.
- 1461 Van Berkel, P.H.C., Geerts, M.E.J., van Veen, H.A., Kooiman, P.M., Pieper, F.R., de Boer, H.A. and Nuijens, J.H.: Glycosylated and unglycosylated human lactoferrins both bind iron and show identical affinities towards human lysozyme and bacterial lipopolysaccharide, but differ in their susceptibilities towards tryptic proteolysis. *Biochem. J.*, 312 (1995) 107-114.
- 1462 Wang, X., Xu, G., Wang, X. and Meng, P.: Study on the analysis and uptake of phthalate esters in plants. In: *Int. Symp. Bioanal. Chem., Proc., 1st 1995*, Chinese Chemical Society, Beijing, 1995, pp. 189-190; *C.A.*, 124 (1996) 4222a.
- For additional information see *C.A.*:
123 (1995) 305718p.
- See also 1410, 1495, 1523, 1859, 2006.
- 11d. *Lipoproteins and their constituents*
- 1463 Barbee, K.A., Morrow, J.A. and Meredith, S.C.: Deconvolution of gel filtration chromatographs of human plasma lipoproteins. *Anal. Biochem.*, 231 (1995) 301-308.
- 1464 Carrero, P., Gómez-Coronado, D., Olivecrona, G. and Lasunción, M.A.: Binding of lipoprotein lipase to apolipoprotein B-containing lipoproteins. *Biochim. Biophys. Acta*, 1299 (1996) 198-206.
- 1465 Haginaka, J., Yamaguchi, Y. and Konitomo, M.: Anion-exchange high-performance liquid chromatographic assay of plasma lipoproteins. *Anal. Biochem.*, 232 (1995) 163-171.
- 1466 Haubenwallner, S., Essenburg, A.D., Barnett, B.C., Pape, M.E., DeMattos, R.B., Krause, B.R., Minton, L.L., Auerbach, B.J., Newton, R.S. and Leff, T.: Hypolipidemic activity of select fibrates correlates to changes in hepatic apolipoprotein C-III expression a potential physiologic basis for their mode of action. *J. Lipid Res.*, 36 (1995) 2541-2551.
- 1467 Kohen Avramoglu, R., Cianflone, K. and Sniderman, A.D.: Role of the neutral lipid accessible pool in the regulation of secretion of apoB-100 lipoprotein particles by HePG2 cells. *J. Lipid Res.*, 36 (1995) 2513-2518.
- 1468 Lusa, S., Jauhainen, M., Metso, J., Somerharju, P. and Ehnholm, C.: The mechanism of human plasma phospholipid transfer protein-induced enlargement of high-density lipoprotein particles: evidence for particle fusion. *Biochem. J.*, 313 (1996) 275-282.
- 1469 Van Eijk, M., de Haas, C.G. and Haagsman, H.P.: Quantitative analysis of pulmonary surfactant proteins B and C. *Anal. Biochem.*, 232 (1995) 231-237.
- 1470 Westerlund, J. and Yao, Z.: Elution of lipoprotein fractions containing apolipoproteins E and A-I in size exclusion on Superose 6 columns is sensitive to mobile phase pH and ionic strength. *J. Chromatogr. A*, 718 (1995) 59-66.
- For additional information see *C.A.*:
123 (1995) 309888s.
- See also 1438, 1494.
12. ORGANIC PEROXIDES
- See 1296.
13. STEROIDS
- 13a. *General techniques*
- 1471 Dwyer, J.L., Chapman, A.E. and Liu, X.: Analysis of steroids by combined chromatography-infrared spectroscopy. *LC-GC Int.*, 8 (1995) 704-710.

- 1472 Tsubaki, M., Morimoto, K., Tomita, S., Miura, S., Ichikawa, Y., Miyatake, A., Masuya, F. and Hori, H.: Electron paramagnetic resonance investigation of cytochrome P-450_{C21} from bovine adrenocortical microsomes: a new enzymatic activity. *Biochim. Biophys. Acta*, 1259 (1995) 89-98.
- 1473 Weber, N. and Richter, K.D.: (β -Chlorosteroids. Nutritional and toxicological effects in mice). *Fett Wiss. Technol.*, 97 (1995) 183-189; *C.A.*, 123 (1995) 196958u.

See also 1056.

13b. Pregnane and androstane derivatives

- 1474 Barron, D., Pascual, J.A., Segura, J. and Barbosa, J.: Prediction of LC retention of steroids using solvatochromic parameters. *Chromatographia*, 41 (1995) 573-580.
- 1475 Döppenschmitt, S.A., Scheidel, B., Harrison, F. and Surmann, J.P.: Simultaneous determination of prednisolone, prednisolone acetate and hydrocortisone in human serum by high-performance liquid chromatography. *J. Chromatogr. B*, 674 (1995) 237-246.
- 1476 Ekins, S., Murray, G.I., Burke, M.D., Williams, J.A., Marchant, N.C. and Hawksworth, G.M.: Quantitative differences in phase I and II metabolism between rat precision-cut liver slices and isolated hepatocytes. *Drug Metab. Disp.*, 23 (1995) 1274-1279.
- 1477 Hoerle, S.L. and Snider, B.G.: Determination of degradation products occurring in acidic solutions of a 21-aminosteroid (tirilazad) using a gradient HPLC method. *J. Liq. Chromatogr.*, 18 (1995) 3269-3282.
- 1478 Huskey, S.-E.W., Dean, D.C., Miller, R.R., Rasmusson, G.H. and Chiu, S.-H.L.: Identification of human cytochrome P450 isoenzymes responsible for the *in vitro* oxidative metabolism of finasteride. *Drug Metab. Disp.*, 23 (1995) 1126-1135.
- 1479 Kanda, T., Shirota, O., Ohtsu, Y. and Yamaguchi, M.: Direct analysis of cortisol and cortisone in human urine by semi-microcolumn liquid chromatography with mixed-function precolumn. *J. Microcolumn Sep.*, 7 (1995) 445-449; *C.A.*, 124 (1996) 960s.
- 1480 Kedor-Hackmann, E.R.M., Gianotto, E.A.S. and Santoro, M.I.R.M.: Determination of triamcinolone acetonide and salicylic acid in pharmaceutical formulations by high performance liquid chromatography. *Pharmazie*, 51 (1996) 63.
- 1481 Kountourellis, J.E., Markopoulou, C.K., Ebete, K.O. and Stratis, J.A.: Separation and determination of some corticosteroids combined with bampine in pharmaceutical formulations by high performance liquid chromatography. *J. Liq. Chromatogr.*, 18 (1995) 3507-3517.
- 1482 Ma, Z., Zhang, L. and Han, S.: (Determination of testosterone propionate and hydrocortisone by high-speed countercurrent chromatography). *Fenxi Huaxue*, 23 (1995) 1066-1068; *C.A.*, 123 (1995) 218-552m.
- 1483 Navajas, R., Imaz, C., Carreras, D., García, M., Pérez, M., Rodríguez, C., Rodríguez, A.F. and Cortés, R.: Determination of epitestosterone and testosterone in urine by high-performance liquid chromatography. *J. Chromatogr. B*, 673 (1995) 159-164.
- 1484 Pacha, J. and Miksik, I.: 11 β -Hydroxysteroid dehydrogenase in developing rat intestine. *J. Endocrinol.*, 148 (1996) 561-566.

- 1485 Santos-Montes, A., Gonzalo-Lumbreras, R. and Izquierdo-Hornillos, R.: Simultaneous determination of cortisol and cortisone in urine by reversed-phase high-performance liquid chromatography. Clinical and doping control applications. *J. Chromatogr. B*, 673 (1995) 27-33.
- 1486 Shchavilinsky, A.N., Maslov, L.G. and Lazareva, N.P.: (Quality control methods for progesterone and its dosage forms - a review). *Khim.-Farm. Zh.*, 28 (1994) 54-60; *C.A.*, 123 (1995) 237589v - a review with 129 refs.

See also 2294.

13c. Estrogens

- 1487 Fridriksdottir, H., Loftsson, T., Gudmundsson, J.A., Bjarnason, G.J., Kjeld, M. and Thorsteinsson, T.: Design and *in vivo* testing of 17 β -estradiol-HPBCD sublingual tablets. *Pharmazie*, 51 (1996) 39-42.

13d. Sterols

- 1488 Arneth, W. and Al-Ahmad, H.: Cholesterol. Its determination in muscle and adipose tissue and in offal by HPLC. *Fleischwirtschaft*, 75 (1995) 1001-1003; *C.A.*, 124 (1996) 7286k.
- 1489 Christison, J.K., Rye, K.-A. and Stocker, R.: Exchange of oxidized cholesteryl linoleate between LDL and HDL mediated by cholesteryl ester transfer protein. *J. Lipid Res.*, 36 (1995) 2017-2026.
- 1490 Johnson, J.H., McIntyre, P. and Zdunek, J.: Automated sample preparation for cholesterol determination in foods. *J. Chromatogr. A*, 718 (1995) 371-381.
- 1491 Johnson, W.J., Fischer, R.T., Phillips, M.C. and Rothblat, G.H.: Efflux of newly synthesized cholesterol and biosynthetic sterol intermediates from cells. Dependence on acceptor type and on enrichment of cells with cholesterol. *J. Biol. Chem.*, 270 (1995) 25037-25046.
- 1492 Kotenko, L.D., Tselishcheva, N.A., Turakhozhayev, M.T. and Badalbaeva, T.A.: (Quantitative determination of total iridoid content in *Lagochilus*). *Khim. Prir. Soedin.*, (1994) 723-727; *C.A.*, 123 (1995) 309713f.
- 1493 Rencken, I., Fleming, V., Meijering, I. and Axcell, B.: Determination of selected sterols and fatty acids in yeast. *J. Chromatogr. Sci.*, 33 (1995) 525-530.
- 1494 Sevanian, A., Hodis, H.N., Hwang, J., McLeod, L.L. and Peterson, H.: Characterisation of endothelial cell injury by cholesterol oxidation products found in oxidized LDL. *J. Lipid Res.*, 36 (1995) 1971-1986.
- 1495 Sviridov, D. and Fidge, N.: Efflux of intracellular versus plasma membrane cholesterol in HepG2 cells: different availability and regulation by apolipoprotein A-I. *J. Lipid Res.*, 36 (1995) 1887-1896.
- 1496 Terry, J.G., McGill, B.L. and Grouse, III, J.R.: Evaluation of the use of β -sitostanol as a nonabsorbable marker for quantifying cholesterol absorption. *J. Lipid Res.*, 36 (1995) 2267-2271.

For additional information see *C.A.*:
123 (1995) 334009p.

See also 1181, 2282.

13e. *Bile acids and alcohols*

- 1497 Cohen, D.E. and Leonard, M.R.: Immobilized artificial membrane chromatography: a rapid and accurate HPLC method for predicting bile salt-membrane interactions. *J. Lipid Res.*, 36 (1995) 2251-2260.
- 1498 Crawford, J.M., Möckel, G.H., Crawford, A.R., Hagen, S.J., Hatch, V.C., Barnes, S., Godleski, J.J. and Carey, M.C.: Imaging biliary lipid secretion in the rat: ultrastructural evidence for vesiculation of the hepatocyte canalicular membrane. *J. Lipid Res.*, 36 (1995) 2147-2163.
- 1499 Dax, C., Vogel, M. and Müllner, S.: HPLC-continuous-flow fast atom bombardment mass spectrometry (HPLC-CFFAB) - a convenient method for the analysis of bile acids in bile and serum. *Chromatographia*, 40 (1995) 674-679.
- 1500 Del Vecchio, S.J., Ostrow, D., Mukerjee, P., Ton-Nu, H.-T., Schteingart, C.D., Hoffmann, A.F., Cerre, C. and Roda, A.: Method for removal of surface-active impurities and calcium from conjugated bile salt preparations: comparison with silicic acid chromatography. *J. Lipid Res.*, 36 (1995) 2639-2650.

13g. *Other steroids*

See 1478.

14. STEROID GLYCOSIDES AND SAPONINS

- 1501 Chuang, W.-C., Wu, H.-K., Sheu, S., Chiou, S.-H., Chang, H.-C. and Chen, Y.-P.: A comparative study on commercial samples of Ginseng Radix. *Planta Med.*, 61 (1995) 459-465; *C.A.*, 124 (1996) 15583v.
- 1502 Heinzmann, B.M. and Schenkel, E.P.: Saponins from *Ilex dumosa*. *J. Natural Prod.*, 58 (1995) 1419-1422.
- 1503 Lamidi, M., Martin-Lopez, T., Olivier, E., Crespin-Maillard, F., Ekegang, L.N. and Balarsard, G.: Separation of saponins and determination of quinovic acid 3-O- α -L-rhamnopyranoside from *Nauclea diderrichii* (de Wild) Merr. bark by high performance liquid chromatography. *Chromatographia*, 41 (1995) 581-584.
- 1504 Moura, T., Gaudy, D., Casadebaig, J. and Jacob, M.: *Ruscus aculaetus* L. spray dried powders: interest in the technological adjuvants colloidal silica and maltodextrin. *Pharmazie*, 50 (1995) 752-755.
- 1505 Raggi, M.A., Bugamelli, F., Nobile, L., Schiavone, P. and Cantelli-Forti, G.: HPLC determination of glycyrrhizin and glycyrrhetic acid in biological fluids, after licorice extract administration to humans and rats. *Boll. Chim. Farm.*, 133 (1994) 704-708; *C.A.*, 124 (1996) 108v.
- 1506 Ruiz, R.G., Price, K.R., Rose, M.E., Rhodes, M.J.C. and Fenwick, G.R.: Determination of saponins in lupin seed (*Lupinus angustifolius*) using high-performance liquid chromatography: comparison with a gas chromatographic method. *J. Liq. Chromatogr.*, 18 (1995) 2843-2853.
- 1507 Tzou, M.-C., Sams, R.A. and Reuning, R.H.: Specific and sensitive determination of digoxin and metabolites in human serum by high performance liquid chromatography with cyclodextrin solid-phase extraction and precolumn fluorescence derivatization. *J. Pharm. Biomed. Anal.*, 13 (1995) 1531-1540.

- 1508 Van Breemen, R.B., Huang, C.-R., Lu, Z.-Z., Rimando, A., Fong, H.H.S. and Fitzloff, J.F.: Electrospray liquid chromatography/mass spectrometry of ginsenosides. *Anal. Chem.*, 67 (1995) 3985-3989.

15. TERPENES AND OTHER VOLATILE AROMATIC COMPOUNDS

15a. *Terpenes*

- 1509 Garcia, Y., Garcia-Granados, A., Martinez, A., Parra, A., Rivas, F. and Arias, J.M.: Microbial transformations of 6 α - and 6 β -eudesmanolides by *Rhizopus nigricans* cultures. *J. Natural Prod.*, 58 (1995) 1498-1507.
- 1510 Govindachari, T.R., Suresh, G. and Gopalakrishnan, G.: A direct preparative high performance liquid chromatography procedure for the isolation of major triterpenoids and their quantitative determination in neem oil. *J. Liq. Chromatogr.*, 18 (1995) 3465-3471.
- 1511 Jahodar, L., Opletal, L., Lukes, J., Zdansky, P. and Solichova, D.: A study on the antihypercholesterolemic and antihyperlipidemic effects of cabbage extracts and their phytochemical evaluation. *Pharmazie*, 50 (1995) 833-834.
- 1512 Nuriddinova, M.R., Nuriddinov, Kh.R., Sham'yanov, I.D. and Malikov, V.M.: (HPLC of natural products. III. Microcolumn HPLC of guaiane-type sesquiterpene lactones). *Khim. Prir. Soedin.*, (1993) 526-529; *C.A.*, 123 (1995) 237961k.
- 1513 Terauchi, M., Kanamori, H., Nobuso, M., Sakamoto, I., Yahara, S., Nohara, T. and Kohda, H.: Analysis of acyclic diterpene glycosides in *Lycii Folium*. *Nat. Med.*, 49 (1995) 133-136; *C.A.*, 123 (1995) 208999y.

For additional information see *C.A.*:
124 (1996) 15610b.

See also 1942, 1947, 1951.

15c. *Bitter substances*

- 1514 Anderegg, P. and Pfenninger, H.: (Calibration extracts for the HPLC analysis of α -acids in hop products). *Monatsschr. Brauwiss.*, 48 (1995) 196-197; *C.A.*, 123 (1995) 337664j.
- 1515 Hirosawa, T., Saito, T., Tanaka, T. and Matsushima, H.: SEM observation and HPLC analysis of the accumulation of alpha- and beta-acids in the fresh developing hop (*Humulus lupulus* L.) peltate glandular trichomes. *J. Electron Microsc.*, 44 (1995) 145-147; *C.A.*, 123 (1995) 222051q.

16. NITRO AND NITROSO COMPOUNDS

- 1516 Mishin, V.M., Koivisto, T. and Lieber, C.S.: The determination of cytochrome P450 2E1-dependent *p*-nitrophenol hydroxylation by high-performance liquid chromatography with electrochemical detection. *Anal. Biochem.*, 233 (1996) 212-215.

- 1517 Randt, C., Klein, J. and Merz, W.: (Analytical determination of nitrotriacetic acid (NTA), ethylenedinitriolotetraacetic acid (EDTA) and diethylenenitriolopentaacetic acid (DTPA) in wastewater by HPLC). *Vom Wasser*, 84 (1995) 61-67; C.A., 123 (1995) 208285n.

See also 1536.

17. AMINES, AMIDES AND RELATED NITROGEN COMPOUNDS

17a. Amines and polyamines

- 1518 Bilic, N.: Rapid identification of biogenic amine-producing bacterial cultures using isocratic high-performance liquid chromatography. *J. Chromatogr. A*, 719 (1996) 321-326.
- 1519 Busto, O., Guasch, J. and Borrull, F.: Improvement of a solid-phase extraction method for determining biogenic amines in wines. *J. Chromatogr. A*, 718 (1995) 309-317.
- 1520 Djozan, D. and Faraj-Zadeh, M.A.: Liquid chromatographic determination of aniline and derivatives in environmental waters and nanogram per litre levels using fluorecamine pre-column derivatization. *Chromatographia*, 41 (1995) 568-572.
- 1521 Feistner, G.: Metabolites of *Erwinia*. 13. Liquid chromatography-electrospray tandem mass of spectrometry of dansylated polyamines and basic amino acids. *J. Mass Spectrom.*, 30 (1995) 1546-1552; C.A., 124 (1996) 4460b.
- 1522 Merali, S. and Clarkson, A.B., Jr.: Polyamine analysis using N-hydroxysuccinimidyl-6-aminoquinoyl carbamate for pre-column derivatization. *J. Chromatogr. B*, 675 (1995) 321-326.
- 1523 Oda, Y., Mano, N. and Asakawa, N.: Quantitation of platelet-activating factor in biological samples using liquid chromatography/mass spectrometry with column-switching technique. *Anal. Biochem.*, 231 (1995) 141-150.
- 1524 Petridis, K.D. and Steinhart, H.: Automated pre-column derivatization with o-phthalaldehyde (OPA). A new RP-HPLC-method for the determination of biogenic amines in food. *Z. Lebensm.-Unters. Forsch.*, 201 (1995) 256-260; C.A., 124 (1996) 28265t.
- 1525 Pihel, K., Hsieh, S., Jorgenson, J.W. and Wightman, R.M.: Electrochemical detection of histamine and 5-hydroxytryptamine at isolated mast cells. *Anal. Chem.*, 67 (1995) 4514-4521.
- 1526 Rodríguez López, M., González Alvarez, M.J., Miranda Ordieres, A.J. and Tuñón Blanco, P.: Determination of dimethylamine in groundwater by liquid chromatography and precolumn derivatization with 9-fluorenylmethylchloroformate. *J. Chromatogr. A*, 721 (1996) 231-239.
- 1527 Wang, C.-b., Lei, J.-m., Chai, X.-l and He, S.-s.: High performance liquid chromatography separation and simultaneous fluorometric detection of trace amount of polyamines in cell culture media. *J. Tongji Med. Univ.*, 15 (1995) 125-128; C.A., 123 (1995) 334047z.

See also 1055, 1143, 1554, 1961, 1991, 2126, 2264.

17b. Catecholamines and their metabolites

- 1528 Boyd, D., O'Keefe, M. and Smyth, M.R.: Methods for the determination of beta-agonists in biological matrices. A review. *Analyst (Cambridge)*, 121 (1996) 1R-10R.

- 1529 Brandsteterova, E., Krajinak, K. and Skacani, I.: HPLC analysis of urinary catecholamines using affinity SPE procedures. *Pharmazie*, 50 (1995) 825-826.
- 1530 Fisher, D.H., Fisher, L.M. and Broudy, M.: Evaluation of four methods for catecholamine analysis in plasma obtained from subjects during incremental cycle ergometry. *J. Liq. Chromatogr.*, 18 (1995) 3311-3327.
- 1531 Hanai, J. and Takeda, T.: The addition of dopamine determination to the measurement of acidic catecholamine metabolites in urine screening for neuroblastoma. *Screening*, 4 (1995) 91-100; C.A., 123 (1995) 218550j.
- 1532 Rudolphi, A., Boos, K.-S. and Seidel, D.: Coupled-column HPLC analysis of free urinary catecholamines using restricted access affinity precolumn and micro-particulate nonporous silica analytical column. *Chromatographia*, 41 (1995) 645-650.
- 1533 Tracy, M.L., Pickering, M.V. and ver Hulst, T.: Cation-exchange chromatography. Analysis of biogenic amines in foods and beverages. *GIT Spez. Chromatogr.*, 15 (1995) 55-59; C.A., 123 (1995) 226147y.
- 1534 Willemsen, J.J., Ross, H.A., Jacobs, M.-C., Lenders, J.W.M., Thien, T., Swinkels, L.M.J.W. and Benraad, T.J.: Highly sensitive and specific HPLC with fluorometric detection for determination of plasma epinephrine and norepinephrine applied to kinetic studies in humans. *Clin. Chem. (Washington)*, 41 (1995) 1455-1460.
- 1535 Xu, R., Huang, X., Kramer, K.J. and Hawley, M.D.: On-column reduction of catecholamine quinones in stainless steel columns during liquid chromatography. *Anal. Biochem.*, 231 (1995) 72-81.

For additional information see C.A.:
123 (1995) 246996e.

See also 1116, 1144, 1556.

17c. Urea and guanidine derivatives

See 2160.

17d. Other amine derivatives and amides (excl. peptides)

- 1536 Diallo, S., Zhou, J.Y., Dauphin, C., Prognon, P. and Hamon, M.: Determination of N-nitrosodiethanolamine as nitrite in ethanolamine derivative raw materials by high-performance liquid chromatography with fluorescence detection after alkaline denitrosation. *J. Chromatogr. A*, 721 (1996) 75-81.
- 1537 Gilomen, K., Stauffer, H.P. and Meyer, V.R.: Detoxication of acetonitrile-water wastes from liquid chromatography. *Chromatographia*, 41 (1995) 488-491.
- 1538 Keckeis, A., Schleuder, M., Richter, P.H. and Jira, T.: Antiarrhythmisch wirksame Amidinohydrazone substituierter Benzophenone. 8. Mitteilung: Zur Trennung und Konfigurationssuordnung von (Z)- und (E)-Isomeren. *Pharmazie*, 50 (1995) 824-825.
- 1539 Ling, F., Zhao, L., Fan, L. and Chen, L.: Analysis of hexamethylene bisacetamide in biological fluids and tissues by reversed-phase HPLC. In: *Int. Symp. Bioanal. Chem., Proc., 1st 1995*, Chinese Chemical Society, Beijing, 1995, pp. 97-98; C.A., 124 (1996) 128b.

- 1540 Nicholson, L.W., Pfeiffer, C.D., Goralski, C.T. and Singaram, B.: High-performance liquid chromatographic separation of β -amino alcohols. II. Separation of *trans*-2-(dialkylamino)cyclohexanols on an amylose-based chiral stationary phase. *J. Chromatogr. A*, 719 (1996) 315-320.
- 1541 Seifart, H.I., Gent, W.L., Parkin, D.P., van Jaarsveld, P.P. and Donald, P.R.: High-performance liquid chromatographic determination of isoniazid, acetylisoniazid and hydrazine in biological fluids. *J. Chromatogr. B*, 674 (1995) 269-275.
- 1542 Wehr, J.B.: Agmatine determination in plant material: aspects of the benzylation and high performance liquid chromatographic analysis. *Phytochem. Anal.*, 6 (1995) 244-250; *C.A.*, 123 (1995) 250204q.
- See also 1113, 1209, 1562, 1563, 1564.
18. AMINO ACIDS AND PEPTIDES; CHEMICAL STRUCTURE OF PROTEINS
- 18a. *Amino acids and their derivatives*
- 1543 Abou-Basha, L.I. and Abou-Anein, H.Y.: Enantiomeric separation and optical purity determination of thyroxine enantiomers in bulk and pharmaceutical formulations. *Pharm. Acta Helv.*, 70 (1995) 237-240; *C.A.*, 123 (1995) 296713d.
- 1544 Alegría, A., Barberá, R., Farré, R., Ferrerés, M., Lagarda, M.J. and López, J.C.: Isocratic high-performance liquid chromatographic determination of tryptophan in infant formulas. *J. Chromatogr. A*, 721 (1996) 83-88.
- 1545 Ayar, A., Yildiz, S. and Pehlivan, E.: Ligand-exchange chromatography of some amino acids on Co(II)-loaded carboxylated diaminoethyl. *Sep. Sci. Technol.*, 30 (1995) 3081-3086; *C.A.*, 123 (1995) 358110r.
- 1546 Bernwieser, I., Sontag, G., Solar, S., Quint, R.M., Krajnik, P. and Getoff, N.: (Detection of irradiated chicken meat. Determination of *o*- and *m*-tyrosine by HPLC with an electrode array detector). *Ernaehrung (Vienna)*, 19 (1995) 159-162; *C.A.*, 124 (1996) 7319y.
- 1547 Calabrese, M., Stancher, B. and Riccobon, P.: High-performance liquid chromatography determination of proline isomers in Italian wines. *J. Sci. Food Agric.*, 69 (1995) 361-366; *C.A.*, 123 (1995) 337724d.
- 1548 Candito, M., Parvy, P., Bardet, J., Rabier, D., Chambon, P., Mariani, R. and Kamoun, P.: (Application of chromatography of amino acids on ion exchange resins in the diagnosis of aspartylglucosaminuria). *Ann. Biol. Clin.*, 53 (1995) 145-146; *C.A.*, 124 (1996) 4226e.
- 1549 Catalá-Icardo, M., Medina-Harnández, M.J. and Alvarez-Coque, M.C.G.: Determination of amino acids by micellar high-performance liquid chromatography and pre-column derivatization with *o*-phthalaldehyde and N-acetyl-L-cysteine. *J. Liq. Chromatogr.*, 18 (1995) 2827-2841.
- 1550 Chen, T. and Huang, T.B.: Resolution of DL- α -amino acids on a L-hydroxyproline chiral phase by ligand-exchange chromatography. *Chin. Chem. Lett.*, 6 (1995) 383-384; *C.A.*, 123 (1995) 286567v.
- 1551 Clawin-Raedecker, I. and Schlimme, E.: Determination of furoline in pasteurized milk by use of ion-pair reversed-phase liquid chromatography. *Kiel. Milchwirtsch. Forschungsber.*, 47 (1995) 169-175; *C.A.*, 123 (1995) 254804d.
- 1552 Díaz, J., Lliberia, J.L., Comellas, L. and Broto-Puig, F.: Amino acid and amino sugar determination by derivatization with 6-aminoquinolyl-N-hydroxysuccinimidyl carbamate followed by high-performance liquid chromatography and fluorescence detection. *J. Chromatogr. A*, 719 (1996) 171-179.
- 1553 Gasinska, E. and Maslowska, J.: (Metal-chelate affinity chromatography and its suitability for separation of amino acids). *Przem. Chem.*, 74 (1995) 143-145; *C.A.*, 123 (1995) 226171b.
- 1554 Gifford, L.A., Owusu-Daaku, F.T.K. and Stevens, A.J.: Acenaphthene fluorescence derivatization reagents for use in high-performance liquid chromatography. *J. Chromatogr. A*, 715 (1995) 201-212.
- 1555 Hervé, C., Beyne, P., Jamault, H. and Delacoux, E.: Determination of tryptophan and its kynurenine pathway metabolites in human serum by high-performance liquid chromatography with simultaneous ultraviolet and fluorimetric detection. *J. Chromatogr. B*, 675 (1996) 157-161.
- 1556 Hossain, M.A. and Weiner, N.: Interactions of dopaminergic and GABAergic neurotransmission: impact of 6-hydroxydopamine lesions into the substantia nigra of rats. *J. Pharmacol. Exp. Ther.*, 275 (1995) 237-244.
- 1557 Ishimitsu, S., Ohmori, N., Tsuji, S. and Shibata, T.: Formation of a hydroxyl radical from tar dye by photo-illumination. *Chem. Pharm. Bull.*, 43 (1995) 1810-1812.
- 1558 Kamel, S., Brazier, M., Neri, V., Picard, C., Samson, L., Desmet, G. and Sebert, J.L.: Multiple molecular forms of pyridinolines cross-links excreted in human urine evaluated by chromatographic and immunoassay methods. *J. Bone Miner. Res.*, 10 (1995) 1385-1392; *C.A.*, 123 (1995) 250562a.
- 1559 Kitakawa, A., Yamanishi, Y., Yonemoto, T. and Tadaki, T.: Modeling and simulation of continuous rotating annular ion-exchange chromatography for separation of amino acids. *Sep. Sci. Technol.*, 30 (1995) 3089-3110; *C.A.*, 124 (1996) 30312z.
- 1560 Kundu, A., Vunnum, S., Jayaraman, G. and Cramer, S.M.: Protected amino acids as novel low-molecular-weight displacers in cation-exchange displacement chromatography. *Biotechnol. Bioeng.*, 48 (1995) 452-460; *C.A.*, 124 (1996) 4227f.
- 1561 Lewis, S.A. and Levine, R.L.: Determination of 2-oxohistidine by amino acid analysis. *Anal. Biochem.*, 231 (1995) 440-446.
- 1562 Lin, C.-E. and Li, F.-K.: Enantioseparation and recognition mechanisms of dinitrobenzoyl-derivatized amino acids and amino alcohols on chiral stationary phases consisting of cyanuric chloride with (S or R)-phenylalanyl-(S or R)-1-(1-naphthyl)ethylamide substituent. *J. Chromatogr. A*, 722 (1996) 199-209.
- 1563 Lin, C.-E., Li, F.-K. and Lin, C.-H.: Evaluation of new chiral stationary phases of bonded cyanuric chloride with amino acid and naphthylalkylamine substituents for liquid chromatographic separation of amino acids and amino alcohols as dinitrobenzoyl derivatives. *J. Chromatogr. A*, 722 (1996) 211-220.
- 1564 Lin, C.-E., Lin, C.-H. and Li, F.-K.: Enantioseparation of amino acids and amino alcohols on chiral stationary phases derived from α -amino acid- and pyrrolidyl-disubstituted cyanuric chloride. *J. Chromatogr. A*, 722 (1996) 189-198.

- 1565 Liu, A., Li, T. and Wang, E.: Determination of cysteine and reduced glutathione in human plasma by liquid chromatography with pulsed amperometric electrochemical detection using a platinum-particles modified glassy carbon electrode. *Anal. Sci.*, 11 (1995) 597-603; *C.A.*, 124 (1996) 25002u.
- 1566 Martinez, M., Carrancio, A., Casillas, J.L. and Aracil, J.: Evaluation of kinetic and thermodynamic parameters of amino acids on modified divinylbenzene-polystyrene resins using a liquid chromatography technique. *Ind. Eng. Chem. Res.*, 34 (1995) 4486-4493; *C.A.*, 123 (1995) 314449d.
- 1567 Michael, G. and Henrion, G.: (Investigations to the derivatization of amino acids with o-phthalaldehyde). *GIT Fachz. Lab.*, 39 (1995) 769-773; *C.A.*, 124 (1996) 20626r.
- 1568 Minkler, P.E., Brass, E.P., Hiatt, W.R., Ingalls, S.T. and Hoppel, C.L.: Quantification of carnitine, acetylcarnitine, and total carnitine in tissues by high-performance liquid chromatography: the effect of exercise of carnitine homeostasis in man. *Anal. Biochem.*, 231 (1995) 315-322.
- 1569 Ozaki, A., Shibasaki, T. and Mori, H.: Specific proline and hydroxyproline detection method by post-column derivatization for high-performance liquid chromatography. *Biosci., Biotechnol., Biochem.*, 59 (1995) 1764-1765; *C.A.*, 123 (1995) 250315x.
- 1570 Parvy, P., Bardet, J., Chadeaux-Vekemans, B., Rabier, D., Gasquet, M., Aupetit, J. and Kamoun, P.: Free amino acids in amniotic fluid and the prenatal diagnosis of homocystinuria with methylmalonic aciduria. *Clin. Chem. (Washington)*, 41 (1995) 1663-1664.
- 1571 Polanuer, B.M. and Ivanov, S.V.: High-performance liquid chromatography of amino acids in copper(II) complex form: application to valine fermentation samples. *J. Chromatogr. A*, 722 (1996) 311-315.
- 1572 Primus, T.M., Griffin, D.L., Avery, M.L. and Johnston, J.J.: Liquid chromatographic method for the determination of methyl anthranilate in liquid formulation and residues on formulated rice seed bait. *J. Agric. Food Chem.*, 43 (1995) 3052-3056; *C.A.*, 123 (1995) 332604e.
- 1573 Sanz, M.A., Castillo, G. and Hernández, A.: Isocratic high-performance liquid chromatographic method for quantitative determination of lysine, histidine and tyrosine in foods. *J. Chromatogr. A*, 719 (1996) 195-201.
- 1574 Shang, Z., Yu, Y. and Zhou, L.: (Reversed-phase chromatographic columns for amino acids and the quantitative measurement via ultra violet adsorption detection). *Faming Zhuanli Shenqing Gongkai Shuomingshu*, CN 1,087,173 (Cl. G01N30/60), 25 May 1994, Appl. 92, 111,875, 17 Nov. 1992; 12 p.; *C.A.*, 123 (1995) 358192u.
- 1575 Shen, Z., Wang, Z., Dong, Y. and Yang, S.: Determination of γ -aminobutyric acid in serum and its application in diagnosis and treatment for child mental retardation. In: *Int. Symp. Bioanal. Chem., Proc., 1st 1995*, Chinese Chemical Society, Beijing, 1995, pp. 170-171; *C.A.*, 123 (1995) 306742d.
- 1576 Smolders, I., Ebinger, G. and Michotte, Y.: The use of microbore LC for the determination of amino acids in rat brain microdialyzates. *Biomed. Chromatogr.*, 9 (1995) 279-280; *C.A.*, 124 (1996) 25018d.
- 1577 Sudhop, B. and Habermann, M.: (Precolumn derivatization for routine determination of primary and secondary amino acids in the femtomole range). *GIT Spez. Chromatogr.*, 15 (1995) 13-17; *C.A.*, 123 (1995) 222022f.
- 1578 Takatori, K., Toyama, S., Fujii, S. and Kajiwara, M.: Analysis of amino acids by high-performance liquid chromatography with circular dichroism detection. *Chem. Pharm. Bull.*, 43 (1995) 1797-1799.
- 1579 Takeuchi, T. and Miwa, T.: Signal enhancement by on-column fluorimetric detection gradient elution of dansyl amino acids in liquid chromatography. *Chromatographia*, 41 (1995) 148-152.
- 1580 Toyo'oka, T. and Liu, Y.-M.: Determination of D- and L-amino acid residues in peptides with fluorescent chiral tagging reagents by high-performance liquid chromatography. *Chromatographia*, 40 (1995) 645-651.
- 1581 Van de Merbel, N.C., Stenberg, M., Öste, R., Marko-Varga, G., Gorton, L., Lingeman, H. and Brinkman, U.A.T.: Determination of D- and L-amino acids in biological samples by two-dimensional column liquid chromatography. *Chromatographia*, 41 (1995) 6-14.
- 1582 Van Leuken, R.G.J., Duchateau, A.L.L. and Kwakkenbos, G.T.C.: Thermospray liquid chromatography/mass spectrometry study of diastereomeric isoindole derivatives of amino acids and amino acid amides. *J. Pharm. Biomed. Anal.*, 13 (1995) 1459-1464.
- 1583 Wen, A., Jiang, Y., Fan, Y., Geng, X. and Guo, Z.: Rapid determination of glutamine in human plasma and muscle tissue by high performance liquid chromatography with fluorescence detection. *Sepu*, 13 (1995) 406-407; *C.A.*, 123 (1995) 280032v.

For additional information see C.A.:

123 (1995) 250298u;
124 (1996) 4479q, 37828f.

See also 1065, 1116, 1144, 1209, 1214, 1218, 1223, 1246, 1521, 1713, 1959, 1972.

18b. *Peptides, peptidic and proteinous hormones, growth factors*

- 1584 Ambo, A., Adachi, T. and Sasaki, Y.: Synthesis and opioid activities of [D-Leu⁸] dynorphin(1-8) analogs containing a reduced peptide bond, ψ (CH₂NH). *Chem. Pharm. Bull.*, 43 (1995) 1547-1550.
- 1585 Ball, H.L., Bertolini, G. and Mascagni, P.: Affinity purification of 101 residue rat cpn10 using a reversible biotinylated probe. *J. Pept. Sci.*, 1 (1995) 288-294; *C.A.*, 123 (1995) 280012p.
- 1586 Buechler, Y.J., Sosnowski, B.A., Victor, K.D., Parandoosh, Z., Bussell, S.J., Shen, C., Ryder, M. and Houston, L.L.: Synthesis and characterization of a homogeneous chemical conjugate between basic fibroblast growth factor and saporin. *Eur. J. Biochem.*, 234 (1995) 706-713.
- 1587 Casazza, A., Curcuruto, O., Hamdan, M., Bisello, A. and Peggion, E.: Investigation of crudes of synthesis of neuropeptide Y by high-performance liquid chromatography-electrospray mass spectrometry. *J. Chromatogr. A*, 715 (1995) 227-240.
- 1588 Cheng, H.-Y., Davis, L.L., Huddleston, M.J. and Carr, S.A.: Structural study of electrolysis-induced degradation of the growth hormone releasing peptide His-D-Trp-Ala-Trp-D-Phe-Lys-NH₂. *Anal. Chem.*, 67 (1995) 4053-4056.
- 1589 Davis, M.T., Stahl, D.C., Efta, S.A. and Lee, T.D.: A microscale electrospray interface for on-line, capillary liquid chromatography/tandem mass spectrometry of complex peptide mixtures. *Anal. Chem.*, 67 (1995) 4549-4556.

- 1590 Fujinari, E.M. and Manes, J.D.: Size exclusion chromatography with nitrogen detection of peptides and food grade protein hydrolysates by HPLC-CLND. *Dev. Food Sci.*, 37A (1995) 929-949; *C.A.*, 123 (1995) 196854g.
- 1591 Galanopoulou, A.S., Seidah, N.G. and Patel, Y.C.: Heterologous processing of rat somatostatin to somatostatin-14 by PC2: requirement for secretory cell but not the secretion granule. *Biochem. J.*, 311 (1995) 111-118.
- 1592 Gamazina, E.V., Drozhdenyuk, A.P., Karyakin, A.V. and Moroz, I.N.: (Method of purifying chorionic gonadotropin by chromatography on calcium tartrate gel). *Russ. RU* 2,008,875 (Cl. A61K35/22), 15 Mar. 1994, Appl. 4,950,726, 26 Jun. 1991; *C.A.*, 123 (1995) 222287w.
- 1593 Goumon, Y., Strub, J.-M., Moniatte, M., Nullans, G., Poteur, L., Hubert, P., van Dorsselaer, A., Aunis, D. and Metz-Boutique, M.-H.: The C-terminal biphosphorylated proenkephalin-A-(209-237)-peptide from adrenal medullary chromaffin granules possesses antibacterial activity. *Eur. J. Biochem.*, 235 (1996) 516-525.
- 1594 Gromes, R., Schnellbacher, B., Siegl, T. and Vatter, T.: (Determination of aspartame contents in foods with a new enzymic test method and with HPLC). *Dtsch. Lebensm.-Rundsch.*, 91 (1995) 171-174; *C.A.*, 123 (1995) 283850w.
- 1595 Hopkins, C., Grilley, M., Miller, C., Shon, K., Cruz, L.J., Gray, W.R., Dykert, J., Rivier, J., Yoshikami, D. and Olivera, B.M.: A new family of Conus peptides targeted to the nicotinic acetylcholine receptor. *J. Biol. Chem.*, 270 (1995) 22361-22367.
- 1596 Hurst, W.J. and Zagon, I.S.: Isolation, separation, and detection of enkephalins: a review of methods for high performance liquid chromatography and capillary electrophoresis. *J. Liq. Chromatogr.*, 18 (1995) 2943-2967 - a review with 92 refs.
- 1597 Kagel, J.R., Rossi, D.T., Nordblom, G.D., Dudeck, R.C., Barksdale, C.M., Kuo, B.-S. and Wright, D.S.: Considerations in the development of a sensitive HPLC assay for human epidermal growth factors in human plasma. *J. Pharm. Biomed. Anal.*, 13 (1995) 1205-1213.
- 1598 Kono, K., Petersson, M., Ciupitu, A.-M.T., Wen, T., Klein, G. and Kiessling, R.: Methylcholanthrene-induced mouse sarcomas express individually distinct major histocompatibility complex class I-associated peptides recognized by specific CD8+ T-cell lines. *Cancer Res.*, 55 (1995) 5648-5655.
- 1599 Kuhn, R., Morin, C. and Erni, F.: A simple model describing the retention behavior of octreotide and its glycosylated derivatives in reversed phase HPLC. *Chromatographia*, 41 (1995) 516-520.
- 1600 Kuhn, R., Riestler, D., Fleckenstein, B. and Wiesmüller, K.-H.: Evaluation of an optically active crown ether for the chiral separation of di- and tripeptides. *J. Chromatogr. A*, 716 (1995) 371-379.
- 1601 Kulczykowska, E.: Solid-phase extraction of arginine vasotocin and isotocin in fish samples and subsequent gradient reversed-phase high-performance liquid chromatographic separation. *J. Chromatogr. B*, 673 (1995) 289-293.
- 1602 Kurtzhals, P., Kiehr, B. and Sorensen, A.R.: The cobalt(III)-insulin hexamer is a prolonged-acting insulin prodrug. *J. Pharm. Sci.*, 84 (1995) 1164-1168.
- 1603 Lindeberg, G. and Hansen, P.: Affinity chromatography of synthetic peptides based on the interaction of the α -amino group with immobilized metal ions. In: Epton, R. (Editor), *Innovation Perspect. Solid Phase Synth. Collect. Pap., Int. Symp., 3rd 1993*, Mayflower Worldwide, Birmingham, 1994, pp. 361-364; *C.A.*, 123 (1995) 199348f.
- 1604 Martinez, J.S., Olivera, B.M., Gray, W.R., Craig, A.G., Groebe, D.R., Abramson, S.N. and McIntosh, J.M.: α -Conotoxin EI, a new nicotinic acetylcholine receptor antagonist with novel selectivity. *Biochemistry*, 34 (1995) 14519-14526.
- 1605 Matsufuji, H., Matsui, T., Oki, T., Kawasaki, T. and Osajima, Y.: (Fluorometric determination of angiotensins in human plasma derivatized with 2,3-naphthalenedialdehyde). *Bunseki Kagaku*, 44 (1995) 783-788; *C.A.*, 124 (1996) 4248p.
- 1606 McMahon, G.A., Dignam, J.D. and Gentry, L.E.: Structural characterization of the latent complex between transforming growth factor β 1 and β 1-latency-associated peptide. *Biochem. J.*, 313 (1996) 343-351.
- 1607 Michelet, F., Gueguen, R., Leroy, P., Wellman, M., Nicolas, A. and Siest, G.: Blood and plasma glutathione measured in healthy subjects by HPLC: relation to sex, aging, biological variables, and life habits. *Clin. Chem. (Washington)*, 41 (1995) 1509-1517.
- 1608 Mori, A., Okubo, K., Kang, D. and Hamasaki, N.: A structural study of the carboxyl terminal region of the human erythrocyte band 3 protein. *J. Biochem. (Tokyo)*, 118 (1995) 1192-1198.
- 1609 Morimoto, K., Hidaka, T., Motohiro, S., Shichiri, H., Okuda, H., Sakaguchi, Y., Takahashi, T., Ejima, S., Chonan, Y. and Hayakawa, T.: Evaluation of reverse-phase high-performance liquid chromatography as an assay method for quality control of recombinant human insulin. *Iyakuin Kenkyu*, 26 (1995) 404-412; *C.A.*, 123 (1995) 208997w.
- 1610 Mu, J., Lu, Y., Mai, Y. and Sun, L.: (Purification of HCG by immunoabsorbent affinity chromatography of monoclonal antibody). *Baiqien Yike Daxue Xuebao*, 21 (1995) 96-98; *C.A.*, 123 (1995) 330192v.
- 1611 Pastores, G., Lonardo, C., Variano, B. and Anderson, M.L.: The use of a non-porous reversed phase column for resolution of porcine insulin from low molecular weight amides in the same matrix. *J. Liq. Chromatogr.*, 18 (1995) 3049-3059.
- 1612 Quesnel, A., Delmas, A. and Trudelle, Y.: Purification of synthetic peptide libraries by affinity chromatography using the avidin-biotin system. *Anal. Biochem.*, 231 (1995) 182-187.
- 1613 Sacks, D.B., Mazus, B. and Joyal, J.L.: The activity of calmodulin is altered by phosphorylation: modulation of calmodulin function by the site of phosphate incorporation. *Biochem. J.*, 312 (1995) 197-204.
- 1614 Schetz, J.A., Mayr, C.A., Taylor, J.E., Rosenblatt, M., Chorev, M. and Davis, T.P.: Distribution and pharmacokinetics of a potent peptide antagonist of parathyroid hormone and parathyroid hormone-related protein in the rat. *J. Pharmacol. Exp. Ther.*, 274 (1995) 1456-1462.
- 1615 Schmidt, A., Skaletz-Rorowski, A. and Buddecke, E.: Basic fibroblast growth factor controls the expression and molecular structure of heparan sulfate in corneal endothelial cells. *Eur. J. Biochem.*, 234 (1995) 479-484.
- 1616 Schweitz, H., Bruhn, T., Guillemare, E., Moinier, D., Lancelin, J.-M., Beress, L. and Lazdunski, M.: Kalicludines and kaliseptine. Two different classes of sea anemone toxins for voltage-sensitive K^+ channels. *J. Biol. Chem.*, 270 (1995) 25121-25126.

- 1617 Smith, N.C., Dunnett, M. and Mills, P.C.: Simultaneous quantitation of oxidised and reduced glutathione in equine biological fluids by reversed-phase high-performance liquid chromatography using electrochemical detection. *J. Chromatogr. B*, 673 (1995) 35-41.
- 1618 Takada, K., Nasu, H., Hibi, N., Tsukada, Y., Ohkawa, F., Fujimoro, M., Sawada, H. and Yokosawa, H.: Immunoassay for the quantification of intracellular multi-ubiquitin chains. *Eur. J. Biochem.*, 233 (1995) 42-47.
- 1619 Taylor, S.W., Ross, M.M. and Waite, J.H.: Novel 3,4-di- and 3,4,5-trihydroxyphenylalanine-containing polypeptides from the blood cells of the ascidians *Ascidia ceratodes* and *Molgula manthattensis*. *Arch. Biochem. Biophys.*, 324 (1995) 228-240.
- 1620 Van Riel, J.A.M. and Olieman, C.: Selective detection in RP-HPLC of Tyr-, Trp- and sulfur-containing peptides by pulsed amperometry at platinum. *Anal. Chem.*, 67 (1995) 3911-3915.
- 1621 Vina, J., Sastre, J., Asensi, M. and Packer, L.: Assay of blood glutathione oxidation during physical exercise. *Methods Enzymol.*, 251(Biothiols, Part A) (1995) 237-243; *C.A.*, 124 (1996) 25157y.
- 1622 Vinther, A., Holm, A., Hoeg-Jensen, T., Jespersen, A.M., Klausen, N.K., Christensen, T. and Sorensen, H.H.: Synthesis of stereoisomers and isoforms of a tryptic heptapeptide fragment of human growth hormone and analysis by reverse-phase HPLC and capillary electrophoresis. *Eur. J. Biochem.*, 235 (1996) 304-309.
- 1623 Yang, C.-S., Chou, S.-T., Liu, L., Tsai, P.-J. and Kuo, J.-S.: Effect of ageing on human plasma glutathione concentrations as determined by high-performance liquid chromatography with fluorimetric detection. *J. Chromatogr. B*, 674 (1995) 23-30.
- 1624 Yomota, C., Yoshii, Y., Takahata, T. and Okada, S.: Separation of B-3 monodesamidoinsulin from human insulin by high-performance liquid chromatography under alkaline conditions. *J. Chromatogr. A*, 721 (1996) 89-96.
- 1625 Zarkovic, N., Hayn, M., Plavsic, V., Zarkovic, K., Paladino, J., Hirsl, N., Golubic, J., Mikulandra, S., Rogic, D., Salzer, B., Pokric, B. et al.: Analysis of the *in vitro* secretory activity of human pituitary adenomas: modification of corticotropin release from adenoma tissue explant cultures by addition of human plasma ultrafiltrate bioactive fraction. *Eur. J. Clin. Chem. Clin. Biochem.*, 34 (1996) 23-30.
- 1626 Zhang, L. and Tam, J.P.: Thiazolidine formation as a general and site-specific conjugation method for synthetic peptides and proteins. *Anal. Biochem.*, 233 (1996) 87-93.
- For additional information see C.A.:
123 (1995) 330179w;
124 (1996) 37812w.
- See also 1116, 1580, 1665, 1733, 1897, 2021, 2281, 2286, 2308.
- 18c. *Elucidation of structure of proteins and enzymes*
- 1627 Abe, Y., Ueda, T., Iwashita, H., Hashimoto, Y., Motoshima, H., Tanaka, Y. and Imoto, T.: Effect of salt concentration on the pK_a of acidic residues in lysozyme. *J. Biochem. (Tokyo)*, 118 (1995) 946-952.
- 1628 Candi, E., Melino, G., Mei, G., Tarcsa, E., Chung, S., Marekov, L.N. and Steinert, P.M.: Biochemical, structural, and transglutaminase substrate properties of human loricrin, the major epidermal cornified cell envelope protein. *J. Biol. Chem.*, 270 (1995) 26382-26390.
- 1629 Chang, J.: The properties of scrambled hirudins. *J. Biol. Chem.*, 270 (1995) 25661-25666.
- 1630 Chen, C.-J. and Traugh, J.A.: Expression of recombinant elongation factor 1 beta from rabbit in *Escherichia coli*. Phosphorylation by casein kinase II. *Biochim. Biophys. Acta*, 1264 (1995) 303-311.
- 1631 Chen, M., Shen, Z., Bobin, S., Kahn, P.C. and Lipke, P.N.: Structure of *Saccharomyces cerevisiae* α -agglutinin. Evidence for a yeast cell wall protein with multiple immunoglobulin-like domains with atypical disulfides. *J. Biol. Chem.*, 270 (1995) 26168-26177.
- 1632 De Laureto, P.P., de Filippis, V., di Bello, M., Zambonin, M. and Fontana, A.: Probing the molten globule state of α -lactalbumin by limited proteolysis. *Biochemistry*, 34 (1995) 12596-12604.
- 1633 Fronticelli, C., Sanna, M.T., Perez-Alvarado, G.C., Karavitis, M., Lu, A. and Brinigar, W.S.: Allosteric modulation by tertiary structure in mammalian hemoglobins. Introduction of the functional characteristics of bovine hemoglobin into human hemoglobin by five amino acid substitutions. *J. Biol. Chem.*, 270 (1995) 20588-20592.
- 1634 Fujisawa, R., Wada, Y., Nodasaka, Y. and Kuboki, Y.: Acidic amino acid-rich sequences as binding sites of osteonectin to hydroxyapatite crystals. *Biochim. Biophys. Acta*, 1292 (1996) 53-60.
- 1635 Gurley, L.R., Valdez, J.G. and Buchanan, J.S.: Characterization of the mitotic specific phosphorylation site of histone H1. Absence of a consensus sequence for the p34^{cdc2}/cyclin B kinase. *J. Biol. Chem.*, 270 (1995) 27653-27660.
- 1636 Hara, S., Liu, N., Meng, S.-Y. and Lu, H.S.: Isolation and structural characterization of recombinant human neu differentiation factor expressed in *Escherichia coli*. *Biochim. Biophys. Acta*, 1292 (1996) 168-176.
- 1637 Huete-Pérez, J.A., Wu, J.C., Whitby, F.G. and Wang, C.C.: Identification of the IMP binding site in the IMP dehydrogenase from *Trichomonas foetus*. *Biochemistry*, 34 (1995) 13889-13894.
- 1638 Ishimizu, T., Miyagi, M., Norioka, S., Liu, Y.-H., Clarke, A.E. and Sakiyama, F.: Identification of histidine 31 and cysteine 95 in the active site of self-incompatibility associated S₆-RNase in *Nicotiana glauca*. *J. Biochem. (Tokyo)*, 118 (1995) 1007-1013.
- 1639 Kanaani, J., Maltby, D., Focia, P. and Wang, C.C.: Identification of the active sites of human and schistosomal hypoxanthine-guanine phosphoribosyltransferases by GMP-2',3'-dialdehyde affinity labeling. *Biochemistry*, 34 (1995) 14987-14996.
- 1640 Kobayashi, T., Grabarek, Z., Gergely, J. and Collins, J.H.: Extensive interactions between troponin C and I. Zero-length cross-linking of troponin I and acetylated troponin C. *Biochemistry*, 34 (1995) 10946-10952.
- 1641 Liessem, B., Glombitza, G.J., Knoll, F., Lehmann, J., Kellermann, J., Lottspeich, F. and Sandhoff, K.: Photoaffinity labeling of human lysosomal β -hexosaminidase B. Identification of Glu-355 at the substrate binding site. *J. Biol. Chem.*, 270 (1995) 23693-23699.

- 1642 Linge, C., Gewert, D., Ellis, J., Tucker, D., Allen, G. and Crowe, J.S.: Transcription of interferon- $\alpha 2$ alleles from virus-induced human leucocytes and lymphoblastoid cells of African origin. *Biochim. Biophys. Acta*, 1264 (1995) 363-368.
- 1643 Mizuno, M., Kitafima, T., Tomita, M. and Kuboki, Y.: The osteoblastic MC3T3-E1 cells synthesized C-terminal propeptide of type I collagen, which promoted cell-attachment of osteoblasts. *Biochim. Biophys. Acta*, 1310 (1996) 97-102.
- 1644 Nihalani, D. and Sahni, G.: Streptokinase contains two independent plasminogen-binding sites. *Biochem. Biophys. Res. Commun.*, 217 (1995) 1245-1254.
- 1645 Nokihara, K., Morita, N., Yamamoto, R. and Kondo, J.: Instrumentation and applications of an automated C-terminal fragment peptide fractionator for C-terminal sequence analysis of proteins. *J. Biochem. (Tokyo)*, 118 (1995) 895-899.
- 1646 Nomura, K., Yoneda, I., Nanmori, T., Shinke, R., Morita, Y. and Mikami, B.: The role of SH and S-S groups in *Bacillus cereus* β -amylase. *J. Biochem. (Tokyo)*, 118 (1995) 1124-1130.
- 1647 Sasisekharan, R., Leckband, D., Godavarti, R., Venkataraman, G., Cooney, C.L. and Langer, R.: Heparinase I from *Flavobacterium heparinum*: the role of the cysteine residue in catalysis as probed by chemical modification and site-directed mutagenesis. *Biochemistry*, 34 (1995) 14441-14448.
- 1648 Slade, M.J., Pócsi, I., Kirby, R.B., Jones, J.K., Ganz, S.E., Taylor, S.A. and Price, R.G.: Isolation of pepsin-resistant laminin fragments from human placenta: effect on epithelial cells cultured from the kidneys of patients with autosomal dominant polycystic kidney disease (ADPKD). *Biochim. Biophys. Acta*, 1310 (1996) 25-31.
- 1649 Tomomura, A., Tomomura, M., Fukushige, T., Akiyama, M., Kubota, N., Kumaki, K., Nishii, Y., Noikura, T. and Saheki, T.: Molecular cloning and expression of serum calcium-decreasing factor (caldecrin). *J. Biol. Chem.*, 270 (1995) 30315-30321.
- 1650 Tsou, C.-L.: Inactivation precedes overall molecular conformation changes during enzyme denaturation. *Biochim. Biophys. Acta*, 1253 (1995) 151-162 - a review with 107 refs.
- 1651 Tsutakawa, S.E., Medzhradszky, K.F., Flint, A.J., Burlingame, A.L. and Koshland, D.E., Jr.: Determination of *in vivo* phosphorylation sites in protein kinase C. *J. Biol. Chem.*, 270 (1995) 26807-26812.
- 1652 Ueda, T., Iwashita, H., Hashimoto, Y. and Imoto, T.: Stabilization of lysozyme by introducing N-glycosylation signal sequence. *J. Biochem. (Tokyo)*, 119 (1996) 157-161.
- See also 1094, 1377, 1710, 1722, 1723, 1726, 1779, 1856.
19. PROTEINS
- 19a. General techniques
- 1653 Berggren, K., Johansson, H.-O. and Tjerneld, F.: Effects of salts and the surface hydrophobicity of proteins on partitioning in aqueous two-phase systems containing thermoseparating ethylene oxide-propylene oxide copolymers. *J. Chromatogr. A*, 718 (1995) 67-79.
- 1654 Bian, L.J. and Geng, X.D.: Extrathermodynamic studies for proteins in different chromatographic systems. In: *Int. Symp. Bioanal. Chem., Proc., 1st 1995*, Chinese Chemical Society, Beijing, 1995, pp. 95-96; C.A., 124 (1996) 4220y.
- 1655 Bian, L.J. and Geng, X.D.: Verification of the break-through equation for proteins in frontal chromatography. In: *Int. Symp. Bioanal. Chem., Proc., 1st 1995*, Chinese Chemical Society, Beijing, 1995, pp. 118-119; C.A., 123 (1995) 334035u.
- 1656 Chen, H. and Horvath, C.: Rapid separation of proteins by reversed phase HPLC at elevated temperatures. *Anal. Methods Instrum.*, 1 (1993, Pub. 1994) 213-222; C.A., 123 (1995) 192643q.
- 1657 Eberlein, G.A.: Quantitation of proteins using HPLC-detector response rather than standard curve comparison. *J. Pharm. Biomed. Anal.*, 13 (1995) 1263-1271.
- 1658 Guo, L.-a. and Chang, J.-h.: Researches on the relationship between the retention model of protein and its model parameters in the hydrophobic interaction chromatography. In: *Int. Symp. Bioanal. Chem., Proc., 1st 1995*, Chinese Chemical Society, Beijing, 1995, pp. 91-94; C.A., 123 (1995) 334032r.
- 1659 Harapanhalli, R.S., Schafraneck, W., Ong, G.L. and Mattes, M.J.: Lysine-directed radioiodination of proteins with a cyanuric chloride derivative of aminofluorescein. *Anal. Biochem.*, 231 (1995) 50-56.
- 1660 Kosakai, M.: Two step hydroxylapatite chromatograph for protein purification. *Jpn. Kokai Tokkyo Koho JP 07,173,189* [95 173,189] (Cl. CO7K1/22), 11 Jul. 1995, Appl. 93/344,407, 17 Dec. 1993; 4 pp.; C.A., 123 (1995) 222289y.
- 1661 Kubota, N., Kounosu, M., Saito, K., Sugita, K., Watanabe, K. and Sugo, T.: Preparation of a hydrophobic porous membrane containing phenyl groups and its protein adsorption performance. *J. Chromatogr. A*, 718 (1995) 27-34.
- 1662 Lee, W.-C. and Chuang, C.-Y.: Performance of pH elution in high-performance affinity chromatography of proteins using non-porous silica. *J. Chromatogr. A*, 721 (1996) 31-39.
- 1663 Liao, J.-L., Li, Y.-M. and Hjerten, S.: Continuous beds for microchromatography: reversed-phase chromatography. *Anal. Biochem.*, 234 (1996) 27-30.
- 1664 Middaugh, C.R.: Analysis of protein conformational stability on surfaces. *Proc. Int. Symp. Controlled Release Bioact. Mater.*, 22nd (1995) 141-142; C.A., 123 (1995) 250596q.
- 1665 Miller, B.T.: Acylation of peptide hydroxyl groups with the Bolton-Hunter reagent. *Biochem. Biophys. Res. Commun.*, 218 (1996) 377-382.
- 1666 Sawadogo, M. and van Dyke, M.W.: Indirect use of immobilized metal affinity chromatography for isolation and characterization of protein partners. *Genet. Eng.*, 17 (1995) 53-65; C.A., 124 (1996) 24934n - a review with 42 refs.
- 1667 Shambaugh, G.E., III, Maker, A. and Radosevich, J.A.: Rapid, simultaneous determination of protein and salt concentrations in ion-exchange fractions. *BioTechniques*, 19 (1995) 725-726; C.A., 123 (1995) 334117x.
- 1668 Zachariou, M. and Hearn, M.T.W.: Protein selectivity in immobilized metal affinity chromatography based on the surface accessibility of aspartic and glutamic acid residues. *J. Protein Chem.*, 14 (1995) 419-430; C.A., 123 (1995) 250305u.
- 1669 Zolotova, E.G., Druzhinina, I.B., Toksambaeva, S.Zh., Mysiakin, E.B., Rubtsov, K.S. and Serebrennikova, G.A.: (Isolation of C-reactive protein by affinity chromatography). *Biotekhnologiya*, No. 3-4 (1995) 15-19; C.A., 123 (1995) 250316y.

For additional information see C.A.:

- 123 (1995) 196579w;
124 (1996) 32926b.

See also 1012, 1037, 1042, 1626.

19b. *Proteins of cells, viruses and subcellular particles*

- 1670 Bischof, O., Urlaub, H., Krufft, V. and Wittmann-Liebold, B.: Peptide environment of the peptidyl transferase center from *Escherichia coli* 70 S ribosomes as determined by thermoaffinity labeling with dihydrospiramycin. *J. Biol. Chem.*, 270 (1995) 23060-23064.
- 1671 Cai, G., Satoh, T. and Hoshi, H.: Purification and characterization of an endothelial cell-viability maintaining factor from fetal bovine serum. *Biochim. Biophys. Acta*, 1269 (1995) 13-18.
- 1672 Imai, H., Sumi, D., Hanamoto, A., Arai, M., Sugiyama, A., Chiba, N., Kuchino, Y. and Nakagawa, Y.: Molecular cloning and functional expression of a cDNA for rat phospholipid hydroperoxide glutathione peroxidase: 3'-untranslated region of the gene is necessary for functional expression. *J. Biochem. (Tokyo)*, 118 (1995) 1061-1067.
- 1673 Pfaffinger, P.J. and DeRubeis, D.: Shaker K⁺ channel T1 domain self-tetramerizes to a stable structure. *J. Biol. Chem.*, 270 (1995) 28595-28600.

See also 1685, 1851.

19c. *Proteins synthesized by genetic manipulation, monoclonal antibodies*

- 1674 Benhar, I. and Pastan, I.: Identification of residues that stabilize the single-chain F_v of monoclonal antibodies B3. *J. Biol. Chem.*, 270 (1995) 23373-23380.
- 1675 Benito, A., Feliu, J.X. and Villaverde, A.: Peptide insertions in β-galactosidase activating interface can improve binding in TPEG-Sepharose affinity chromatography. *Biotechnol. Tech.*, 9 (1995) 767-770; *C.A.*, 124 (1996) 4415r.
- 1676 Boeg-Hansen, T.C.: Separation of monoclonal antibodies from cell-culture supernatants and ascites fluid using thiophilic agarose. *Methods Mol. Biol. (Totowa)*, 45 (Monoclonal Antibody Protocols) (1995) 177-181; *C.A.*, 123 (1995) 196125v.
- 1677 Cong, J. and Chen, W.: Purification of recombinant human interferon-γ by immunoaffinity chromatography with monoclonal antibody. *Chin. J. Chem. Eng.*, 3 (1995) 125-133; *C.A.*, 123 (1995) 225320n.
- 1678 Odawara, F., Kurasaki, M., Suzuki-Kurasaki, M., Oikawa, S., Emoto, T., Yamasaki, F., Arias, A.R.L. and Kojima, Y.: Expression of human metallothionein-2 in *Escherichia coli*: cadmium tolerance of transformed cells. *J. Biochem. (Tokyo)*, 118 (1995) 1131-1137.
- 1679 Zijdeveld, C.A.L., Waisfisz, Q., Aarsman, M.E.G. and Nanninga, N.: Hybrid proteins of the transglycosylase and the transpeptidase domains of PBP1B and PBP3 of *Escherichia coli*. *J. Bacteriol.*, 177 (1995) 6290-6293; *C.A.*, 123 (1995) 309431n.

For additional information see C.A.:

- 124 (1996) 4156g.

See also 1384, 1609, 1630, 1636.

19d. *Microbial and plant proteins*

- 1680 Autran, J.-C.: Size-exclusion high-performance liquid chromatography for rapid examination of size differences of cereal proteins. In: Kruger, J.E. and Bietz, J.A. (Editors), *High-Perform. Liq. Chromatogr. Cereal Legume Proteins*, American Association of Cereal Chemists, St. Paul, 1994, pp. 326-372; *C.A.*, 124 (1996) 28220z.
- 1681 Bedi, G.S.: Comparative study of four proteases from spent culture media of *Porphyromonas gingivalis* (FAY-19M-1). *Prepar. Biochem.*, 25 (1995) 133-154.
- 1682 Dorrestein, E., Ferreira, R.B., Laureano, O. and Teixeira, A.R.: Electrophoretic and FPLC analysis of soluble proteins in four Portuguese wines. *Am. J. Enol. Vitic.*, 46 (1995) 235-242; *C.A.*, 123 (1995) 226135t.
- 1683 Ehwald, R., Klein, P., Jungnickel, F. and Dongowski, G.: Permeation chromatography on extracted *Wolffia*. *Phytochem. Anal.*, 6 (1995) 233-238; *C.A.*, 123 (1995) 222039s.
- 1684 Gartsbein, M.I. and Yuldashev, P.K.: (Isolation of immunolike proteins of cotton seeds by immunoaffinity chromatography). *Khim. Prir. Soedin.*, (1993) 746-749; *C.A.*, 123 (1995) 222040k.
- 1685 Gombos, Z., Wada, H., Varkonyi, Z., Los, D.A. and Murata, N.: Characterization of the Fad12 mutant of *Synechocystis* that is defective in Δ12 acyl-lipid desaturase activity. *Biochim. Biophys. Acta*, 1299 (1996) 117-123.
- 1686 Hochkoeppler, A., Kofod, P., Ferro, G. and Ciurli, S.: Isolation, characterization, and functional role of the high-potential iron-sulfur protein (HiPIP) from *Rhodospirillum rubrum*. *Arch. Biochem. Biophys.*, 322 (1995) 313-318.
- 1687 Huebner, F.R. and Bietz, J.A.: RP-HPLC for assessment of quality in cereals and legumes. Breadmaking quality (wheat). In: Kruger, J.E. and Bietz, J.A. (Editors), *High-Perform. Liq. Chromatogr. Cereal Legume Proteins*, American Association of Cereal Chemists, St. Paul, 1994, pp. 206-234; *C.A.*, 124 (1996) 24949w - a review with many refs.
- 1688 Laurie, G.W., Ciclitira, P.J., Ellis, H.J. and Pogany, G.: Immunological and partial sequence identity of mouse BM180 with wheat α-gliadin. *Biochem. Biophys. Res. Commun.*, 217 (1995) 10-15.
- 1689 Lookhart, G.L. and Peterson, D.M.: RP-HPLC for varietal identification in cereals and legumes. In: Kruger, J.E. and Bietz, J.A. (Editors), *High-Perform. Liq. Chromatogr. Cereal Legume Proteins*, American Association of Cereal Chemists, St. Paul, 1994, pp. 184-189; *C.A.*, 124 (1996) 24947u - a review with many refs.
- 1690 Matsuda, K., Suzuki, H., Nakanishi, F., Shio, K., Komai, K. and Nishimura, K.: Purification and characterization of a paralytic polypeptide from larvae of *Myrmeleon bore*. *Biochem. Biophys. Res. Commun.*, 215 (1995) 161-171.
- 1691 Mortensen, K.K., Hansen, H.F., Grentzmann, G., Buckingham, R.H. and Sperling-Petersen, H.U.: Osmo-expression and fast two-step purification of *Escherichia coli* translation termination factor RF-3. *Eur. J. Biochem.*, 234 (1995) 732-736.
- 1692 Oh, S.-H., Cha, Y.-S. and Lee, T.-K.: Isolation and characterization of exogenously expressed calmodulin from endogenous tobacco calmodulin by anion-exchange fast protein liquid chromatography. *J. Biochem. Mol. Biol.*, 28 (1995) 306-310; *C.A.*, 123 (1995) 222041m.

- 1693 Popineau, Y.: Evaluation of hydrophobicity of wheat proteins and peptides by HIC and RP-HPLC. In: Kruger, J.E. and Bietz, J.A. (Editors), *High-Perform. Liq. Chromatogr. Cereal Legume Proteins*, American Association of Cereal Chemists, St. Paul, 1994, pp. 393-426; C.A., 124 (1996) 28221a - a review with many refs.
- 1694 Revina, T.A., Valueva, T.A., Ermolova, N.V., Kladnitskaya, G.V. and Mosolov, V.V.: (Isolation and characterization of a novel trypsin and chymotrypsin inhibitor from potato tubers). *Biochimiya (Moscow)*, 60 (1995) 1844-1852.
- 1695 Sparvoli, F., Daminati, M.G., Lioi, L. and Bollini, R.: *In vivo* endoproteolytically cleaved phaseolin is stable and accumulates in developing *Phaseolus lunatus* L. seeds. *Biochim. Biophys. Acta*, 1292 (1996) 15-22.
- 1696 Trojanek, J., Ek, P., Scoble, J., Mustynska, G. and Engström, L.: Phosphorylation of plant proteins and the identification of protein-tyrosine kinase activity in maize seedlings. *Eur. J. Biochem.*, 235 (1996) 338-344.
- 1697 Wieser, H., Seilmeier, W. and Belitz, H.-D.: Use of RP-HPLC for a better understanding of the structure and functionality of wheat gluten proteins. In: Gruger, J.E. and Bietz, J.A. (Editors), *High-Perform. Liq. Chromatogr. Cereal Legume Proteins*, American Association of Cereal Chemists, St. Paul, 1994, pp. 235-272; C.A., 124 (1996) 28283x.
- 1698 Wolf, W.J.: RP-HPLC for identification in cereals and legumes. Soybeans. In: Kruger, J.E. and Bietz, J.A. (Editors), *High-Perform. Liq. Chromatogr. Cereal Legume Proteins*, American Association of Cereal Chemists, St. Paul, 1994, pp. 190-200; C.A., 124 (1996) 24948v - a review with many refs.
- See also 1631, 1729, 1734, 1777, 1783.
- 19e. *Proteins of blood, serum and blood cells*
- 1699 Baer, J. and Hjelm, M.: Microcolumn chromatography of urinary albumin and creatinine in single assay. *Fresenius J. Anal. Chem.*, 354 (1996) 111-113.
- 1700 Beare, D., Learmonth, M., Wells, V., Aitken, A. and Mallucci, L.: Characterisation and antiproliferative activity of an α -type murine interferon from embryonic fibroblasts. *Biochim. Biophys. Acta*, 1310 (1996) 81-85.
- 1701 Berger, B.J., Bendrat, K. and Cerami, A.: High-performance liquid chromatographic analysis of biological and chemical heme polymerization. *Anal. Biochem.*, 231 (1995) 151-156.
- 1702 Berger, G.: HPLC method for antigen-antibody interaction study. Application to anti HIV gp120 antibody. Proposition of treatment to improve the efficiency of the immune response. *J. Liq. Chromatogr.*, 18 (1995) 3423-3433. 586.
- 1703 Borkow, G., Gutierrez, J.M. and Ovidia, M.: Isolation, characterization and mode of neutralization of a potent antihemorrhagic factor from the serum of the snake *Bothrops asper*. *Biochim. Biophys. Acta*, 1245 (1995) 232-238.
- 1704 Chatterton, J.E., Philips, M.I., Curtiss, L.K., Milne, R., Fruchart, J.C. and Schumaker, V.N.: Immunoelectron microscopy of low density lipoproteins yields a ribbon and bow model for the conformation of apolipoprotein B on the lipoprotein surface. *J. Lipid Res.*, 36 (1995) 2027-2037.
- 1705 Elsaid, H.M.: Isolation of immunoglobulin G from canine serum using protein A affinity chromatography. *Vet. Med. J. Giza*, 43 (1995) 131-135; C.A., 123 (1995) 253810r.
- 1706 Finger, U.B., Brümmer, W., Knieps, E., Thömmes, J. and Kula, M.-R.: Investigations on the specificity of thiophilic interaction for monoclonal antibodies of different subclasses. *J. Chromatogr. B*, 675 (1996) 197-204.
- 1707 Gadowski, L. and Abdul-Wajid, A.: Quantitation of monoclonal antibodies by perfusion chromatography-immunodetection. *J. Chromatogr. A*, 715 (1995) 241-245.
- 1708 Goffe, R.A. and Shi, Y.: Immunoglobulin purification with gel affinity chromatographic column and high salt binding buffer. *PCT Int. Appl. WO 95 26,977* (Cl. C07K3/12), 12 Oct. 1995, Appl. 94/US3,615, 1 Apr. 1994; 28 pp.; C.A., 124 (1996) 7084t.
- 1709 Haupt, K., Bueno, S.M.A. and Vijayalakshmi, M.A.: Interaction of human immunoglobulin G with L-histidine immobilized onto poly(ethylene vinyl alcohol) hollow-fiber membranes. *J. Chromatogr. B*, 674 (1995) 13-21.
- 1710 Klausen, N.K. and Kornfelt, T.: Analysis of the glycoforms of human recombinant factor VIIa by capillary electrophoresis and high-performance liquid chromatography. *J. Chromatogr. A*, 718 (1995) 195-202.
- 1711 Luo, J. and Wolfe, B.B.: Use of insoluble fusion proteins to purify antibodies. *BioTechniques*, 19 (1995) 544-550; C.A., 123 (1995) 253857m.
- 1712 Schiffer, M. and Stevens, F.J.: Crystallographic and chromatographic methods for study of antibody light chains and other proteins. *Methods Mol. Biol. (Totowa)*, 51(Antibody Engineering Protocols) (1995) 83-98; C.A., 123 (1995) 253766f - a review with 25 refs.
- 1713 Schmidt-Sommerfeld, E., Zhang, L., Bobrowski, P.J. and Penn, D.: Quantitation of short- and medium-chain acylcarnitines in plasma by radioisotopic exchange/high-performance liquid chromatography. *Anal. Biochem.*, 231 (1995) 27-33.
- 1714 Shadle, P.J., Erickson, J.C., Scott, R.G. and Smith, T.M.: Antibody purification. *U.S. US 5,429,746* (Cl. 210-635; BO1D15/08), 04 Jul. 1995, Appl. 200,126, 22 Feb. 1994; 16 pp.; C.A., 123 (1995) 225936t.
- 1715 Tyutyulkova, S. and Paul, S.: Purification of antibody light chains by metal affinity and protein L chromatography. *Methods Mol. Biol. (Totowa)*, 51(Antibody Engineering Protocols) (1995) 395-401; C.A., 123 (1995) 253848j.
- 1716 Walton, S.P., Pierangeli, S.S., Campbell, A., Klein, E., Burchitt, B. and Harris, E.N.: Demonstration of antiphospholipid antibody heterogeneity by phospholipid column chromatography and salt gradient elution techniques. *Lupus*, 4 (1995) 263-271; C.A., 123 (1995) 283196n.
- 1717 Wiesniewski, T., Lalowski, M., Bobik, M., Russell, M., Strosznajders, J. and Frangione, B.: Amyloid β 1-42 deposits do not lead to Alzheimer's neuritic plaques in aged dogs. *Biochem. J.*, 313 (1996) 575-580.
- 1718 Yoshikawa, T., Terashima, M. and Katoh, S.: Immunoassay using HPLAC and fluorescence-labeled antibodies. *J. Ferment. Bioeng.*, 80 (1995) 200-203; C.A., 123 (1995) 192878v.
- For additional information see C.A.:
123 (1995) 280018v, 296702z;
124 (1996) 4488s.
- See also 1196, 1373, 1381, 1465, 1645, 1676.

19f. *Structural and muscle proteins*

- 1719 Crockford, T. and Johnston, I.A.: Isolation of unstable myosins and the analysis of light chains by capillary electrophoresis. *Anal. Biochem.*, 231 (1995) 20-26.
- 1720 Fields, C.G., Grab, B., Lauer, J.L. and Fields, G.B.: Purification and analysis of synthetic, triple-helical "minicollagens" by reversed-phase high-performance liquid chromatography. *Anal. Biochem.*, 231 (1995) 57-64.
- 1721 Haikala, H., Kaivola, J., Nissinen, E., Wall, P., Leijoki, J. and Linden, I.-B.: Cardiac troponin C as a target protein for a novel calcium-sensitizing drug. *J. Mol. Cell. Cardiol.*, 27 (1995) 1859-1866; *C.A.*, 123 (1995) 218097s.
- 1722 Hori, K., Morita, F., Matsuzawa, F. and Aikawa, S.: Actin-actin contact: chemical cross-linking between actin and the 2.6-kDa peptide from subdomain 4 of actin. *J. Biochem. (Tokyo)*, 118 (1995) 1232-1238.
- 1723 Kunori, S., Katoh, T., Mogi, Y. and Morita, F.: Crosslinking of a 28-residue N-terminal peptide of actin to myosin subfragment 1. *J. Biochem. (Tokyo)*, 118 (1995) 1239-1247.
- 1724 Obermann, W.M.J., Plessmann, U., Weber, K. and Fürst, D.O.: Purification and biochemical characterization of myomesin, a myosin-binding and titin-binding protein, from bovine skeletal muscle. *Eur. J. Biochem.*, 233 (1995) 110-115.
- 1725 Okamoto, O., Suzuki, Y., Kimura, S. and Shinkai, H.: Extracellular matrix 22-kDa protein interacts with decorin core protein and is expressed in cutaneous fibrosis. *J. Biochem. (Tokyo)*, 119 (1996) 106-114.
- 1726 Takahashi, M., Hoshino, H., Kushida, K. and Inoue, T.: Direct measurement of crosslinks, pyridinoline, deoxypyridinoline, and pentosidine, in the hydrolysate of tissues using high-performance liquid chromatography. *Anal. Biochem.*, 232 (1995) 158-162.

See also 1628, 1634, 1640, 1643, 1648.

19g. *Protamines, histones and other nuclear proteins*

- 1727 Couppez, M. and Belaiche, D.: Successive elution by ion-exchange chromatography of H3-H4 histone complexes differing in their degree of acetylation. *Arch. Biochem. Biophys.*, 325 (1996) 29-38.
- 1728 Cuisset, L., Tichonicky, L. and Delpech, M.: A two-step procedure for purification qualitative and quantitative analysis of histone H1⁰ from whole liver. *Int. J. Bio-Chromatogr.*, 1 (1995) 227-235; *C.A.*, 123 (1995) 280033w.
- 1729 Morimatsu, K. and Horii, T.: DNA-binding surface of RecA protein. Photochemical cross-linking of the first DNA binding site of RecA filament. *Eur. J. Biochem.*, 234 (1995) 695-705.
- 1730 Nock, S., Grillenbeck, N., Ahmadian, M.R., Ribeiro, S., Kreutzer, R. and Sprinzl, M.: Properties of isolated domains of the elongation factor Tu from *Thermus thermophilus* HB8. *Eur. J. Biochem.*, 234 (1995) 132-139.
- 1731 Ohno, T., Tsuchiya, M., Osago, H., Hara, N., Jidoi, J. and Shimoyama, M.: Detection of arginine-ADP-ribosylated protein using recombinant ADP-ribosylarginine hydrolase. *Anal. Biochem.*, 231 (1995) 115-122.

- 1732 Sarg, B., Helliger, W., Meraner, C. and Lindner, H.: Hydrophilic interaction chromatography of acetylated and phosphorylated histones. *GIT Spez. Chromatogr.*, 15 (1995) 50-53; *C.A.*, 123 (1995) 222023g.

See also 1635.

19h. *Chromoproteins and metalloproteins*

- 1733 Berger, B., Hunziker, P.E., Hauer, C.R., Birchler, N. and Dallinger, R.: Mass spectrometry and amino acid sequencing of two cadmium-binding metallothionein isoforms from the terrestrial gas-tropod *Arianta arbustorum*. *Biochem. J.*, 311 (1995) 951-957.
- 1734 Bes, M.T., Razquin, P. and Gomez-Moreno, C.: Interference of nucleases in cyanobacterium ferredoxin purification. *Prepar. Biochem.*, 25 (1995) 89-97.
- 1735 Breton, J.L., Duff, J.L.C., Butt, J.N., Armstrong, F.A., George, S.J., Petillot, Y., Forest, E., Schöfer, G. and Thomson, A.J.: Identification of the iron-sulfur cluster in a ferredoxin from the archaeon *Sulfolobus acidocaldarius*. Evidence for a reduced 3Fe-4S cluster with pH-dependent electronic properties. *Eur. J. Biochem.*, 233 (1995) 937-946.
- 1736 Brouwer, M., Enghild, J., Hoexum-Brouwer, T., Thøgersen, I. and Truncali, A.: Primary structure and tissue-specific expression of blue crab (*Callinectes sapidus*) metallothionein isoforms. *Biochem. J.*, 311 (1995) 617-622.
- 1737 Kabzinski, A.K.M. and Paryczak, T.: Attempts of applying covalent affinity chromatography for determination of environmental exposition to heavy specific protein from human urine. *Chem. Anal. (Warsaw)*, 40 (1995) 831-846; *C.A.*, 124 (1996) 25021z.
- 1738 Weykamp, C.W., Penders, T.J., Muskiet, F.A.J. and van der Slik, W.: Evaluation of a reference material for glycated haemoglobin. *Eur. J. Clin. Chem. Clin. Biochem.*, 34 (1996) 67-72.

For additional information see *C.A.*:

123 (1995) 193024a.

See also 1301, 1417, 1472, 1633, 1678, 1686, 2330.

19i. *Proteins of glands, gland products, various zymogens (incl. milk proteins)*

- 1739 Atoda, H., Ishikawa, M., Yoshihara, E., Sekiya, F. and Morita, T.: Blood coagulation factor IX-binding protein from the venom of *Trimeresurus flavoviridis*: purification and characterization. *J. Biochem. (Tokyo)*, 118 (1995) 965-973.
- 1740 Bedi, G.S. and Bedi, S.K.: Purification and characterization of rat parotid glycosylated, basic and acidic proline-rich proteins. *Prepar. Biochem.*, 25 (1995) 119-132.
- 1741 Bererill, B., Corona, M., Coronas, F.I.V., Zamudio, F., Calderon-Aranda, E.S., Fletcher, P.L., Jr., Martin, B.M. and Possani, L.D.: Toxic peptides and genes encoding toxin γ of the Brazilian scorpions *Tityus bahiensis* and *Tityus stigmurus*. *Biochem. J.*, 313 (1996) 753-760.
- 1742 Camaioni, A., Salustri, A., Yanagishita, M. and Hascall, V.C.: Proteoglycans and proteins in the extracellular matrix of mouse cumulus cell-oocyte complexes. *Arch. Biochem. Biophys.*, 325 (1996) 190-198.

- 1743 Cattaneo, T.M.P., Nigro, F., Toppino, P.M. and Denti, V.: Characterization of ewe's milk by capillary zone electrophoresis. *J. Chromatogr. A*, 721 (1996) 345-349.
- 1744 Chung, M.C.M., Ponnudrai, G., Kataoka, M., Shimizu, S. and Tan, N.-H.: Structural studies of a major hemorrhagin (rhodostoxin) from the venom of *Celoseselasma rhodostoma* (Malayan pit viper). *Arch. Biochem. Biophys.*, 325 (1996) 199-208.
- 1745 Demeczky, Zs., Hussein, S. and Hajos, Gy.: Separation of a methionine-enriched fraction from enzymically modified casein by fast protein liquid chromatography. *Acta Aliment.*, 23 (1994) 85-92; *C.A.*, 124 (1996) 7322u.
- 1746 Dyke, T.R., Duggan, B.M., Pennington, M.W., Byrnes, M.E., Kem, W.R. and Norton, R.S.: Synthesis and structural characterization of analogues of the potassium channel blocker charybdotoxin. *Biochim. Biophys. Acta*, 1292 (1996) 31-38.
- 1747 Jolkonnen, M., van Giersbergen, P.L.M., Hellman, U., Wernstedt, C., Oras, A., Satyapan, N., Adem, A. and Karlsson, E.: Muscarinic toxins from the black mamba *Dendroaspis polylepis*. *Eur. J. Biochem.*, 234 (1995) 579-585.
- 1748 Laraba-Djebari, F., Martin-Eauclaire, M.-F., Mauco, G. and Marchot, P.: Alfacytin, and α , β -fibrinogenase from *Cerastes cerastes* (Horned Viper) venom, activates purified factor X and induces serotonin release from human blood platelets. *Eur. J. Biochem.*, 233 (1995) 756-765.
- 1749 Leonil, J., Molle, D., Gaucheron, F., Arpino, P., Guenot, P. and Maubois, J.L.: (Analysis of major bovine milk proteins by online high-performance liquid chromatography and electrospray ionization-mass spectrometry). *Lait*, 75 (1995) 193-210; *C.A.*, 124 (1996) 28277y.
- 1750 Matsumura, Y., Chanyongvorakul, Y., Kumazawa, Y., Ohtsuka, T. and Mori, T.: Enhanced susceptibility to transglutaminase reaction of α -lactalbumin in the molten globule state. *Biochim. Biophys. Acta*, 1292 (1996) 69-76.
- 1751 Outinen, M., Tossavainen, O., Syvaesoja, E.-L. and Korhonen, H.: Chromatographic isolation of κ -casein macropeptide from cheese whey with a strong basic anion-exchange resin. *Milchwissenschaft*, 50 (1995) 570-574; *C.A.*, 124 (1996) 7446n.
- 1752 Palma, M.S., Brochetto-Braga, M.R., Chaud-Netto, J., Malaspina, O. and Oliveira, M.R.: Molecular exclusion chromatography of crude venom as an auxiliary tool to identify hybrid honeybee populations. *J. Venomous Anim. Toxins*, 1 (1995) 23-30; *C.A.*, 123 (1995) 334038x.
- See also 1632, 1996.
- 19j. *Proteins of brain, cerebrospinal fluid and eye*
- 1753 Karki, S. and Holzbaur, E.L.F.: Affinity chromatography demonstrates a direct binding between cytoplasmic dynein and the dynactin complex. *J. Biol. Chem.*, 270 (1995) 28806-28811.
- 1754 Miyaoka, T., Tsuchiya, M., Hara, N., Ishino, H. and Shimoyama, M.: Activation of *Clostridium botulinum* C3 exoenzyme-catalyzed ADP-ribosylation of RhoA by K⁺ in a Mg²⁺-dependent manner. *J. Biochem. (Tokyo)*, 119 (1996) 200-207.
- 1755 Rao, P.V., Huang, Q.-I., Horwitz, J. and Zigler, J.S., Jr.: Evidence that α -crystallin prevents non-specific protein aggregation in the intact eye lens. *Biochim. Biophys. Acta*, 1245 (1995) 439-447.
- 1756 Yamamoto, H., Hasegawa, M., Ono, T., Tashima, K., Ihara, Y. and Miyamoto, E.: Dephosphorylation of fetal-tau and paired helical filaments-tau by protein phosphatases 1 and 2A and calcineurin. *J. Biochem. (Tokyo)*, 118 (1995) 1224-1231.
- See also 1385, 1717, 1792, 1891.
- 19k. *Proteins of neoplastic tissue and transformed cells*
- 1757 Packard, B.Z., Lee, S.S., Remold-O'Donnell, E. and Komoriya, A.: A serpin from human tumor cells with direct lymphoid immunomodulatory activity: mitogenic stimulation of human tumor-infiltrating lymphocytes. *Biochim. Biophys. Acta*, 1269 (1995) 41-50.
- 1758 Rogers, B.E., Franano, F.N., Duncan, J.R., Edwards, W.B., Anderson, C.J., Connett, J.M. and Weich, M.J.: Identification of metabolites of ¹¹¹In-diethylenetriaminepentaacetic acid-mono-clonal antibodies and antibody fragments *in vivo*. *Cancer Res.*, 55 (1995) 5714s-5720s.
- 1759 Takamura-Yamamoto, R., Yamamoto, S., Fukuda, S. and Kurimoto, M.: O-Glycosylated species of natural human tumor-necrosis factor- α . *Eur. J. Biochem.*, 235 (1996) 431-437.
- See also 1625.
- 19l. *Specific binding and receptor proteins*
- 1760 Buhi, W.C., Alvarez, I.M., Shille, V.M., Thatcher, M.-J., Harney, J.P. and Cotton, M.: Purification and characterization of a uterine retinol-binding protein in the bitch. *Biochem. J.*, 311 (1995) 407-415.
- 1761 Ehring, B., Meyer, T.H., Eckerskorn, C., Lottspeich, F. and Tampe, R.: Effect of major-histocompatibility-complex-encoded subunits on the peptidase and proteolytic activities of human 20S proteasomes. Cleavage of proteins and antigenic peptides. *Eur. J. Biochem.*, 235 (1996) 404-415.
- 1762 Hale, J.E.: Irreversible, oriented immobilization of antibodies to cobalt-iminodiacetate resin for use as immunoaffinity media. *Anal. Biochem.*, 231 (1995) 46-49.
- 1763 Haniu, M., Horan, T., Arakawa, T., Le, J., Katta, V. and Rohde, M.F.: Extracellular domain of granulocyte-colony stimulating factor receptor. Interaction with its ligand and identification of a domain in close proximity of ligand-binding region. *Arch. Biochem. Biophys.*, 324 (1995) 344-356.
- 1764 Hosomi, O., Takeya, A., Kogure, T., Iwai, H. and Yazawa, S.: Identification and purification of a novel phospholipid/ganglioside-binding protein in rabbit serum. *Biochim. Biophys. Acta*, 1259 (1995) 18-22.
- 1765 Iwahara, A., Satoh, H., Song, D., Webb, J., Burlingame, A.L., Nagae, Y. and Muller-Eberhard, U.: Purification, characterization, and cloning of a heme-binding protein (23 kDa) in rat liver cytosol. *Biochemistry*, 34 (1995) 13398-12306.
- 1766 Janssen, D. and Barrett, J.: A novel lipid-binding protein from the cestode *Montezia expansa*. *Biochem. J.*, 311 (1995) 49-57.
- 1767 Karthikeyan, N. and Thampan, R.V.: Plasma membrane is the primary site of localization of the nonactivated estrogen receptor in the goat uterus: hormone binding causes receptor internalization. *Arch. Biochem. Biophys.*, 325 (1996) 47-57.

- 1768 Kobayashi, N., Mano, H., Imazu, T. and Shimada, K.: Tandem immunoaffinity chromatography for plasma $1\alpha,25$ -dihydroxyvitamin D₃ utilizing two antibodies having different specificities: a novel and powerful pretreatment tool for $1\alpha,25$ -dihydroxyvitamin D₃ radioreceptor assays. *J. Steroid Biochem. Mol. Biol.*, 54 (1995) 217-226; *C.A.*, 123 (1995) 306731z.
- 1769 Koike, T., Beppu, H., Kuzuya, H., Maruta, K., Shimpo, K., Suzuki, M., Titani, K. and Fujita, K.: A 35 kDa mannose-binding lectin with hemagglutinating and mitogenic activities from "Kidachi Aloe" (*Aloe arborescens* Miller var. *natalensis* Berger). *J. Biochem. (Tokyo)*, 118 (1995) 1205-1210.
- 1770 Liao, W., Rudling, M. and Angelin, B.: Endotoxin suppresses rat hepatic low-density lipoprotein receptor expression. *Biochem. J.*, 313 (1996) 873-878.
- 1771 Lombardo, C.R., Consler, T.G. and Kassel, D.B.: *In vitro* phosphorylation of the epidermal growth factor receptor autophosphorylation domain by c-src: identification of phosphorylation sites and c-src SH2 domain binding sites. *Biochemistry*, 34 (1995) 16456-16466.
- 1772 Martinez, C., Molero, J.C., Ruiz, P., Del Arco, A., Andres, A. and Carrascosa, J.M.: Impairment of the liver insulin receptor autoactivation cascade at full-term pregnancy in the rat. *Biochem. J.*, 311 (1995) 523-529.
- 1773 Matveeva, E.G., Melik-Nubarov, N.S., Miethe, P. and Levashov, A.V.: Antigen-antibody interactions in the reverse micellar system: quenching of the fluorescence of fluorescein-labeled atrazine by antibodies against atrazine. *Anal. Biochem.*, 234 (1996) 13-18.
- 1774 Ohtsuki, K., Nakamura, S., Shimoyama, Y., Shibata, D., Munakata, H., Yoshiki, Y. and Okubo, K.: A 96-kDa glycyrrhizin-binding protein (gp96) from soybeans acts as a substrate for casein kinase II, and is highly related to lipoxygenase 3. *J. Biochem. (Tokyo)*, 118 (1995) 1145-1150.
- 1775 Patton, W.A., Granzow, C.A., Getts, L.A., Thomas, S.C., Zotter, L.M., Gunzel, K.A. and Lowe-Krentz, L.J.: Identification of a heparin-binding protein using monoclonal antibodies that block heparin binding to porcine aortic endothelial cells. *Biochem. J.*, 311 (1995) 461-469.
- 1776 Ploug, M., Rahbek-Nielsen, H., Ellis, V., Roepstorff, P. and Danø, K.: Chemical modification of the urokinase-type plasminogen activator and its receptor using tetranitromethane. Evidence for the involvement of specific tyrosine residues in both molecules during receptor-ligand interaction. *Biochemistry*, 34 (1995) 12524-12534.
- 1777 Tjus, S.E., Roobol-Boza, M., Palsson, L.O. and Andersson, B.: Rapid isolation of Photosystem I chlorophyll-binding proteins by anion exchange perfusion chromatography. *Photosynth. Res.*, 45 (1995) 41-49; *C.A.*, 123 (1995) 310617j.
- 1778 Vujcic, M.T., Dordevic-Markovic, R., Kanazir, D.T., Vujcic, Z.M. and Jankov, R.M.: Partial purification of glucocorticosteroid binder IB by corticosterone affinity matrix. *Proc. Indian Natl. Sci. Acad., Part B*, 61 (1995) 249-258; *C.A.*, 123 (1995) 246987a.
- 1779 Yerina, A., Safi, A., Gastin, I., Michalski, J.-C. and Gueant, J.-L.: Purification by cobalamin-Sepharose affinity chromatography and intrinsic factor-binding activity of an extramembrane proteolytic product from pig ileal mucosa. *Biochem. J.*, 313 (1996) 675-681.
- 19m. *Urinary proteins*
- 1780 Calero, M., Escribano, J., Soriano, F., Grubb, A., Brew, K. and Méndez, E.: Spectroscopic characterization by photodiode array detection of human urinary and amniotic protein HC subpopulations fractionated by anion-exchange and size-exclusion high-performance liquid chromatography. *J. Chromatogr. A*, 719 (1996) 149-157.
- 19n. *Other proteins (incl. proteinous inhibitors of enzymic activity)*
- 1781 Agarwala, K.L., Kawabata, S.-i., Hirata, M., Miyagi, M., Tsunasawa, S. and Iwanaga, S.: A cysteine protease inhibitor stored in the large granules of horseshoe crab hemocytes: purification, characterization, cDNA cloning and tissue localization. *J. Biochem. (Tokyo)*, 119 (1996) 85-94.
- 1782 Eftag Entstaubungs- und Foerdertechnik AG: Method for extraction of α -fetoprotein from embryonal tissues. *Ger. DE 4,400,638 (Cl. CO7K14/435)*, 10 Aug. 1995, Appl. 12 Jan. 1994, 7 pp.; *C.A.*, 123 (1995) 222315d.
- 1783 Guo, W., Shang, Z.H., Yu, Y.N., Zhou, L.M., Sun, Z.Y., Ma, L.R. and Chen, M.Y.: Endotoxin removal by membrane affinity chromatography. *Chin. Chem. Lett.*, 6 (1995) 919-922; *C.A.*, 123 (1995) 296587r.
- For additional information see *C.A.*:
123 (1995) 190619n.
- See also 1629, 2021.
20. ENZYMES AND ENZYME ACTIVITY ESTIMATION
- 1784 Gottschlich, N., Weidgen, S. and Kasche, V.: Continuous biospecific affinity purification of enzymes by simulated moving-bed chromatography. Theoretical description and experimental results. *J. Chromatogr. A*, 719 (1996) 267-274.
- 20a. *Oxidoreductases*
- 1785 Adachi, T., Yamada, H., Yanada, Y., Morihara, N., Yamazaki, N., Murakami, T., Fitenna, A., Kato, K. and Hirano, K.: Substitution of glycine for arginine-213 in extracellular-superoxide dismutase impairs affinity for heparin and endothelial cell surface. *Biochem. J.*, 313 (1996) 235-239.
- 1786 Aghajanian, S.A., Martin, S.R. and Engel, P.C.: Urea-induced inactivation and denaturation of clostridial glutamate dehydrogenase: the absence of stable dimeric or trimeric intermediates. *Biochem. J.*, 311 (1995) 905-910.
- 1787 Baalmann, E., Backhausen, J.E., Rak, C., Vetter, S. and Scheibe, R.: Reductive modification and nonreductive activation of purified spinach chloroplast NADP-dependent glyceraldehyde-3-phosphate dehydrogenase. *Arch. Biochem. Biophys.*, 324 (1995) 201-208.
- 1788 Boll, M. and Fuchs, G.: Benzoyl-coenzyme A reductase (dearomatizing), a key enzyme of anaerobic aromatic metabolism. ATP dependence of the reaction, purification and some properties of the enzyme from *Thauera aromatica* strain K172. *Eur. J. Biochem.*, 234 (1995) 921-933.

See also 1468, 1586, 1729, 1739, 1829, 1918, 1996.

- 1789 Chang, Y.K., McCreath, G.E. and Chase, H.A.: Development of an expanded bed technique for an affinity purification of G6PDH from unclarified yeast cell homogenates. *Biotechnol. Bioeng.*, 48 (1995) 355-366; *C.A.*, 123 (1995) 279458g.
- 1790 Cho, S.-W., Lee, J. and Choi, S.Y.: Two soluble forms of glutamate dehydrogenase isoproteins from bovine brain. *Eur. J. Biochem.*, 233 (1995) 340-346.
- 1791 Copeland, R.A., Davis, J.P., Bowling, R.L., Lombardo, D., Murphy, K.B. and Patterson, T.A.: Recombinant human dihydroorotate dehydrogenase: expression, purification and characterization of a catalytically functional truncated enzymes. *Arch. Biochem. Biophys.*, 323 (1995) 79-86.
- 1792 Duhaime, A.S., Rabbani, N., Aljafari, A.Z. and Alhomida, A.S.: Characterization of ζ -crystallin from the camel lens. *Biochem. Biophys. Res. Commun.*, 215 (1995) 632-540.
- 1793 Fraaije, M.W., Roubroeks, H.P., Hagen, W.R. and van Berkel, W.J.H.: Purification and characterization of an intracellular catalase-peroxidase from *Penicillium simplicissimum*. *Eur. J. Biochem.*, 235 (1996) 192-198.
- 1794 Halkier, B.A., Nielsen, H.L., Koch, B. and Moller, B.L.: Purification and characterization of recombinant cytochrome P450_{TVR} expressed at high levels in *Escherichia coli*. *Arch. Biochem. Biophys.*, 322 (1995) 369-377.
- 1795 Hayashi, M., Ohzeki, H., Shimada, H. and Unemoto, T.: NADPH-specific quinone reductase is induced by 2-methylene-4-butylolactone in *Escherichia coli*. *Biochim. Biophys. Acta*, 1273 (1996) 165-170.
- 1796 Hodgson, A.V. and Strobel, H.W.: Characterization of the FAD binding domain of cytochrome P450 reductase. *Arch. Biochem. Biophys.*, 325 (1996) 99-106.
- 1797 Iwase, H., Takatori, T., Aono, K., Iwadate, K., Takahashi, M., Nakajima, M. and Nagao, M.: Establishment of a monoepoxide (leukotoxin and its isomer) producing system using a hydrogen peroxide-generating system. *Biochem. Biophys. Res. Commun.*, 216 (1995) 484-488.
- 1798 Krauth-Siegel, R.L., Müller, J.G., Lottspeich, F. and Schirmer, R.H.: Glutathione reductase and glutamate reductase of *Plasmodium falciparum*, the causative agent of tropical malaria. *Eur. J. Biochem.*, 235 (1996) 345-350.
- 1799 Labrou, N.E. and Clonis, Y.D.: Biomimetic dye affinity chromatography for the purification of bovine heart lactate dehydrogenase. *J. Chromatogr. A*, 718 (1995) 35-44.
- 1800 Lawrence, C.C., Sobey, W.J., Field, R.A., Baldwin, J.E. and Schofield, C.J.: Purification and initial characterization of proline 4-hydroxylase from *Streptomyces griseoviridis* P8648: a 2-oxoacid, ferrous-dependent dioxygenase involved in etamycin biosynthesis. *Biochem. J.*, 313 (1996) 165-191.
- 1801 Lenz, R. and Zenk, M.H.: Purification and properties of codeinone reductase (NADPH) from *Papaver somniferum* cell cultures and differential plants. *Eur. J. Biochem.*, 233 (1995) 132-139.
- 1802 Li, B., Tsing, S., Kosaka, A.H., Nguyen, B., Osen, E.G., Bach, C., Chan, H. and Barnett, J.: Expression of human dopamine β -hydroxylase in *Drosophila* Schneider 2 cells. *Biochem. J.*, 313 (1996) 57-64.
- 1803 Liu, Y.-C., Sowdal, L.H. and Robinson, N.C.: Separation and quantitation of cytochrome c oxidase subunit by Mono-Q fast protein liquid chromatography and C18 reverse-phase high-performance liquid chromatography. *Arch. Biochem. Biophys.*, 324 (1995) 135-142.
- 1804 Meyer, M., Granderath, K. and Andreesen, J.R.: Purification and characterization of protein P_B of betaine reductase and its relationship to the corresponding protein glycine reductase and sarcosine reductase from *Eubacterium acidaminophilum*. *Eur. J. Biochem.*, 234 (1995) 184-191.
- 1805 Michel, R., Massanz, C., Kostka, S., Richter, M. and Fiebig, K.: Biochemical characterization of the 8-hydroxy-5-deazaflavin-reactive hydrogenase from *Mathanosarcina barkeri* Fusaro. *Eur. J. Biochem.*, 233 (1995) 727-735.
- 1806 Nakamura, A., Yamamoto, Y., Tasaki, K., Sugimoto, C., Masuda, M., Kazusaka, A. and Fujita, S.: Purification and characterization of a dog cytochrome P450 isozyme belonging to the CYP2D subfamily and development of its antipeptide antibody. *Drug Metab. Disp.*, 23 (1995) 1268-1273.
- 1807 Ponasik, J.A., Strickland, C., Faerman, C., Savvides, S., Karplus, P.A. and Ganem, B.: Kukoamine A and other hydrophobic acylpolyamines: potent and selective inhibitors of *Crithidia fasciculata* trypanothione reductase. *Biochem. J.*, 311 (1995) 371-375.
- 1808 Soukri, A., Hafid, N., Valverde, F., Elkebbaj, M.S. and Serrano, A.: Evidence for a posttranslational covalent modification of liver glyceraldehyde-3-phosphate dehydrogenase in hibernating jerboa (*Jaculus orientalis*). *Biochim. Biophys. Acta*, 1292 (1996) 177-187.
- 1809 Trost, P., Bonora, P., Scagliarini, S. and Pupillo, P.: Purification and properties of NAD(P)H quinone-receptor oxidoreductase of sugarbeet cells. *Eur. J. Biochem.*, 234 (1995) 452-458.
- 1810 Ueng, Y.-F. and Ueng, T.-H.: Induction and purification of cytochrome P450 1A1 from 3-methylcholanthrene-treated tilapia, *Oreochromis niloticus* x *Oreochromis aureus*. *Arch. Biochem. Biophys.*, 322 (1995) 347-356.
- 1811 Wallace, K.K., Bao, Z.-Y., Dai, H., Digate, R., Schuler, G., Speedie, M.K. and Reynolds, K.A.: Purification of crotonyl-CoA reductase from *Streptomyces collinus* and cloning, sequencing and expression of the corresponding gene in *Escherichia coli*. *Eur. J. Biochem.*, 233 (1995) 954-962.
- 1812 Warne, A., Wang, D.N. and Saraste, M.: Purification and two-dimensional crystallization of bacterial cytochrome oxidases. *Eur. J. Biochem.*, 234 (1995) 443-451.
- 1813 Westphal, A.H., Fabisz-Kijowska, A., Kester, H., Obels, P.P. and de Kok, A.: The interaction between lipoamide dehydrogenase and the peripheral-component-binding domain from the *Azobacter vinelandii* pyruvate dehydrogenase complex. *Eur. J. Biochem.*, 234 (1995) 861-870.
- 1814 Willows, R.D., Gibson, L.C.D., Kanangara, C.G., Hunter, C.N. and von Wettstein, D.: Three separate proteins constitute the magnesium chelatase of *Rhodobacter sphaeroides*. *Eur. J. Biochem.*, 235 (1996) 438-443.
- 1815 Yamazaki, T., Oyanagi, H., Fujiwara, T. and Fukumori, Y.: Nitrite reductase from the magnetotactic bacterium *Magnetospirillum magnetotacticum*. A novel cytochrome cd₁ with Fe(II):nitrite oxidoreductase activity. *Eur. J. Biochem.*, 233 (1995) 665-671.
- 1816 Zhou, L.-X., Dehal, S.S., Kupfer, D., Morrell, S., McKenzie, B.A., Eccleston, E.D., Jr. and Holtzman, J.L.: Cytochrome P450 catalyzed covalent binding of methoxychlor to rat hepatic, microsomal iodothyronine 5'-monoiodinase, type I: does exposure to methoxychlor disrupt thyroid hormone metabolism? *Arch. Biochem. Biophys.*, 322 (1995) 390-394.

See also 1196, 1637.

20b. *Transferases (excl. E.C. 2.7.-.-)*

- 1817 Bourguignon, J., Merand, V., Rawsthorne, S., Forest, E. and Douce, R.: Glycine dicarboxylase and pyruvate dehydrogenase complexes share the same dihydrolipoamide dehydrogenase in pea leaf mitochondria: evidence from mass spectrometry and primary-structure analysis. *Biochem. J.*, 313 (1996) 229-234.
- 1818 Brody, S., Andersen, J.S., Kannangara, S.G., Meldgaard, M., Roepstorff, P. and von Wettstein, D.: Characterization of the different spectral forms of glutamate 1-semialdehyde aminotransferase by mass spectrometry. *Biochemistry*, 34 (1995) 15918-15924.
- 1819 Glover, C.J. and Felsted, R.L.: Identification and characterization of multiple forms of bovine brain N-myristoyltransferase. *J. Biol. Chem.*, 270 (1995) 23226-23233.
- 1820 Hashimoto, W., Suzuki, H., Nohara, S., Tachi, H., Yamamoto, K. and Kumagai, H.: Subunit association of γ -glutamyltranspeptidase of *Escherichia coli* K-12. *J. Biochem. (Tokyo)*, 118 (1995) 1216-1223.
- 1821 James, F., Nolte, K.D. and Hanson, A.D.: Purification and properties of S-adenosyl-L-methionine:L-methionine S-methyltransferase from *Wollastonia biflora* leaves. *J. Biol. Chem.*, 270 (1995) 22344-22350.
- 1822 Meyer, D.J. and Thomas, M.: Characterization of rat spleen prostaglandin H D-isomerase as a sigma class GSH transferase. *Biochem. J.*, 311 (1995) 739-742.
- 1823 Oguri, K., Kurogi, A., Yamabe, K.-i., Tanaka, M., Yoshisue, K., Ishii, Y. and Yoshimura, H.: Purification of a phenobarbital-inducible UDP-glucuronosyltransferase isoform from dog liver which catalyzes morphine and testosterone glucuronidation. *Arch. Biochem. Biophys.*, 325 (1996) 159-166.
- 1824 Ohashi, H., Itoh, Y., Birckbichler, P.J. and Takeuchi, Y.: Purification and characterization of rat brain transglutaminase. *J. Biochem. (Tokyo)*, 118 (1995) 1271-1278.
- 1825 Primiano, T., Egner, P.A., Sutter, T.R., Kelloff, G.J., Roebuck, B.D. and Kensler, T.W.: Intermittent dosing with oltipraz: relationship between chemoprevention of aflatoxin-induced tumorigenesis and induction of glutathione S-transferases. *Cancer Res.*, 55 (1995) 4319-4324.
- 1826 Schauss, S.J., Henry, T., Palmatier, R., Halvorson, L., Dannenbring, R. and Beckmann, J.D.: Characterization of bovine tracheobronchial phenol sulphotransferase cDNA and detection of mRNA regulation by cortisol. *Biochem. J.*, 311 (1995) 209-217.
- 1827 Woodcock, S.C. and Warren, M.J.: Evidence for a covalent intermediate in the S-adenosyl-L-methionine-dependent transmethylation reaction catalysed by sirohaem synthase. *Biochem. J.*, 313 (1996) 415-421.
- 1828 Yamada, S., Tanaka, Y., Furuichi, M.: Partial purification and characterization of histidine acetyltransferase in brain of Nile tilapia (*Oreochromis niloticus*). *Biochim. Biophys. Acta*, 1245 (1995) 239-247.
- 1829 Yamashita, A., Watanabe, M., Tonegawa, T., Sugiura, T. and Waku, K.: Acyl-CoA binding and acylation of UDP-glucuronosyltransferase isoforms of rat liver: their effect on enzyme activity. *Biochem. J.*, 312 (1995) 301-308.

20c. *Transferases transferring phosphorus containing groups (E.C. 2.7.-.-)*

- 1830 Chavan, S.J., Bornmann, W.G., Flexner, C. and Prochaska, H.J.: Inactivation of human immunodeficiency virus type 1 reverse transcriptase by oltipraz: evidence for the formation of a stable adduct. *Arch. Biochem. Biophys.*, 324 (1995) 143-152.
- 1831 Chen, L.C., Wu, C.Y., Chen, C.F. and Chiang, C.F.: Purification of chlorpromazine-sensitive GTPase from rat cerebral cortex. *Prepar. Biochem.*, 25 (1995) 183-195.
- 1832 Durante, R., Raleigh, X., Gomez, M.E., Campos, G. and Ryder, E.: Isozyme analysis of human normal polymorphonuclear leukocyte phosphofructokinase. *Biochem. Biophys. Res. Commun.*, 216 (1995) 898-905.
- 1833 Feil, R., Kellermann, J. and Hofmann, F.: Functional cGMP-dependent protein kinase is phosphorylated in its catalytic domain at threonine-516. *Biochemistry*, 34 (1995) 13152-13158.
- 1834 Gobert, S., Duprez, V., Lacombe, C., Gisselbrecht, S. and Mayeux, P.: The signal transduction pathway of erythropoietin involves three forms of mitogen-activated protein (MAP) kinase in U73 erythroleukemia cells. *Eur. J. Biochem.*, 234 (1995) 75-83.
- 1835 Gross, W. and Schnarrenberger, C.: Purification and characterization of a galactose-1-phosphate:UDP-glucose uridylyltransferase from the red alga *Galdieria sulphuraria*. *Eur. J. Biochem.*, 234 (1995) 258-263.
- 1836 Litchfield, D.W., Bosc, D.G. and Slominski, E.: The protein kinase from mitotic human cells that phosphorylates Ser-209 on the casein kinase II β -subunit is p34^{cdc2}. *Biochim. Biophys. Acta*, 1269 (1995) 69-78.
- 1837 Lopez Buesa, P., Schwaegele, F. and Honikel, K.O.: Purification and isoenzymic composition of glycogen phosphorylase b from normal and abnormal (PSE) muscles. *Z. Lebensm.-Unters. Forsch.*, 201 (1995) 30-34; C.A., 123 (1995) 226380u.
- 1838 Nesterova, M., Yokozaki, H., McDuffie, E. and Cho-Chung, Y.S.: Overexpression of RII β regulatory subunit of protein kinase A in human colon carcinoma cell induces growth arrest and phenotypic changes that are abolished by site-directed mutation of RII β . *Eur. J. Biochem.*, 235 (1996) 486-494.
- 1839 Oekrun, K., Petry, H., Jentsch, K.-D., Moosmayer, D., Hunsmann, G. and Lücke, W.: Expression and characterization of the reverse transcriptase enzyme from type I human immunodeficiency virus using different baculoviral vector systems. *Eur. J. Biochem.*, 234 (1995) 811-818.
- 1840 Schlattner, U., Wagner, E., Greppin, H. and Bonzon, M.: Binding of adenylate kinase to RNA. *Biochem. Biophys. Res. Commun.*, 217 (1995) 509-514.
- 1841 Scott, A., Haystead, C.M.M. and Haystead, T.A.J.: Purification of a 12,020-dalton protein that enhances the activation of mitogen-activated protein (MAP) kinase by MAP kinase kinase. *J. Biol. Chem.*, 270 (1995) 24540-24547.
- 1842 Thorne, N.M.H., Hankin, S., Wilkinson, M.C., Nunez, C., Barraclough, R. and McLennan, A.G.: Human diadenosine 5',5'-P₁,P₄-tetrphosphate pyrophosphohydrolase is a member of the MutT family of nucleotide pyrophosphatases. *Biochem. J.*, 311 (1995) 717-721.

See also 1191, 1639, 1679, 1813, 1900.

- 1843 Venetianer, A., Dubois, M.-F., Nguyen, V.T., Bellier, S., Seo, S.-J. and Bensaude, O.: Phosphorylation state of the RNA polymerase II C-terminal domain (CTD) in heat-shocked cells. Possible involvement of the stress-activated mitogen-activated protein (MAP) kinases. *Eur. J. Biochem.*, 233 (1995) 83-92.
- 1844 Zemska, M.A., Shur, S.A., Skolysheva, L.K. and Vulfson, P.L.: (Association of rabbit skeletal muscle phosphorylase kinase with sarcoplasmic reticulum membranes). *Biokhimiya (Moscow)*, 60 (1995) 1903-1910.
- For additional information see C.A.:
123 (1995) 192368d.
- See also 1196, 1638, 1651, 1901.
- 20d. *Hydrolases, acting on ester bonds (E.C. 3.1.-.-)*
- 1845 Bielicki, J., Fuller, M., Guo, X.-H., Morris, C.P., Hopwood, J.J. and Anson, D.S.: Expression, purification and characterization of recombinant human N-acetylgalactosamine-6-sulphatase. *Biochem. J.*, 311 (1995) 333-339.
- 1846 Buhl, W.-J., Eisenlohr, L.M., Preuss, I. and Gehring, U.: A novel phospholipase A₂ from human placenta. *Biochem. J.*, 311 (1995) 147-153.
- 1847 Hattori, K., Hattori, M., Adachi, H., Tsujimoto, M., Arai, H. and Inoue, K.: Purification and characterization of platelet-activating factor acetylhydrolase II from bovine liver cytosol. *J. Biol. Chem.*, 270 (1995) 22308-22313.
- 1848 Lee, Y.C., Lee, B.J., Hwang, D.S. and Kang, H.S.: Purification and characterization of mitochondrial ribonuclease P from *Aspergillus nidulans*. *Eur. J. Biochem.*, 235 (1996) 289-296.
- 1849 Nishimura, M. and Uyeda, K.: Purification and characterization of a novel xylulose 5-phosphate-activated protein phosphatase catalyzing dephosphorylation of fructose-6-phosphate, 2-kinase:fructose-2,6-bisphosphatase. *J. Biol. Chem.*, 270 (1995) 26341-26346.
- 1850 Nocito, M., Roy, G., Villar, L.M., Palacios, C., Serrano, A., Alvarez-Cermeño, J.C. and González-Porqué, P.: Thioesterase and protein deacylase activities of porcine pancreatic phospholipase A₂. *Biochim. Biophys. Acta*, 1299 (1996) 17-22.
- 1851 Pidgeon, C., Cai, S.J. and Bernal, C.: Mobile phase effects on membrane protein elution during immobilized artificial membrane chromatography. *J. Chromatogr. A*, 721 (1996) 213-230.
- 1852 Rhode, H., Hoffmann-Blume, E., Schilling, K., Gehrhardt, S., Göhlert, A., Büttner, A., Bublitz, R., Cumme, G.A. and Horn, A.: Glycosylphosphatidylinositol-alkaline phosphatase from calf intestine as substrate for glycosylphosphatidylinositol-specific phospholipase - microassay using hydrophobic chromatography in pipet tips. *Anal. Biochem.*, 231 (1995) 99-108.
- 1853 Shvets, E.K., Sazonova, I.N. and Novozhilov, K.V.: (Purification of butyrylcholine esterase from aphids by using column chromatography on Sephadex G-75). *Russ. RU* 2,005,782 (Cl. C12N9/16), 15 Jan. 1994, SU Appl. 4,930,591, 22 Apr. 1991; C.A., 123 (1995) 221777u.
- 1854 Somma-Delpero, C., Valette, A., Lepetit-Thevenin, J., Nobili, O., Boyer, J. and Verine, A.: Purification and properties of a monoacylglycerol lipase in human erythrocytes. *Biochem. J.*, 312 (1995) 519-525.
- 1855 Spoto, G., Berardi, S., Ajerba, G. and de Laurentiis, V.: A reverse-phase HPLC method for cyclic nucleotide phosphodiesterases activity and classification. *Adv. Exp. Med. Biol.*, 370(Purine and Pyrimidine Metabolism in Man VIII) (1994) 815-820; C.A., 124 (1996) 24402n.
- 1856 Stromqvist, M., Lindgren, K., Hansson, L. and Juneblad, K.: Differences in the glycosylation of recombinant and native human milk bile salt-stimulated lipase revealed by peptide mapping. *J. Chromatogr. A*, 718 (1995) 53-58.
- 1857 Szabo-Nagy, A. and Erdei, L.: Phosphatase induction under stress conditions in wheat. *Dev. Plant Soil Sci.*, 58 (1995) 163-167; C.A., 123 (1995) 223128g.
- 1858 Takeshita, H., Yasuda, T., Nadano, D., Iida, R. and Kishi, K.: Deoxyribonuclease I from rat urine: affinity purification, characterization, and immunochemical studies. *J. Biochem. (Tokyo)*, 118 (1995) 932-938.
- 1859 Tsuzuki, W., Akasaka, K., Kobayashi, S. and Suzuki, T.: Kinetics of organic solvent-soluble and native lipase. *J. Am. Oil Chem. Soc. (AOCS)*, 72 (1995) 1333-1337.
- 1860 Verjeij, P., Vinke, E., Keltjens, J.T. and van der Drift, C.: Purification and properties of coenzyme F₃₉₀ hydrolase from *Methanobacterium thermoautotrophicum* (strain Marburg). *Eur. J. Biochem.*, 234 (1995) 592-597.
- 1861 Wang, Y., Santini, F., Qin, K. and Huang, C.Y.: A Mg²⁺-dependent, Ca²⁺-inhibitable serine/threonine protein phosphatase from bovine brain. *J. Biol. Chem.*, 270 (1995) 25607-25612.
- 1862 Yamada, J., Furihata, T., Tamura, H., Watanabe, T. and Suga, T.: Long-chain acyl-CoA hydrolase from rat brain cytosol: purification, characterization, and immunohistochemical localization. *Arch. Biochem. Biophys.*, 326 (1996) 106-114.
- 1863 Zhao, S., Xia, W. and Lee, E.Y.C.: Affinity chromatography of regulatory subunits of protein phosphatase-1. *Arch. Biochem. Biophys.*, 325 (1996) 82-90.
- For additional information see C.A.:
123 (1995) 309139y.
- See also 1183, 1430, 1442, 1444, 1941.
- 20e. *Hydrolases, acting on glycosyl compounds (E.C. 3.2.-.-)*
- 1864 Basco, R.D., Cueva, R., Andaluz, E. and Larriba, G.: *In vivo* processing of the precursor of the major exoglucanase by KEX2 endoprotease in the *Saccharomyces cerevisiae* secretory pathway. *Biochim. Biophys. Acta*, 1310 (1996) 110-118.
- 1865 Camperi, S.A., Auday, R.M., Navarro del Canizo, A. and Cascone, O.: Study of variables involved in fungal pectic enzyme fractionation by immobilized metal ion affinity chromatography. *Process Biochem. (Oxford)*, 31 (1996, Pub. 1995) 81-87; C.A., 123 (1995) 279455d.
- 1866 Fukamizo, T., Honda, Y., Goto, S., Boucher, I. and Brezinski, R.: Reaction mechanism of chitosanase from *Streptomyces* sp. N174. *Biochem. J.*, 311 (1995) 377-383.
- 1867 Han, S.J., Yoo, Y.J. and Kang, H.S.: Characterization of a bifunctional cellulase and its structural gene. The cell gene of *Bacillus* sp. D04 has exo- and endoglucanase activity. *J. Biol. Chem.*, 270 (1995) 26012-26019.
- 1868 Noppe, W., Hanssens, I. and de Cuyper, M.: Simple two-step procedure for the preparation of highly active pure equine milk lysozyme. *J. Chromatogr. A*, 719 (1996) 327-331.

For additional information see C.A.:
123 (1995) 333767x.

See also 1183, 1627, 1641, 1646, 1652.

20f. *Other hydrolases*

- 1869 Asami, M., Sekihara, T., Hanaoka, T., Goya, T., Matsui, H. and Hayashi, Y.: Quantification of the Na⁺/K⁺-pump in solubilized tissue by the ouabain binding method coupled with high-performance gel chromatography. *Biochim. Biophys. Acta*, 1240 (1995) 55-64.
- 1870 Atkinson, P.R., Hilton, M.D. and Lambooy, P.K.: Purification and preliminary characterization of dDAP, a novel dipeptidyl-aminopeptidase from *Dictyostelium discoideum*. *Biochemistry*, 34 (1995) 10827-10834.
- 1871 Fricke, B., Buchmann, T. and Friebe, S.: Unusual chromatographic behaviour and one-step purification of a novel membrane proteinase from *Bacillus cereus*. *J. Chromatogr. A*, 715 (1995) 247-258.
- 1872 Goossens, F., de Meester, I., Vanhoff, G., Hendriks, D., Vriend, G. and Scharpe, S.: The purification, characterization and analysis of primary and secondary structure of prolyloligopeptidase from human lymphocytes. Evidence that the enzyme belongs to the $\alpha\beta$ hydrolase fold family. *Eur. J. Biochem.*, 233 (1995) 432-441.
- 1873 Green, B.N., Jones, A.T. and Roberts, N.B.: Electrospray mass spectrometric evidence for the occurrence of two major variants in native pig pepsin A. *Biochem. J.*, 313 (1996) 241-244.
- 1874 Jaroszewicz, L. and Kowalczyk, K.: Adenosine deaminase from human thyroid purification and some properties. *Biochem. Biophys. Res. Commun.*, 215 (1995) 1096-1103.
- 1875 Jean, D., Hermann, J., Rodrigues-Lima, F., Barel, N., Balbo, M. and Frade, R.: Identification of melanoma cells of p39, a cysteine protease that cleaves C3, the third compound of complement: amino-acid-sequence identities with procathepsin L. *Biochem. J.*, 312 (1995) 961-969.
- 1876 Johnston, D., Hermans, J.M. and Yellowless, D.: Isolation and characterization of a trypsin from the slipper lobster, *Thenus orientalis* (Lund). *Arch. Biochem. Biophys.*, 324 (1995) 35-40.
- 1877 Laurent, V. and Salzet, M.: Isolation of a neuropeptide-degrading endopeptidase from the leech *Theromyzon tessulatum*. *Eur. J. Biochem.*, 233 (1995) 186-191.
- 1878 McDonald, J.K. and Emerick, J.M.C.: Purification and characterization of procathepsin L, a self processing zymogen of guinea pig spermatozoa that acts on a cathepsin D assay substrate. *Arch. Biochem. Biophys.*, 323 (1995) 409-422.
- 1879 McGrath, J.W., Wisdom, G.B., McMullan, G., Larkin, M.J. and Quinn, J.P.: The purification and properties of phosphonoacetate hydrolase, a novel carbon-phosphorus bond-cleavage enzyme from *Pseudomonas fluorescens*. *Eur. J. Biochem.*, 234 (1995) 225-230.
- 1880 Nielsen, P.K. and Foltmann, B.: Purification and characterization of porcine pepsinogen B and pepsin B. *Arch. Biochem. Biophys.*, 322 (1995) 417-422.
- 1881 Okamura, N., Tamba, M., Uchiyama, Y., Sugita, Y., Dacheux, F., Syntin, P. and Dacheux, J.-L.: Direct evidence for the elevated synthesis and secretion of procathepsin L in the distal caput epididymis of boar. *Biochim. Biophys. Acta*, 1245 (1995) 221-226.
- 1882 Petersen, L.C., Bjorn, S.E., Olsen, O.H., Nordfang, O., Norris, F. and Norris, K.: Inhibitory properties of separate recombinant Kunitz-type-protease-inhibitor domains from tissue-factor-pathway inhibitors. *Eur. J. Biochem.*, 235 (1996) 310-316.
- 1883 Sevigny, J., Cote, Y.P. and Beaudoin, A.R.: Purification of pancreas type-I ATP diphosphohydrolase and identification by affinity labelling with the 5'-p-fluorosulphonylbenzoyl-adenosine ATP analogue. *Biochem. J.*, 312 (1995) 351-356.
- 1884 Song, L. and Fricker, L.D.: Purification and characterization of carboxypeptidase D, a novel carboxypeptidase E-like enzyme, from bovine pituitary. *J. Biol. Chem.*, 270 (1995) 25007-25013.
- 1885 Tello-Solis, S.R. and Hernandez-Arana, A.: Effect of irreversibility on the thermodynamic characterization of the thermal denaturation of *Aspergillus saitoi* acid proteinase. *Biochem. J.*, 311 (1995) 969-974.
- 1886 Tsigos, I. and Bouriotis, V.: Purification and characterization of chitin deacetylase from *Colletotrichum lindemuthianum*. *J. Biol. Chem.*, 270 (1995) 26286-26291.
- 1887 Tsuji, A., Edazawa, K., Sakiyama, K., Nagata, K., Sasaki, Y., Nagamune, H. and Matsuda, Y.: Purification and characterization of a novel serine proteinase from the microsomal fraction of bovine pancreas. *J. Biochem. (Tokyo)*, 119 (1996) 100-105.
- 1888 Tsukuba, T., Sakai, H., Yamada, M., Maeda, H., Hori, H., Azuma, T., Akamine, A. and Yamamoto, K.: Biochemical properties of the monomeric mutant of human cathepsin E expressed in Chinese hamster ovary cells: comparison with dimeric forms of the natural and recombinant cathepsin E. *J. Biochem. (Tokyo)*, 119 (1996) 126-134.
- 1889 Usha, R. and Singh, M.: Proteases germinating winged-bean (*Psophocarpus tetragonolobus*) seeds: purification and characterization of an acidic protease. *Biochem. J.*, 313 (1996) 423-429.
- 1890 Verissimo, P., Faro, C., Moir, A.J.G., Lin, Y., Tang, J. and Pires, E.: Purification, characterization and partial amino acid sequencing of two new aspartic proteinases from fresh flowers of *Cynara cardunculus* L. *Eur. J. Biochem.*, 235 (1996) 762-768.
- 1891 Vernigora, A.N., Nikishin, N.N. and Gengin, M.T.: (Partial characterization of basic phenylmethanesulfonyl fluoride-inhibited carboxypeptidase from cat brain). *Biokhimiya (Moscow)*, 60 (1995) 1860-1866.
- 1892 Xu, Z., de Windt, F.E. and van der Drift, C.: Purification and characterization of allantoate aminohydrolase from *Bacillus fastidiosus*. *Arch. Biochem. Biophys.*, 324 (1995) 99-104.
- 1893 Yamagata, A., Yoshida, N., Noda, K. and Ito, A.: Purification and characterization of a new serine proteinase from *Bacillus subtilis* with specificity for amino acids at P₁ and P₂ positions. *Biochim. Biophys. Acta*, 1253 (1995) 224-228.
- 1894 Yamakaki, K., Hamajima, A., Akao, S. and Tadakuma, T.: Purification and characterization of acid cysteine protease from metacercariae of the mammalian trematode parasite *Paragonimus westermani*. *Eur. J. Biochem.*, 233 (1995) 490-497.
- 1895 Yonezawa, H., Uchikoba, T. and Kaneda, M.: Identification of the reactive histidine of cucurmin, a plant serine protease: modification with peptidyl chloromethyl ketone derivative of peptide substrate. *J. Biochem. (Tokyo)*, 118 (1995) 917-920.

See also 1183, 1644, 1649, 1779, 1839.

20g. Lyases

- 1896 Canepari, S., Carunchio, V., Girelli, A.M. and Messina, A.: Determination of argininosuccinate lyase in human serum by ion-pair reversed phase liquid chromatography. *Biomed. Chromatogr.*, 9 (1995) 171-174; *C.A.*, 123 (1995) 221404v.
- 1897 Chikuma, T., Matsunoto, K., Furukawa, A., Nakayama, N., Yajima, R., Kato, T., Ishii, Y. and Tanaka, A.: A fluorometric assay for measuring deaminase (lysosomal protective protein) using high-performance liquid chromatography. *Anal. Biochem.*, 233 (1996) 36-41.
- 1898 Gu, K., Linhardt, R.J., Laliberte, M., Gu, K. and Zimmermann, J.: Purification, characterization and specificity of chondroitin lyases and glucuronidase from *Flavobacterium heparinum*. *Biochem. J.*, 312 (1995) 569-577.
- 1899 Mitchell, C.G.: Identification of a multienzyme complex of the tricarboxylic acid cycle enzymes containing citrate synthase isoenzymes from *Pseudomonas aeruginosa*. *Biochem. J.*, 313 (1996) 769-774.
- 1900 Nishitani, H., Kikuchi, S., Okumura, K. and Taguchi, H.: Finding of a homarine-synthesizing enzyme in turban shell and some properties of the enzyme. *Arch. Biochem. Biophys.*, 322 (1995) 327-332.

See also 1647.

20h. Isomerases

- 1901 Donella-Deana, A., James, P., Staudenmann, W., Cesaro, L., Marin, L., Brunati, A.M., Ruzzene, M. and Pinna, L.A.: Isolation from spleen of a 57-kDa protein substrate of the tyrosine kinase Lyn. Identification as a protein related to protein disulfide-isomerase and localisation of the phosphorylated sites. *Eur. J. Biochem.*, 235 (1996) 18-25.
- 1902 Johnson, J.L., Winsatt, J., Buckel, S.D., Dyer, R.D. and Maddipati, K.R.: Purification and characterization of prostaglandin H synthase-2 from sheep placental cotyledons. *Arch. Biochem. Biophys.*, 324 (1995) 26-34.
- 1903 Meyer, D.J., Muimo, R., Thomas, M., Coates, D. and Isaac, R.E.: Purification and characterization of prostaglandin-H E-isomerase, a sigma-class glutathione S-transferase, from *Ascaridia galli*. *Biochem. J.*, 313 (1996) 223-227.

20i. Ligases

- 1904 Nadkarni, A.K., McDonough, V.M., Yang, W., Stucky, J.E., Ozier-Kalogeropoulos, O. and Carman, G.M.: Differential biochemical regulation of the URA7- and URA8-encoded CTP synthetases from *Saccharomyces cerevisiae*. *J. Biol. Chem.*, 270 (1995) 24982-24988.

20j. Complex mixtures and incompletely identified enzymes

See 1816.

21. PURINES, PYRIMIDINES, NUCLEIC ACIDS AND THEIR CONSTITUENTS

21a. Purines, pyrimidines, nucleosides, nucleotides

- 1905 Boado, R.J., Kang, Y.-S., Wu, D. and Pardridge, W.M.: Rapid plasma clearance and metabolism *in vivo* of a phosphorothioate oligodeoxynucleotide with a simple internal phosphodiester bond. *Drug Metab. Disp.*, 23 (1995) 1297-1300.
- 1906 Crooke, R.M., Graham, M.J., Cooke, M.E. and Crooke, S.T.: *In vitro* pharmacokinetics of phosphorothioate antisense oligonucleotides. *J. Pharmacol. Exp. Ther.*, 275 (1995) 462-473.
- 1907 Fujiwara, S. and Noguchi, T.: Degradation of purines: only ureidoglycolate lyase out of four allantoin-degrading enzymes is present in mammals. *Biochem. J.*, 312 (1995) 315-318.
- 1908 Gilles, A.-M., Cristea, I., Palibroda, N., Hilden, I., Jensen, K.F., Sarfati, R.S., Nahane, A., Ughetto-Monfrin, J. and Barzu, O.: Chemenzymatic synthesis of uridine nucleotides labeled with [¹⁵N] and [¹³C]. *Anal. Biochem.*, 232 (1995) 197-203.
- 1909 Glover, R.P., Sweetman, G.M.A., Farmer, P.B. and Roberts, G.C.K.: Sequencing of oligonucleotides using high performance liquid chromatography and electrospray mass spectrometry. *Rapid Commun. Mass Spectrom.*, 9 (1995) 897-901; *C.A.*, 123 (1995) 222124r.
- 1910 Kim, J.-D., Row, K.H., So, M.S., Polunina, I.A. and Larin, A.V.: Chromatographic behavior of deoxyribonucleosides with respect to organic modifier content in the mobile phase. *J. Liq. Chromatogr.*, 18 (1995) 3091-3104.
- 1911 Kim, R., Holbrook, E., Litzenberger, Jancarik, J. and Kim, S.-H.: Synthesis and purification of milligram quantities of short RNA transcripts. *BioTechniques*, 18 (1995) 992-994; *C.A.*, 123 (1995) 192669c.
- 1912 Kuga, Y., Sato, H. and Kawabe, H.: (Affinity chromatography of nucleosides using resin containing cytosine). *Chiba Kogyo Daigaku Kenkyu Hokoku, Riko-hen*, 42 (1995) 55-59; *C.A.*, 123 (1995) 217368u.
- 1913 Lee, Y.-W., Row, K.H., So, M.S., Polunina, I.A. and Larin, A.V.: Reversed-phase HPLC retention of deoxyribonucleosides as a function of mobile phase composition. *J. Liq. Chromatogr.*, 18 (1995) 3077-3089.
- 1914 Mishra, R.K., Moreau, C., Ramazeilles, C., Moreau, S., Bonnet, J. and Toulmé, J.-J.: Improved leishmanicidal effect of phosphorothioate antisense oligonucleotides by LDL-mediated delivery. *Biochim. Biophys. Acta*, 1264 (1995) 229-237.
- 1915 Murray, J.B., Adams, C.J., Arnold, J.R.P. and Stockley, P.G.: The roles of the conserved pyrimidine bases in hammerhead ribozyme catalysis: evidence for a magnesium ion-binding site. *Biochem. J.*, 311 (1995) 487-494.
- 1916 Nakashima, K., Inoue, K., Mayahara, K., Kuroda, N., Hamachi, Y. and Akiyama, S.: Use of 3-(1,8-naphthalimido)propyl-modified silyl silica gel as a stationary phase for the high-performance liquid chromatographic separation of purine derivatives. *J. Chromatogr. A*, 722 (1996) 107-113.
- 1917 Pierro, D., Tavazzi, B., Perno, C.F., Bartolini, M., Balestra, E., Calio, R., Giardina, B. and Lazzarino, G.: An ion-pairing high-performance liquid chromatographic method for the direct simultaneous determination of nucleotides, deoxynucleotides, nicotine coenzymes, oxopurines, nucleosides, and bases in perchloric acid cell extracts. *Anal. Biochem.*, 231 (1995) 407-412.

- 1918 Roef, L., Witters, E., Gadeyne, J., Marcussen, J., Newton, R.P. and van Onckelen, H.A.: Analysis of 3',5'-cAMP and adenylyl cyclase activity in higher plants using polyclonal chicken egg yolk antibodies. *Anal. Biochem.*, 233 (1996) 188-196.
- 1919 Romanova, D. and Novotny, L.: Chromatographic properties of cytosine, cytidine and their synthetic analogues. *J. Chromatogr. B*, 675 (1996) 9-15.
- 1920 Sato, H. and Kawabe, H.: (Affinity chromatography of nucleosides by resin containing thymine). *Chiba Kogyo Daigaku Kenkyu Hokoku, Riko-hen*, 42 (1995) 61-68; *C.A.*, 123 (1995) 217369v.
- 1921 Thoithi, G., van Schepdael, A., Busson, R., Herdewijn, P., Roets, E. and Hoogmartens, J.: Evaluation of the kinetics of hydrolysis of monoamino analogs of 2'- or 3'-deoxyadenosine and of 9-(2-deoxy- β -D-threo-pentofuranosyl)adenine or 9-(3-deoxy- β -D-threo-pentofuranosyl)adenine by liquid chromatography. *Nucleosides Nucleotides*, 14 (1995) 1559-1579; *C.A.*, 124 (1996) 9309u.
- 1922 Vaca, C.E., Cconradi, M., Sievertzon, M. and Bergman, J.: Synthesis of fluorescent derivatives of 7-methylguanine through reaction with 2-aryl-substituted malondialdehydes: analysis by HPLC with fluorescence detection. *Chem.-Biol. Interact.*, 93 (1994) 235-249; *C.A.*, 123 (1995) 192915e.
- 1923 Wingerath, T., Stahl, W. and Sies, H.: β -Cryptoxanthin selectivity increases in human chylomicrons upon investigation of tangerine concentrate rich in β -cryptoxanthin esters. *Arch. Biochem. Biophys.*, 324 (1995) 385-390.
- See also 1116, 1731, 1926, 1927, 1934, 1978, 2073, 2254, 2271, 2274, 2285.
- 21b. *Nucleic acids, RNA*
- 1924 Benkowski, L.A., Ravel, J.M. and Browning, K.S.: Development of an *in vitro* translation system for wheat germ that is dependent upon the addition of eukaryotic initiation factor 2. *Anal. Biochem.*, 232 (1995) 140-143.
- 1925 Nakagawa, H., Matsubara, S., Kuriyama, M., Yoshidome, H., Fujiyama, J., Yoshida, H. and Osame, M.: Cloning of rat lisomal acid lipase cDNA and identification of the mutation in the rat model of Wolman's disease. *J. Lipid Res.*, 36 (1995) 2212-2218.
- 1926 Vinayk, R., Andrus, A., Sinha, N.D. and Hampel, A.: Assay of ribozyme-substrate cleavage by anion-exchange high-performance liquid chromatography. *Anal. Biochem.*, 232 (1995) 204-209.
- See also 1012, 1928.
- 21c. *Nucleic acids, DNA*
- 1927 Arghavani, M.B. and Romano, L.J.: A method for the purification of oligonucleosides containing strong intra- or intermolecular interactions by reversed-phase high-performance liquid chromatography. *Anal. Biochem.*, 231 (1995) 201-209.
- 1928 Bastian, H., Gauch, S., Colpan, M. and Feuser, P.: Process for separating double-stranded/single-stranded nucleic acid structures. *PCT Int. Appl. WO 95 21,849* (Cl. C07H1/08), 17 Aug. 1995, DE Appl. 4,404,361, 11 Feb. 1994; 45 pp.; *C.A.*, 123 (1995) 250653f.
- 1929 He, Y., Cao, E., Bai, C., Fang, Y. and Zhang, P.: (Purification of triple stranded DNA). *Shengwu Huaxue Yu Shengwu Wuli Xuebao*, 27 (1995) 293-297; *C.A.*, 124 (1996) 4224c.
- 1930 Hirabayashi, J. and Kasai, K.-i.: Applied slalom chromatography. Improved DNA separation by the use of columns developed for reversed-phase chromatography. *J. Chromatogr. A*, 722 (1996) 135-142.
- 1931 Hirabayashi, J. and Kasai, K.-i.: Recent advances in slalom chromatography. A novel size-fractionation method for DNA based on a hydrodynamic principle. In: Hatano, H. and Hanai, T. (Editors), *Int. Symp. Chromatogr., 35th Anniv. Res. Group Liq. Chromatogr. Jpn.*, World Scientific, Singapore, 1995, pp. 319-323; *C.A.*, 123 (1995) 280027x.
- 1932 Kasai, K.-i. and Hirabayashi, J.: Slalom chromatography. Ski game enabling size-dependent ranking of DNA molecules. *Am. Lab. (Shelton)*, 27 (1995) 199-201; *C.A.*, 123 (1995) 222029p.
- 1933 Palmer, E.L., Gewiess, A., Harp, J.M., York, M.H. and Bunick, G.J.: Large-scale production of palindrome DNA fragments. *Anal. Biochem.*, 231 (1995) 109-114.
- 1934 Strobel, O.K., Keyes, R.S., Sinden, R.R. and Bobst, A.M.: Rigidity of a B-Z region incorporated into a plasmid as monitored by electron paramagnetic resonance. *Arch. Biochem. Biophys.*, 324 (1995) 357-366.
- 1935 Wada, T., Watanabe, H., Kawaguchi, H. and Handa, H.: DNA affinity chromatography. *Methods Enzymol.*, 254 (1995) 595-604; *C.A.*, 124 (1996) 1606t - a review with 17 refs.
- See also 1012.
- 21d. *Structural studies on RNA and RNA mapping*
- 1936 Ebersole, R.C., Fitzpatrick-Mcelligott, S., Hendrickson, E.R., Marjarian, W.R., Payne, M.S. and Rafalski, J.A.: A method for detection of nucleic acid fragments using chromatog. bibulous porous material test strip and specific capture zone. *PCT Int. Appl. WO 95 27,081* (Cl. C12Q1/68), 12 Oct. 1995, US Appl. 221,769, 31 Mar. 1994; 80 pp.; *C.A.*, 124 (1996) 2537h.
- See also 1909.
- 21e. *Structural studies on DNA and DNA mapping*
- 1937 Vanhoutte, K., Joos, P., Lemiere, F., van Dongen, W., Esmans, E.L., Claeys, M. and van den Eeckhout, E.: Thermospray liquid chromatography-mass spectrometry of the DNA adducts formed between 2'-deoxynucleosides and bisphenol A diglycidyl ether. *J. Mass Spectrom.*, 30 (1995) 1453-1461; *C.A.*, 124 (1996) 2634n.
- See also 1909, 1936.
22. ALKALOIDS
- 1938 Aasmundstad, T.A., Morland, J. and Paulsen, R.E.: Distribution of morphine 6-glucuronide and morphine across the blood-brain barrier in awake, freely moving rats investigated by *in vivo* microdialysis sampling. *J. Pharmacol. Exp. Ther.*, 275 (1995) 435-441.

- 1939 Bonate, P.L., Davis, C.M., Silverman, P.B. and Swann, A.: Determination of cocaine in biological matrices using reversed phase HPLC: application to plasma and brain tissue. *J. Liq. Chromatogr.*, 18 (1995) 3473-3494.
- 1940 Carlucci, G., Mazzeo, P. and Palumbo, G.: Simultaneous determination of rubofloxin and theophylline by high-performance liquid chromatography in human plasma. *Analyst (Cambridge)*, 120 (1995) 2493-2495.
- 1941 Chung, W.-G. and Buhler, D.R.: Major factors for the susceptibility of guinea pig to the pyrrolizidine alkaloid jacobine. *Drug Metab. Disp.*, 23 (1995) 1263-1267.
- 1942 Coates, P.A., Blagbrough, I.S., Lewis, T., Potter, B.V.L. and Rowan, M.G.: An HPLC assay for the norditerpenoid alkaloid methyllycaconitine, a potent nicotinic acetylcholine receptor antagonist. *J. Pharm. Biomed. Anal.*, 13 (1995) 1541-1544.
- 1943 De Orsi, D., Gagliardi, L., Cavazzutti, G., Mediati, M.G. and Tonelli, D.: Simultaneous determination of ephedrine and 2-imidazolines in pharmaceutical formulations by reversed-phase HPLC. *J. Liq. Chromatogr.*, 18 (1995) 3233-3242.
- 1944 Formisyn, P., Danna, A.M. and Bourgois, J.: Analysis of 9-hydroxy ellipticine by high-performance liquid chromatography. *J. Liq. Chromatogr.*, 18 (1995) 3397-3408.
- 1945 Glass, R.L.: Analysis of hygrine in coca leaves using a novel high-performance liquid chromatographic method. *J. Liq. Chromatogr.*, 18 (1995) 2877-2883.
- 1946 Huwyler, J., Rufer, S., Küsters, E. and Drewe, J.: Rapid and highly automated determination of morphine and morphine glucuronides in plasma by on-line solid-phase extraction and column liquid chromatography. *J. Chromatogr. B*, 674 (1995) 57-63.
- 1947 Itoh, H., Tanahashi, T. and Nagakura, N.: Five tetrahydroisoquinoline-monomerene glucosides and a tetrahydro- β -carboline-monomerene glucoside from *Alangium lamarckii*. *J. Natural Prod.*, 58 (1995) 1228-1239.
- 1948 Mathot, R.A.A., Gubbens-Stibbe, J.M., Soudijn, W., Jacobson, K.A., Ijzerman, A.P. and Danhof, M.: Quantification of the *in vivo* potency of the adenosine A2 receptor antagonist 8-(3-chlorostyryl)caffeine. *J. Pharmacol. Exp. Ther.*, 275 (1995) 245-253.
- 1949 Radwan, M.A.: HPLC assay of theophylline and zidovudine in rat serum. *J. Liq. Chromatogr.*, 18 (1995) 3301-3309.
- 1950 Rodrigues, A.D., Kukulka, M.J., Ferrero, J.L. and Cashman, J.R.: *In vitro* hepatic metabolism of ABY-418 in chimpanzee (*Pan troglodytes*). A unique pattern of microsomal flavin-containing monooxygenase-dependent stereoselective N'-oxidation. *Drug Metab. Disp.*, 23 (1995) 1143-1152.
- 1951 Song, L., Zhang, S., Qu, Q. and Yu, W.: Electrokinetic chromatography of diterpenoid alkaloids from *Aconitum sinomontanum* Nakai. *J. Microcolumn Sep.*, 7 (1995) 123-126; *C.A.*, 123 (1995) 222149c.
- 1952 Svensson, J.O., Yue, Q.Y. and Säwe, J.: Determination of codeine and metabolites in plasma and urine using ion-pair high-performance liquid chromatography. *J. Chromatogr. B*, 674 (1995) 49-55.
- 1953 Theodoridis, G., Papadoyannis, I., Hermans-Lokkerbol, A. and Verpoorte, R.: A study of the behaviour of some new column materials in the chromatographic analysis of cinchona alkaloids. *Chromatographia*, 41 (1995) 153-160.
- 1954 Tracqui, A., Kintz, P., Ludes, B., Rougé, C., Douibi, H. and Mangin, P.: High-performance liquid chromatography coupled to ion spray mass spectrometry for the determination of colchicine at ppb levels in human biofluids. *J. Chromatogr. B*, 675 (1996) 235-242.
- For additional information see C.A.:
123 (1995) 296709g, 322207p;
124 (1996) 15586y.
- See also 2208, 2236.
23. OTHER SUBSTANCES CONTAINING HETEROCYCLIC NITROGEN
- 23a. Porphyrins and other pyrroles
- 1955 Antipenko, V.R., Zemtseva, L.I. and Pevnova, G.S.: (Method for quantitative analysis metalloporphyrins in petroleum and related natural substances). *Geokhimiya*, (1995) 1021-1029; *C.A.*, 123 (1995) 232879e.
- 1956 Grishina, L.E., Brykina, G.D. and Sphigun, O.A.: High-performance liquid chromatography of porphyrins: ligands and metal complexes. *J. Anal. Chem.*, 50 (1995) 826-835; *C.A.*, 123 (1995) 357620v - a review with 55 refs.
- 1957 Gu, G. and Lim, C.K.: Preparation and separation of hydroxy derivatives of uroporphyrinogen I by high-performance liquid chromatography with electrochemical detection. *J. Chromatogr. A*, 722 (1996) 245-248.
- 1958 Jacob, K. and Doss, M.O.: Excretion pattern of faecal coproporphyrin isomers I-IV in human porphyrias. *Eur. J. Clin. Chem. Clin. Biochem.*, 33 (1995) 893-901.
- 1959 Nagaraj, R.H. and Monnier, V.M.: Protein modification by the degradation products of ascorbate: formation of a novel pyrrole from the Maillard reaction of L-threose with proteins. *Biochim. Biophys. Acta*, 1253 (1995) 75-84.
- 1960 Nonomura, Y., Yamaguchi, M., Hara, T., Furuya, K., Yoshioka, N. and Inoue, H.: High-performance liquid chromatographic separation of iron(III) chlorophyllin. *J. Chromatogr. A*, 721 (1996) 350-354.
- See also 2320.
- 23c. Indole derivatives and plant hormones (gibberelins)
- 1961 Galceran, M.T., Pais, P. and Puignou, L.: Isolation by solid-phase extraction and liquid chromatographic determination of mutagenic amines in beef extracts. *J. Chromatogr. A*, 719 (1996) 203-212.
- 1962 Harumi, T., Akutsu, H. and Matsushima, S.: Simultaneous determination of serotonin, N-acetylserotonin and melatonin in the pineal gland of the juvenile golden hamster by high-performance liquid chromatography with electrochemical detection. *J. Chromatogr. B*, 675 (1996) 152-156.
- 1963 Laganà, A., Marino, A., Fago, G., Pardo-Martinez, B. and Bizzarri, M.: Sensitive assay for melatonin in human serum by liquid chromatography. *Anal. Chim. Acta*, 316 (1995) 377-385.

1964 Xie, F.-M., Huang, T.-H. and Kissinger, P.T.: (Microdialysis sampling and microbore liquid chromatography with electrochemical detection for determination of serotonin in rat brain striatum). *Zhongguo Yaoli Xuebao*, 16 (1995) 473-477; *C.A.*, 123 (1995) 188733b.

See also 1525.

23d. Pyridine derivatives

1965 Deng, Y., Yamamula, H., Kawai, M., Butsugan, Y. and Naoi, M.: (The enantio-separation of endogenous isoquinolines by high performance liquid chromatography). *Kuromatogurafi*, 16 (1995) 130-131; *C.A.*, 123 (1995) 350469u.

See also 2020.

23e. Other N-heterocyclic compounds

1966 De Orsi, D., Gagliardi, L., Chimenti, F. and Tonelli, D.: High-performance liquid chromatographic determination of urocanic acid isomers in cosmetic products. *Chromatographia*, 41 (1995) 370-372.

1967 Feng, Y.Q., Shibukawa, M. and Oguma, K.: Retention behaviour of metal complexes with 5-sulphoquinoline-8-ol in reversed-phase ion-pair liquid chromatography. *Chromatographia*, 41 (1995) 532-538.

1968 Gaillaume, Y. and Guinchard, C.: Marked differences between acetonitrile/water and methanol/water mobile phase systems on the thermodynamic behavior of benzodiazepines in reversed phase liquid chromatography. *Chromatographia*, 41 (1995) 84-87.

1969 Gehring, T.A., Rushing, L.G. and Thompson, H.C., Jr.: Liquid chromatographic determination of sulfadiazine in salmon by postcolumn derivatization and fluorescence detection. *J. Assoc. Off. Anal. Chem.*, 78 (1995) 1161-1164.

1970 Kim, H.S. and Lee, D.W.: Retention behavior of quinolones in reversed-phase liquid chromatography. *J. Chromatogr. A*, 722 (1996) 69-79.

See also 1555, 1561, 1699, 2151.

24. ORGANIC SULPHUR COMPOUNDS (INCL. GLUCOSINOLATES)

1971 Aceto, M., Sarzanini, C., Abollino, O. and Mentasti, E.: Ion chromatographic separation of alkylsulphonic acids with conductivity detection. *Chromatographia*, 41 (1995) 445-449.

1972 Aw, T.Y.: Assay of thiols and disulfides in intestinal lymph. *Methods Enzymol.*, 251(Biothiols, Part A) (1995) 221-228; *C.A.*, 124 (1996) 25010v.

1973 Bona, M., Boudeville, P., Zekri, O., Christen, M.O. and Burgot, J.L.: Water/n-octanol partition coefficients of 1,2-dithiole-3-thiones. *J. Pharm. Sci.*, 84 (1995) 1107-1112.

1974 Buckee, G.K.: Determination of anions in beer by ion chromatography. *Cerevisia*, 20 (1995) 18-19; *C.A.*, 124 (1996) 28256r.

1975 Chen, Y., Zhang, G., Gong, D. and Gu, J.: (Method for determination of taurine in foods). *Yingyang Xuebao*, 16 (1994) 406-411; *C.A.*, 123 (1995) 196866n.

1976 Newton, G.L. and Fahey, R.C.: Determination of biothiols by bromobimane labeling and high-performance liquid chromatography. *Methods Enzymol.*, 251(Biothiols, Part A) (1995) 148-166; *C.A.*, 124 (1996) 24954u - a review with 60 refs.

1977 Palumbo, A., d'Ischia, M., Misuraca, G., de Martino, L. and Protta, G.: Iron- and peroxide-dependent conjugation of dopamine with cysteine: oxidative routes to the novel brain metabolite 5-S-cysteinyl-dopamine. *Biochim. Biophys. Acta*, 1245 (1995) 255-261.

For additional information see *C.A.*:

123 (1995) 264914d.

See also 1014, 1565, 1967, 1969, 2090, 2098, 2137, 2249, 2302, 2415.

25. ORGANIC PHOSPHORUS COMPOUNDS (INCL. SUGAR PHOSPHATES)

1978 Bhattacharya, M., Fuhrmann, L., Ineram, A., Nickerson, K.W. and Conway, T.: Single-run separation and detections of multiple metabolic intermediates by anion-exchange high-performance liquid chromatography. *Anal. Biochem.*, 232 (1995) 98-106.

1979 Brandi, A., Ciccha, S., Gasparrini, F., Maggio, F., Villani, C., Kowowski, M. and Pietrusiewicz, K.M.: Direct chromatographic resolution of P-chiral phosphinoylethenes on chiral stationary phase containing N,N'-(3,5-dinitrobenzoyl)-trans-1,2-diaminocyclohexane as selector. *Tetrahedron: Asymmetry*, 6 (1995) 2017-2022; *C.A.*, 124 (1996) 20614k.

1980 Brearley, C.A. and Hanke, D.E.: Evidence for substrate-cycling of 3-, 3,4-, 4-, and 4,5-phosphorylated phosphatidylinositols in plants. *Biochem. J.*, 311 (1995) 1001-1007.

1981 Shiei, W.-R. and Chen, C.-S.: Preparation and characterization of a D-myo-inositol 1,4,5-trisphosphate-specific antibody. *Biochem. J.*, 311 (1995) 1009-1014.

1982 Van der Kaay, and van Haastert, P.J.M.: Stereospecificity of inositol hexakisphosphate dephosphorylation by *Paramecium* phytase. *Biochem. J.*, 312 (1995) 907-910.

1983 Van der Kaay, J., Wesseling, J. and van Haastert, P.J.M.: Nucleus-associated phosphorylation of Ins(1,4,5)P₃ to InsP₆ in *Dicystelium*. *Biochem. J.*, 312 (1995) 911-917.

See also 1430, 1445, 2006, 2101, 2275.

26. ORGANOMETALLIC AND RELATED COMPOUNDS

1984 Hatrik, S. and Hrouzek, J.: The use of general exponential function for the deconvolution of fused chromatographic peaks. *Chem. Pap.*, 48 (1994) 376-380; *C.A.*, 123 (1995) 245680h.

For additional information see *C.A.*:

123 (1995) 323091h.

26a. Organometallic compounds

- 1985 Pobozy, E., Glód, B., Kaniewska, J. and Trojanowicz, M.: Determination of triorganotin compounds by ion chromatography and capillary electrophoresis with preconcentration using solid-phase extraction. *J. Chromatogr. A*, 718 (1995) 329-338.
- 1986 Welink, J., Pechstein, B. and van der Vijgh, W.J.F.: Determination of the two diastereoisomers of lobaplatin (D-19466) in plasma ultrafiltrate of cancer patients with a normal or an impaired kidney or liver function by high-performance liquid chromatography with ultraviolet detection. *J. Chromatogr. B*, 675 (1996) 107-111.

See also 2088, 2385, 2399.

26b. Boranes, silanes and related non-metallic compounds

- 1987 Montaudou, G., Monttaudo, M.S., Puglisi, C. and Samperi, F.: Molecular weight distribution of poly(dimethylsiloxane) by combining matrix-assisted laser desorption/ionization time-of-flight mass spectrometry with gel-permeation chromatography fractionation. *Rapid Commun. Mass Spectrom.*, 9 (1995) 1158-1163; *C.A.*, 123 (1995) 258103x.
- 1988 Piana, K. and Schubert, U.: Spectroscopic and chromatographic investigation of the hydrolysis and condensation of ((N,N-diethylamino)propyl)trimethoxysilane. *Chem. Mater.*, 7 (1995) 1932-1937; *C.A.*, 123 (1995) 206787d.

See also 1248.

26c. Coordination compounds

- 1989 Fukakusa, Y., Yoshimura, K., Waki, H. and Ishiguro, S.-I.: Complete chromatographic separation of aquachromium(III)-isothiocyanato successive complexes including geometric isomers using cross-linked dextran and poly(vinyl) alcohol gel columns. *J. Chromatogr. A*, 719 (1996) 365-373.
- 1990 Janos, P.: Separation of metal-oxalate complexes on an anion-exchange column. *J. Chromatogr. A*, 719 (1996) 457-461.
- 1991 Masłowska, J. and Bazylak, G.: (Studies of association of amines with tricyclic complexes of Ni(II) with Schiff bases). *Zesz. Nauk.-Politech. Lodz. Technol. Chem. Spozyw.*, 631 (1995) 91-131; *C.A.*, 124 (1996) 44088t.

See also 1177, 1203, 1571, 1956.

27. VITAMINS AND VARIOUS ANIMAL GROWTH FACTORS (NON-PEPTIDIC)

- 1992 Ben-Amotz, A.: Simultaneous profiling and identification of carotenoids, retinols, and tocopherols by high performance liquid chromatography equipped with three-dimensional photodiode array detection. *J. Liq. Chromatogr.*, 18 (1995) 2813-2825.
- 1993 Chen, X. and Sato, M.: High-performance liquid chromatographic determination of ascorbic acid in soft drinks and apple juice using tris(2,2'-bipyridine)ruthenium(II) electrochemiluminescence. *Anal. Sci.*, 11 (1995) 749-754; *C.A.*, 123 (1995) 312411m.
- 1994 Dong, D. and Zile, M.H.: Endogenous retinoids in the early avian embryo. *Biochem. Biophys. Res. Commun.*, 217 (1995) 1026-1031.
- 1995 Emenhiser, C., Englert, G., Sander, L.C., Ludwig, B. and Schwartz, S.J.: Isolation and structural elucidation of the predominant geometrical isomers of α -carotene. *J. Chromatogr. A*, 719 (1996) 333-343.
- 1996 Fedosov, S.N., Petersen, T.E. and Nexø, E.: Transcobalamin from cow milk: isolation and physico-chemical properties. *Biochim. Biophys. Acta*, 1292 (1996) 113-119.
- 1997 Gliesing, S., Reichenbaecher, M., Gonschior, M., Ude, F., Lange, C. and Schoenecker, B.: Chromatographic isolation and spectroscopic characterization of the photoisomers of 1 α ,25-dihydroxy-provitamin D₃. *Proc. Workshop Vitam. D*, 9th(Vitamin D) (1994) 47-48; *C.A.*, 123 (1995) 192646t.
- 1998 Granelli, K. and Helmersson, S.: Rapid high-performance liquid chromatographic method for determination of β -carotene in milk. *J. Chromatogr. A*, 721 (1996) 355-358.
- 1999 Jakob, E. and Elmadafa, I.: (Determination of the phyloquinone and tocopherol isomers contents in lipid emulsions for parenteral nutrition). *Ernaehrung (Vienna)*, 19 (1995) 318-320; *C.A.*, 124 (1996) 7285j.
- 2000 Kharitonov, Yu.Ya., Griбанова, S.V., Dzhabarov, D.N., Rudenko, B. A. and Bulychev, E.Yu.: (Quantitative analysis of impurities in vitamin E technological samples). *Khim.-Farm. Zh.*, 28 (1994) 60-64; *C.A.*, 123 (1995) 296714e.
- 2001 Kimura, M., Kanehira, K. and Yokoi, K.: Highly sensitive and simple liquid chromatographic determination in plasma of B₆ vitamers, especially pyridoxal 5'-phosphate. *J. Chromatogr. A*, 722 (1996) 295-301.
- 2002 Kimura, M., Kanehira, K. and Yokoi, K.: Highly sensitive and simple liquid-chromatographic determination in plasma of vitamin B₆ and its derivatives especially pyridoxal-5'-phosphate. In: Hatano, H. and Hanai, T. (Editors), *Int. Symp. Chromatogr., 35th Anniv. Res. Group Liq. Chromatogr. Jpn.*, World Scientific, Singapore, 1995, pp. 111-117; *C.A.*, 123 (1995) 280025v.
- 2003 Kraft, J.C. and Juchau, M.R.: *Xenopus laevis*: a model system for the study of embryonic retinoid metabolism. III. Isomerization and metabolism of all-trans-retinoic acid and 9-cis-retinoic acid and their dysmorphic effects during neurulation. *Drug. Metab. Disp.*, 23 (1995) 1058-1071.
- 2004 Lander, V. and Boos, H.: (Determination of vitamin A and vitamin E in cosmetic formulations). *SOFW J.*, 120 (1994) 444-449; *C.A.*, 124 (1996) 15251k.
- 2005 Motoe, K. and Nabeshima, H.: (Determination of purified vitamin B₁ solution by high-performance liquid chromatography (determination of vitamin B₁ in foods by high-performance liquid chromatography Part II)). *Toyama-ken Shokuhin Kenkyusho Kenkyu Hokoku*, 1 (1993) 25-30; *C.A.*, 123 (1995) 254818m.
- 2006 Nakagawa, K., Fujimoto, K. and Miyazawa, T.: β -Carotene as a high-potency antioxidant to prevent the formation of phospholipid hydroperoxides in red blood cells of mice. *Biochim. Biophys. Acta*, 1299 (1996) 110-116.
- 2007 Nöll, G.N.: High-performance liquid chromatographic analysis of retinal and retinol isomers. *J. Chromatogr. A*, 721 (1996) 247-259.
- 2008 Ramos, P., Gieseg, S.P., Schuster, B. and Esterbauer, H.: Effect of temperature and phase transition on oxidation resistance of low density lipoprotein. *J. Lipid Res.*, 36 (1995) 2113-2128.

- 2009 Satue, M.T., Huang, S.W. and Frankel, E.N.: Effect of natural antioxidants in virgin olive oil on oxidative stability of refined, bleached, and deodorized olive oil. *J. Am. Oil Chem. Soc. (IAOCS)*, 72 (1995) 1131-1137.
- 2010 Shimada, K., Mitamura, K., Miura, M. and Miyamoto, A.: Retention behavior of vitamin D and related compounds during high-performance liquid chromatography. *J. Liq. Chromatogr.*, 18 (1995) 2885-2893.
- 2011 Szczepaniak, W. and Szymanski, A.: Determination of folic acid and ketotifen in untreated body fluids by micellar liquid chromatography with direct sample injection. *Acta Chromatogr.*, 4 (1995) 83-101; *C.A.*, 123 (1995) 275095p.
- 2012 Takeda, H., Shibuya, T., Yanagawa, K., Kanoh, H. and Takasaki, M.: Simultaneous determination of α -tocopherol and α -tocopherolquinone by high-performance liquid chromatography and coulometric detection in the redox mode. *J. Chromatogr. A*, 722 (1996) 287-294.
- 2013 Ulberth, F. and Roubicek D.: Monitoring of oxidative deterioration of milk powder by headspace gas chromatography. *Int. Dairy J.*, 5 (1995) 523-531; *C.A.*, 123 (1995) 254810c.
- 2014 Viñas, P., Campillo, N., López García, I. and Hernández Córdoba, M.: Speciation of vitamin B₁₂ analogues by liquid chromatography with flame atomic absorption spectrometric detection. *Anal. Chim. Acta*, 318 (1996) 319-325.
- 2015 Wigertz, K. and Jaegerstad, M.: Comparison of a HPLC and radioprotein-binding assay for the determination of folates in milk and blood samples. *Food Chem.*, 54 (1995) 429-436; *C.A.*, 123 (1995) 312421q.
- 2016 Zamarreno, M.M.D., Perez, A.S. and Perez, M.C.G.: Determination of vitamins A, E and K₁ in milk by high-performance liquid chromatography with dual amperometric detection. *Analyst (Cambridge)*, 120 (1995) 2481-2492.
- 2017 Zempleni, J.: Determination of riboflavin and flavocoenzymes in human blood plasma by high-performance liquid chromatography. *Ann. Nutr. Metab.*, 39 (1995) 224-226; *C.A.*, 123 (1995) 250318a.
- For additional information see *C.A.*:
123 (1995) 286345w;
124 (1996) 15592x.
- See also 1132, 1303, 1768, 1923, 2292, 2341, 2415.
28. ANTIBIOTICS
- 2018 Al-Khamees, H.A., Abounassif, M.A., Gad-Kariem, E.A. and Kandil, H.A.: Simultaneous determination of ampicillin and cloxacillin in the presence of their degradation products, either in binary mixtures or in pharmaceutical formulations. *Saudi Pharm. J.* 1995, 3 (1995) 104-108; *C.A.*, 123 (1995) 350446j.
- 2019 Barbosa, J., Bergés, R. and Sanz-Nebot, V.: Linear solvation energy relationships in reversed-phase liquid chromatography. Prediction of retention of several quinolones. *J. Liq. Chromatogr.*, 18 (1995) 3445-3463.
- 2020 Barnes, A.R.: Determination of ceftazidime and pyridine by HPLC: application to a viscous eye drop formulation. *J. Liq. Chromatogr.*, 18 (1995) 3117-3128.
- 2021 Bayer, A., Freund, S. and Gung, G.: Post-translational heterocyclic backbone modifications in the 43-peptide antibiotic microcin B17. Structure elucidation and NMR of a ¹³C,¹⁵N-labelled gyrase inhibitor. *Eur. J. Biochem.*, 234 (1995) 414-426.
- 2022 Beconi-Barker, M.G., Roof, R.D., Millerioux, L., Kausche, F.M., Vidmar, T.J., Smith, E.B., Callahan, J.K., Hubbard, V.L., Smith, G.A. and Gilbertson, T.J.: Determination of ceftiofur and its desforoylceftiofur-related metabolites in swine tissues by high-performance liquid chromatography. *J. Chromatogr. B*, 673 (1995) 231-244.
- 2023 Blanchflower, W.J. and Kennedy, D.G.: Determination of monensin, salinomycin and narasin in muscle, liver and eggs from domestic fowl using liquid chromatography-electrospray mass spectrometry. *J. Chromatogr. B*, 675 (1996) 225-233.
- 2024 Boison, J.O., Korsrud, G.O., Papich, M.G. and MacNeil, J.D.: Comparison of four commercially available rapid test kits with liquid chromatography for detecting penicillin G residue in bovine plasma. *J. Assoc. Off. Anal. Chem.*, 78 (1995) 1144-1152.
- 2025 Bompadre, S., Ferrante, L., Leone, L., de Martinis, M., Ginaldi, L. and Quaglino, D.: Determination of cefodizime in human plasma by high-performance liquid chromatography with column-switching. *J. Liq. Chromatogr.*, 18 (1995) 2895-2909.
- 2026 Caniou, I., Nikolaidis, E., Tsoukali, H., Stratis, J.A. and Zachariadis, G.A.: Determination of chloramphenicol residues in meat samples by high performance liquid chromatography. *J. Liq. Chromatogr.*, 18 (1995) 3519-3527.
- 2027 Croubels, S., Baeyens, W. and van Peteghem, C.: Evaluation of a narrow-bore HPLC column for trace level analysis of tetracyclines - a comparison with a conventional column. *Biomed. Chromatogr.*, 9 (1995) 251-253; *C.A.*, 124 (1996) 20921h.
- 2028 Di Pietra, A.M., Piazza, V., Andrisano, V. and Cavrini, V.: HPLC determination of chloramphenicol and thiamphenicol residues in gamebird meats. *J. Liq. Chromatogr.*, 18 (1995) 3529-3543.
- 2029 Doerge, D.R. and Bajic, S.: Multiresidue determination of quinolone antibiotics using liquid chromatography coupled to atmospheric-pressure chemical ionization mass spectrometry and tandem mass spectrometry. *Rapid Commun. Mass Spectrom.*, 9 (1995) 1012-1016; *C.A.*, 123 (1995) 358142c.
- 2030 Dornberger, K., Ihn, W., Ritzau, M., Gräfe, U., Schlegel, B., Fleck, W.F. and Metzger, J.W.: Chrusospermins, new peptaibol antibiotics from *Apiocrea chrososperma* Ap101. *J. Antibiot.*, 48 (1995) 977-989.
- 2031 Eshita, S.M., Roberto, N.H., Beale, J.M., Mamiya, B.M. and Workman, R.F.: Bacillomycin L₆, a new antibiotic of the iturin group: isolation, structures, and antifungal activities of the congeners. *J. Antibiot.*, 48 (1995) 1240-1247.
- 2032 Fernandez, J., Esteban, A., Blanca, M., Ferrer, A. and Soriano, V.: Ion-pair reversed-phase and low-molecular-weight aqueous gel permeation high-performance liquid chromatography methods for the determination of amoxicillin oligomers. *Chromatographia*, 41 (1995) 651-656.
- 2033 Firsov, A.A., Alekseeva, M.E., Kuleshov, S.E., Kadanatsii, I.B., Gagaeva, E.V., Agapitova, I.V., Kuleshova, E.E., Dombrovskii, V.S. and Nazarov, A.D.: (Ciprofloxacin: HPLC and microbiological method for evaluation of bioequivalence of pharmaceutical dosage forms). *Khim.-Farm. Zh.*, 29 (1995) 24-27; *C.A.*, 124 (1996) 15358a.

- 2034 Foster, R.T., Carr, R.A., Pasutto, F.M. and Longstreth, J.A.: Stereospecific high-performance liquid chromatographic assay of lomefloxacin in human plasma. *J. Pharm. Biomed. Anal.*, 13 (1995) 1243-1248.
- 2035 Gilpin, M.L., Fulston, M., Payne, D., Cramp, R. and Hood, I.: Isolation and structure determination of two novel phenothiazines from a *Streptomyces* with inhibitory activity against metallo-enzymes, including metallo- β -lactamase. *J. Antibiot.*, 48 (1995) 1081-1085.
- 2036 Goulard, C., Hlimi, S., Rebuffat, S. and Bodo, B.: Trichorzins HA and MA, antibiotic peptides from *Trichoderma harzianum*. I. Fermentation, isolation and biological properties. *J. Antibiot.*, 48 (1995) 1248-1253.
- 2037 Gude, T., Preiss, A. and Rubach, K.: Determination of chloramphenicol in muscle, liver, kidney and urine of pigs by means of immunoaffinity chromatography and gas chromatography with electron-capture detection. *J. Chromatogr. B*, 673 (1995) 197-204.
- 2038 Guggisberg, D. and Koch, H.: (Method for the fluorimetric determination of neomycin in kidney and liver by HPLC and post-column derivatization). *Mitt. Geb. Lebensmittelunters. Hyg.*, 86 (1995) 449-457; C.A., 124 (1996) 7292j.
- 2039 Guggisberg, D. and Koch, H.: (Method for the quantitative determination of gentamicin in meat, liver, and kidney by HPLC and post-column derivatization). *Mitt. Geb. Lebensmittelunters. Hyg.*, 86 (1995) 14-28; C.A., 123 (1995) 226229b.
- 2040 Hornish, R.E., Cazars, A.R., Chester, S.T., Jr. and Roof, R.D.: Identification and determination of pirlimycin residue in bovine milk and liver by high-performance liquid chromatography-thermospray mass spectrometry. *J. Chromatogr. B*, 674 (1995) 219-235.
- 2041 Kajimura, Y., Sugiyama, M. and Kaneda, M.: Bacillopeptins, new cyclic lipopeptide antibiotics from *Bacillus subtilis* FR-2. *J. Antibiot.*, 48 (1995) 1095-1103.
- 2042 Kamiyama, T., Umino, T., Itezono, Y., Anzai, Y., Nakayama, N., Takemae, A., Satoh, T., Watanabe, J. and Yokose, K.: Monomidocin, a novel fibrinogen receptor antagonist. I. Production, isolation, characterization and structural elucidation. *J. Antibiot.*, 48 (1995) 1221-1225.
- 2043 Kamiyama, T., Umino, T., Satoh, T., Sawairi, S., Shirane, M., Ohshima, S. and Yokose, K.: Sulfobacins A and B, novel von Willebrand factor receptor antagonists I. Production, isolation, characterization and biological activities. *J. Antibiot.*, 48 (1995) 924-928.
- 2044 Kiehl, D.E. and Kennington, A.S.: Analysis of tilmicosin in swine liver extracts by liquid chromatography/atmospheric pressure chemical ionization mass spectrometry. *Rapid Commun. Mass Spectrom.*, 9 (1995) 1297-1301; C.A., 123 (1995) 329148d.
- 2045 Kihara, T., Koshino, H., Shin, Y.-C., Yamaguchi, I. and Isono, K.: Tryptostanins A and B, novel mammalian cell cycle inhibitors produced by *Aspergillus fumigatus*. *J. Antibiot.*, 48 (1995) 1382-1387.
- 2046 Kodukula, K., Arcuri, M., Cutrone, J.Q., Hugill, R.M., Lowe, S.E., Pirnik, D.M., Shu, Y.-Z., Fernandes, P.B. and Seethala, R.: BMS-192548, a tetracyclic binding inhibitor of neuropeptide 4 receptors, from *Aspergillus niger* WB2346. I. Taxonomy, fermentation, isolation and biological activity. *J. Antibiot.*, 48 (1995) 1055-1059.
- 2047 Lam, K.-S., Veitch, J.A., Golik, J., Rose, W.C., Doyle, T.W. and Forenza, S.: Production and isolation of two novel esperamicins in a chemically defined medium. *J. Antibiot.*, 48 (1996) 1497-1501.
- 2048 Lampis, G., Deidda, D., Maullu, C., Madeddu, M.A., Pompei, R., Monache, F.D. and Satta, G.: Sattabacins and sattazolins: new biological active compounds with antiviral properties extracted from a *Bacillus* sp. *J. Antibiot.*, 48 (1995) 967-972.
- 2049 Liu, H., Davoudi, H. and Last, T.: Determination of Amphotericin B in cerebrospinal fluid by solid-phase extraction and liquid chromatography. *J. Pharm. Biomed. Anal.*, 13 (1995) 1395-1400.
- 2050 Lopez-Galera, R., Pou-Clave, L. and Pascual-Mostaza, C.: Determination of amphotericin B in human serum by liquid chromatography. *J. Chromatogr. B*, 674 (1995) 298-300.
- 2051 Macek, J. and Ptacek, P.: Determination of ofloxacin in human plasma using high-performance liquid chromatography and fluorescence detection. *J. Chromatogr. B*, 673 (1995) 316-319.
- 2052 Mazur, B. and Haroon, Y.: Redox mode electrochemical detection approach with chemically modified electrodes for the measurement of frenolicin B (antibiotic) and related compounds in poultry feed. *J. Agric. Food Chem.*, 43 (1995) 3042-3045; C.A., 123 (1995) 337680m.
- 2053 Moats, W.A., Anderson, K.L., Rushing, J.E. and Wesen, D.P.: Comparison of a radioimmunoassay (Charm II) test with high-performance liquid chromatography for detection of oxytetracycline residues in milk samples from lactating cattle. *Am. J. Vet. Res.*, 56 (1995) 795-800; C.A., 123 (1995) 226131p.
- 2054 Muddiman, D.C., Gusev, A.I., Stoppek-Lagner, K., Proctor, A., Hercules, D.M., Tata, P., Venkataraman, R. and Diven, W.: Simultaneous quantification of cyclosporin A and its major metabolites by time-of-flight secondary-ion mass spectrometry and matrix-assisted laser desorption/ionization mass spectrometry utilizing data analysis techniques: comparison with high-performance liquid chromatography. *J. Mass Spectrom.*, 30 (1995) 1469-1479; C.A., 123 (1995) 305877q.
- 2055 Nagata, T.: Chemical analysis of chloramphenicols. In: Oka, H. (Editor), *Chem. Anal. Antibiot. Used Agric.*, AOAC International, Arlington, 1995, pp. 207-234; C.A., 123 (1995) 274978s.
- 2056 Nakamura, M., Ito, Y., Ogawa, K., Michisuiji, Y., Sato, S.-i., Takada, M., Hayashi, M., Yaginuma, S. and Yamamoto, S.: Stachyocins, novel endothelial receptor antagonists, produced by *Stachybotry* sp. M6222. *J. Antibiot.*, 48 (1995) 1389-1395.
- 2057 Natsume, M., Tazawa, J., Yagi, K., Abe, H., Kondo, S. and Marumo, S.: Structure-activity relationship of pamamycins: effect of alkyl substituents. *J. Antibiot.*, 48 (1995) 1159-1164.
- 2058 Ogawa, T., Ochiai, K., Tanaka, T., Tsukuda, E., Chiba, S., Yano, K., Yamasaki, M., Yoshida, M. and Matsuda, Y.: RES-701-2, -3 and -4, novel and selective endothelin type B receptor antagonists produced by *Streptomyces* sp. I. Taxonomy of producing strains, fermentation, isolation and biochemical properties. *J. Antibiot.*, 48 (1995) 1213-1220.
- 2059 Olori, L., Cannavale, V. and Cucuzza, E.: (Uses of liquid chromatography in the analysis of antitumor antibiotics. 1. Chemical, physicochemical, and instrumental characteristics of high-pressure liquid chromatography (HPLC)). *G. Med. Mil.*, 145 (1995) 210-217; C.A., 123 (1995) 329075c - a review with 9 refs.

- 2060 Ortiz-Boyer, F., Tena, M.T., Luque de Castro, M.D. and Valcárel, M.: Development and validation of chromatographic methods (HPLC and GC) for the determination of the active components (benzocaine, tyrothricin and menthol) of a pharmaceutical preparation. *J. Pharm. Biomed. Anal.*, 13 (1995) 1297-1303.
- 2061 Ortiz-Gomez, M.T., Perez-Arribas, L.V., Leon-Gonzalez, M.E. and Polo-Diez, L.M.: Liquid chromatography determination of simazine and antimycin A in must. *J. Agric. Food Chem.*, 43 (1995) 2883-2886; *C.A.*, 123 (1995) 283875h.
- 2062 Patel, P.S., Huang, S., Fisher, S., Pirmik, D., Aklonis, C., Dean, L., Meyers, E., Fernandes, P. and Mayerl, F.: Bacillaene, a novel inhibitor of prokaryotic protein synthesis produced by *Bacillus subtilis*: production, taxonomy, isolation, physico-chemical characterization and biological activity. *J. Antibiot.*, 48 (1995) 997-1003.
- 2063 Prevosto, J.M., Beraud, B., Cheminel, V., Gaillard, Y., Mounier, C. and Chaulet, J.F.: Determination of doxycycline in human plasma and urine samples by high performance liquid chromatography. Application for drug monitoring in malaria chemoprophylaxis. *Ann. Biol. Clin.*, 53 (1995) 29-32; *C.A.*, 123 (1995) 305851b.
- 2064 Rump, A.F.E., Biederick, W., Botvinnik-Helling, S., Stemmler, M., Schierholz, J., Conrady, S., Matthey, B., Theisohn, M., Diestelhorst, M. et al.: Mitomycin-C concentration in human ocular aqueous humor after topical administration during trabeculectomy. *Arzneim.-Forsch.*, 45 (1995) 1329-1330.
- 2065 Selva, E., Ferrari, P., Kurz, M., Tavecchia, P., Colombo, L., Stella, S., Restelli, E., Goldstein, B.P., Ripamonti, F. and Denaro, M.: Components of the GE2270 complex produced by *Planobispora rosea* ATCC 53773. *J. Antibiot.*, 48 (1995) 1039-1042.
- 2066 Setti, E.L., Fiakpu, C., Phillips, O.A., Czajkowski, D.P., Atchison, K., Micetich, R.G., Maiti, S.N., Kunugita, C. and Hyodo, A.: Chemical modification of tazobactam. Synthesis of 23-[(4-substituted)-1,2,3-triazol-1-yl]methyl penicillanic acid sulfone derivatives. *J. Antibiot.*, 48 (1995) 1320-1329.
- 2067 Stead, D.A. and Richards, R.M.E.: Sensitive fluorimetric determination of gentamicin sulfate in biological matrices using solid-phase extraction, pre-column derivatization with 9-fluorenylmethyl chloroformate and reversed-phase high-performance liquid chromatography. *J. Chromatogr. B*, 675 (1996) 295-302.
- 2068 Strelevitz, T.J. and Linhares, M.C.: Simultaneous determination of danofloxacin and N-desmethyldanofloxacin in cattle and chicken edible tissues by liquid chromatography with fluorescence detection. *J. Chromatogr. B*, 675 (1996) 243-250.
- 2069 Takahashi, E., Kimura, T., Nakamura, K., Arahira, M. and Iida, M.: Phosphonothrixin, a novel herbicidal antibiotic produced by *Saccharothrix* sp. ST-888. I. Taxonomy, fermentation, isolation and biological properties. *J. Antibiot.*, 48 (1995) 1124-1129.
- 2070 Takahashi, S., Uchida, K., Nakagawa, A., Miyake, Y., Kainosho, M., Matsuzaki, K. and Omura, S.: Biosynthesis of lactacystin. *J. Antibiot.*, 48 (1995) 1015-1020.
- 2071 Tarbin, J.A., Farrington, W.H.H. and Shearer, G.: Determination of penicillins in animal tissues at trace residue concentrations. Part I. Determination of benzylpenicillin in milk by reversed-phase liquid chromatography with solid phase extraction and liquid chromatographic fractionation clean-up. *Anal. Chim. Acta*, 318 (1996) 95-101.
- 2072 Teng, R., Tensfeldt, T.G., Liston, T.E. and Foulds, G.: Determination of trovafloxacin, a new quinolone antibiotic, in biological samples by reversed-phase high-performance liquid chromatography. *J. Chromatogr. B*, 675 (1996) 53-59.
- 2073 Tharasse-Bloch, C., Brasseur, P., Favennec, L. and Marchand, J.: Determination of sinefungin in rat plasma by high-performance liquid chromatography. *J. Chromatogr. B*, 674 (1995) 247-252.
- 2074 Toreson, H. and Eriksson, B.-M.: Determination of erythromycin in gastric juice and blood plasma by liquid chromatography and electrochemical detection. *J. Chromatogr. B*, 673 (1995) 81-89.
- 2075 Tyaglov, B.V., Zvenigorosky, V.I., Sizova, I.A., Polanuer, B.M. and Zhdanov, V.G.: Quantitative chromatographic determination of virginiamycin antibiotics. *J. Planar Chromatogr.*, 8 (1995) 374-377.
- 2076 Wakayama, T., Akashi, T. and Jinno, K.: (Comparison study of HPLC and HPCE for the separation of cephalosporin C and the related compounds). *Kuromatogurafi*, 16 (1995) 94-95; *C.A.*, 123 (1995) 323089p.
- 2077 Wallis, S.C., Charles, B.G. and Gahan, L.R.: Rapid and economical high-performance liquid chromatographic method for the determination of norfloxacin in serum using a microparticulate C₁₈ guard cartridge. *J. Chromatogr. B*, 674 (1995) 306-309.
- 2078 Xu, X., Wang, X., Ning, J., Zhang, H. and Ma, T.: (The comparison of HPLC and FPIA determination of whole blood cyclosporin A). *Zhongguo Yiyuan Yaoxue Zazhi*, 15 (1995) 243-245; *C.A.*, 124 (1996) 125y.
- 2079 Yasui, H., Yamaoka, K. and Nakagawa, T.: New hepatocellular diffusion model for analysis of hepatobiliary transport processes of drugs. *J. Pharmacokin. Biopharm.*, 23 (1995) 183-203.
- 2080 Yuan, Z., Russlie, H.Q. and Canafax, D.M.: Sensitive assay for measuring amoxicillin in human plasma and middle ear fluid using solid-phase extraction and reversed-phase high-performance liquid chromatography. *J. Chromatogr. B*, 674 (1995) 93-99.
- 2081 Zomer, E., Quintana, J., Saul, S. and Charm, S.E.: LC-receptorgram: a method for identification and quantitation of β -lactams in milk by liquid chromatography with microbial receptor assay. *J. Assoc. Off. Anal. Chem.*, 78 (1995) 1165-1172.
- For additional information see *C.A.*:
123 (1995) 217619b, 237991v, 305867m.
- See also 1063, 1150, 2279, 2318.
29. INSECTICIDES, PESTICIDES AND OTHER AGROCHEMICALS
- 29a. *General techniques*
- 2082 Dohmann, M.: (Use of fluorescence detection in environmental analysis, as exemplified in determining selected pesticides and metabolites in water samples). *Gewaesserschutz, Wasser, Abwasser*, 149 (1995) 227 pp.; *C.A.*, 123 (1995) 249080k.
- 2083 Fleet, I.A., Monaghan, J.J., Gordon, D.B. and Lord, G.A.: Microbore liquid chromatography - electrospray mass spectrometry of selected synthetic pyrethroid insecticides. *Analyst (Cambridge)*, 121 (1996) 55-59.

- 2084 Hori, Y. and Numazawa, M.: (Simultaneous determination method of 15 organonitrogen pesticides in brown rice and soybean by capillary FTD-GC). *Annu. Rep. Tohoku Coll. Pharm.*, 41 (1994) 83-91; *C.A.*, 123 (1995) 249086s.
- 2085 Janssen, A., Keuter, M., Meyer Zu Altenhildesche, D., Ritzkopf, A. and Treder, W.: (Chromatographic determination of pesticides for the drinking water supervision. Part 2. Determination by HPLC and GC). *GIT Fachz. Lab.*, 39 (1995) 516-523; *C.A.*, 123 (1995) 237281p.
- 2086 Pileniova, I.I., Yurkova, R.G., Fatyanova, A.D. and Kayushina, E.N.: Method for determination of residual pesticides in milk and meat. *Russ. RU 2,034,295 (Cl. GO1N33/02)*, 30 Apr. 1995, *SU Appl.* 4,931,586, 29 Apr. 1991; *C.A.*, 124 (1996) 7556y.
- 2087 Sheridan, B.R., Poole, G., Dowdall, E. and Chiu, C.: The effect of temperature on GPC for the separation of PCBs from transformer oil and subsequent analysis GC-MSD. *Int. J. Environ. Anal. Chem.*, 60 (1995) 195-202; *C.A.*, 123 (1995) 232951x.
- See also 1160, 2354, 2355, 2356.
- 29b. Chlorinated insecticides**
- 2088 Ferioly, V., Rustichelli, C., Vezzalini, F. and Gamberini, G.: Analysis of pyrethroids by reversed-phase high-performance liquid chromatography. *Chromatographia*, 40 (1995) 669-673.
- 2089 Natzek, C., Vetter, W., Luckas, B., Moskopp, G. and Buijten, J.: Quantitative determination of toxic mono- and non-ortho polychlorinated biphenyls in cod liver oil after selective liquid chromatographic separation. *Chromatographia*, 41 (1995) 585-593.
- See also 1051, 1249, 1257.
- 29c. Phosphorus insecticides**
- 2090 Mattern, G.C., Parker, G.D., Green, D.L. and Yeutter, G.L.: Determination of phenol sulfone, phenol sulfoxide, and phenol sulfonic acid metabolites of fenamiphos in soil by liquid chromatography. *J. Assoc. Off. Anal. Chem.*, 78 (1995) 1286-1293.
- For additional information see *C.A.*:
124 (1996) 28253n.
- 29d. Carbamates**
- 2091 Honing, M., Barceló, D., van Baar, B.L.M. and Brinkman, U.A.T.: Limitations and perspectives in the determination of carbofuran with various liquid chromatography-mass spectrometry interfacing systems. *TrAC*, 14 (1995) 496-504.
- 2092 Jimenez, B., Molto, J.C. and Font, G.: Influence of dissolved humic material and ionic strength on C8 extraction of pesticides from water. *Chromatographia*, 41 (1995) 318-324.
- 2093 Mora, J.I., Goicolea, M.A., Barrio, R.J. and de Balugera, Z.G.: Determination of nematicide aldicarb and its metabolites aldicarb sulfoxide and aldicarb sulfone in soils and potatoes by liquid chromatography with photodiode array detection. *J. Liq. Chromatogr.*, 18 (1995) 3243-3256.
- 2094 Newsome, W.H., Lau, B.P.-Y., Ducharme, D. and Lewis, D.: Comparison of liquid chromatography-atmospheric pressure chemical ionization/mass spectrometry and liquid chromatography-postcolumn fluorometry for determination of carbamates in food. *J. Assoc. Off. Anal. Chem.*, 78 (1995) 1312-1316.
- 29e. Herbicides**
- 2095 Atienza, J., Jiménez, J.J., Herguedas, A. and Bernal, J.L.: Comparative study of three extraction procedures for imazamethabenz-methyl in agricultural soil. *J. Chromatogr. A*, 721 (1996) 113-121.
- 2096 Broglia, L., Fonte, A., Gavio, M.T. and Ghisoni, V.: Determination of phenylurea herbicides in drinking water: comparison between extraction methods and analysis by HPLC. *Boll. Chim. Ig., Parte Sci.*, 46 (1995) 69-75; *C.A.*, 123 (1995) 208264e.
- 2097 Gennaro, M.C., Abrigo, C., Giacosa, D., Rigotti, L. and Liberatori, A.: Separation of phenylurea pesticides by ion-interaction reversed-phase high-performance liquid chromatography. Diuron determination in lagoon water. *J. Chromatogr. A*, 718 (1995) 81-88.
- 2098 Huppe, K.-P., Riedmann, M. and Rozing, G.: Screening of water samples for polar organic micropollutants using on-column sample enrichment. *Chromatographia*, 40 (1995) 631-637.
- 2099 Lagana, A., Marino, A. and Fago, G.: Evaluation of double solid-phase extraction system for determining triazine herbicides in milk. *Chromatographia*, 41 (1995) 178-182.
- 2100 Madhu, C., Gregus, Z. and Klaassen, C.D.: Simple method for analysis of diquat in biological fluids and tissues by high-performance liquid chromatography. *J. Chromatogr. B*, 674 (1995) 193-196.
- 2101 Morovján, G., Fekete, J. and Répasi, J.: Determination of glyphosate and some related compounds by ion-exchange high performance liquid chromatography. *J. Liq. Chromatogr.*, 18 (1995) 3219-3232.
- 2102 Nouri, B., Toussaint, G., Chambon, P. and Chambon, R.: Application of new polymeric adsorbent to isolate chlorotriazines and their dealkylated degradation products from water samples. *Analyst (Cambridge)*, 120 (1995) 2683-2687.
- 2103 Rouberty, F. and Fournier, J.: Modelling of GC and HPLC separation of simazin and atrazin by experimental design methodology. *Chromatographia*, 41 (1995) 553-560.
- 2104 Saez, A., Gomez de Barreda, D., Gamon, M., Garcia de la Cuadra, J., Lorenzo, E. and Peris, C.: UV detection of triazine herbicides and their hydroxylated and dealkylated degradation products in well water. *J. Chromatogr. A*, 721 (1996) 107-112.
- See also 1144, 1738, 2069.
- 29f. Fungicides**
- 2105 Hanks, A.R.: Liquid chromatographic method for determination of dithianon in technical products and formulations: collaborative study. *J. Assoc. Off. Anal. Chem.*, 78 (1995) 1131-1133.
- 2106 Hiemstra, M., Joosten, J.A. and de Kok, A.: Fully automated solid-phase extraction cleanup and on-line liquid chromatographic determination of benzimidazole fungicides in fruit and vegetables. *J. Assoc. Off. Anal. Chem.*, 78 (1995) 1267-1274.

29g. Other types of pesticides and various agrochemicals

- 2107 Barnes, K.A., Fussell, R.J., Startin, J.R., Thorpe, S.A. and Reynolds, S.L.: Determination of the pesticides diflubenzuron and clofentezine in plums, strawberries and blackcurrant-based fruit drinks by high performance liquid chromatographic/atmospheric pressure chemical ionization-mass spectrometry. *Rapid Commun. Mass Spectrom.*, 9 (1995) 1441-1445; C.A., 124 (1996) 7313s.
- 2108 Brooks, M.W. and Barros, A.: Determination of carbosulfan in oranges by high-performance liquid chromatography with post-column fluorescence. *Analyst (Cambridge)*, 120 (1995) 2479-2481.
- 2109 Fernandez-Alba, A.R., Valverde, A., Agüera, A., Contreras, M. and Chiron, S.: Determination of imidacloprid in vegetables by high-performance liquid chromatography with diode-array detection. *J. Chromatogr. A*, 721 (1996) 97-105.
- 2110 Hu, R., Petay, V. and Fournier, J.: Determination of formetanate hydrochloride in strawberries. *J. Agric. Food Chem.*, 44 (1996) 181-184; C.A., 124 (1996) 28284y.
- 2111 Jones, A.: HPLC determination of anticoagulant rodenticide residues in animal livers. *Bull. Environ. Contam. Toxicol.*, 56 (1996) 8-15; C.A., 124 (1996) 2648v.
- 2112 Massey, K.A., van Engelen, D.L. and Warner, I.M.: Determination of carbaryl as its primary metabolite, 1-naphthol, by reversed-phase high-performance liquid chromatography with fluorometric detection. *Talanta*, 42 (1995) 1457-1463; C.A., 124 (1996) 2974y.

30. SYNTHETIC AND NATURAL DYES

30a. Synthetic dyes

- 2113 Anklam, E., Müller, A. and Schmalfluss, J.: High performance liquid chromatographic analysis of Patent Blue V in cheese. *Chromatographia*, 41 (1995) 432-434.
- 2114 Ichi, T., Higashimura, Y., Katayama, T., Koda, T. and Tada, M.: (Determination of a food colorant, gardenia yellow pigment, in processed foods with a high performance liquid chromatograph/photodiode-array detector/mass spectrometer system). *Shokuhin Eiseigaku Zasshi*, 36 (1995) 482-489; C.A., 123 (1995) 254808h.
- 2115 Leroy, P., Tran, N.N.P., Bellucci, L., Capdeville-Atkinson, C. and Nicolas, A.: Measurement of the intracellular concentration of the calcium dye Fura-2 and its esterified precursor using HPLC. *LC-GC Int.*, 9 (1996) 28-32.
- 2116 Peiperl, M.D., Prival, M.J. and Bell, S.J.: Determination of combined banzidine in FD&C Yellow No. 6 (Sunset Yellow FCF). *Food Chem. Toxicol.*, 33 (1995) 829-839; C.A., 124 (1996) 7317w.

See also 1959, 2118, 2345.

30b. Chloroplast and other natural pigments

- 2117 Araujo, P.W. and Brereton, R.G.: Rational design of linear calibration experiments for quantitative estimation of chlorophyll using high-performance liquid chromatography, atomic absorption, spectrometry and electronic absorption spectrometry. *Analyst (Cambridge)*, 120 (1995) 2497-2504.
- 2118 Bento, L.S.M.: Separation of sugar colorants using chromatographic columns containing sucrose crystals. *Zuckerindustrie (Berlin)*, 120 (1995) 123-130; C.A., 123 (1995) 357729n.
- 2119 Harris, P.G., Carter, J.F., Head, R.N., Harris, R.P., Eglinton, G. and Maxwell, J.R.: Identification pellets of chlorophyll transformation products in zooplankton fecal pellets and marine sediment extracts by liquid chromatography/mass spectrometry with atmospheric pressure chemical ionisation. *Rapid Commun. Mass Spectrom.*, 9 (1995) 1177-1183; C.A., 124 (1996) 44370d.
- 2120 Jinno, K. and Lin, Y.: Separation of carotenoids by high-performance liquid chromatography with polymeric and monomeric octadecylsilica stationary phases. *Chromatographia*, 41 (1995) 322-327.
- 2121 Santos Buelga, C., Haro, S.B., Ortega Meder, D., Guerra, T. and Rivas Gonzalo, J.C.: Detection of new pigments formed in the anthocyanin-catechin condensation reactions. *Colloq.-Inst. Natl. Rech. Argon.*, 69 (1995) 203-204; C.A., 124 (1996) 44369k.
- 2122 Shioi, Y., Watanabe, K., Takamiya, K.-i., Garrido, J.L. and Zapata, M.: Separation of mono- and divinyl chlorophyll species by high-performance liquid chromatography using an octadecyl polyvinyl alcohol polymer column. *Anal. Biochem.*, 231 (1995) 225-229.
- 2123 Van Lenning, K., Garrido, J.L., Aristegui, J. and Zapata, M.: Temperature-programmed high performance liquid chromatography separation of mono- and divinyl chlorophyll forms from marine phytoplankton. *Chromatographia*, 41 (1995) 539-543.

See also 1303, 1960, 1992, 1995, 2007, 2341.

31. PLASTICS AND THEIR INTERMEDIATES

- 2124 Bofils, F., Laugneau, J.C., Saite-Beuve, J. and Achi, A.K.: (Analysis by size-exclusion chromatography (CES): Use of cyclohexane). *Caotech. Plast.*, 72 (1995) 74-76; C.A., 123 (1995) 201580w - a review without refs.
- 2125 Bromberg, L.: Nonaqueous chromatography of biopolymers by means of their poly(ethylene glycol)-mediated solubilization in alcohols. *J. Appl. Polym. Sci.*, 57 (1995) 145-150; C.A., 123 (1995) 250289s.
- 2126 De Lorenzi, E., Massolini, G., Macchia, M. and Caccialanza, G.: HPLC determination of urinary 2,4- and 2,6-toluendiamines as potential degradation products of polyurethane breast implants. *Chromatographia*, 41 (1995) 661-664.
- 2127 Delker, G., Chen, C. and Miller, K.B.: Size-exclusion chromatographic determination of hydroxypropyl methyl cellulose and polyethylene glycol 400 in an ophthalmic solution. *Chromatographia*, 41 (1995) 263-266.

- 2128 Gorbunov, A.A. and Skvortsov, A.M.: Phase-transition chromatography: an effective approach to polymer separations. *Int. Lab.*, 25, No. 7 (1995) 8J-8R.
- 2129 Guttman, C.M., Douglas, J.F. and Di Marzio, E.A.: Chromatography of macromolecules near the adsorption transition: study of copolymers, comb polymers and stars. *Polym. Mater. Sci. Eng.*, 71 (1994) 641-642; *C.A.*, 123 (1995) 287504j.
- 2130 Homma, T. and Tazaki, M.: Size exclusion chromatography of natural and synthetic rubber. *Chromatogr. Sci. Ser.*, 69 (1995) 185-210; *C.A.*, 123 (1995) 201637v.
- 2131 Janco, M., Berek, D. and Prudskova, T.: Liquid chromatography of polymer mixtures applying a combination of exclusion and full adsorption mechanisms: 2. Eluent switching approach. *Polymer*, 36 (1995) 3295-3299; *C.A.*, 123 (1995) 199977y.
- 2132 Lawrey, B.D.: Size exclusion chromatography of poly(vinyl acetate). *Chromatogr. Sci. Ser.*, 69 (1995) 303-310; *C.A.*, 123 (1995) 199860s - a review with 35 refs.
- 2133 Lee, C. and Chang, T.: (Analysis of copolymers using HPLC(I)). *Kobunja Kwahak Kwa Kisul*, 6 (1995) 151-164; *C.A.*, 123 (1995) 341445f - a review with 124 refs.
- 2134 Lee, H.C. and Chang, T.: (Analysis of copolymers using HPLC(II)). *Kobunja Kwahak Kwa Kisul*, 6 (1995) 259-266; *C.A.*, 124 (1996) 30723j - a review with 25 refs.
- 2135 Lin, F.-m.C.: Size exclusion chromatography of acrylamide homopolymers and copolymers. *Chromatogr. Sci. Ser.*, 69 (1995) 249-277; *C.A.*, 123 (1995) 199858x - a review with 61 refs.
- 2136 Nagy, D.J.: Aqueous size exclusion chromatography of poly(vinyl alcohol). *Chromatogr. Sci. Ser.*, 69 (1995) 279-301; *C.A.*, 123 (1995) 199859y - a review with 33 refs.
- 2137 Niehaus, W.G., White, R.H., Richardson, S.B., Bourne, A. and Ray, W.K.: Polyethylene sulfonate: a tight-binding inhibitor of 6-phosphogluconate dehydrogenase of *Cryptococcus neoformans*. *Arch. Biochem. Biophys.*, 324 (1995) 325-330.
- 2138 Petro, M., Svec, F., Gitsov, I. and Frechet, J.M.J.: Molded monolithic rod of macroporous poly(styrene-co-divinylbenzene) as a separation medium for HPLC of synthetic polymers: "on-column" precipitation-redissolution chromatography as an alternative to size exclusion chromatography of styrene oligomers and polymers. *Anal. Chem.*, 68 (1996) 315-321.
- 2139 Provder, T., Kuo, C.-Y., Whited, M. and Huddleston, D.: GPC/FTIR characterization of copolymer compositional heterogeneity. *Polym. Mater. Sci. Eng.*, 71 (1994) 340-341; *C.A.*, 123 (1995) 287506m.
- 2140 Trathnigg, B., Maier, B. and Kollroser, M.: (Characterization of heteropolymers by two-dimensional HPLC). *GIT Fachz. Lab.*, 39 (1995) 9-15; *C.A.*, 123 (1995) 199875a - a review with 10 refs.
- 2141 Veggeland, K., Nilsson, S. and Austad, T.: Osmotic effects in gel permeation chromatography with multicomponent solvents. *J. Liq. Chromatogr.*, 18 (1995) 3163-3173.
- 2142 Wu, C.-s., Curry, J.F., Malawer, E.G. and Senak, L.: Size exclusion chromatography of vinyl pyrrolidone homopolymer and copolymers. *Chromatogr. Sci. Ser.*, 69 (1995) 311-330; *C.A.*, 123 (1995) 199861t - a review with 14 refs.
32. DRUG ANALYSIS
- 32a. Drug analysis, general techniques
- 2143 Allen, G.D., Griffiths, R., Abbott, R.W., Barlett, S., Brown, T.A., Lewis, V.A., Nash, M., Rhodes, G. and Rontree, J.A.: Quantitative HPLC-MS-MS in support of a pharmacokinetic study. *LC-GC Int.*, 8 (1995) 699-703.
- 2144 Caldwell, J.: Importance of stereospecific bioanalytical monitoring in drug development. *J. Chromatogr. A*, 719 (1996) 3-13 - a review with 39 refs.
- 2145 Goosens, E.C., Stegman, K.H., de Jong, D., de Jong, G.J. and Brinkman, U.A.T.: Investigation of on-line reverse-phase liquid chromatography-gas chromatography-mass spectrometry as a tool for the identification of impurities in drug substances. *Analyst (Cambridge)*, 121 (1996) 61-66.
- 2146 Kanda, T., Ohtsu, Y. and Yamaguchi, M.: Synthesis of several different polymer-coated mixed-functional stationary phases for direct analysis of drug-containing serum and plasma by high performance liquid chromatography. In: Hatano, H. and Hanai, T. (Editors), *Int. Symp. Chromatogr., 35th Anniv. Res. Group Liq. Chromatogr. Jpn.*, World Scientific, Singapore, 1995, pp. 771-775; *C.A.*, 123 (1995) 329121q.
- 2147 Lai, S.J., Binder, S.R., Essien, H. and Wen, K.-C.: Identification of western medicines as adulterants in Chinese herbal medicines using a broad-spectrum drug screening HPLC system. *J. Liq. Chromatogr.*, 18 (1995) 2861-2875.
- 2148 Medina-Hernández, M.J. and Sagrado, S.: Chromatographic quantification of hydrophobicity using micellar mobile phases. *J. Chromatogr. A*, 718 (1995) 273-282.
- 2149 Nicoud, R.M.: (Simulated moving bed. Application the separation of optical isomers). *Inf. Chim.*, 368 (1995) 113-115; *C.A.*, 123 (1995) 266248p.
- 2150 Patel, R.N., Banerjee, A. and Szarka, L.J.: Synthesis of four chiral pharmaceutical intermediates by biocatalysis. *J. Am. Oil Chem. Soc. (AOCS)*, 72 (1995) 1247-1264.
- 2151 Pullen, F.S., Swanson, A.G., Newman, M.J. and Richards, D.S.: "Online" liquid chromatography/nuclear magnetic resonance mass spectrometry - a powerful spectroscopic tool for the analysis of mixtures of pharmaceutical interest. *Rapid Commun. Mass Spectrom.*, 9 (1995) 1003-1006; *C.A.*, 123 (1995) 237946j.
- 2152 Shah, K.P., Chang, M. and Riley, C.M.: Automated analytical systems for drug development studies. 3. Multivessel dissolution testing system based on microdialysis sampling. *J. Pharm. Biomed. Anal.*, 13 (1995) 1235-1241.
- 2153 Wells, D.A., Lensmeyer, G.L. and Wiebe, D.A.: Particle-loaded membranes as an alternative to traditional packed-column sorbents for drug extraction: in-depth comparative study. *J. Chromatogr. Sci.*, 33 (1995) 386-392.
- 2154 Wickman, A., Otto, D. and Bender, C.: Automation of sample preparation and HPLC analysis of pharmaceutical dosage forms. *Int. Lab.*, 25, No. 7 (1995) 8-12.

For additional information see *C.A.*:
123 (1995) 288947t.

See also 1005, 1024, 1073, 1079, 1100, 1117, 1239, 1970, 2327.

See also 1013, 1076, 1078, 1138, 1139, 1184, 1987, 2350.

32b. *Antirheumatics and antiinflammatory drugs*

- 2155 Avgerinos, A., Axarlis, S., Dragatsis, J., Karidas, T. and Malamataris, S.: Extractionless high-performance liquid chromatographic method for the simultaneous determination of piroxicam and 5'-hydroxypiroxicam in human plasma and urine. *J. Chromatogr. B*, 673 (1995) 142-146.
- 2156 Baeyens, W.R.G., van der Weken, G. and Schelkens, M.: Diclofenac and naproxen analysis by microbore liquid chromatography (LC) with native fluorescence detection. *J. Fluoresc.*, 5 (1995) 131-134; *C.A.*, 123 (1995) 237986x.
- 2157 Baeyens, W.R.G., van der Weken, G., van Overbeke, A. and Zhang, X.R.: A comparative study for the determination of ibuprofen in pharmaceutical preparations using different internal column diameters. *Biomed. Chromatogr.*, 9 (1995) 259-260; *C.A.*, 124 (1996) 37834e.
- 2158 Baudrit, O. and Fabre, H.: Evaluation of electrochemical and fluorescence detection in liquid chromatography for the assay of indomethacin in aqueous humour samples. *J. Liq. Chromatogr.*, 18 (1995) 3283-3299.
- 2159 Brandl, M., Magill, A., Rudraraju, V. and Gordon, M.S.: Approaches for improving the stability of ketorolac in powder blends. *J. Pharm. Sci.*, 84 (1995) 1151-1153.
- 2160 Cerami, C., Zhang, X., Ulrich, P., Bianchi, M., Tracey, K.J. and Berger, B.J.: High-performance liquid chromatographic method for guanlylhydrazone compounds. *J. Chromatogr. B*, 675 (1996) 71-75.
- 2161 Ducret, A., Trani, M., Pepin, P. and Lortie, R.: Comparison of two HPLC techniques for monitoring enantioselective reactions for the resolution of (R,S)-ibuprofen: chiral HPLC versus achiral HPLC linked to an optical rotation detector. *Biotechnol. Tech.*, 9 (1995) 591-596; *C.A.*, 123 (1995) 209012h.
- 2162 Geisslinger, G., Menzel, S. and Brune, K.: Stereospecific determination of tiaprofenic acid in plasma: problems with drug degradation. *J. Chromatogr. B*, 675 (1996) 77-81.
- 2163 Iwaki, M., Bischer, A., Nguyen, A.C., McDonald, A.F. and Benet, L.Z.: Stereoselective disposition of naproxen glucuronide in the rat. *Drug Metab. Disp.*, 23 (1995) 1099-1103.
- 2164 Kleinbloesem, C.H., Ouwkerk, M., Spitznagel, W., Wilkinson, F.E. and Kaiser, R.R.: Pharmacokinetics and bioavailability of percutaneous ibuprofen. *Arzneim.-Forsch.*, 45 (1995) 1117-1121.
- 2165 Knebel, N.G., Sharp, S.R. and Madigan, M.J.: Rapid quantitative determination of a collagenase inhibitor and its major metabolite by on-line liquid chromatography with ionspray tandem mass spectrometric detection. *J. Chromatogr. B*, 673 (1995) 213-222.
- 2166 Liu, J.-H. and Smith, P.C.: Direct analysis of salicylic acid, salicyl acyl glucuronide, salicylic acid and gentisic acid in human plasma and urine by high-performance liquid chromatography. *J. Chromatogr. B*, 675 (1996) 61-70.
- 2167 Machinist, J.M., Mayer, M.D., Shet, M.S., Ferrero, J.L. and Rodrigues, A.D.: Identification of the human liver cytochrome P450 enzymes involved in the metabolism of zileuton (ABT-077) and its N-dehydroxylated metabolite, Abbott-66193. *Drug Metab. Disp.*, 23 (1995) 1163-1174.
- 2168 Roy, S.D., Chatterjee, D.J., Manoukian, E. and Divor, A.: Permeability of pure enantiomers of ketorolac through human cadaver skin. *J. Pharm. Sci.*, 84 (1995) 987-990.
- 2169 Sidelman, U.G., Lenz, E.M., Spraul, M., Hofmann, M., Troke, J., Sanderson, P.N., Lindon, J.C., Wilson, I.D. and Nicholson, J.K.: 750 MHz HPLC-NMR spectroscopic studies on the separation and characterization of the positional isomers of the glucuronides of 6,11-dihydro-11-oxodibenz(b,e)oxepin-2-acetic acid. *Anal. Chem.*, 68 (1996) 106-110.
- 2170 Siluveru, M. and Stewart, J.T.: Determination of sulindac and its metabolites in human serum by reversed-phase high-performance liquid chromatography using on-line post-column ultraviolet irradiation and fluorescence detection. *J. Chromatogr. B*, 673 (1995) 91-96.
- 2171 Suh, H., Jun, H.W. and Lu, G.W.: Fluorometric high performance liquid chromatography for quantitation of naproxen in serum. *J. Liq. Chromatogr.*, 18 (1995) 3105-3115.

For additional information see *C.A.*:

123 (1995) 330191u.

See also 1028, 2011, 2272, 2329.

32c. *Autonomic and cardiovascular drugs*

- 2172 Allen, M.C. and Day, W.W.: Determination of 1-[5-(2-cyclopropyl-5,7-dimethyl-imidazo[4,5-b]pyridin-3-ylmethyl)thiophen-2-yl]cyclopent-3-enecarboxylic acid (CP-191,166), an angiotensin II antagonist, in dog and rat plasma by high-performance liquid chromatography. *J. Chromatogr. B*, 675 (1996) 265-271.
- 2173 Azzaoui, K., Lafosse, M., Lazar, S., Thiéry, V. and Morin-Allory, L.: Separation of benzodioxinic isomers in LC. A molecular modelling approach for the choice of the stationary phase. *J. Liq. Chromatogr.*, 18 (1995) 3021-3034.
- 2174 Coors, C., Schulz, H.-G. and Stache, F.: Development and validation of a bioanalytical method for the quantification of diltiazem and desacetyldiltiazem in plasma by capillary zone electrophoresis. *J. Chromatogr. A*, 717 (1995) 235-243.
- 2175 Dawidowicz, A.L.: The influence of molecular weight of dextran forming a heparin-binding polysaccharide layer on the chromatographic properties of sorbents for HPAC analysis of human antithrombin. *Chromatographia*, 41 (1995) 88-93.
- 2176 De Vries, J.X. and Schmitz-Kummer, E.: Development of a method for the analysis of warfarin and metabolites in plasma and urine. *Am. Clin. Lab.*, 14 (1995) 20-21; *C.A.*, 123 (1995) 217631z.
- 2177 Emm, T.A., Krauthauser, C.L. and Huang, S.-M.: Determination of XR510, a balanced angiotensin II receptor antagonist, in dog and rat plasma by combined liquid-liquid/solid-phase extraction and high-performance liquid chromatography. *J. Chromatogr. B*, 675 (1996) 273-278.
- 2178 Fletcher, A.J., Addison, R.S., Mortimer, R.H. and Cannell, G.R.: Rapid determination of prazosin in perfusion media by HPLC with solid phase extraction. *J. Liq. Chromatogr.*, 18 (1995) 2911-2923.
- 2179 Fröhlich, L., Pietzyk, B. and Göber, B.: Untersuchungen zur biomimetischen Oxidation von Propiverinhydrochlorid und 1-Methyl-4-piperidylbenzilat. *Pharmazie*, 50 (1995) 736-740.

- 2180 Garrigon-Gadenne, D., Thenot, J.-P. and Morselli, P.L.: Influence of the rate of intravenous administration of eliprodil (SL 82.0715), a new anti-ischaemic agent, on its distribution in rat plasma and tissues. *J. Pharmacokin. Biopharm.*, 23 (1995) 147-161.
- 2181 Hanses, A., Spahn-Langguth, H. and Mutschler, E.: A new rapid and sensitive high-performance liquid chromatographic assay for diclofenac in human plasma. *Arch. Pharm. (Weinheim)*, 328 (1995) 257-260; *C.A.*, 122 (1995) 255367e.
- 2182 Ishii, K., Minato, K., Nakai, H. and Sato, T.: Simultaneous assay of four stereoisomers in diltiazem hydrochloride. Application to *in vitro* chiral inversion studies. *Chromatographia*, 41 (1995) 450-454.
- 2183 Kishimoto, K., Ito, K., Suzuki, S. and Nakamura, H.: (Analysis of minoxidil in the hair growth product by high performance liquid chromatography). *Tokyo-toritsu Eisei Kenkyusho Kenkyu Nenpo*, 45 (1994) 60-62; *C.A.*, 123 (1995) 321680a.
- 2184 Laethem, M.E., Belpaire, F.M. and Bogaert, M.G.: Direct high-performance liquid chromatography determination of diastereomeric oxprenolol glucuronides. *J. Chromatogr. B*, 675 (1996) 251-255.
- 2185 Lave, T., Efthymiopoulos, C., Christmann, D., Koffel, J.C. and Jung, L.: Determination of 4-hydroxytetraolol stereoisomers in rat and human urine by high-performance liquid chromatography. *J. Liq. Chromatogr.*, 18 (1995) 2801-2812.
- 2186 Lukkari, P. and Sirén, H.: Ion-pair chromatography and micellar electrokinetic capillary chromatography in analyzing beta-adrenergic blocking agents from human biological fluids. *J. Chromatogr. A*, 717 (1995) 211-217.
- 2187 Maguregui, M.I., Alonso, R.M. and Jiménez, R.M.: High-performance liquid chromatography with amperometric detection applied to the screening of β -blockers in human urine. *J. Chromatogr. B*, 674 (1995) 85-91.
- 2188 Nishi, H., Ishibuchi, K., Nakamura, K., Nakai, H. and Sato, T.: Enantiomeric separation of denopamine by capillary electrophoresis and high-performance liquid chromatography using cyclodextrins. *J. Pharm. Biomed. Anal.*, 13 (1995) 1483-1492.
- 2189 Nishi, H., Nakamura, K., Nakai, H., Sato, T. and Terabe, S.: Enantiomeric separation of trimetoquinol, denopamine and timepidine by capillary electrophoresis and HPLC and the application of capillary electrophoresis to the optical purity testing of the drugs. *Chromatographia*, 40 (1995) 638-644.
- 2190 Ohta, T., Niida, S. and Nakamura, H.: Selective extraction of β -blockers from biological fluids by column-switching high-performance liquid chromatography using an internal-surface phenylboronic acid precolumn. *J. Chromatogr. B*, 675 (1995) 168-173.
- 2191 Radler, S., Wermeille, M. and Blaschke, G.: Metabolism of dimethindene in rats. *Arzneim.-Forsch.*, 45 (1995) 1086-1092.
- 2192 Rekhij, G.S., Jambhekar, S.S., Souney, P.F. and Williams, D.A.: A fluorimetric liquid chromatographic method for the determination of propranolol in human serum/plasma. *J. Pharm. Biomed. Anal.*, 13 (1995) 1499-1505.
- 2193 Rumiantsev, D.O. and Ivanova, T.V.: Solid-phase extraction on Styrosorb cartridges as a sample pretreatment method in the stereoselective analysis of propranolol in human serum. *J. Chromatogr. B*, 674 (1995) 301-305.
- 2194 Seki, T., Takezaki, T., Ohuchi, R., Saitoh, M., Ishimori, T. and Yasuda, K.: Studies on agents with vasodilator and β -blocking activities. III. Synthesis and activity of optical isomers of TZC-1370. *Chem. Pharm. Bull.*, 43 (1995) 1719-1723.
- 2195 Shimizu, T., Hiraoka, M. and Nakanomyo, H.: Enantioselective determination of sotalol enantiomers in biological fluids using high-performance liquid chromatography. *J. Chromatogr. B*, 674 (1995) 77-83.
- 2196 Takamura, K., Abdel-Wadood, H.M., Kusu, F., Rifaat, I.H., Saleh, G.A., El-Rabbat, N.A. and Otagiri, M.: Determination of barnidipine in human serum and dog plasma by HPLC with electrochemical detection. *Biol. Pharm. Bull.*, 18 (1995) 1311-1314; *C.A.*, 124 (1996) 139f.
- 2197 Tesarova, E., Gilar, M., Hobza, P., Kabelac, M., Deyl, Z. and Smolkova-Keulemansova, E.: Correlation between structure of dihydropyridine calcium antagonists and their retention behavior and enantioseparation on the β -cyclodextrin stationary phase in HPLC. *J. High Resolut. Chromatogr.*, 18 (1995) 597-601.
- 2198 Turberg, M.P., Rodewald, J.M. and Coleman, M.R.: Determination of ractopamine in monkey plasma and swine serum by high-performance liquid chromatography with electrochemical detection. *J. Chromatogr. B*, 675 (1996) 279-285.
- 2199 Voith, B., Spahn-Langguth, H. and Mutschler, E.: New specific and sensitive HPLC-assays for ethacrynic acid and its main metabolite - the cysteine conjugate - in biological material. *J. Pharm. Biomed. Anal.*, 13 (1995) 1373-1382.
- 2200 Walker, M.L., Wall, R.A. and Walker, M.J.A.: Determination of an arylacetamide antiarrhythmic in rat blood and tissues using reversed-phase high-performance liquid chromatography. *J. Chromatogr. B*, 675 (1996) 257-263.
- 2201 Wen, Y.H., Wu, S.S. and Wu, H.L.: Chiral separation of acebutolol by derivatization and high-performance liquid chromatography. *J. Liq. Chromatogr.*, 18 (1995) 3329-3345.
- 2202 Wong, Y.-c. and Charles, B.G.: Determination of the angiotensin-converting enzyme inhibitor lisinopril in urine using solid-phase extraction and reversed-phase high-performance liquid chromatography. *J. Chromatogr. B*, 673 (1995) 306-310.
- 2203 Zhang, K.E. and Vyas, K.P.: Disposition of DMP 811 (L-708,404), a potent angiotensin II receptor antagonist, in the rat, monkey, and chimpanzee. *Drug Metab. Disp.*, 23 (1995) 1104-1109.
- For additional information see *C.A.*:
123 (1995) 350449n;
124 (1996) 15613.
- See also 1103, 1507, 1538, 1943, 2043, 2153, 2326.
- 32d. *Central nervous system drugs*
- 2204 Al-Khamis, K.I.M.: Determination of phenobarbital, phenytoin and carbamazepine in human serum: comparison of fluorescence polarization immunoassay with high performance liquid chromatography. *Saudi Pharm. J.*, 3 (1995) 95-103; *C.A.*, 123 (1995) 329104m.
- 2205 Altmayer, P., Büch, U. and Büch, H.P.: Propofol binding to human blood proteins. *Arzneim.-Forsch.*, 45 (1995) 1053-1056.

- 2206 Arafat, T. and Kaddoumi, A.: Determination of terfenadine in pharmaceutical dosage forms by spectrofluorometry and high performance liquid chromatography (HPLC). *Alexandria J. Pharm. Sci.*, 9 (1995) 113-115; *C.A.*, 123 (1995) 266310c.
- 2207 Arenaza, M.J., Berrueta, L.A., Gallo, B., Vicente, F., Escobal, A. and Iriondo, C.: Separation and structural elucidation of the hydrolysis compounds of loperidol. *J. Chromatogr. A*, 721 (1996) 123-126.
- 2208 Bianchi, V. and Donzelli, G.: Rapid reversed-phase high-performance liquid chromatographic method for the assay of urinary 11-nor- Δ^9 -tetrahydrocannabinol-9-carboxylic acid and confirmation of use of cannabis derivatives. *J. Chromatogr. B*, 675 (1995) 162-167.
- 2209 Buch, H.P., Knabe, J. and Krug, R.: Influence of albumin concentration, albumin species, pH and temperature on the stereoselectively different binding of (S)-(+)- and (R)-(-)-1-methyl-5-phenyl-5-propylbarbiturate to serum albumin. *Arzneim.-Forsch.*, 45 (1995) 1049-1053.
- 2210 Cornpropst, J.D., Gillespie, T.A. and Shipley, L.A.: Determination of the muscarinic agent [(3-(3-1-butylthio)-1,2,5-thiadiazol-4-yl)-1-azabicyclo[2.2.2]octane], in rat rabbit, and monkey plasma, using high-performance liquid chromatography in conjunction with tandem mass spectrometry. *J. Chromatogr. B*, 673 (1995) 67-74.
- 2211 Dawidowicz, A.L. and Fijalkowska, A.: Determination of propofol in blood by HPLC. Comparison of the extraction and precipitation methods. *J. Chromatogr. Sci.*, 33 (1995) 377-382.
- 2212 Endres, H.G.E., Henschel, L., Merkel, U., Hippus, M. and Hoffmann, A.: Lack of pharmacokinetic interaction between dextromethorphan, coumarin and mephenytoin in man after simultaneous administration. *Pharmazie*, 51 (1996) 46-51.
- 2213 Goicoechea, A.G., de Alda, M.J.L. and Vila-Jato, J.L.: A validated high-performance liquid chromatographic method for the determination of paracetamol and its major metabolites in urine. *J. Liq. Chromatogr.*, 18 (1995) 3257-3268.
- 2214 Goldnik, A., Gajewska, M. and Gajewska, M.: Determination of estazolam and alprazolam in serum by HPLC. *Acta Pol. Pharm.*, 51 (1994) 311-312; *C.A.*, 122 (1995) 260178y.
- 2215 Gupta, R.N.: Column liquid chromatographic determination of clozapine and N-desmethylclozapine in human serum using solid-phase extraction. *J. Chromatogr. B*, 673 (1995) 311-315.
- 2216 Gur, P., Poklis, A., Saady, J. and Costantino, A.: Chromatographic procedures for the determination of felbamate in serum. *J. Anal. Toxicol.*, 19 (1995) 499-503.
- 2217 Härtter, S., Hermes, B. and Hiemke, C.: Automated determination of trimipramine and N-desmethyl-trimipramine in human plasma or serum by HPLC with on-line solid phase extraction. *J. Liq. Chromatogr.*, 18 (1995) 3495-3505.
- 2218 Hirschberg, Y., Oberle, R.L., Ortiz, M., Lau, H. and Markowska, M.: Oral absorption of CGS-20625, an insoluble drug, in dogs and man. *J. Pharmacokin. Biopharm.*, 23 (1995) 11-23.
- 2219 Huang, J.L., Mather, L.E. and Duke, C.C.: High-performance liquid chromatographic determination of thiopentone enantiomers in sheep plasma. *J. Chromatogr. B*, 673 (1995) 245-250.
- 2220 Indrayanto, G., Sunarto, A. and Adriani, Y.: Simultaneous assay of phenylpropanolamine hydrochloride, caffeine, paracetamol, glycerylguaiacolate and chlorpheniramine maleate in SilabatTM tablet using HPLC with diode array detection. *J. Pharm. Biomed. Anal.*, 13 (1995) 1555-1559.
- 2221 Janicki, P.K., Johnson, R. and Kambam, J.R.: Rapid determination of chlorprocaine and its major metabolite, 2-chloroamino-benzoic acid, in plasma by high-performance liquid chromatography. *J. Chromatogr. B*, 675 (1995) 336-341.
- 2222 Jones, D.J., Nguyen, K.T., McLeish, M.J., Crankshaw, D.P. and Morgan, D.J.: Determination of (R)-(+)- and (S)-(-)-isomers of thiopentone in plasma by chiral high-performance liquid chromatography. *J. Chromatogr. B*, 675 (1995) 174-179.
- 2223 Kelly, J.P. and Leonard, B.E.: The contribution of pre-clinical drug evaluation in predicting the clinical profile of the selective serotonin reuptake inhibitor paroxetine. *J. Serotonin Res.*, 2 (1995) 27-46; *C.A.*, 123 (1995) 245818j.
- 2224 Kuroda, N., Zhou, B., Nakashima, K. and Akiyama, S.: Preliminary studies on simultaneous analysis of several benzodiazepines by HPLC. In: Hatano, H. and Hanai, T. (Editors), *Int. Symp. Chromatogr., 35th Anniv. Res. Group Liq. Chromatogr. Jpn.*, World Scientific, Singapore, 1995, pp. 173-177; *C.A.*, 123 (1995) 305872j.
- 2225 Lehmann, B. and Bouliou, R.: Determination of midazolam and its unconjugated 1-hydroxy metabolite in human plasma by high-performance liquid chromatography. *J. Chromatogr. B*, 674 (1995) 138-142.
- 2226 Ling, K.-H.J., Leeson, G.A., Burmaster, S.D., Hook, R.H., Reith, M.K. and Cheng, L.K.: Metabolism of terfenadine associated with CYP3A(4) activity in human hepatic microsomes. *Drug Metab. Disp.*, 23 (1995) 631-636.
- 2227 Matar, K.M., Nicholls, P.J., Al-Hassan, M.I. and Tekle, A.: Rapid micromethod for simultaneous measurement of oxcarbazepine and its active metabolite in plasma by high-performance liquid chromatography. *J. Clin. Pharm. Ther.*, 20 (1995) 229-234; *C.A.*, 123 (1995) 245960z.
- 2228 Nagata, T., Kudo, K., Imamura, T. and Jitsufuchi, N.: Sensitive and selective determination of bromisovalum by high-performance liquid chromatography/particle-beam mass spectrometry. *Forensic Sci. Int.*, 74 (1995) 205-211; *C.A.*, 123 (1995) 275039y.
- 2229 Nicoll-Griffith, D.A., Gupta, N., Twa, S.P., Williams, H., Trimble, L.A. and Yergey, J.A.: Verlukast (MK-0679) conjugation with glutathione by rat liver and kidney cytosols and excretion in the bile. *Drug Metab. Disp.*, 23 (1995) 1085-1093.
- 2230 Olesen, O.V. and Linnert, K.: Simplified high-performance liquid chromatographic method for the determination of citalopram and desmethylcitalopram in serum without interference from commonly used psychotropic drugs and their metabolites. *J. Chromatogr. B*, 675 (1996) 83-88.
- 2231 Pichard, L., Gillet, G., Bonfils, C., Domergue, J., Thenot, J.-P. and Maurel, P.: Oxidative metabolism of zolpidem by human liver cytochrome P450S. *Drug Metab. Disp.*, 23 (1995) 1253-1262.
- 2232 Pienimäki, P., Fuchs, S., Isojärvi, J. and Vähäkangas, K.: Improved detection and determination of carbamazepine and oxcarbazepine and their metabolites by high-performance liquid chromatography. *J. Chromatogr. B*, 673 (1995) 97-105.
- 2233 Roston, D.A., Sun, J.J., Collins, P.W., Perkins, W.E. and Tremont, S.J.: Supercritical fluid extraction-liquid chromatography method development for a polymeric controlled-release drug formulation. *J. Pharm. Biomed. Anal.*, 13 (1995) 1513-1520.

- 2234 Sattler, A., Krämer, I., Jage, J., Vrana, S., Kleemann, P.P. and Dick, W.: Development of a HPLC-system for quantitative measurement of lidocaine and bupivacaine in patients during post-operation epidural pain therapy. *Pharmazie*, 50 (1995) 741-744.
- 2235 Sequeira, D.J. and Strobel, H.W.: High-performance liquid chromatographic method for the analysis of imipramine metabolism *in vitro* by liver and brain microsomes. *J. Chromatogr. B*, 673 (1995) 251-258.
- 2236 Tajerzadeh, H. and Dadashzadeh, S.: An isocratic high-performance liquid chromatographic system for simultaneous determination of theophylline and its major metabolites in human urine. *J. Pharm. Biomed. Anal.*, 13 (1995) 1507-1512.
- 2237 Takakuwa, S., Chiku, S., Nakata, H., Yuzuriha, T., Mano, N. and Asakawa, N.: Enantioselective high-performance liquid chromatographic assay for determination of the enantiomers of a new anti-ulcer agent, E3810, in Beagle dog plasma and rat plasma. *J. Chromatogr. B*, 673 (1995) 113-122.
- 2238 Takeda, A. and Shinohara, T.: Simultaneous analysis of tiaramide metabolites in horse urine and plasma by solid-phase extraction and reversed-phase ion-pair liquid chromatography. *J. Anal. Toxicol.*, 19 (1995) 435-442.
- 2239 Tanaka, E., Sakamoto, N., Inubushi, M. and Misawa, S.: Simultaneous determination of plasma phenytoin and its primary hydroxylated metabolites in carbon tetrachloride-intoxicated rats by high-performance liquid chromatography. *J. Chromatogr. B*, 673 (1995) 147-151.
- 2240 Unglaub, W. and Ney, G.: (Investigations of residual neuroleptics [in slaughter animals]). *Fleischwirtschaft*, 75 (1995) 188-190; *C.A.*, 123 (1995) 196888w.
- 2241 Uzonov, D.P., Zivkovich, I., Pirkle, W.H., Costa, E. and Guidotti, A.: Enantiomeric resolution with a new chiral stationary phase of 7-chloro-3-methyl-3,4-dihydro-2H-1,2,4-benzothiazidine 5,5-dioxide, a cognition-enhancing benzothiadiazine derivative. *J. Pharm. Sci.*, 84 (1995) 937-942.
- 2242 Valenta, J.N. and Weber, S.G.: Molecular recognition of phenobarbital in plasticizers. Equilibrium investigations on the solubility of the barbiturate artificial receptor and its binding to phenobarbital in plasticizers. *J. Chromatogr. A*, 722 (1996) 47-57.
- 2243 Windsor, B.L. and Radulovic, L.L.: Measurement of a new anti-convulsant, (S)-3-(aminomethyl)-5-methylhexanoic acid, in plasma and milk by high-performance liquid chromatography. *J. Chromatogr. B*, 674 (1995) 143-148.
- 2244 Wong, E.C.C., Koenig, J. and Turk, J.: Potential interference of cyclobenzaprine and norcyclobenzaprine with HPLC measurement of amitriptyline and nortriptyline: resolution by GC-MS analysis. *J. Anal. Toxicol.*, 19 (1995) 218-224.
- 2245 Zagrobelny, J., Chavez, C., Constanzer, M. and Matuszewski, B.K.: Determination of a glycine/NMDA receptor antagonist in human plasma and urine using column-switching high-performance liquid chromatography with ultraviolet, fluorescence and tandem mass spectrometric detection. *J. Pharm. Biomed. Anal.*, 13 (1995) 1215-1223.
- 2246 Zhang, D. and Wang, S.: (Simultaneous determination of phenytoin and its primary metabolite in plasma by reversed phased high performance liquid chromatography). *Huaxi Yaoxue Zazhi*, 10 (1995) 25-28; *C.A.*, 122 (1995) 281307e.
- For additional information see *C.A.*:
124 (1996) 37813x.
- See also 1072, 1481, 1946, 1952, 1968, 2060, 2152, 2162, 2167, 2189, 2324.
- 32e. *Chemotherapeutics (exc. cytostatics and antibiotics)*
- 2247 Aboul-Fadl, T. and Fouad, A.E.: Synthesis and *in vitro* investigations of nalidixic acid amides of amino acid esters as prodrugs. *Pharmazie*, 51 (1996) 30-33.
- 2248 Binscheck, T., Meyer, H. and Wellhöner, H.H.: High-performance liquid chromatographic assay for the measurement of azathioprine in human serum samples. *J. Chromatogr. B*, 675 (1996) 287-294.
- 2249 Bloemhof, H., Greijdanus, B. and Uges, D.R.A.: (Determination of dapson). *Ziekenhuisfarmacie*, 11 (1995) 38-39; *C.A.*, 122 (1995) 255388n.
- 2250 Boschetti, C., Fronza, G., Fuganti, C., Grasselli, P., Magnone, A.G., Mele, A. and Pellegatta, C.: A nuclear magnetic resonance method for the determination of the purity of commercial dequalinium chloride. *Arzneim.-Forsch.*, 45 (1995) 1217-1221.
- 2251 Elrod, L., Jr., Linton, C.L., Morley, J., Golich, T.G. and Gay, C.: Determination of 8[(3S)-3-amino-1-pyrrolidinyl]-1-cyclopropyl-7-fluoro- or methyl-4-oxo-4H-quinoline-3-carboxylic acid hydrochloride and related substances by high performance liquid chromatography. *Chromatographia*, 41 (1995) 141-147.
- 2252 Faouzi, M.E.A., Dine, T., Luyckx, M., Brunet, C., Mallevais, M.-L., Goudaliez, F., Gressier, B., Cazin, M., Kablan, J. and Cazin, J.C.: Stability, compatibility and plasticizer extraction of micronazole injection added to infusion solutions and stored in PVC containers. *J. Pharm. Biomed. Anal.*, 13 (1995) 1363-1372.
- 2253 Jiang, Y. and Fu, C.: (Application of HPLC to sulphonamide drug analysis). *Hebei Daxue Xuebao, Ziran Kexueban*, 15 (1995) 94-102; *C.A.*, 123 (1995) 208988u - a review with 25 refs.
- 2254 Kim, D.-D. and Chien, Y.-W.: Transdermal delivery of dideoxynucleoside-type anti-HIV drugs. 1. Stability studies for hairless rat skin permeation. *J. Pharm. Sci.*, 84 (1995) 1061-1065.
- 2255 Kim, H. and Lin, C.-C.: A chiral liquid chromatographic method for the determination of the enantiomers of the racemic triazole antifungal drug (SCH 39304) in human plasma. *J. Pharm. Biomed. Anal.*, 13 (1995) 1415-1419.
- 2256 Kitts, D.D., Zheng, M., Burns-Flett, E. and McErlane, K.M.: Comparison of sulfadimethoxine residue analyses in salmon muscle using HPLC and Charm II test. *J. Food Prot.*, 58 (1995) 678-682; *C.A.*, 123 (1995) 226138w.
- 2257 Krasny, H.C., Beauchamp, L., Krenitsky, T.A. and de Miranda, P.: Metabolism and pharmacokinetics of a double prodrug of ganciclovir in the rat and monkey. *Drug Metab. Disp.*, 23 (1995) 1242-1247.
- 2258 Lau-Cam, C.A. and Roos, R.W.: Normal-phase high performance liquid chromatographic method with dansylation for the assay of piperazine citrate in dosage forms. *J. Liq. Chromatogr.*, 18 (1995) 3347-3357.
- 2259 Longer, M., Shetty, B., Zamansky, I. and Tyle, P.: Preformulation studies of a novel HIV protease inhibitor, AG1343. *J. Pharm. Sci.*, 84 (1995) 1090-1093.

- 2260 Nakamura, H., Uetrecht, J., Cribb, A.E., Miller, M.A., Zahid, N., Hill, J., Josephy, P.D., Grant, D.M. and Spielberg, S.P.: *In vitro* formation, disposition and toxicity of N-acetoxy-sulfamethoxazole, a potential mediator of sulfamethoxazole toxicity. *J. Pharmacol. Exp. Ther.*, 274 (1995) 1099-1104.
- 2261 Page, T., Sherwood, C., Connor, J.D. and Tarnowski, T.: Simple reversed-phase high-performance liquid chromatography quantitation of ganciclovir in human serum and urine. *J. Chromatogr. B*, 675 (1995) 342-346.
- 2262 Pinguet, F., Bressolle, F., Martel, P., Salabert, D. and Astre, C.: High-performance liquid chromatographic determination of granisetron in human plasma. *J. Chromatogr. B*, 675 (1996) 99-105.
- 2263 Pirkle, W.H., Brice, L.J., Caccamese, S., Principato, G. and Failla, S.: Facile separation of the enantiomers of diethyl N-(aryl)-1-amino-1-arylmethanephosphonates on a rationally designed chiral stationary phase. *J. Chromatogr. A*, 721 (1996) 241-246.
- 2264 Rasmussen, H.T., Omelczenko, N., Friedman, S.K. and McPherson, B.P.: Determination of chloroanilines in antibacterial soaps using cation-exchange chromatography with UV detection. *J. Chromatogr. A*, 719 (1996) 434-437.
- 2265 Sadeg, N., Pertat, N., Dutertre, H. and Dumontet, M.: Rapid, specific and sensitive method for isoniazid determination in serum. *J. Chromatogr. B*, 675 (1996) 113-117.
- 2266 Schell, R., Müller, F.O., Duursema, L., Groenewoud, G., Hundt, H.K.L., Middle, M.V., Mogilnicka, E.M. and Swart, K.J.: Relative bioavailability of rifampicin, isoniazid and ethambutol from a combination tablet vs concomitant administration of a capsule containing rifampicin and a tablet containing isoniazid and ethambutol. *Arzneim.-Forsch.*, 45 (1995) 1236-1239.
- 2267 Studenberg, S.D., Long, J.D., Woolf, J.H., Bruner, C.J., Wilson, D. and Woolley, J.L.: A robotics-based liquid chromatographic assay for the measurement of atovaquone in plasma. *J. Pharm. Biomed. Anal.*, 13 (1995) 1383-1393.
- 2268 Tsai, C.-E., Kondo, F., Ueyama, Y. and Azama, J.: Determination of sulfamethazine residue in chicken serum and egg by high-performance liquid chromatography with chemiluminescence detection. *J. Chromatogr. Sci.*, 33 (1995) 365-369.
- For additional information see C.A.:
123 (1995) 266307g.
- See also 1101, 1150, 1201, 1949, 2048, 2051, 2088, 2090.
- 32f. *Cytostatics*
- 2269 Anderson, C.D., Wang, J., Kumar, G.N., McMillan, J.M., Walle, U.K. and Walle, T.: Dexamethasone induction of taxol metabolism in the rat. *Drug Metab. Disp.*, 23 (1995) 1286-1290.
- 2270 Bottalico, C., Micelli, G., Guerrieri, A., Palmisano, F., Lorusso, V. and de Lena, M.: An on-line semi-automated solid-phase extraction procedure for high-performance liquid chromatographic determination of lonidamine in serum. *J. Pharm. Biomed. Anal.*, 13 (1995) 1349-1353.
- 2271 Cao, S., Baccanari, D.P., Joyner, S.S., Davis, S.T., Rustum, Y.M. and Spector, T.: 5-Ethyluracil (776C85): effects on the antitumor activity and pharmacokinetics of tegufar, a prodrug of 5-fluorouracil. *Cancer Res.*, 55 (1995) 6227-6230.
- 2272 Cociglio, M., Hillaire-Buys, D. and Alric, C.: Determination of methotrexate and 7-hydroxymethotrexate by liquid chromatography for routine monitoring of plasma levels. *J. Chromatogr. B*, 674 (1995) 101-110.
- 2273 El-Yazigi, A., Yusuf, A. and Al-Rawithi, S.: Liquid chromatographic analysis of mesna and dimesna in plasma and urine of patient treated with mesna. *Ther. Drug Monit.*, 17 (1995) 153-158; *C.A.*, 122 (1995) 255338w.
- 2274 Elfarra, A.A., Duescher, R.J., Hwang, I.Y., Sicuri, A.R. and Nelson, J.A.: Targeting 6-thioguanine to the kidney with S-(guanin-6-yl)-L-cysteine. *J. Pharmacol. Exp. Ther.*, 274 (1995) 1298-1304.
- 2275 Han, Y.-H.R. and Qin, X.-Z.: Determination of alendronate sodium by ion chromatography with refractive index detection. *J. Chromatogr. A*, 719 (1996) 345-352.
- 2276 Huizing, M.T., Sparreboom, A., Rosing, H., van Tellingen, O., Pinedo, H.M. and Beijnen, J.H.: Quantification of paclitaxel metabolites in human plasma by high-performance liquid chromatography. *J. Chromatogr. B*, 674 (1995) 261-268.
- 2277 Jones, R.M., Wang, Q., Lamb, J.H., Djelal, B.D., Bonnett, R. and Lim, C.K.: Identification of photochemical oxidation products of 5,10,15,20-tetra(m-hydroxyphenyl)chlorin by on-line high-performance liquid chromatography-electrospray ionization tandem mass spectrometry. *J. Chromatogr. A*, 722 (1996) 257-265.
- 2278 Jones, R.M., Yuan, Z.-X., Lamb, J.H. and Lim, C.K.: On-line high-performance liquid chromatography-electrospray ionization mass spectrometric method for the study of tamoxifen metabolism. *J. Chromatogr. A*, 722 (1996) 249-255.
- 2279 Lebreton-Doussaud, V., Vigneron, J., Perrin, A., Hofman, M.A. and Hofman, M.: (Stability of 2500 µg/ml Rubidazole solution). *Pharm. Hosp. Fr.*, 112 (1995) 103-106; *C.A.*, 123 (1995) 322003u.
- 2280 Lee, B.H., Ryu, J.C., Park, J., Bertram, B. and Wiessler, M.: Fate and distribution of [¹⁴C]5-(N,N-diethylthiocarbonyl)-N-acetyl-L-cysteine, an antimutagenic mixed disulfide from disulfiram, in rats. *Arzneim.-Forsch.*, 45 (1995) 1319-1323.
- 2281 Miyazaki, K., Kobayashi, M., Natsume, T., Gondo, M., Mikami, T., Sakakibara, K. and Tsukagoshi, S.: Synthesis and antitumor activity of novel dolastatin 10 analogs. *Chem. Pharm. Bull.*, 43 (1995) 1706-1718.
- 2282 Mukherjee, P.S. and Karnes, H.T.: Analysis of γ-(cholesteryl-oxy)butyric acid in biologic samples by derivatization with 5-(bromomethyl)fluorescein followed by high-performance liquid chromatography with laser induced fluorescence detection. *Anal. Chem.*, 68 (1996) 327-332.
- 2283 Nikupaavo, M., Koskinen, M., Himberg, J.-P. and Elo, H.: High performance liquid chromatographic analysis of 5-dodecylsalicylaldoxime and 3-chloro-5-dodecylsalicylaldoxime, two lipophilic analogues of salicylaldoxime. *J. Liq. Chromatogr.*, 18 (1995) 3435-3443.
- 2284 Poon, G.K., Mistry, P., Raynaud, F.I., Harrap, K.R., Murrer, B.A. and Barnard, C.F.J.: Determination of metabolites of a novel platinum anticancer drug JM216 in human plasma ultrafiltrates. *J. Pharm. Biomed. Anal.*, 13 (1995) 1493-1498.
- 2285 Rentsch, K.M., Schwendener, R.A., Schott, H. and Hänseler, E.: Sensitive high-performance liquid chromatographic method for the determination of N⁶-hexadecyl- and N⁶-octadecyl-1-β-D-arabinofuranosylcytosine in plasma and erythrocytes. *J. Chromatogr. B*, 673 (1995) 259-266.

- 2286 Reubsæet, J.L.E., Beijnen, J.H., Bult, A., Hop, E., Vermaas, R., Kellekule, Y., Kettenes-van den Bosch and Underberg, W.J.M.: Structural identification of the degradation products of the antitumor peptide antagonist [Arg⁶, D-Trp^{7,9}, MePhe⁸] substance P(6-11). *Anal. Chem.*, 67 (1995) 4431-4436.
- 2287 Selinger, K., Smith, G., Depee, S. and Aureche, C.: Determination of GI147211 in human blood by HPLC with fluorescence detection. *J. Pharm. Biomed. Anal.*, 13 (1995) 1521-1530.
- 2288 Sparreboom, A., Huizing, M.T., Boesen, J.J.B., Nooijen, W.J., van Tellingen, O. and Beijnen, J.H.: Isolation, purification, and biological activity of mono- and dihydroxylated paclitaxel metabolites from human feces. *Cancer Chemother. Pharmacol.*, 36 (1995) 299-304; *C.A.*, 123 (1995) 217655k.
- 2289 Takenaga, N., Ishii, Y., Monden, S., Sasaki, Y. and Hata, S.: Simultaneous determination of a new anticancer agent (NB-506) and its active metabolite in human plasma and urine by high-performance liquid chromatography with ultraviolet detection. *J. Chromatogr. B*, 674 (1995) 111-117.
- 2290 Tess, D.A., Cole, R.O. and Toler, S.M.: Sensitive method for the quantitation of droloxifene in plasma and serum by high-performance liquid chromatography employing fluorimetric detection. *J. Chromatogr. B*, 674 (1995) 253-260.
- 2291 Thompson, D.C., Wyrick, S.D., Holbrook, D.J. and Chaney, S.G.: Effect of the chemoprotective agent WR-2721 on disposition and biotransformations of ormaplatin in the Fischer 344 rat bearing a fibrosarcoma. *Cancer Res.*, 55 (1995) 2837-2846.
- 2292 Valles, B., Schiller, C.D., Coassolo, P., de Sousa, G., Wyss, R., Jaeck, D., Viger-Chougnat, A. and Rahman, R.: Metabolism of mofarotene in hepatocytes and liver microsomes from different species. Comparison with *in vivo* data and evaluation of the cytochrome P450 isoenzymes involved in human biotransformation. *Drug Metab. Disp.*, 23 (1995) 1051-1057.
- 2293 Wu, Z.-Y., Thompson, M.J., Roberts, M.S., Addison, R.S., Cannel, G.R., Grabs, A.J. and Smithers, B.M.: High-performance liquid chromatographic assay for the measurement of melphalan and its hydrolysis products in perfusate and plasma and melphalan in tissues from human and rat isolated limb perfusions. *J. Chromatogr. B*, 673 (1995) 267-279.
- See also 1311, 1830, 1944, 1986, 2059.
- 32g. *Other drug categories*
- 2294 Ahmed, S.M., Arcuri, F., Li, F., Moo-Joung, A.J. and Morder, C.: Accelerated stability studies on 16-methylene-17 α -acetoxy-19-norpregn-4-ene-3,20-dione (Nestron). *Steroids*, 60 (1995) 534-539; *C.A.*, 123 (1995) 350011p.
- 2295 Allievi, C., Zugnoni, P., Benedetti, M.S. and Dostert, P.: Determination of plasma levels of exemestane (FCE 24304), a new irreversible aromatase inhibitor, using liquid chromatography mass spectrometry. *J. Mass Spectrom.*, 30 (1995) 693-697; *C.A.*, 123 (1995) 1175f.
- 2296 Alvinerie, M., Sutra, J.F., Badri, M. and Galtier, P.: Determination of moxidectin in plasma by high-performance liquid chromatography with automated solid-phase extraction and fluorescence detection. *J. Chromatogr. B*, 674 (1995) 119-124.
- 2297 Barroso, M.B., Jiménez, R.M., Alonso, R.M. and Ortiz, E.: Determination of piretanide and furosemide in pharmaceuticals and human urine by high-performance liquid chromatography with amperometric detection. *J. Chromatogr. B*, 675 (1996) 303-312.
- 2298 Bradshaw, K.M., Burnett, J. and Sidhu, A.S.: High-performance liquid chromatographic determination of bisacodyl in pharmaceutical dosage forms marketed in Australia. *J. Pharm. Biomed. Anal.*, 13 (1995) 1355-1362.
- 2299 Dasgupta, S., Timby, D.M. and Lam, G.N.: Determination of brequinar in rat plasma by direct deproteinization and reversed-phase high-performance liquid chromatography with ultraviolet absorbance detection. *J. Chromatogr. B*, 673 (1995) 107-112.
- 2300 Dua, V.K., Kar, P.K., Sarin, R. and Sharma, V.P.: High-performance liquid chromatographic determination of primaquine and carboxyprimaquine concentrations in plasma and blood cells in *Plasmodium vivax* malaria cases following chronic dosage with primaquine. *J. Chromatogr. B*, 675 (1996) 93-98.
- 2301 Hall, R.E., Havner, G.D., Good, R. and Dunn, D.L.: Ion chromatographic method for rapid and quantitative determination of tromethamine. *J. Chromatogr. A*, 718 (1995) 305-308.
- 2302 Heitzmann, T., Neidlein, R., Freund, P., Reiff, K. and Strein, K.: Dose proportionality studies of novel thiazolidinedione derivatives as potent antidiabetic agents in mice. *Arzneim.-Forsch.*, 45 (1995) 1284-1288.
- 2303 Heitzmann, T., Neidlein, R., Freund, P., Reiff, K. and Strein, K.: Pharmacokinetics of some new oral blood glucose-lowering agents in dogs. *Arzneim.-Forsch.*, 45 (1995) 1182-1187.
- 2304 Hekman, C., Park, S., Teng, W.-Y., Guzman, N.A. and Rossi, T.: Degradation of lyophilized and reconstituted MACROSCINT® (DTPA-IgG): precipitation vs. glucosylation. *J. Pharm. Biomed. Anal.*, 13 (1995) 1249-1261.
- 2305 Josephs, J.L.: Characterization of over-the-counter cough/cold medications by liquid chromatography/electrospray mass spectrometry. *Rapid Commun. Mass Spectrom.*, 9 (1995) 1270-1274; *C.A.*, 123 (1995) 322203j.
- 2306 Kolawole, J.A., Taylor, R.B. and Moody, R.R.: Determination of proguanil and metabolites in small sample volumes of whole blood stored on filter paper by high-performance liquid chromatography. *J. Chromatogr. B*, 674 (1995) 149-154.
- 2307 Komarova, E.L. and Pineev, S.A.: (Use of a Milikhrom microcolumn chromatography in Abergin pharmaceutical for the determination of 2-bromo- α -ergocryptine mesylate and 2-bromo- β -ergocryptine mesylate in Abergin pharmaceutical and tablets). *Khim.-Farm. Zh.*, 29 (1995) 54-55; *C.A.*, 124 (1996) 15619m.
- 2308 Lee, H.S., Lee, J.S., Lee, H., Jung, Y.S., DeLuca, P.P. and Lee, K.C.: Reversed-phase liquid chromatography of salmon calcitonin and its degradation products in biological samples using column switching and flow-through radioisotope detection. *J. Chromatogr. B*, 673 (1995) 136-141.
- 2309 Li, W.Y., Chatterjee, D.J., Shetty, B.V., Wu, E.Y., Muggia, F. and Koda, R.T.: High-performance liquid chromatographic method for the determination of a novel thymidylate synthase inhibitor, AG 331, in human serum. *J. Chromatogr. B*, 673 (1995) 281-288.
- 2310 Mangold, J.B., Rodriguez, L.C. and Wang, Y.K.: Metabolism of cyclosporine G in the mouse, rat, and dog. *Drug Metab. Disp.*, 23 (1995) 615-621.

- 2311 Nadal, T., Ortuño, J. and Pascual, J.A.: Rapid and sensitive determination of zidovudine and zidovudine glucuronide in human plasma by ion-pair high-performance liquid chromatography. *J. Chromatogr. A*, 721 (1996) 127-137.
- 2312 Risley, D.S. and Peterson, J.A.: A high-performance liquid chromatography method for the quantitation of impurities in an NMDA antagonist using evaporative light scattering detection. *J. Liq. Chromatogr.*, 18 (1995) 3035-3048.
- 2313 Rosell-Rovira, M.L., Pou-Clavé, L., Lopez-Galera, R. and Pascual-Mostaza, C.: Determination of free serum didanosine by ultrafiltration and high-performance liquid chromatography. *J. Chromatogr. B*, 675 (1996) 89-92.
- 2314 Rushing, L.G., Webb, S.F. and Thompson, H.C., Jr.: Determination of leucogentian violet and gentian violet in catfish tissue by high-performance liquid chromatography with visible detection. *J. Chromatogr. B*, 674 (1995) 125-131.
- 2315 Sparidans, R.W., den Hartigh, J. and Vermeij, P.: High-performance ion-exchange chromatography with in-line complexation of bisphosphonates and their quality control in pharmaceutical preparations. *J. Pharm. Biomed. Anal.*, 13 (1995) 1545-1550.
- 2316 Suh, D.-Y., Yang, H.O., Kim, Y.C. and Han, B.H.: Metabolic fate of the new antithrombotic agent aspalatone in rats. *In vivo* and *in vitro* study. *Arzneim.-Forsch.*, 45 (1995) 1071-1074.
- 2317 Tsina, I., Chu, F., Hama, K., Kaloostian, M., Tam, Y.L., Tarnowski, T. and Wong, B.: Manual and automated (robotic) high-performance liquid chromatography methods for the determination of mycophenolic acid and its glucuronide conjugate in human plasma. *J. Chromatogr. B*, 675 (1996) 119-129.
- 2318 Warty, V., Zuckerman, S., Venkataramanan, R., Lever, J., Chao, J., Mckaveney, T., Fung, J. and Starzi, T.: Tacrolimus analysis: a comparison of different methods and matrixes. *Ther. Drug Monit.*, 17 (1995) 159-167; *C.A.*, 122 (1995) 281254k.
- 2319 Yuan, Y. and Shen, M.: (Study of relative bioavailability of controlled-release dextromethorphan in man using high-performance liquid chromatography). *Sepu*, 13 (1995) 400-402; *C.A.*, 123 (1995) 296466a.
- 2320 Zuk, M.M., Kenney, M.E., Horowitz, B. and Ben-Hur, E.: High-performance liquid chromatographic determination of the silicon phthalocyanine Pc 4 in human blood. *J. Chromatogr. B*, 673 (1995) 320-324.
- 2322 Conemans, J.M.H., Philipse, R.C.A., Hegge, H.F.J., Pijnenburg, C.C., Barella, C.G.J., Teulings, C.J.A., Franke, J.P. and Duchateau, A.M.J.A.: (Detection and data-processing in toxicological screening with HPLC and diode array detector (DAD) by means of the software program MDD). *Ziekenhuisfarmacie*, 11 (1995) 122-130; *C.A.*, 124 (1996) 23422g.
- 2323 Goosensen, M., Stolk, L.M.L. and Smit, B.J.: Analysis of 11-nor- Δ^9 -THC-carboxylic acid in meconium with immunoassay and HPLC diode-array detection. *J. Anal. Toxicol.*, 19 (1995) 330.
- 2324 Hall, M.A., Robinson, C.A. and Brissie, R.M.: High-performance liquid chromatography of alprazolam in *postmortem* blood using solid-phase extraction. *J. Anal. Toxicol.*, 19 (1995) 511-513.
- 2325 Kalasinsky, K.S., Schafer, T. and Binder, S.R.: Forensic application of an automated drug-profiling system. *J. Anal. Toxicol.*, 19 (1995) 412-418.
- 2326 Mozayani, A., Singer, P. and Jones, G.: Distribution of metoprolol enantiomers in a fatal overdose. *J. Anal. Toxicol.*, 19 (1995) 519-521.
- 2327 Mueller, R.K., Grosse, J., Lang, R. and Thieme, D.: Chromatographic techniques - the basis of doping control. *J. Chromatogr. B*, 674 (1995) 1-11.
- 2328 Nagai, T., Kamiyama, S. and Matsushima, K.: Analysis of time-lapse changes of d- and l-enantiomers of racemic ethylamphetamine and stereoselective metabolism in rat urine by HPLC determination. *J. Anal. Toxicol.*, 19 (1995) 225-228.
- 2329 Singer, P. and Mozayani, A.: An overdose fatality in a child involving disopyramide and sulindac. *J. Anal. Toxicol.*, 19 (1995) 529-530.
- 2330 Truitt, E.B., Jr., Hazelett, S.E. and Liebelt, R.A.: Separation of acetaldehyde-induced hemoglobin (Hb A₁-ACh). *U.S. US 5,460,970* (Cl. 436-66; GO1N33/72), 24 Oct. 1995, Appl. 63,256, 18 May 1993; 7 pp.; *C.A.*, 124 (1996) 4484n.
- 2331 Vadillo, J.M., Gonzalez, M.E., Carretero, I. and Laserna, J.J.: Evaluation of micellar liquid chromatography and capillary zone electrophoresis for dope control in sport. *Mikrochim. Acta*, 118 (1995) 273-282; *C.A.*, 123 (1995) 220408n.

For additional information see *C.A.*:
123 (1995) 332238p.

See also 1249, 1301, 1407, 1485, 1937, 1939, 2111, 2238, 2370, 2414.

32i. Plant extracts

- 2332 Baldi, A., Rosen, R.T., Fukuda, E.K. and Ho, C.-T.: Identification of nonvolatile components in lemon peel by high-performance liquid chromatography with confirmation by mass spectrometry and diode-array detection. *J. Chromatogr. A*, 718 (1995) 89-97.
- 2333 Gnabre, J.N., Ito, Y., Ma, Y. and Huang, R.C.: Isolation of anti-HIV-1 lignans from *Larrea tridentata* by counter-current chromatography. *J. Chromatogr. A*, 719 (1996) 353-364.
- 2334 Kaluzova, L., Glatz, Z., Pospisilova, J., Musil, P. and Unar, J.: (Determination of gentiopicroside in *Centaureum erythraea* by high-performance liquid chromatography). *Ceska Slov. Farm.*, 44 (1995) 203-205; *C.A.*, 123 (1995) 245961a.

For additional information see *C.A.*:
123 (1995) 321692f;
124 (1996) 15633m, 37841e.

See also 1175, 1219, 1308, 1391, 1544, 1966, 2004, 2054, 2077, 2078, 2088, 2127, 2137, 2167, 2212, 2237, 2273, 2275, 2333, 2362, 2403.

32h. Toxicological and forensic applications

- 2321 Cai, J. and Henion, J.: On-line immunoaffinity extraction - coupled column-capillary liquid chromatography/tandem mass spectrometry: trace analysis of LSD analogs and metabolites in human urine. *Anal. Chem.*, 68 (1996) 72-78.

- 2335 Li, Z., Wan, X. and Zhou, H.: (The rapid determination of paeoniflorin in *Paeonia lactiflora* by RP-HPLC). *Huaxi Yaoxue Zazhi*, 10 (1995) 141-143; C.A., 123 (1995) 250295r.
- 2336 Wojciechowski, H., Gumbinger, H.G., Vahlensieck, U., Winterhoff, H., Nahrstedt, A. and Kemper, F.H.: Analysis of the components of *Lycopus europaeus* L. in body fluids during metabolism studies. Comparison of capillary electrophoresis and high-performance liquid chromatography. *J. Chromatogr. A*, 717 (1995) 261-270.
- 2337 Yun, Y.J. and Yu, G.Y.: Separation and determination of acetoide in *Pedicularis resupinata* var. *oppositifolia* by ion pair liquid chromatography. *Anal. Sci. Technol.*, 8 (1995) 161-166; C.A., 123 (1995) 322205m.
- 2338 Zonta, F., Bogoni, P., Masotti, P. and Micali, G.: High-performance liquid chromatographic profiles of aloe constituents and determination of aloin in beverages, with reference to EEC regulation for flavouring substances. *J. Chromatogr. A*, 718 (1995) 99-106.
- For additional information see C.A.:
123 (1995) 266256q, 296368v, 296716g;
124 (1996) 15578x, 15622g.
- See also 1273, 1277, 1280, 1283, 1295, 1334, 1346, 1414, 1501, 1504, 1505, 1506, 1508, 1511, 1945, 2410.

33. CLINICO-CHEMICAL APPLICATIONS

33a. General papers and reviews

- 2339 Niwa, T.: Clinical mass spectrometry. *Clin. Chim. Acta*, 241+242 (1995) 1-414.

For additional information see C.A.:
123 (1995) 280289j.

33b. Complex mixtures and profiling (single compounds by cross-reference only)

- See 1102, 1264, 1375, 1390, 1394, 1402, 1406, 1418, 1422, 1443, 1465, 1483, 1485, 1499, 1530, 1534, 1541, 1548, 1555, 1570, 1607, 1623, 1625, 1713, 1717, 1958, 2374, 2418.

34. FOOD ANALYSIS

34a. General papers and reviews

See 1010.

34b. Complex mixtures (single compounds by cross-reference only)

- 2340 Begley, T.H., Gay, M.L. and Hollifield, H.C.: Determination of migrants in and migration from nylon food packaging. *Food Addit. Contam.*, 12 (1995) 671-676; C.A., 123 (1995) 284003j.

- 2341 Chase, G.W., Jr., Akoh, C.C., Eitenmiller, R.R. and Landen, W.O.: Liquid chromatographic method for the concurrent analysis of sucrose polyester, vitamin A palmitate, and β -carotene in margarine. *J. Liq. Chromatogr.*, 18 (1995) 3129-3138.
- 2342 Gerhardt, G.C., Salisbury, C.D.C. and Campbell, H.M.: Determination of ionophores in the tissues of food animals by liquid chromatography. *Food Addit. Contam.*, 12 (1995) 731-737; C.A., 124 (1996) 28305f.
- 2343 Luckas, B.: (Selective determination of algae toxins from crustaceans and shellfishes). *Chem. Unserer Zeit*, 29 (1995) 68-75; C.A., 123 (1995) 226123n - a review with 23 refs.
- 2344 Nagayama, T., Kobayashi, M., Shioda, H., Ito, M., Tamura, Y. and Tamura, Y.: (Determination of bitertanol in banana by liquid chromatography). *Shokuhin Eiseigaku Zasshi*, 36 (1995) 298-302; C.A., 123 (1995) 31485z.
- 2345 Ogura, N., Nakamura, Y., Shinomiya, K. and Kabasawa, Y.: Separation of impurities in commercial food Yellow No. 5 by counter alternative current chromatography and structural analyses. *Anal. Sci.*, 11 (1995) 759-763; C.A., 123 (1995) 312412n.
- 2346 Voisine, R., Carmichael, L., Chalier, P., Cormier, F. and Morin, A.: Determination of glucovanillin and vanillin in cured vanilla pods. *J. Agric. Food Chem.*, 43 (1995) 2658-2661; C.A., 123 (1995) 226213s.

For additional information see C.A.:
123 (1995) 254838t.

- See also 1193, 1250, 1263, 1265, 1271, 1276, 1278, 1288, 1289, 1294, 1298, 1317, 1323, 1327, 1343, 1352, 1395, 1397, 1398, 1400, 1401, 1404, 1411, 1420, 1432, 1433, 1440, 1441, 1444, 1447, 1448, 1450, 1455, 1459, 1460, 1473, 1488, 1490, 1514, 1519, 1524, 1533, 1544, 1546, 1547, 1553, 1573, 1590, 1680, 1682, 1693, 1697, 1743, 1745, 1749, 1751, 1837, 1961, 1974, 1975, 1993, 1996, 1998, 1999, 2005, 2009, 2013, 2015, 2023, 2026, 2028, 2038, 2039, 2052, 2053, 2061, 2068, 2071, 2081, 2086, 2093, 2094, 2099, 2106, 2107, 2110, 2114, 2116, 2118, 2240, 2256, 2268, 2362, 2365, 2391, 2406, 2409, 2415.

34c. Organoleptically important compounds (flavors, odors, volatiles)

- 2347 Myint, S., Daud, W.R., Mohamad, A.B. and Kadhum, A.A.H.: Separation and identification of eugenol in ethanol extract of cloves by reversed-phase high-performance liquid chromatography. *J. Am. Oil Chem. Soc. (AOCS)*, 72 (1995) 1231-1233.
- 2348 Vesper, H., Kindsmueller, C., Meurens, M., Kollmannsberger, H. and Nitz, S.: Isolation and quantification of the pungent principles of ginger. *Chem., Mikrobiol., Technol. Lebensm.*, 17 (1995) 114-117; C.A., 124 (1996) 7392s.

See also 1594, 2346.

35. ENVIRONMENTAL ANALYSIS

35a. *General papers and reviews*

2349 Wells, D.E., Echarrri, I. and McKenzie, C.: Separation of planar organic contaminants by pyrenyl-silica high-performance liquid chromatography. *J. Chromatogr. A*, 718 (1995) 107-118.

See also 1268, 2087.

35b. *Air pollution (complex mixtures; single compounds by cross-reference only)*

2350 Rando, R.J., Poovey, H.G. and Gibson, R.A.: Evaluation of 9-methylamino-methylanthracene as a chemical label for total reactive isocyanate group: application to isocyanate oligomers, polyurethane precursors, and phosgene. *J. Liq. Chromatogr.*, 18 (1995) 2743-2763.

35c. *Water pollution (complex mixtures; single compounds by cross-reference only)*

2351 Oleksy-Frenzel, J. and Jekel, M.: Characterization of industrial wastewaters using gel-permeation chromatography with multi-component detection. *Acta Hydrochim. Hydrobiol.*, 23 (1995) 212-218; *C.A.*, 123 (1995) 321302d.

2352 Rivasseau, C. and Cauden, M.: Comparison of on-line SPE-HPLC and SPME-GC for the analysis of microcontaminants in water. *Chromatographia*, 41 (1995) 462-470.

2353 Yatsenko, V.: Determining the characteristics of water pollutants by neural sensors and pattern recognition methods. *J. Chromatogr. A*, 722 (1996) 233-243.

For additional information see *C.A.*:
123 (1995) 295946v.

See also 1051, 1266, 1274, 1275, 1279, 1517, 1520, 1526, 1537, 2082, 2085, 2092, 2096, 2098, 2102, 2104, 2119, 2360, 2364, 2391, 2399, 2401, 2405, 2420.

35d. *Soil pollution (complex mixtures; single compounds by cross-reference only)*

2354 Helling, C.S. and Doherty, M.A.: Improved method for the analysis of imazapyr in soil. *Pestic. Sci.*, 45 (1995) 21-26; *C.A.*, 123 (1995) 191061m.

2355 Lancas, F.M., Vilegas, J.H.Y. and Galhiane, M.S.: (Line of chromatographic techniques to study the physicochemical properties of pesticides in soil. I. Adsorption/desorption determination). *Pesticidas*, 4 (1994) 39-48; *C.A.*, 123 (1995) 191057q.

2356 Lee, S.-S., Park, Y.-J. and Lee, S.-G.: (Simultaneous analysis of pesticide priority pollutants in soil). *Anal. Sci. Technol.*, 8 (1995) 237-248; *C.A.*, 123 (1995) 332610d.

See also 2090, 2092, 2093, 2095, 2381.

36. SOME TECHNICAL PRODUCTS AND COMPLEX MIXTURES

36a. *Surfactants*

2357 Cserhádi, T. and Forgács, E.: Reversed-phase chromatographic study of the interaction of non-ionic surfactants with sodium dodecyl sulfate. *J. Chromatogr. A*, 722 (1996) 33-40.

2358 Forgács, E. and Cserhádi, T.: Determination of the retention behaviour of some non-ionic surfactants on reversed-phase high-performance liquid chromatography supports by spectral mapping in combination with cluster analysis or non-linear mapping. *J. Chromatogr. A*, 722 (1996) 281-286.

2359 Ibrahim, N.M.A. and Wheals, B.B.: Determination of alkylphenol ethoxylate non-ionic surfactants in trade effluents by sublation and high-performance liquid chromatography. *Analyst (Cambridge)*, 121 (1996) 239-242.

2360 Kiewiet, A.T., van der Steen, J.M.D. and Parsons, J.R.: Trace analysis of ethoxylated nonionic surfactants in samples of influent and effluent of sewage treatment plants by high-performance liquid chromatography. *Anal. Chem.*, 67 (1995) 4409-4415.

2361 Shamsi, S.A. and Danielson, N.D.: Mixed-mode liquid chromatography of aliphatic anionic surfactants with a naphthalenedisulfonate mobile phase. *J. Chromatogr. Sci.*, 33 (1995) 505-513.

See also 1071, 2264.

36b. *Antioxidants and preservatives*

2362 Chen, B.H. and Fu, S.C.: Simultaneous determination of preservatives, sweeteners and antioxidants in foods by paired-ion liquid chromatography. *Chromatographia*, 41 (1995) 43-50.

2363 Ivanovic, D., Medenica, M., Nivaud-Guernet, E. and Guernet, M.: Effect of pH on the retention behaviour of some preservatives-antioxidants in reversed-phase high-performance liquid chromatography. *Chromatographia*, 40 (1995) 652-656.

2364 Kretzschmar, H.J., Neyen, V. and Fritz, B.: (HPLC analysis of phenolic antioxidants in aqueous migrates of rubber articles coming in contact with potable water). *Dtsch. Lebensm.-Rundsch.*, 91 (1995) 273-276; *C.A.*, 124 (1996) 15084h.

2365 Nishiyama, O., Kurita, R., Kurozuka, M., Matsumura, M., Oukuni, N., Awano, K., Morioka, S. and Kaneda, Y.: (Analysis of preservatives in foods by using steam distillation with ammonium sulfate saturated solution). *Shokuhin Eiseigaku Zasshi*, 36 (1995) 495-500; *C.A.*, 123 (1995) 226144v.

2366 Schulte, E.: (Simplified determination of sorbic acid, benzoic acid, and parabens in foods by HPLC). *Dtsch. Lebensm.-Rundsch.*, 91 (1995) 286-289; *C.A.*, 124 (1996) 7294m.

2367 Sheel, M.J.: MDL 29311, a phenolic antioxidant interferes with the interaction of apoC with VLDL: a possible explanation for its triglyceride-lowering effect. *J. Lipid Res.*, 36 (1995) 2609-2621.

For additional information see *C.A.*:

123 (1995) 265727g;

124 (1996) 15624j.

See also 2012.

- 36c. *Complex mixtures, technical products and unidentified compounds*
- 2368 Luthria, D.L. and Sprecher, H.: Metabolism of deuterium-labeled linoleic, 6,9,12-octadecatrienoic, 8,11,14-eicosatrienoic, and arachidonic acids in the rat. *J. Lipid Res.*, 36 (1995) 1897-1904.
- For additional information see C.A.:
123 (1995) 260179v.
- See also 1075, 1083, 1431, 2150, 2389, 2407.
37. CELLS, CELLULAR PARTICLES AND SUPRAMOLECULAR STRUCTURES
- 2369 Tong, X. and Caldwell, K.D.: Separation and characterization of red blood cells with different membrane deformability using steric field-flow fractionation. *J. Chromatogr. B*, 674 (1995) 39-47.
- See also 1403.
38. INORGANIC COMPOUNDS
- 38a. *Cations*
- 2370 Aceto, M., Foglizzo, A.M., Mentasti, E., Sacchero, G. and Sarzanini, C.: Mercury speciation in biological samples. *Int. J. Environ. Anal. Chem.*, 60 (1995) 1-13; C.A., 123 (1995) 248671s.
- 2371 Akiba, K., Hashimoto, H., Nakamura, S. and Saito, Y.: Mutual separation of holmium, erbium, and yttrium by high-speed countercurrent chromatography. *J. Liq. Chromatogr.*, 18 (1995) 2723-2741.
- 2372 Anonymous: (Optimization of selectivity of adsorption-chromatographic method to determine traces of heavy metals). *Vestn. Beloruss. Gos. Univ., Ser. 2*, (1993) 8-11; C.A., 123 (1995) 305416p.
- 2373 Archundia, C., Lugo Rivera, J.F., Collins, C.H. and Collins, K.E.: Speciation of the products from acid reduction of ⁵¹Cr(VI). *J. Radioanal. Nucl. Chem.*, 195 (1995) 363-370; C.A., 123 (1995) 245463q.
- 2374 Balcerzak, M.: (Metals and metalloids in biology and medicine. Modern analytical techniques in biological materials studies). *Wiad. Chem.*, 49 (1995) 137-150; C.A., 124 (1996) 4150a.
- 2375 Bandyopadhyay, A. and Roy, U.S.: Extraction chromatographic studies of uranium(VI) with *n*-caproic acid. *Chem. Environ. Res.* 1993, 2 (1993) 203-208; C.A., 124 (1996) 44260t.
- 2376 Chuveleva, E.A., Kharitonov, O.V. and Firsova, L.A.: (Effect of diethylenetriaminepentaacetic acid on the chromatographic separation of rare-earth elements on KU-2 cation exchanger). *Zh. Fiz. Khim.*, 69 (1995) 1322-1326; C.A., 123 (1995) 245466t.
- 2377 De Beer, H. and Coetzee, P.P.: Reverse-phase chromatographic separation of Co(II) and Co(III) as the Co(DEDTC)₃ and Co(acac)₃ complexes. *Fresenius J. Anal. Chem.*, 354 (1996) 208-211.
- 2378 Dugay, J., Jardy, A. and Doury-Berthod, M.: (Cation analysis by ion chromatography. II. Detection methods). *Analisis*, 23 (1995) 196-212; C.A., 124 (1996) 20420u - a review with 168 refs.
- 2379 Farinas, J.C., Cabrera, H.P. and Larrea, M.T.: Improvement in the ion exchange chromatographic separation of rare earth elements in geological materials for their determination by inductively coupled plasma atomic emission spectrometry. *J. Anal. At. Spectrom.*, 10 (1995) 511-516; C.A., 123 (1995) 305350n.
- 2380 Harrison, I., Littlejohn, D. and Fell, G.S.: Distribution of selenium in human blood, plasma and serum. *Analyst (Cambridge)*, 121 (1996) 189-194.
- 2381 Hong, K.-H., Lee, C.-w., Choi, Y.-H. and Lee, M.-H.: Separation of radiostrontium from environmental sample using strontium selective chromatographic resin. *Pangason Pango Hakhoechi*, 20 (1995) 1-7; C.A., 124 (1996) 17300z.
- 2382 Iqbal, J., Mirza, M.L. and Yasmeen, R.: Chromatographic separation of Mn(II), Fe(II), Co(II) and Cu(II) using hydrous tin oxide as a cation exchanger. *J. Nat. Sci. Math.*, 34 (1994) 61-69; C.A., 123 (1995) 274517r.
- 2383 Kalabina, L.V.: (Separation of iron(III), nickel, copper and lead from commercial butyrolactone and their determination). *Ukr. Khim. Zh.*, 60 (1994) 709-711; C.A., 124 (1996) 44316r.
- 2384 Kharitonov, O.V., Chuveleva, E.A. and Firsova, L.A.: (Separation of rare-earth elements by chromatography on KU-2 cation exchanger in hydrogen form with zinc ion added). *Zh. Fiz. Khim.*, 69 (1995) 1318-1321; C.A., 123 (1995) 245465s.
- 2385 Khuhawar, M.Y., Memon, Z.P. and Lanjwani, S.N.: HPLC determination of copper(II), cobalt(II) and iron(II) in pharmaceutical preparations using 2-acetylpyridine-4-phenyl-3-thiosemicarbazone derivatizing agent. *Chromatographia*, 41 (1995) 236-237.
- 2386 Kulkarni, S.V. and Rathod, A.A.: Column chromatographic separation of some metal ions in aqueous acetone-*n*-butyric acid medium by using Dowex 21K (Cl⁻) resin. *Natl. Acad. Sci. Lett (India)*, 17 (1994) 207-210; C.A., 123 (1995) 305346r.
- 2387 Meier, L., Terrell, K. and Vincent, J.B.: Use of thermolysin metalloprotein affinity metal chromatography in the decontamination of actinide-bearing solutions. *J. Chem. Technol. Biotechnol.*, 64 (1995) 149-152; C.A., 123 (1995) 324260z.
- 2388 Mel'nik, M.I., Karelin, E.A. and Filimonov, V.T.: (Production of high-purity gadolinium-153. 2. Extractive-chromatographic removal of samarium, terbium, and traces of europium from a preparation). *Radiokhimiya*, 37 (1995) 169-172; C.A., 124 (1996) 17157h.
- 2389 Mishenina, I.V., Smirnov, P.V., Shapovalova, E.N., Bol'shova, T.A. and Meglitskaya, N.Yu.: Ion-pair chromatographic determination of palladium, copper, and nickel in process solutions of metalized fabrics. *J. Anal. Chem.*, 50 (1995) 507-512; C.A., 123 (1995) 217169e.
- 2390 Motomizu, S., Oshima, M. and Matsuura, K.: (Electrical conductivity detection/ion chromatography using a suppressor method based on ion association/micelle extraction). *Bunseki Kagaku*, 44 (1995) 1041-1048; C.A., 124 (1996) 44278e.
- 2391 Nagaosa, Y. and Kobayashi, T.: Comparison of on-column and precolumn derivatization for liquid chromatographic determination of molybdenum in seawater and bovine liver. *J. Assoc. Off. Anal. Chem.*, 78 (1995) 1307-1311.

- 2392 Nagaosa, Y. and Mizuyuki, T.: Determination of cobalt(II) by reversed-phase liquid chromatography with electrochemical and spectrophotometric detection. *J. Liq. Chromatogr.*, 18 (1995) 3139-3146.
- 2393 Pantsar-Kallio, M. and Manninen, P.K.G.: Speciation of chromium in aquatic samples by coupled column ion chromatography-inductively coupled plasma-mass spectrometry. *Anal. Chim. Acta*, 318 (1996) 335-343.
- 2394 Piangerelli, V., Neri, F., Cavalli, S., Reschiotto, C. and Draisci, R.: (Rapid ion-chromatographic (IC) determination of Group I and II cations). *Lab. 2000*, 9 (1995) 34-40; *C.A.*, 124 (1996) 20485u.
- 2395 Rao, C.R.M.: Selective preconcentration of gallium using Muro-mac A-1 ion exchange column. *Anal. Chim. Acta*, 318 (1996) 113-116.
- 2396 Robinett, R.S.R., George, H.A. and Herber, W.K.: Determination of inorganic cations in fermentation and cell culture media using cation-exchange liquid chromatography and conductivity detection. *J. Chromatogr. A*, 718 (1995) 319-327.
- 2397 Sayama, T., Tokuda, M. and Hayashibe, Y.: Anion-exchange behavior of 12 elements in potassium iodide media. Application to the determination of traces of bismuth, cadmium, copper and lead in zinc metals. *Anal. Sci.*, 11 (1995) 849-852; *C.A.*, 124 (1996) 20508d.
- 2398 Seubert, A.: (Online coupling of HPLC and inductively coupled plasma mass spectrometry (ICP-MS) for elemental analysis). *GIT Fachz. Lab.*, 39 (1995) 528-534; *C.A.*, 123 (1995) 217225v.
- 2399 Soto, E.G., Rodriguez, E.A., Mahia, P.L., Lorenzo, S.M. and Rodriguez, D.P.: Ion-exchange method for analysis of four arsenic species and its application to tap water analysis. *Anal. Lett.*, 28 (1995) 2699-2718.
- 2400 Tan, L. and Tang, Z.: (Study and application of a new system of reversed phase extraction column chromatography for Sc(III)). *Kuangwu Yanshi*, 15 (1995) 101-104; *C.A.*, 123 (1995) 274529w.
- 2401 Tian, S. and Schwedt, G.: (Determination of chromate in leather waste and sludge by ion chromatography and capillary electrophoresis). *J. Prakt. Chem./Chem.-Ztg.*, 337 (1995) 486-489; *C.A.*, 123 (1995) 274658n.
- 2402 Tian, S. and Schwedt, G.: A ternary complex system for the reversed-phase chromatography of chromate. *Anal. Chim. Acta*, 317 (1995) 189-194.
- 2403 Troskosky, J.A., Katona, T., Zodda, J.P. and Eakins, M.N.: Determination of trace levels of Dy³⁺ in Dy(HP-DO3A) by ion-pair liquid chromatography with post-column reaction. *J. Pharm. Biomed. Anal.*, 13 (1995) 1421-1426.
- 2404 Watanabe, H. and Sato, H.: (Selection of the eluent for the ion-exchange chromatography of alkali and alkaline earth metal ions with a carboxylate-type ion-exchange column and a conductivity detector). *Bunseki Kagaku*, 44 (1995) 1021-1025; *C.A.*, 124 (1996) 44261u.
- 2405 Zappoli, S., Morselli, L. and Osti, F.: Application of ion interaction chromatography to the determination of metal ions in natural water samples. *J. Chromatogr. A*, 721 (1996) 269-277.
- 2406 Zhang, P. and Allen, J.C.: Free zinc concentration in bovine milk measured by analytical affinity chromatography with immobilized metallothionein. *Biol. Trace Elem. Res.*, 50 (1995) 135-148; *C.A.*, 124 (1996) 28294b.
- For additional information see *C.A.*:
123 (1995) 245458s, 245650g, 274519t, 274673p, 328603m, 357800d.
- See also 1007, 1089, 1105, 1174, 1226, 1737, 2419, 2420.
- 38b. Anions
- 2407 Bragina, N.V. and Karpyuk, A.D.: (Optimization of calibration dependence during the determination of anions in the heat transfer agent of a nuclear power station by two-column ion chromatography). *Zavod. Lab.*, 61 (1995) 1-3; *C.A.*, 123 (1995) 328562x.
- 2408 Carvalho, L.R.F., Souza, S.R., Martinis, B.S. and Korn, M.: Monitoring of the ultrasonic irradiation effect on the extraction of airborne particulate matter by ion chromatography. *Anal. Chim. Acta*, 317 (1995) 171-179.
- 2409 Coulter, A. and Slaughter, J.C.: Sulfate determination by ion chromatography in the presence of sulfite and organic acids. *Biotechnol. Tech.*, 9 (1995) 697-700; *C.A.*, 123 (1995) 337716c.
- 2410 Dai, Y., Wang, W., Zhou, T., Shi, S. and Shi, J.: (Research of speciation analysis of several anions in traditional Chinese medicines). *Fenxi Kexue Xuebao*, 10 (1994) 26-30; *C.A.*, 123 (1995) 266342q.
- 2411 Inoue, Y., Suzuki, Y. and Okubo, T.: Determination of cyanide and cyanogen chloride by ion-exclusion chromatography with postcolumn derivatization using an alkaline reduction pretreatment method. *Anal. Sci.*, 11 (1995) 861-863; *C.A.*, 123 (1995) 295977f.
- 2412 Jensen, D. and Kerth, J.: (Online sample preparation in hydrogen fluoride and hydrogen peroxide analysis). *LaborPraxis*, 19 (1995) 70-77; *C.A.*, 124 (1996) 20515d.
- 2413 Jun, X., Lima, J.L.F.C. and Montenegro, M.C.B.S.M.: Fast determination of sulfate by ion-chromatography based on a permanently coated column. *Analyst (Cambridge)*, 120 (1995) 2469-2473.
- 2414 Lambert, W.E., Piette, M., van Peteghem, C. and de Leenheer, A.P.: Application of high-performance liquid chromatography to a fatality involving azide. *J. Anal. Toxicol.*, 19 (1995) 261-264.
- 2415 Miura, Y., Maruyama, T. and Koh, T.: Ion chromatographic determination of L-ascorbic acid, sulphite, sulphide and thiosulphate using a cation-exchanger of low crosslinking. *Anal. Sci.*, 11 (1995) 617-621; *C.A.*, 123 (1995) 274593n.
- 2416 Nishimura, M., Hayashi, M., Yamamoto, A., Hayakawa, K. and Miyazaki, M.: Chromatographic simulation of the effect of polyvalent counter ion on retention behavior and peak intensity of sulphate. *Anal. Sci.*, 11 (1995) 755-758; *C.A.*, 124 (1996) 20467q.
- 2417 Ohta, K. and Tanaka, K.: (Retention behavior of inorganic anions and organic acids on polymer-coated C₁₈ column coated with cetyltrimethylammonium ion by ion chromatography with indirect UV-photometric detection). *Bunseki Kagaku*, 44 (1995) 713-717; *C.A.*, 123 (1995) 245722y.

2418 Wennmalm, A, Benthin, G., Jungersten, L., Edlund, A. and Petersson, A.-S.: Nitric oxide formation in man as reflected by plasma levels of nitrate, with special focus on kinetics, confounding factors, and response to immunological challenge. *Portland Prss Proc.*, 8(Biology of Nitric Oxide, 3) (1994) 474-476; *C.A.*, 123 (1995) 252734g.

2419 Xie, N. and Fu, H.: Oxygen bottle combustion-ion chromatography determination trace iodine and selenium. In: *Int. Symp. Bioanal. Chem., Proc., 1st 1995*, Chinese Chemical Society, Beijing, 1995, pp. 193-194; *C.A.*, 123 (1995) 334036v.

For additional information see *C.A.*:

123 (1995) 217134q, 227085p, 299454f, 299455g, 305520t, 323094m, 358032s.

See also 1055, 1062.

38d. *Volatile inorganic compounds*

See 2350.

39. RADIOACTIVE AND OTHER ISOTOPE COMPOUNDS

2420 Burnett, W.C., Cable, P.H. and Moser, R.: Determination of radium-228 in natural waters using extraction chromatographic resins. *Radioact. Radiochem.*, 6 (1995) 36-43; *C.A.*, 123 (1995) 321545k.

For additional information see *C.A.*:

123 (1995) 211134t.

See also 1403, 1454, 1489, 1496, 1614, 2373, 2381, 2388.