

Planar Chromatography

1. REVIEWS AND BOOKS

- 386 Weins, C.: Progress and development in thin layer chromatography. *GIT Spez. Chromatogr.*, 16, No. 1 (1996) 34-37; *C.A.*, 125 (1996) 47887j.

See also 396, 506.

2. FUNDAMENTALS, THEORY AND GENERAL

2a. General

- 387 Essig, S. and Kovar, K.-A.: The efficiency of thin-layer chromatographic systems: A comparison of separation numbers using additive substances as an example. *J. Planar Chromatogr.*, 10 (1997) 114-117.
- 388 Janjic, T.J., Zivkovic-Radovanovic, V.M. and Celap, M.B.: Planar salting-out chromatography. *J. Serb. Chem. Soc.*, 62 (1997) 1-17; *C.A.*, 126 (1997) 287322k.
- 389 Kovács-Hadady, K.: A systematic study of the desorption of different ion-pairing reagents from silica-gel layers. *J. Planar Chromatogr.*, 10 (1997) 18-25.
- 390 Nurok, D., Kleyle, R.M., McCain, C.L., Risley, D.S. and Ruterbories, K.J.: Statistical methods for quantifying mobile phase selectivity in one- and two-dimensional overpressured layer chromatography. *Anal. Chem.*, 69 (1997) 1398-1405.
- 391 Rozylo, J.K. and Siembida, R.: Comparison of different methods of optimization of the TLC process. *J. Planar Chromatogr.*, 10 (1997) 97-107.

2b. Thermodynamics and theoretical relationships

- 392 Szabady, B., Ruzinkó, M. and Nyuredy, S.: Prediction of retention data when using incremental multiple development techniques. *Chromatographia*, 45 (1997) 369-372.

See also 391, 398, 431.

2c. Relationship between structure and chromatographic behaviour

- 393 Nascu, H.I., Hodisan, T. and Cimpoi, C.: Comparative study of some chromatographic response function (CRF) used in LC and TLC optimization. A new weighted multiple CRF useful for TLC. *Stud. Univ. Babeş-Bolyai, Chem.*, 39, No. 1-2 (1994) 167-177; *C.A.*, 126 (1997) 15825s.
- 394 Palamareva, M. and Kozekov, I.: A first-level analysis of the adsorption mechanism of esters of racemic and meso-2,3-dibromobutane-1,4-dioic acids on silica. *J. Liq. Chromatogr. Relat. Technol.*, 20 (1997) 31-46.

See also 493.

2d. Measurement of physico-chemical and related values

See 507.

3. GENERAL TECHNIQUES

3a. Apparatus and accessories

- 395 Wang, S., Zhu, H., Yang, X. and Li, X.: (Two-dimensional chromatography-electrophoresis TLC by one development). *Zhongguo Yaoke Daxue Xuebao*, 27 (1996) 159-162; *C.A.*, 125 (1996) 322284c.

3b. Detectors and detection reagents

- 396 Hanley, Q.S., Earle, C.W., Pennebaker, F.M., Madden, S.P. and Denton, M.B.: Charge-transfer devices in analytical instrumentation. *Anal. Chem.*, 68 (1996) 661A-667A.
- 397 Loewy, A.G., Blodgett, J.K., Blase, F.R. and May, M.H.: Synthesis and use of a substrate for the detection of isopeptidase activity. *Anal. Biochem.*, 246 (1997) 111-117.

See also 407, 440.

3c. Sorbents and columns, packing procedures

- 398 Kovacs-Hadady, K.: A systematic study of the desorption of different ion-pairing reagents on reversed phase thin-layers. *Chromatographia*, 45 (1997) 81-90.
- 399 Waksmindzka-Hajnos, M.: Influence of otheo-effect in some model solutes on the retention on Florisil in different eluent systems using TLC and HPLC. *Chem. Anal. (Warsaw)*, 41 (1996) 1-9; *C.A.*, 124 (1996) 331129n.

See also 547.

3d. Quantitative analysis

- 400 Vovk, I. and Prosek, M.: Quantitative evaluation of chromatograms from totally illuminated thin-layer chromatographic plates. *J. Chromatogr. A*, 768 (1997) 329-333.

See also 519.

3e. Preparative scale chromatography

See 529, 532.

3g. High performance procedures

See 498, 514.

4. SPECIAL TECHNIQUES

4b. Computerization and modelling

- 401 Soczewinski, E. and Swieboda, R.: Computer-aided optimization of stepwise gradient thin-layer chromatography. *Acta Chromatogr.*, 5 (1995) 25-33; *C.A.*, 126 (1997) 112556n.

See also 390, 534.

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

- 402 Kovar, K.A. and Pisternik, W.: Thin-layer chromatography, a forgotten analytical method? Determination of the designer drug MDE and its most important metabolites in urine by direct HPTLC-UV/FTIR-combination. *Pharm. Unserer Zeit*, 25 (1996) 275; *C.A.*, 126 (1997) 15581j.
- 403 Nicola, A.J., Gusev, A.I. and Hercules, D.M.: Direct quantitative analysis from thin-layer chromatography plates using matrix-assisted laser desorption/ionization mass spectrometry. *Appl. Spectrosc.*, 50 (1996) 1479-1482; *C.A.*, 126 (1997) 165938v.
- 404 Uchino, S., Takahashi, S., Oguri, N., Maoka, T., Takayama, S., Hashimoto, K. and Kozuka, M.: (Rapid identification of natural products by using TLC with Curie-point direct injection probe/MS). *Kuromatogurafi*, 17 (1996) 195-201; *C.A.*, 126 (1997) 51042t.

See also 395, 432, 438, 442, 451, 472, 496, 498, 512, 523.

4e. Functional analysis

See 430.

4g. Enantiomers, separation

- 405 Lepri, L., del Bubba, M. and Masi, F.: Reversed-phase planar chromatography of enantiomeric compounds on microcrystalline cellulose triacetate (MCTA). *J. Planar Chromatogr.*, 10 (1997) 108-113.

See also 394.

4h. Other special techniques

- 406 Berezkin, V.G. and Buzeev, V.V.: (The use of vacuum in the thin-layer chromatography with a forced flow of the mobile phase on plates with covered sorption layers). *Izv. Akad. Nauk, Ser. Khim.*, (1996) 1143-1146; *C.A.*, 126 (1997) 26183g.
- 407 Tan, L., Zhang, S. and Ou, Q.: (Application of thin layer chromatography in solvent system selection for high-speed counter-current chromatography). *Fenxi Huaxue*, 24 (1996) 1448-1451; *C.A.*, 126 (1997) 44513u.

See also 390, 393.

5. HYDROCARBONS AND HALOGEN DERIVATIVES

5a. Aliphatic hydrocarbons

- 408 Choi, Y.H., Kim, J., Nh, M.J., Park, E.M. and Yoo, K.P.: Extraction of epicuticular wax and nonacosan-10-ol from Ephedra herb utilizing supercritical carbon dioxide. *Korean J. Chem. Eng.*, 13 (1996) 216-219; *C.A.*, 125 (1996) 67380s.

5b. Cyclic hydrocarbons, fullerenes

- 409 Janoszka, B., Bodzek, D., Szotek, A. and Warzecha, L.: HPLC and TLC identification of nitrogen polynuclear aromatic compounds in airborne particulate matter. *J. Planar Chromatogr.*, 10 (1997) 55-58.
- 410 Litvinova, L.S. and Zgonnik, V.N.: Thin-layer chromatography of C60 and C70 fullerenes. *J. Planar Chromatogr.*, 10 (1997) 38-43.
- 411 Marutoiu C. and Fabian, F.: Separation and identification of polycyclic aromatic hydrocarbons by high performance thin layer chromatography using vapor and temperature gradient. *Acta Chromatogr.*, 5 (1995) 158-166; *C.A.*, 126 (1997) 112557p.

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

See 408.

6. ALCOHOLS

- 412 Bisogno, T., Sepe, N., Melck, D., Maurelli, S., de Petrocellis, L. and di Marzo, V.: Biosynthesis, release and degradation of the novel endogenous cannabimimetic metabolite 2-arachidonoyl-glycerol in mouse neuroblastoma cells. *Biochem. J.*, 322 (1997) 671-677.
- 413 Ohnuma, S.-i., Hemmi, H., Ohto, C., Nakane, H. and Nishino, T.: Effects of random mutagenesis in a putative substrate-binding domain of geranylgeranyl diphosphate synthase upon intermediate formation and substrate specificity. *J. Biochem. (Tokyo)*, 121 (1997) 696-704.

See also 404.

7. PHENOLS

- 414 Quinn, L.A. and Tang, H.H.: Antioxidant properties of phenolic compounds in macadamia nuts. *J. Am. Oil Chem. Soc.*, 73 (1996) 1585-1588.

8. SUBSTANCES CONTAINING HETEROCYCLIC OXYGEN

8a. Flavonoids

- 415 Medic-Saric, M., Males, Z., Stanic, G. and Saric, S.: Evaluation and selection of optimal solvent and solvent combinations in thin-layer chromatography of flavonoids and of phenolic acids of *Zizyphus jujuba* Mill. *Croat. Chem. Acta*, 69 (1996) 1265-1274; C.A., 126 (1997) 101271q.
- 416 Milovanovic, M., Jovanovic, K.P., Radovic, V.B. and Vrbaski, Z.: Antioxidant effects of flavonoids of *Anthriscus sylvestris* in lard. *J. Am. Oil Chem. Soc.*, 73 (1996) 773-776.

See also 492.

8b. Aflatoxins and other mycotoxins

- 417 Berny, P., Jaussaud, P., Durix, A., Ravel, C. and Bony, S.: Rapid determination of the mycotoxin lolitrem B in endophyte-infected perennial ryegrass by high-performance thin-layer chromatography. A validated assay. *J. Chromatogr. A*, 769 (1997) 343-348.

See also 405.

8c. Other compounds with heterocyclic oxygen (incl. tannins)

- 418 Renault, J.-H., Thépenier, P., Zèches-Hanrot, M., le Men-Olivier, L., Durand, A., Foucault, A. and Margraff, R.: Preparative separation of anthocyanins by gradient elution centrifugal partition chromatography. *J. Chromatogr. A*, 763 (1997) 345-352.

9. OXO COMPOUNDS, ETHERS, EPOXIDES AND QUINONES

- 419 Van Uden, W., Bos, J.A., Boeke, G.M., Woerdenbag, H.J. and Pras, N.: The large-scale isolation of deoxypodophyllotoxin from rhizome of *Anthriscus sylvestris* followed by its bioconversion into 5-methoxypodophyllotoxin β -D-glucoside by cell culture of *Linum flavum*. *J. Natural Prod.*, 60 (1997) 401-403.

See also 404.

10. CARBOHYDRATES

10a. Mono and oligosaccharides. Structural studies

- 420 Bhushan, R. and Kaur, S.: TLC separation of some common sugars on silica gel plates impregnated with transition metal ions. *Biomed. Chromatogr.*, 11 (1997) 59-60; C.A., 126 (1997) 222433c.
- 421 Cesio, V., Heinzen, H., Servetto, C., Torres, M. and Moyna, P.: Rapid determination of lactose intolerance (LI). *Quim. Anal. (Barcelona)*, 15 (1996) 140-143; C.A., 126 (1997) 44508w.

- 422 Hashimoto, W., Maesaka, K., Sato, N., Kimura, S., Yamamoto, K., Kumagai, H. and Murata, K.: Microbial system for polysaccharide depolymerization: enzymatic route for gellan depolymerization by *Bacillus* sp. GL1. *Arch. Biochem. Biophys.*, 339 (1997) 17-23.

- 423 John, J.A.St., Bonnett, G.D. and Simpson, R.J.: A method for rapid quantification of sucrose and fructan oligosaccharides suitable for enzyme and physiological studies. *New Phytol.*, 134 (1996) 197-203; C.A., 126 (1997) 44609e.

- 424 Levitskii, A.P. and Lyalina, I.A.: (Qualitative determination of galactosaccharides in soybean products). *Kharchova Prom-st.*, 41 (1995) 38-40; C.A., 125 (1996) 299570g.

- 425 Lodi, G., Bighi, C., Brandolini, V., Menziani, E. and Tosi, B.: Automated multiple development HPTLC analysis of sugars on hydrophilic layers: II. Diol layers. *J. Planar Chromatogr.*, 10 (1997) 31-37.

- 426 Szemán, J., Roos, N. and Csabai, K.: Ruggedness of enantiomeric separation by capillary electrophoresis and high-performance liquid chromatography with methylated cyclodextrins as chiral selectors. *J. Chromatogr. A*, 763 (1997) 139-147.

See also 400.

10b. Polysaccharides, mucopolysaccharides, lipopolysaccharides

- 427 Chu, X., Chen, Q. and Yuan, J.: (Purification of the extracellular polysaccharides cultured from *Isaria* sp.). *Shanxi Daxue Xuebao, Ziran Kexueban*, 19 (1996) 315-318; C.A., 126 (1997) 108733a.

- 428 Tapia, C., Sapag-Hagar, J., Carilao, J., Valenzuela, F. and Basualto, C.: (Determination of substituent distribution and degree of substitution in methylcellulose by quantitative thin-layer chromatography). *Bol. Soc. Chil. Quim.*, 42 (1997) 49-58; C.A., 126 (1997) 252549n.

11. ORGANIC ACIDS AND LIPIDS

11a. Organic acids and simple esters

- 429 Chardigny, J.M., Wolff, R.L., Mager, E., Bayard, C.C., Sebedio, J.L., Martine, L. and Ratnayake, W.M.N.: Fatty acid composition of french infant formulas with emphasis on the content and detailed profile of trans fatty acids. *J. Am. Oil Chem. Soc.*, 73 (1996) 1595-1602.

- 430 Krzaczek, T., Bogucka-Kocka, A. and Sniezko, R.: Phenolic acids of some species of the *Oenothera* L. genus. *Acta Soc. Bot. Pol.*, 64 (1995) 41-44; C.A., 124 (1996) 336991x.

- 431 Pyka, A.: Dependence of R_M values on the topological index χ_B for selected isomers of fatty acids of *cis* and *trans* configuration. Part XIV. *J. Planar Chromatogr.*, 10 (1997) 121-123.

- 432 Ratnayake, W.M.N. and Pelletier, G.: Methyl esters from a partially hydrogenated vegetable oils is a better infrared external standard than methyl elaidate for the measurement of total trans content. *J. Am. Oil Chem. Soc.*, 73 (1996) 1165-1169.

- 433 Sarney, D.B., Barnard, M.J., MacManus, D.A. and Vulfson, E.N.: Application of lipases to the regioselective synthesis of sucrose fatty acid monoesters. *J. Am. Oil Chem. Soc.*, 73 (1996) 1481-1488.

- 434 Tsevegsuren, N. and Aitzetmuller, K.: γ -Linolenic and stearidonic acids in Mongolian Boraginaceae. *J. Am. Oil Chem. Soc.*, 73 (1996) 1681-1684.
- 435 Wardas, W. and Pyka, A.: New visualizing agents for unsaturated higher fatty acids in TLC. *J. Planar Chromatogr.*, 10 (1997) 63-67.

See also 394, 415.

11c. Lipids and their constituents

- 436 Akoh, C.C., Jennings, B.H. and Lillard, D.A.: Enzymatic modification of evening primrose oil: incorporation of *n*-polyunsaturated fatty acids. *J. Am. Oil Chem. Soc.*, 73 (1996) 1059-1062.
- 437 Alvarez, J.G., Slomovic, B. and Ludmir, J.: Analysis of dipalmitoyl phosphatidylcholine in amniotic fluid by high-performance liquid chromatography. *J. Chromatogr. B*, 690 (1997) 338-342.
- 438 Blas, O.J. and Gonzales, A.V.: Determination of sterols by capillary column gas chromatography. Differentiation among different types of olive oil: virgin, refined, and solvent-extracted. *J. Am. Oil Chem. Soc.*, 73 (1996) 1685-1689.
- 439 Brailoiu, E., Beschea, C., Brailoiu, C., Costuleanu, A., Filipeanu, C.M., Costuleanu, M., Fallgren, B. and Branisteanu, D.D.: TLC characterization of small unilamellar liposomes containing D-myo-inositol derivatives. *Biomed. Chromatogr.*, 10 (1995) 233-236; *C.A.*, 125 (1996) 321942d.
- 440 Caboni, M.F., Menotta, S. and Lercker, G.: Separation and analysis of phospholipids in different foods with a light-scattering detector. *J. Am. Oil Chem. Soc.*, 73 (1996) 1561-1566.
- 441 Chatelut, M., Harzer, K., Christomanou, H., Feunteun, J., Pieraggi, M.-T., Paton, B.C., Kishimoto, Y., O'Brien, J.S., Basile, J.-P., Thiers, J.-C., Salvayre, R. and Levade, T.: Model SV40-transformed fibroblast lines for metabolic studies of human prosaposin and acid ceramidase deficiencies. *Clin. Chim. Acta*, 262 (1997) 61-76.
- 442 Chernenko, T.V. and Glushenkova, A.I.: (Effect of isolation methods on Hibiscus leaf lipid composition). *Khim. Prir. Soedin.*, (1995) 623-624; *C.A.*, 125 (1996) 52658q.
- 443 Coderch, L., de la Maza, A., Pinazo, A. and Parra, J.L.: Physicochemical characteristics of liposomes formed with internal wool lipids. *J. Am. Oil Chem. Soc.*, 73 (1996) 1713-1718.
- 444 Ella, K.M., Qi, C., Dolan, J.W., Thompson, R.M. and Meier, K.E.: Characterization of a sphingomyelinase activity in *Saccharomyces cerevisiae*. *Arch. Biochem. Biophys.*, 340 (1997) 101-110.
- 445 Frazer, B.A., Reddy, A., Fried, B. and Sherma, J.: HPTLC determination of neutral lipids and phospholipids in *Lymnaea elodes* (Gastropoda). *J. Planar Chromatogr.*, 10 (1997) 128-130.
- 446 Gildenast, T. and Lasch, J.: Isolation of ceramide fractions from human stratum corneum lipid extracts by high-performance liquid chromatography. *Biochim. Biophys. Acta*, 1346 (1997) 69-74.
- 447 Hama, Y., Li, Y. and Li, S.: Interaction of GM₂ activator protein with glycosphingolipids. *J. Biol. Chem.*, 272 (1997) 2828-2833.
- 448 Hashimoto, M., Yasuoka, J.-i., Suda, Y., Takada, H., Yoshida, T., Kotani, S. and Kusumoto, S.: Structural feature of the major but not cytokine-inducing molecular species of lipoteichoic acid. *J. Biochem. (Tokyo)*, 121 (1997) 779-786.
- 449 Lanne, B., Olsson, B.-M., Larsson, T. and Karlsson, K.-A.: Fast atom bombardment mass spectrometric analysis of glycosphingolipids by direct desorption from thin layer chromatography plates: application of the method to a receptor-active 8-sugar glycolipid. *Eur. Mass Spectrom.*, 2 (1996) 361-368; *C.A.*, 126 (1997) 248515f.
- 450 Ledvinova, J., Poupetova, H., Hanackova, A., Pisacka, M. and Elleder, M.: Blood group B glycosphingolipids in α -galactosidase deficiency (Fabry disease): influence of secretor status. *Biochim. Biophys. Acta*, 1345 (1997) 180-187.
- 451 Lu, P. and Lai, B.: (TLC-scanning determination of phosphatidylethanolamine in yolk phospholipid). *Zhongguo Yiyao Gongye Zazhi*, 27 (1996) 222-224; *C.A.*, 125 (1996) 326645u.
- 452 Marquina, G., Waki, H., Fernandez, L.E., Kon, K., Carr, A., Valiente, O., Perez, R. and Ando, S.: Gangliosides expressed in human breast cancer. *Cancer Res.*, 56 (1996) 5165-5171.
- 453 Mattoo, R.L. and Roseman, S.: Quantitative determination of sialic acid in the monosialoganglioside, GM₁, by the thiobarbituric acid method. *Anal. Biochem.*, 246 (1997) 30-33.
- 454 Nishinaka, Y., Ravindranath, M.H. and Irie, R.F.: Development of a human monoclonal antibody to ganglioside GM₂ with potential for cancer treatment. *Cancer Res.*, 56 (1996) 5666-5671.
- 455 Reiss, D., Beyer, K. and Engelmann, B.: Delayed oxidative degradation of polyunsaturated diacyl phospholipids in the presence of plasmalogen phospholipids *in vitro*. *Biochem. J.*, 323 (1997) 807-814.
- 456 Shimada, Y., Sugihara, A., Nakanao, H., Yokota, T., Nagao, T., Komemushi, S. and Tominaga, Y.: Production of structure lipids containing essential fatty acids by immobilized *Rhizopus delmar* lipase. *J. Am. Oil Chem. Soc.*, 73 (1996) 1415-1420.
- 457 Sul, D. and Erwin, J.A.: The membrane lipids of the marine ciliated protozoan *Parauronema acutum*. *Biochim. Biophys. Acta*, 1345 (1997) 162-171.
- 458 Suutari, M., Rintamäki, A. and Laakso, S.: The effect of temperature on lipid classes and their fatty acid profiles in *Lipomyces starkeyi*. *J. Am. Oil Chem. Soc.*, 73 (1996) 1071-1073.
- 459 Suzuki, K., Okada, K., Kamiya, Y., Zhu, X.F., Nakagawa, T., Kawamukai, M. and Matsuda, H.: Analysis of the decaprenyl diphosphate synthase (dps) gene in fission yeast suggests a role of ubiquinone as an antioxidant. *J. Biochem. (Tokyo)*, 121 (1997) 496-505.
- 460 Urano, S., Asai, Y., Makbe, S., Matsuo, M., Izumiyama, N., Ohtsubo, K. and Endo, T.: Oxidative injury of synapse and alteration of antioxidative defense systems in rats, and its prevention by vitamin E. *Eur. J. Biochem.*, 245 (1997) 64-70.
- 461 Zellmer, S. and Lasch, J.: Individual variation of human plantar stratum corneum lipids, determined by automated multiple development of high-performance thin-layer chromatography plates. *J. Chromatogr. B*, 691 (1997) 321-329.
- 462 Zhou, S. and Ackman, R.C.: Interference of polar lipids with the alkalimetric determination of free fatty acid in fish lipids. *J. Am. Oil Chem. Soc.*, 73 (1996) 1019-1023.

See also 414, 464, 466.

13. STEROIDS

13a. General techniques

See 390.

13b. Pregnane and androstane derivatives

463 Cserháti, T. and Forgács, E.: Charge-transfer chromatographic study of the complex formation of some steroidal drugs with carboxymethyl- γ -cyclodextrin. *Anal. Biochem.*, 246 (1997) 205-210.

13d. Sterols

464 Asmis, R., Bühler, E., Jelk, J. and Gey, K.F.: Concurrent quantification of cellular cholesterol, cholesteryl esters and triglycerides in small biological samples. Reevaluation of thin layer chromatography using laser densitometry. *J. Chromatogr. B*, 691 (1997) 59-66.

465 Garcia Regueiro, J.A. and Maraschiello, C.: Procedure for the determination of eight cholesterol oxides in poultry meat using on-column and solvent venting capillary gas chromatography. *J. Chromatogr. A*, 764 (1997) 279-293.

466 Murphy, E.J. and Schroeder, F.: Sterol carrier protein-2 mediated cholesterol esterification in transfected L-cell fibroblasts. *Biochim. Biophys. Acta*, 1345 (1997) 283-292.

14. STEROID GLYCOSIDES AND SAPONINS

467 Tanaka, H., Putalun, W., Tszaki, C. and Shoyama, Y.: A simple determination of steroidal alkaloid glycosides by thin-layer chromatography immunostaining using monoclonal antibody against solamargine. *FEBS Lett.*, 404 (1997) 279-282; *C.A.*, 126 (1997) 274294c.

468 Zimowski, J. and Wojciechowski, Z.A.: TLC and GLC analysis of individual molecular species in natural mixtures of steryl glycosides isolated from eggplant. *Herba Pol.*, 42 (1996) 269-272; *C.A.*, 126 (1997) 128852s.

15. TERPENES AND OTHER VOLATILE AROMATIC COMPOUNDS

15a. Terpenes

469 Dimitrijevic, S.M., Humer, U., Shehadeh, M., Ryves, W.J., Hassan, N.M. and Evans, F.J.: Analysis and purification of phorbol esters using normal phase HPLC and photodiode-array detection. *J. Pharm. Biomed. Anal.*, 15 (1996) 393-401.

470 Ionkova, I. and Kartnig, T.: Densitometric determination of cycloartane triterpene saponins from transformed root cultures of *Astragalus mongholicus* Bge. *Pharmazie*, 52 (1997) 218-220.

15b. Essential oils

471 Handjieva, N.V., Popov, S.S. and Evstatieva, L.N.: Constituents of essential oils from *Nepeta cataria* L. *N. grandiflora* M.B. and *N. nuda* L. *J. Essent. Oil Res.*, 8 (1996) 639-643; *C.A.*, 126 (1997) 79811s.

16. NITRO AND NITROSO COMPOUNDS

See 409.

17. AMINES, AMIDES AND RELATED NITROGEN COMPOUNDS

See 544.

17a. Amines and polyamines

See 473.

17b. Catecholamines and their metabolites

472 Alemany, G., Akkarir, M., Rossello, C. and Gamundi, A.: Thin-layer chromatographic detection of catecholamines in rat plasma. *Biomed. Chromatogr.*, 10 (1996) 225-227; *C.A.*, 125 (1996) 317564q.

473 Simon-Sarkadi, L., Kovács, A. and Mincsovcics: Determination of biogenic amines by personal OPLC. *J. Planar Chromatogr.*, 10 (1997) 59-60.

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

See 479.

18. AMINO ACIDS AND PEPTIDES; CHEMICAL STRUCTURE OF PROTEINS

18a. Amino acids and their derivatives

474 Guo, D., Zeng, X. and Yang, J.: (Study on the limit test of other amino acids in amino acid by thin layer chromatography). *Zhongguo Shenghua Yaowu Zazhi*, 17 (1996) 119-121; *C.A.*, 126 (1997) 154625q.

475 Vyas, P., Attur, M., Ou, G.-M., Haines, K.A., Abramson, S.B. and Steven, B. and Amin, A.R.: Thin layer chromatography: An effective method to monitor citrulline synthesis by nitric oxide synthase activity. *Portland Press. Proc.*, (1996) 44, *C.A.*, 125 (1996) 52633c.

See also 476, 480.

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

476 Jiang, G., Nepomuceno, L., Yang, Q. and Sladek, F.M.: Serine/threonine phosphorylation of orphan receptor hepatocyte nuclear factor 4. *Arch. Biochem. Biophys.*, 340 (1997) 1-9.

- 477 Nagai, M., Kojima, F., Naganawa, H., Hamada, M., Aoyagi, T. and Takeuchi, T.: Phebestin, a new inhibitor of aminopeptidase N, produced by *Streptomyces* sp. MJ716-m3. *J. Antibiot.*, 50 (1997) 82-84.
- 478 Paley, E.L.: A mammalian tryptophanyl-tRNA synthetase ios associated with protein kinase activity. *Eur. J. Biochem.*, 244 (1997) 780-788.
- 479 Paruszewski, R., Jaworski, P., Tautt, J. and Dudkiewicz, J.: New renin inhibitors containing aliphatic or aromatic amides at the C-terminus. *Pharmazie*, 52 (1997) 206-209.
- 480 Richardson, A., Shannon, J.D., Adams, R.B., Schaller, M.D. and Parsons, J.T.: Identification of integrin-stimulated sites of serine phosphorylation in FRNK, the separately expressed C-terminal domain of focal adhesion kinase: a potential role for protein kinase A. *Biochem. J.*, 324 (1997) 141-149.
- 481 Tersteegen, A., Linder, D., Thauer, R.K. and Hedderich, R.: Structures and functions of four anaerobic 2-oxoacid oxidoreductases in *Methanobacterium thermoautotrophicum*. *Eur. J. Biochem.*, 244 (1997) 862-868.
- 18c. *Elucidation of structure of proteins and enzymes*
- 482 Shahidim, F. and Amarowicz, R.: Antioxidant activity of protein hydrolyzates from aquatic species. *J. Am. Oil Chem. Soc.*, 73 (1996) 1197-1199.
20. ENZYMES AND ENZYME ACTIVITY ESTIMATION
- 20f. *Other hydrolases*
- 483 Rathore, H.S. and Mital, S.: Spot test analysis of pesticides: TLC detection of mancozeb. *J. Planar Chromatogr.*, 10 (1997) 124-127.
- See also 397.
21. PURINES, PYRIMIDINES, NUCLEIC ACIDS AND THEIR CONSTITUENTS
- 21a. *Purines, pyrimidines, nucleosides, nucleotides*
- 484 Agarwal, R., Coffing, S.L., Baird, W.M., Kiselyov, A.S., Harvey, R.G. and Dipple, A.: Metabolic activation of benzo[*g*]chrysenes in the human mammary carcinoma cell line MCF-7. *Cancer Res.*, 57 (1997) 415-419.
- 485 Bernardi, R., Rossi, L., Poirier, G.G. and Scovassi, A.I.: Analysis of poly(ADP-ribose) glycohydrolase activity in nuclear extracts from mammalian cells. *Biochim. Biophys. Acta*, 1338 (1997) 60-68.
- 486 Irie, M., Ohgi, K., Iwama, M., Koizumi, M., Sasayama, E., Harada, K., Yano, Y., Idagawa, J. and Kawasaki, M.: Role of histidine 46 in the hydrolysis and the reverse transphosphorylation reaction of RNase Rh from *Rhizopus niveus*. *J. Biochem. (Tokyo)*, 121 (1997) 849-853.
- 487 Koskinen, M., Rajaniemi, H. and Hemminki, K.: Analysis of tamoxifen-induced DNA adducts by ³²P-postlabelling assay using different chromatographic techniques. *J. Chromatogr. B*, 691 (1997) 155-160.
- 488 Liu, S., Jiang, X., Xu, X., Yin, X. and Xue, H.: (Study of DNA-carcinogen adduct *in vitro*, *in vivo* and human by ³³P-postlabelling). *Huanjing Huaxue*, 15 (1996) 320-331; *C.A.*, 125 (1996) 295048v.
22. ALKALOIDS
- 489 Lindigkeit, R., Biller, A., Buch, M., Schiebel, H.-M., Boppré, M. and Hartmann, T.: The two faces of pyrrolizidine alkaloids: the role of the tertiary amine and its N-oxide in chemical defense of insects with acquired plant alkaloids. *Eur. J. Biochem.*, 245 (1997) 626-636.
- 490 Maakeiff, D., Majak, W., McDiarmid, R.E., Reaney, B. and Benn, M.H.: Determination of zygacine in *Zigadenus venenosus* (death camas) by image analysis on thin layer chromatography. *J. Agric. Food Chem.*, 45 (1997) 1209-1211; *C.A.*, 126 (1997) 196152p.
- 491 Pei, M., Wang, S. and Li, J.: (Correlativity analysis on detoxicating effect of radix glycyrrhiza on radix aconiti prepared in sini decoction). *Zhongguo Zhongyao Zazhi*, 21, No. 1 (1996) 50-52; *C.A.*, 125 (1996) 96262k.
- 492 Van Ginkel, A.: Identification of the alkaloids and flavonoids from *Uncaria tomentosa* bark by TLC in quality control. *Phytother. Res.*, 10 (Suppl. 1) (1996) S18-S19; *C.A.*, 126 (1997) 162354r.
- See also 387.
23. OTHER SUBSTANCES CONTAINING HETEROCYCLIC NITROGEN
- 23e. *Other N-heterocyclic compounds*
- 493 Kastner, P., Kuchar, M., Klimes, J. and Dosedlova, D.: Relationship between structure and reversed-phase thin-layer chromatographic lipophilicity parameters in a group of piperazine derivatives. *J. Chromatogr. A*, 766 (1997) 165-170.
- See also 391, 405, 409.
24. ORGANIC SULPHUR COMPOUNDS (INCL. GLUCOSINOLATES)
- 494 Petrovic, S.M., Loncar, E., Perisic-Janjic, N.U. and Lazarevic, M.: Normal and reversed-phase thin-layer chromatography of thiourea derivatives. *J. Planar Chromatogr.*, 10 (1997) 26-30.
- 495 Qin-Sun, W., Bing-Wen, Y. and Hua-Zheng, Y.: The correlation between the molecular structures of O-ethyl, N-isopropyl phospho(thioureido)thioates and their retardation factors in HPTLC. *J. Planar Chromatogr.*, 10 (1997) 118-120.
25. ORGANIC PHOSPHORUS COMPOUNDS (INCL. SUGAR PHOSPHATES)
- See 480, 495.

26. ORGANOMETALLIC AND RELATED COMPOUNDS

26a. Organometallic compounds

496 Orinak, A., Orinakova, R., Slesarova, L. and Gazdova, V.: On-line hyphenation of thin-layer chromatography with atomic-absorption spectrometry in the study of the stability of zinc complexes. *J. Planar Chromatogr.*, 10 (1997) 44-47.

26c. Coordination compounds

497 Lederer, M., Leipzig-Pagani, E., Lumini, T. and Roulet, R.: Synthesis of rhodium(III)-pyridine complexes: an electrophoretic and chromatographic study. *J. Chromatogr. A*, 769 (1997) 325-332.

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

498 Baranowska, I. and Kadziolka, A.: RPTLC and derivative spectrophotometry for the analysis of selected vitamins. *Acta Chromatogr.*, 6 (1996) 61-71; C.A., 126 (1997) 22921y.

499 Hachula, U.: Determination of vitamin K4 and B1 in pharmaceutical preparations after chromatographic separation. *J. Planar Chromatogr.*, 10 (1997) 131-132.

500 Kátay, G., Mincsovics, E., Szókán, G. and Tyihák, E.: Comparison of thin-layer chromatography and overpressured layer chromatographic techniques for the separation of ascorbigen and 1'-methylascorbigen. *J. Chromatogr. A*, 764 (1997) 103-109.

501 Perisic-Janjic, N.U., Popovic, M.R. and Djakovic, T.Lj.: Quantitative determination of vitamin B complex constituents by fluorescence quenching after TLC separation. *Acta Chromatogr.*, 5 (1995) 144-150; C.A., 126 (1997) 135718f.

28. ANTIBIOTICS

502 Campbell, N.F., Hubbard, L.E., Mazenko, R.S. and Medina, M.B.: Development of a chromatographic method for the isolation and detection of hygromycin B in biological fluids. *J. Chromatogr. B*, 692 (1997) 367-374.

503 Ivanova, V.: New macrolactone of the desertomycin family from *Streptomyces spectabilis*. *Prepar. Biochem. Biotechnol.*, 27 (1997) 19-38.

504 Kurihara, K.-i., Kikuchi, N. and Ajito, K.: Cladinose analogues of sixteen-membered macrolide antibiotics III. Efficient synthesis of 4-O-alkyl-L-cladinose analogues: improved antibacterial activities compatible with pharmacokinetics. *J. Antibiot.*, 50 (1997) 32-44.

505 Xie, H.-Z., Dong, C., Fen, Y.-L. and Liu, C.-S.: Determination of doxycycline, tetracycline and oxytetracycline simultaneously by TLC - fluorescence scanning densitometry. *Anal. Lett.*, 30 (1997) 79-90.

29. INSECTICIDES, PESTICIDES AND OTHER AGROCHEMICALS

29a. General techniques

506 Sherma, J.: Review: Determination of pesticides by thin-layer chromatography. *J. Planar Chromatogr.*, 10 (1997) 80-89.

507 Stan, H.J. and Wippo, U.: (Pesticide residue analysis in plant food products by TLC with automated multiple development). *GIT Fachz. Lab.*, 40 (1996) 855-858; C.A., 125 (1996) 326760c.

29d. Carbamates

508 Qureshi, S.Z., Jamhour, R.M.A.Q. and Rahman, N.: Thin-layer chromatographic behavior of carbamate pesticides and related compounds on zirconium phosphate layers. *Chem. Anal. (Warsaw)*, 42 (1997) 41-48; C.A., 126 (1997) 167834g.

29f. Fungicides

509 Garrido, J., de Alba, M., Jimenez, I., Casado, E. and Folgueiras, M.L.: Chromatographic analysis of imazalil and carbendazim in fruits. Method validation and residue monitoring program 1995. *J. Chromatogr. A*, 765 (1997) 91-97.

30. SYNTHETIC AND NATURAL DYES

30a. Synthetic dyes

510 Anderton, S.M., Incarvito, C.D. and Sherma, J.: Determination of natural and synthetic colors in alcoholic and non-alcoholic beverages by quantitative HPTLC. *J. Liq. Chromatogr. Relat. Technol.*, 20 (1997) 101-110.

511 Bonicamp, J.M. and Moll, E.B.: Column chromatography of dyes: microanalysis with a thin layer chromatography scanner works to beat the bands. *Microchem. J.*, 55 (1997) 145-150; C.A., 126 (1997) 158742y.

512 Somsen, G.W., ter Riet, P.G.J.H., Gooijer, C., Velthorst, N.H. and Brinkman, U.A.T.: Characterization of aminotriphenylmethane dyes by TLC coupled with surface-enhanced resonance Raman spectroscopy. *J. Planar Chromatogr.*, 10 (1997) 10-17.

See also 513.

30b. Chloroplast and other natural pigments

513 Ohno, T., Ito, Y., Mikami, E., Ikai, Y., Oka, H., Hayakawa, J. and Nakagawa, T.: Identification of coal tar dyes in cosmetics and goods using reversed phase TLC/scanning densitometry. *Jpn. J. Toxicol. Environ. Health*, 42, No. 1 (1996) 53-59; C.A., 124 (1996) 324946y.

See also 418, 510.

32. DRUG ANALYSIS

32a. Drug analysis, general techniques

See 402.

32b. Antirheumatics and antiinflammatory drugs

- 514 Chatterjee, S. and Singh, B.P.: A high-performance thin layer chromatographic (HPTLC) estimation of antipyrine and paracetamol from plasma. *Indian Drugs*, 33 (1996) 355-357; C.A., 126 (1997) 98774y.
- 515 Ionescu, C. and Curea, E.: (Effect of diclofenac-sodium formulation upon the parameters of separation and identification by thin-layer chromatography.) *Farmacia (Bucharest)*, 43, No. 5-6 (1995) 25-29; C.A., 124 (1996) 299049y.
- 516 Save, T.K., Parmar, D.V. and Devarajan, P.V.: High-performance thin-layer chromatographic determination of ibuprofen in plasma. *J. Chromatogr. B*, 690 (1997) 315-319.

32c. Autonomic and cardiovascular drugs

- 517 A-Elhagany, M.F., Elkawy, M.A., El Zeany, B. and Stewart, J.T.: Determination of nifedipine hydrochloride in drug substance and in a capsule dosage form. *J. Planar Chromatogr.*, 10 (1997) 61-63.
- 518 Vujic, Z., Radulovic, D. and Agbaba, D.: Densitometric determination of metoprolol tartrate in pharmaceutical dosage forms. *J. Pharm. Biomed. Anal.*, 15 (1996) 581-585.

See also 479.

32d. Central nervous system drugs

- 519 Bockhard, H., Oelschläger, H. and Pooth, R.: Rasche dünn-schicht-densitometrische Bestimmung des Nootropikums Piracetam in biologischem Material. *Pharmazie*, 52 (1997) 357-361.
- 520 Glukhova, O.I., Tkach, V.I., Tsyganok, L.P. and Khmel'nikova, L.I.: Analysis of phenothiazine preparations by precipitation chromatography. *J. Anal. Chem. (Transl. of Zh. Anal. Khim.)*, 52 (1997) 234-237; C.A., 126 (1997) 229734k.
- 521 Jogdankar, K.M., Kankute, S.D., Kamble, V.W. and Garad, M.V.: A new chromogenic spray reagent for the detection and identification of thiopentone. *J. Planar Chromatogr.*, 10 (1997) 133-134.
- 522 Klimes, J. and Pilarova, P.: (TLC analysis of methamphetamine in urine samples). *Ceska Slov. Farm.*, 45 (1996) 279-283; C.A., 126 (1997) 153725k.
- 523 Ludanyi, K., Gomorey, A., Klebovich, I., Monostory, K., Vereczkey, L., Ujszaszy, K. and Vekey, K.: Application of TLC-FAB mass spectrometry in metabolism research. *J. Planar Chromatogr.*, 10 (1997) 90-96.
- 524 Shinozuka, T., Terada, M., Ogamo, A., Nakajima, R., Takei, S., Murai, T., Wakasugi, C. and Yangida, J.: Data on high-performance thin-layer chromatography of analgesic and antipyretic drugs. *Jpn. J. Forensic Toxicol.*, 14 (1996) 246-252; C.A., 126 (1997) 43681k.

- 525 Sodhi, R.A., Chawla, J.L. and Sane, R.T.: Simultaneous determination of haloperidol and benzhexol hydrochloride by high-performance thin-layer chromatography. *Indian Drugs*, 33 (1996) 601-603; C.A., 126 (1997) 203813k.

32e. Chemotherapeutics (exc. cytostatics and antibiotics)

- 526 Agbaba, D., Mihajlovic, A., Blejanski, P., Zivanov-Stakic, D. and Vladimirov, S.: Determination of 8-hydroxyquinoline sulfate in tuberculin solutions by planar and high performance liquid chromatography. *Chromatographia*, 45 (1997) 145-148.
- 527 Agbaba, D., Radovic, A., Vladimirov, S. and Zivanov-Stakic, D.: Simultaneous TLC determination of Co-trimoxazole and impurities of sulfanilamide and sulfanilic acid in pharmaceuticals. *J. Chromatogr. Sci.*, 34 (1996) 460-464.
- 528 Krishna, D.R., Mamidi, E.N.V.S., Hofmann, U. and Prabhakar, C.M.: Characterization of clofazimine metabolites in human by HPLC - electrospray mass spectrometry. *Arzneim.-Forsch.*, 47 (1997) 303-306.
- 529 Thoma, K., Kübler, N. and Reimann, E.: Untersuchungen der Photostabilität von Antimykotika. 3. Mitteilung: Photostabilität lokal wirksamer Antimykotika. *Pharmazie*, 52 (1997) 362-373.

32f. Cytostatics

- 530 Adel, M.S., Geneidi, A.S., Ali Shoukri, R. and Saad, I.: *In vitro* evaluation of flutamide - carrier systems. Part 1: Preparation and evaluation of flutamide systems with polyvinyl pyrrolidone and polyethylene glycol 4000 and 6000. *Pharmazie*, 52 (1997) 373-375.

See also 536.

32g. Other drug categories

- 531 Ho, Y.-P., Lin, G., Damani, L.A., Mitterhauser, M. and Zolle, I.: Spectral and chromatographic properties of 2-methoxyphenyl-metirapone and its potential metabolites. *J. Pharm. Biomed. Anal.*, 15 (1996) 479-486.
- 532 Kawai, K., Kawasaki-Tokui, Y., Odaka, T., Tsuruta, F., Kazui, M., Iwabuchi, H., Nakamura, T., Kinoshita, T., Ikeda, T., Yoshioka, T., Komai, T. et al.: Disposition and metabolism of the new oral antidiabetic drug troglitazone in rats, mice and dogs. *Arzneim.-Forsch.*, 47 (1997) 356-368.
- 533 Wang, E., Zhang, X., Wu, B. and Dong, S.: (Isolation, identification and synthesis of trace organic impurity in ofloxacin injection). *Zhongguo Yaoke Daxue Xuebao*, 27 (1996) 449-454; C.A., 126 (1997) 162100e.

32h. Toxicological and forensic applications

- 534 Siek, T.J., Stradling, C.W., McCain, M.W. and Mehary, T.C.: Computer-aided identifications of thin-layer chromatographic patterns in broad-spectrum drug screening. *Clin. Chem. (Washington)*, 43 (1997) 619-626.

32i. Plant extracts

- 535 Deb, S. and Mandal, S.K.: TLC-densitometric determination of phyllanthin and hypophyllanthin in *Phyllanthus amarus* (bhumi-malaki) and in polyherbal formulation. *Indian Drugs*, 33 (1996) 4115-416; C.A., 126 (1997) 51062z.
- 536 Glowniak, K., Furmanowa, M., Zhorka, G., Jozefczyk, A. and Oledzka, H.: Isolation and determination of taxol and cephalomannine in twigs, needles and tissue cultures from *Taxus cuspidata* Sieb. et Zucc. *Herba Pol.*, 42 (1996) 309-316; C.A., 126 (1997) 128854u.
- 537 Hu, X., Guo, Z., Zhou, B., Luo, S., Cai, H. and Yin, L.: (Quantitative determination of neferine in embryo of Hindu Lotus (*Nelumbo nucifera*) by TLC-scanning). *Zhongguo Yaoke Daxue Xuebao*, 27 (1996) 412-414; C.A., 126 (1997) 50877g.
- 538 Keusgen, M.: TLC analysis of *Allium sativum* constituents. *Planta Med.*, 63 (1997) 93-94; C.A., 126 (1997) 255560v.
- 539 Lan, M., Lu, Y. and Zhang, C.: (Determination of Shachongdan by thin layer chromatographic separation - coulometric titration). *Fenxi Huaxue*, 24 (1996) 1334-1338; C.A., 126 (1997) 43913n.
- 540 Li, L., Li, M. and He, J.: (Quantitative determination of astragaloside IV in compound Shengbai Liquor by TLC-scanning). *Yaowu Fenxi Zazhi*, 16, No. 1 (1996) 28-30; C.A., 124 (1996) 299055x.
- 541 Narayana, D.B.A., Agarwal, S., Luthra, S.K. and Srinivas, N.S.: An HPTLC method for the quantitative analysis of vasicine in *Adhatoda vasica*. *Indian Drugs*, 32 (1995) 583-586; C.A., 125 (1996) 41930w.
- 542 Wei, Z., He, Q. and Zhang, Z.: (The identification of Ephedra in Pingchuan Granule by thin-layer chromatography). *Huaxi Yoaxue Zazhi*, 11 (1996) 253-254; C.A., 126 (1997) 135716d.

See also 408, 415, 427, 468, 469, 491, 492, 533.

33. CLINICO-CHEMICAL APPLICATIONS

- 33b. *Complex mixtures and profiling (single compounds by cross-reference only)*
- 543 Marklova, E.: The role of TLC in the screening of inherited metabolic diseases. *Chromatographia*, 45 (1997) 195-198.

See also 441.

34. FOOD ANALYSIS

34a. General papers and reviews

See 473.

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

See 416, 424, 451, 510.

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

- 544 Wall, P.E.: Argentation HPTLC as an effective separation technique for the *cis/trans* isomers of capsaicin. *J. Planar Chromatogr.*, 10 (1997) 4-9.

35. ENVIRONMENTAL ANALYSIS

35a. General papers and reviews

See 549.

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

See 409.

36. SOME TECHNICAL PRODUCTS AND COMPLEX MIXTURES

36a. Surfactants

- 545 Maslowska, J. and Owczarek, A.: (Enzymic methods for detection and determination of trace amounts of surfactants of paper chromatograms). *Pollena: Tluszcz, Srodki Piorace, Kosmet.*, 38 (1994) 262-268; C.A., 125 (1996) 36311r.

36b. Antioxidants and preservatives

See 416.

37. CELLS, CELLULAR PARTICLES AND SUPRAMOLECULAR STRUCTURES

- 546 Lorte, G., Mear, N., Lorquin, J., Dreyfus, B., Lajudie, P., Rosenberg, C. and Boivin, C.: Nod factor thin-layer chromatography profiling as a tool to characterize symbiotic specificity of rhizobial strains: application of *Sinorhizobium saheli*, *S. teranga* and *Rhizobium sp.* strains isolated from *Acacia* and *Sesbania*. *Mol. Plant-Microbe Interact.*, 9 (1996) 736-747; C.A., 125 (1996) 296393r.

38. INORGANIC COMPOUNDS

38a. Cations

- 547 Husain, S.W. and Mirzaie, A.: Chromatographic separation of inorganic ions on thin layers of lanthanum silicate ion-exchanger. *Chromatographia*, 45 (1997) 347-350.
- 548 Iskrac, S., Kojic-Prodic, B., Spoljar, B., Kiralj, R. and Hadzija, O.: Identification of some complexes of humic-like model complexants and metal-loaded sorbents in thin-layer chromatography. *Fresenius J. Anal. Chem.*, 357 (1997) 897-900.

549 Mohammad, A.: Thin-layer chromatographic methods for the identification, estimation, and separation of toxic metals in environmental samples. *J. Planar Chromatogr.*, 10 (1997) 48-54.

38b. Anions

550 Lorenz, B., Münkner, J., Oliveira, M.P., Kuusksalu, A., Leitão, J.M., Müller, W.E.G. and Schröder, H.C.: Changes in metabolism of inorganic polyphosphate in rat tissues and human cells during development and apoptosis. *Biochim. Biophys. Acta*, 1335 (1997) 51-60.

551 Piao, F., Zhang, J., Yu, Z., Wu, X. and Jin, D.: (Identification and content determination on the reaction product of potassium ferricyanide and ferric chloride). *Yanbian Daxue Xuebao, Ziran Kexueban*, 22 (1996) 30-33; C.A., 126 (1997) 152120x.

39. RADIOACTIVE AND OTHER ISOTOPE COMPOUNDS

See 475.