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Chemometrics: a textbook

D.L. Massart, *Vrije Universiteit Brussel, Belgium*,

B.G.M. Vandeginste, *Katholieke Universiteit Nijmegen, The Netherlands*,

S.N. Deming, *Dept. of Chemistry, University of Houston, TX, USA*,

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The *Bibliography Section 1991* will be published in two volumes (560 and 561) of two issues each. Combined indexes to both volumes will appear in the last issue of the year, Vol. 561, No. 2. The pagination of Vol. 561 continues from that of Vol. 560.

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0021-9673/91/\$03.50

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10. CARBOHYDRATES

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- See also 5232, 5233, 5354.

11. ORGANIC ACIDS AND LIPIDS

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C.A., 114 (1991) 198826n, 258857k;
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See also 4808, 4938, 4946, 4955, 5066, 5075, 5100, 5152, 5157, 5211, 5771, 6000, 6001, 6020, 6090.

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19. PROTEINS

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C.A., 115 (1991) 4391u, 4707b, 25235m, 25263u.

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115 (1991) 25261s.

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See also 4935, 4993, 5205, 5771, 5796, 5868, 5916, 5948, 6010, 6071.

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

See 5040, 5742, 5749, 5750, 5756.

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See also 4821, 4823, 4875, 5667, 5769, 6087, 6093, 6094, 6095.

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Gas Chromatography

1. REVIEWS AND BOOKS

See 1911, 1975, 2006, 2148, 2173, 2176, 2182, 2202, 2210, 2233, 2234, 2238, 2242, 2250.

2. FUNDAMENTALS, THEORY AND GENERAL

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See also 1980, 2023, 2048, 2052, 2081, 2125, 2152.

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3. GENERAL TECHNIQUES

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See also 1979, 1991, 2009.

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See also 2012, 2111, 2120, 2168, 2194, 2226.

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See also 1976, 2120, 2149.

3e. Preparative scale chromatography

See 2002.

3f. Programmed temperature, pressure, vapors, gradients

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See also 2011.

4. SPECIAL TECHNIQUES

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See also 2030.

4b. Computerization and modelling

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

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See also 2243.

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See also 1939, 1940, 1960, 2016, 2022, 2118, 2157, 2158, 2243, 2244, 2248.

4g. Enantiomers, separation

- 2001 Bicchi, C., Artuffo, G., d'Amato, A., Nano, G.M., Galli, A. and Galli, M.: Permethylated cyclodextrins in the GC separation of racemic mixtures of volatiles: part 1. *J. High Resolut. Chromatogr.*, 14 (1991) 301-305.
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See also 1955, 2017, 2036, 2108, 2121, 2122, 2224, 2225.

4i. Supercritical fluid chromatography

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See also 1987, 1989, 2020, 2027, 2091, 2092, 2093, 2150, 2174, 2248.

5. HYDROCARBONS AND HALOGEN DERIVATIVES

5a. Aliphatic hydrocarbons

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See also 1962, 1964, 1976, 2255.

5b. Cyclic hydrocarbons

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See also 1916, 2051, 2256.

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See also 2160.

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See also 2245.

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See also 2039.

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See also 2050.

11. ORGANIC ACIDS AND LIPIDS

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See also. 1990, 2211, 2214, 2246, 2256.

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See also 2073.

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See also 2095.

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See also 2142.

13e. Bile acids and alcohols

See 2213.

13f. Ecdysones and other insect steroid hormones

See 2010.

15. TERPENES AND OTHER VOLATILE AROMATIC COMPOUNDS

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See also 1953.

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See also 1942, 1947.

16. NITRO AND NITROSO COMPOUNDS

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17. AMINES, AMIDES AND RELATED NITROGEN COMPOUNDS

17a. Amines and polyamines

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See also 1916.

18. AMINO ACIDS AND PEPTIDES; CHEMICAL STRUCTURE OF PROTEINS

18a. Amino acids and their derivatives

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20. ENZYMES AND ENZYME ACTIVITY ESTIMATION

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

See 2256.

22. ALKALOIDS

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23. OTHER SUBSTANCES CONTAINING HETEROCYCLIC NITROGEN

23d. *Pyridine derivatives*

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See 2044.

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33a. General papers and reviews

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

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See also 971, 991, 1009, 1075.

12. ORGANIC PEROXIDES

See 1074.

13. STEROIDS

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See also 1122.

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15a. Terpenes

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15b. *Essential oils*

See 985.

16. NITRO AND NITROSO COMPOUNDS

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See also 1109.

17. AMINES, AMIDES AND RELATED NITROGEN COMPOUNDS

17a. *Amines and polyamines*

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

See 1032, 1113.

18. AMINO ACIDS AND PEPTIDES; CHEMICAL STRUCTURE OF PROTEINS

18a. *Amino acids and their derivatives*

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See also 982, 1002, 1140, 1194.

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19. PROTEINS

19n. Other proteins (incl. proteinous inhibitors of enzymic activity)

See 1140.

20. ENZYMES AND ENZYME ACTIVITY ESTIMATION

20d. Hydrolases, acting on ester bonds (E.C. 3.1.--)

See 1044.

20g. Lyases

See 1025.

21. PURINES, PYRIMIDINES, NUCLEIC ACIDS AND THEIR CONSTITUENTS

21a. Purines, pyrimidines, nucleosides, nucleotides

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See also 973, 1111.

22. ALKALOIDS

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See also 988, 1123, 1168.

23. OTHER SUBSTANCES CONTAINING HETEROCYCLIC NITROGEN

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23c. Indole derivatives and plant hormones (gibberelins)

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23d. Pyridine derivatives

See 1164.

23e. Other N-heterocyclic compounds

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See also 971, 1164.

24. ORGANIC SULPHUR COMPOUNDS (INCL. GLUCOSINOLATES)

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See also 1112, 1175.

25. ORGANIC PHOSPHORUS COMPOUNDS (INCL. SUGAR PHOSPHATES)

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See also 1072, 1088, 1095, 1096, 1097, 1099.

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See also 995, 1176.

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See also 1195.

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See also 992, 1146, 1177.

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See also 1159.

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See also 975, 986, 995, 996, 1022, 1081, 1082, 1102, 1103.

33. CLINICO-CHEMICAL APPLICATIONS

33a. General papers and reviews

See 1107.

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

See 1001, 1005, 1006.

34. FOOD ANALYSIS

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

See 1003, 1013, 1016, 1028, 1115, 1139, 1141, 1144, 1151, 1191.

35. ENVIRONMENTAL ANALYSIS

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See also 982.

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See also 1949, 1956, 1957, 1964, 1966, 1967, 1968, 1979, 1984, 1985, 2007, 2055, 2056, 2057, 2067, 2365, 2366, 2376.

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See 1987.

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See also 2399.

3. GENERAL TECHNIQUES*3a. Apparatus and accessories*

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See also 1941, 1943, 1950, 1955, 1962, 1965, 1977.

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See also 2295.

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See 1959.

4. SPECIAL TECHNIQUES

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See also 1976, 2201, 2264.

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See also 1927, 1929, 1940, 1943, 1951, 1978, 1986, 1987, 1988, 2005, 2006, 2036, 2037, 2043, 2045, 2046, 2063, 2133, 2162, 2230, 2301, 2303, 2390, 2396, 2403, 2404.

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8. SUBSTANCES CONTAINING HETEROCYCLIC OXYGEN

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10b. *Polysaccharides, mucopolysaccharides, lipopolysaccharides*

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See also 2164.

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See also 1976, 2010, 2139, 2201.

11. ORGANIC ACIDS AND LIPIDS

11a. Organic acids and simple esters

See 1958.

11c. Lipids and their constituents

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See also 2325.

13. STEROIDS

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See 2005.

16. NITRO AND NITROSO COMPOUNDS

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18. AMINO ACIDS AND PEPTIDES; CHEMICAL STRUCTURE OF PROTEINS

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20. ENZYMES AND ENZYME ACTIVITY ESTIMATION

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SUPPLEMENT TO THE
JOURNAL OF CHROMATOGRAPHY

1991

INDEXES

INTRODUCTION

Presenting the Subject Index for all the four different parts of the Bibliography Section as well as presenting the Index of Types of Compounds Chromatographed has become a tradition in the Journal. There is only a single difference comparing to the previous years, namely in 1991 the Bibliography Section comprised two volumes; The following indexes refer to both volumes of Bibliography published this year. Because the methodological part differs substantially in different techniques, we have retained the subdivision system, using the following abbreviations: C = Liquid column chromatography, E = Electrophoresis, G = Gas chromatography, P = Planar chromatography. In the Index of Types of Compounds Chromatographed all types of methods are indicated in the individual entries by appropriate abbreviations. Entries relevant to supercritical fluid chromatography are to be looked for in the section on Gas Chromatography. Micellar electrokinetic chromatography is to be looked for in the section on Electrophoresis. In entries that are heavily populated by chromatographic papers we made a further subdivision into Techniques and Applications. In the Subject Index a selection was made in such entries and an appropriate note was attached. Commonly used sorbents and procedures were not included into the Index. Reviews are clearly indicated.

Prague (Czechoslovakia)

Z. Deyl, V. Schwarz and K. Macek

Brno (Czechoslovakia)

J. Janák

Subject Index

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C: 859, 864, 865, 868, 874, 876, 892, 896, 899, 900, 2377, 2380, 2390, 2391, 2661, 4221, 4232, 4261, 4272, 5698, 5737

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Antihistamines

C: 86, 977, 1013-1015, 1023(review), 1031, 1039, 2534, 2540, 2555, 2557, 2566, 2571, 2877, 4412, 4446, 4453, 5824, 5892, 5912, 5914, 5990

G: 476, 487, 490, 508, 1777, 2095

P: 193, 588, 910, 914, 1162, 1164, 1171

E: 1151

Antiimmunodeficiency drugs, *see* Antiviral agentsAntiinflammatory agents, *see* Antirheumatics

Antimalarial drugs

C: 1048, 1057, 1059, 2605, 2639, 4482, 4493, 4494, 5932, 5945

G: 1137, 1141, 1801

P: 572, 589, 1173

Antimycotics

C: 1055, 2594, 3126, 4498, 4543, 5161, 5927, 5928

G: 1134, 2169

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G: 867, 912, 950, 1211, 1573, 1574, 1865, 2078, 2141, 2262

P: 275, 625, 626, 1183, 1196

Antiparasitic drugs

C: 1049, 1050, 1055, 1059, 2381, 2598, 2602, 2607, 2608, 2613, 2624, 2629, 2988, 4473, 4481, 4484, 4495, 4507, 5711, 5717, 5758, 5926, 5929, 5944, 5949, 5952, 5954

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Antiparkinsonics

C: 1081, 1684, 2549, 2583, 3416, 4100, 4419, 4421, 4454, 4468, 4469, 5622

G: 476, 1633, 1775

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Antiprotozoal agents, *see* Antiparasitic drugs

Antipsoriasis drugs

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Antipyretics, analgesics

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 G: 311, 479, 480, 811, 1105, 1106, 1141, 1595, 1805, 2010, 2095, 2126, 2183
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 G: 489
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 C: 215, 772, 1052, 1062, 1063, 1064(review), 1094, 2192, 2213, 2362, 2595, 2599, 2612, 2616, 2621, 2625, 2636, 2644, 2660, 4479, 4488, 4500, 4503, 4505, 4573, 5592, 5600, 5931, 5933, 5934, 5981
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 P: 202, 573, 580, 918
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G: 1043, 1052, 1245, 1255, 1442, 1671, 1677, 1679-1682, 1684, 1685, 1917, 2139, 2140

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- , carbon-carbon (E.C. 4.1.-.-)
 C: 2062, 2167-2170, 2172, 2173, 4010, 4015-4019, 4021, 4022, 4042, 4043, 4040, 5560, 5567
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- , —, structural studies
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- , carbon-oxygen (E.C. 4.2.-.-)
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C: 793, 1017, 2238, 4078, 4087, 4091,
4094, 4101, 5627
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P: 286, 488, 1101, 1105, 1106
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C: 830, 2290, 2291, 2294, 2295, 2752, 4153-4160, 4642, 4698, 5666, 5667
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C: 225, 3045, 4130, 4420
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C: 211, 645, 648, 653, 660, 666, 2002, 2009, 2017, 2023, 2027, 2029, 2033, 2034, 2041, 2042, 2044-2046, 2945, 3774, 3775, 3784, 3790, 3800, 3802, 3806, 3808, 3809, 3815, 3816, 3826, 3837, 4885, 5453, 5454, 5461, 5462, 5466, 5468, 5469, 5471, 5478
E: 308, 309, 315, 317, 385, 872, 873, 884, 1010, 1592-1594, 1597, 1605, 1608, 2233, 2236
- , —, structural studies
C: 1822, 2014, 2031, 3574, 3777, 3781, 3782, 5281
E: 136
- , acting on aldehyde or keto group of donors (E.C. 1.2.--)
C: 213, 641, 649, 650, 653, 667, 2005, 2015, 2024, 2035, 3797-3799, 3818, 3835, 3824, 5470, 5476
E: 312, 877, 882, 1590, 1598, 1601, 2237
- Oxidoreductases, acting on aldehyde or keto group of donors (E.C. 1.2.--), structural studies
C: 520, 661, 2004, 3573
E: 2248
- , acting on CH-CH group of donors (E.C. 1.3.--)
C: 665, 2006, 2019-2021, 2039, 3780, 3786, 3788, 3789, 3828
E: 773, 874, 1397, 1591
- , acting on CH-NH₂ group of donors (E.C. 1.4.--)
C: 1670, 2018, 2040, 3771, 3773, 3778, 3813, 5451
E: 879, 1588
- , —, structural studies
C: 3561
E: 310, 888
- , acting on CH-NH group of donors (E.C. 1.5.--)
C: 656, 669, 765, 2043, 3779, 3836, 5455
- , acting on reduced NAD or NADP as donor (E.C. 1.6.--)
C: 651, 658, 2013, 3748, 3771, 3801, 3804, 3807, 3834, 3981, 5450, 5463
E: 314, 1599, 1607, 1767
- , —, structural studies
C: 3555
- , acting on other nitrogenous compounds as donor (E.C. 1.7.--)
C: 657, 3825, 5460
E: 306, 311, 676, 870
- , acting on the sulphur group of donors (E.C. 1.8.--)
C: 3776, 3809, 3810, 3820, 3824, 3833
E: 1589
- , acting on a haem group of donors (E.C. 1.9.--)
C: 664, 2032, 2037, 2040, 3770, 3771, 3805, 5449, 5475
E: 885, 1596, 1609, 1612, 2234, 2238
- , acting on H₂O₂ as acceptors (E.C. 1.11.--)
C: 646, 647, 2003, 2010, 2030, 2038, 3783, 3785, 3791, 3792, 3794, 3796, 3814, 3822, 3829, 5456, 5459
E: 307, 871, 878, 881, 883, 1587, 1611, 2232, 2235
- , —, structural studies
C: 5452

Oxidoreductases, acting on single donors with incorporation of oxygen (oxygenases) (E.C. 1.13.--.)

C: 643, 2011, 2036, 3787

E: 889

—, acting on paired donors with incorporation of oxygen into one donor (hydroxylases) (E.C. 1.14.--.)

C: 642, 644, 652, 655, 659, 836, 2012, 2016, 2022, 2028, 3793, 3795, 3803, 3817, 3819, 3823, 3830, 3831, 3838, 3981, 4040, 5457, 5458, 5464, 5467, 5472

E: 310, 313, 316, 875, 876, 887, 1602, 1603, 1606, 1772

—, —, structural studies

C: 654, 668, 2026, 3567, 3580

E: 1610

—, acting on superoxide radicals as acceptor (E.C. 1.15.--.)

C: 2007, 3772, 3812, 5477

—, other and uncompletely identified oxidoreductases (E.C. 1.99.--.)

C: 662, 663, 3821, 3827, 3829, 5473, 5474

E: 1500, 1595, 1604, 1600

—, —, structural studies

C: 3584

—, activity measurements

C: 2021, 2025, 3773, 3786, 3796, 3826, 5465

E: 1632

Oxo compounds, reviews

C: 1189, 4951

—, general techniques

C: 1110, 1225, 1461, 1462, 2478, 3137, 3139, 4834, 4916, 6003

G: 20, 52, 124, 612, 624, 689, 751, 1278, 1350, 1364, 1375, 1980, 2275

P: 47, 267, 983

E: 547

—, aliphatic aldehydes and ketones

C: 249, 273-276, 278-281, 329, 367, 1178, 2827, 3045, 3135, 3140, 4948-4950, 4952, 4953, 6004

G: 20, 42, 52, 90, 124, 260, 261, 264, 265, 468, 525, 526, 533, 535, 542, 543, 553, 599, 612, 613, 616, 617, 625, 658, 688, 718, 771, 850, 892, 893, 895, 898, 1157, 1162, 1189, 1190, 1205, 1210, 1215, 1230, 1236, 1275, 1277-1279, 1302, 1322, 1357, 1389, 1393, 1412, 1529, 1536, 1537, 1753, 1816, 1821, 1823, 1840, 1841, 1848, 1856, 1865, 1868, 1914, 1940, 1951, 1955, 2054, 2055, 2057, 2214,

2218-2220, 2230, 2233

P: 46, 48, 688, 860

Oxo compounds, cyclic aldehydes and ketones

C: 140, 154, 165, 329, 1271, 2693, 2924, 3136, 4130, 4576, 4569, 4805, 4808, 4955

G: 347, 535, 550, 562, 774, 872, 889, 897, 899, 1157, 1215, 1224, 1280, 1375, 1385, 1508, 1531, 1538, 1751, 1820, 1821, 1856, 1935, 2051-2053, 2056, 2170, 2174, 2224, 2226, 2254

P: 690, 941

E: 61

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G: 80, 150, 206, 522, 582, 584, 667, 673, 1200, 1239, 1241, 1245, 1893, 1894, 1896-1899, 1976, 2013, 2268-2270

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C: 852, 2306, 2326, 2345, 4190, 5681, 5685

G: 932, 1545

P: 507, 722, 1056

Papaveraceae alkaloids (excluding opium alkaloids)

C: 4084, 4096

P: 487, 846, 1103

Penicillins (including carbapenem antibiotics)

C: 867, 893, 2351, 2389, 2398, 2399, 4218, 4226, 4228, 4235, 4244, 4246, 4247, 4249, 5703, 5720, 5727, 5738

P: 522, 873

E: 1140

Peptide (and amino acid) antibiotics

C: 862-864, 869, 870, 877, 882, 883, 888, 891, 894, 2340, 2343, 2348, 2352, 2355, 2379, 4221, 4229, 4231, 4233, 4234, 4258, 4263, 5263, 5699, 5701, 5707-5709, 5712, 5721, 5732, 5735, 5993

P: 167, 168, 173, 174, 869, 870, 1140

E: 453

Peptides

C: 469-516, 1738-1811, 3475-3553, 5217-5268

G: 383, 1636, 2121

P: 133-142, 469-475, 830-836, 1095-1099

E: 125-135, 608-618, 1314-1331, 2041-2050

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 G: 375, 740, 766, 1014
 P: 470, 472, 474, 835
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2034, 2303, 2305, 2355

Purines, pyrimidines, nucleotides, nu-
cleosides, applications, food products

C: 5578

G: 1138

Pyrane derivatives

C: 269, 3115

G: 1529

P: 1188

Pyrazines

C: 2596, 4119, 5646, 5650

G: 1167, 1940, 2125, 2220, 2230

P: 853

see also Diazines

Pyrazoles

C: 5807

G: 1220

Pyrazolones

P: 221, 891, 1111

Pyrethrins (and other natural insecti-
cides)

C: 916, 917, 919

G: 39, 453, 781, 782, 797, 1075, 1084,
1204, 1738, 1740, 2010, 2148

Pyridine and piperidine alkaloids

G: 1645

Pyridine and piperidine derivatives

C: 60, 809, 813, 2255, 5624, 5642,
5643

G: 392, 570, 751, 821, 1024, 1072,
1650, 1651, 1842, 1951, 1960, 1980,
2124, 2179, 2220

P: 249, 839, 1164

—, carboxylic acids

C: 831, 832, 2251

see also Nicotinic acid and deriva-
tives

Pyridoxine, *see* Vitamins, B₆ group

Pyrimidines, *see* Purines, pyrimidines,
nucleosides, nucleotides

γ -Pyrone derivatives, *see* Flavonoids and
g-pyrone derivatives

Pyrroles, pyrrolidines and pyrrolidones

C: 1121, 2249, 4573, 5633, 5634, 6004

G: 45, 391, 393, 463, 552, 751, 1000,
1020, 2220, 2228

P: 1108

see also Bile pigments; Porphyrins
and metalloporphyrins

Pyrrolizidine and pyrrolizide alkaloids

C: 4082, 4090

G: 1646

P: 493

Q

Quinazolines

C: 4131

G: 1027, 1028

P: 587, 856

Quinoline and isoquinoline alkaloids

C: 2235, 4096

P: 149

Quinolines and isoquinolines

C: 60, 275, 812, 2596, 4129, 5642

G: 163, 391, 570, 874, 1024, 1141,
1211, 1233, 1449, 1650, 1653, 2212

P: 852

Quinolizidine alkaloids

C: 4965

P: 149, 847

Quinolones alkaloids

C: 2360, 2383, 5733

P: 528, 1128, 1131, 1132

Quinones

C: 277, 1535, 2430, 3103, 4496, 4498,
4872, 4951(review), 5186

G: 143, 391, 1283, 1653

P: 689, 920

R

Radioactive and other isotope compounds

G: 50, 268, 478, 579, 587-590, 674,
722, 734, 766, 907, 924, 980, 1007,
1010, 1011, 1019, 1131, 1218, 1256,
1257, 1416, 1428, 1576, 1590, 1605,
1631, 1635, 1648, 1743, 1771, 1828,
1908, 1909, 2063, 2064, 2097, 2243,
2275

Radioprotective agents

G: 1527

Rare earths

C: 1136, 1155, 1378, 2741, 2743, 2744,
2753, 2756, 2766, 4639, 4647, 4652,
6057, 6062

G: 1258

P: 227

E: 1136, 1164

- Rauwolfia alkaloids
 C: 4081
 P: 550, 848
- Repellents, *see* Larvicides, insecticides
- Resins, alkyd
 —, aminaldehyde
 C: 4326, 5775
 G: 1756
 —, phenolic
 C: 3098, 3101, 3108, 4316
 G: 245, 2173
 —, polyester
 C: 2454, 5774
 G: 34, 215, 459, 472, 1432, 2178
 P: 189
 —, polyethylene and polypropylene glycols
 C: 940, 3093, 4313, 4689, 5773, 6032
 G: 696, 743, 1093, 1190, 1435, 1501, 1748
 P: 27, 548
 E: 1908
 —, poly(vinyl acetate)
 C: 2447
 G: 458, 461, 1091, 1328, 1750, 1752, 1869
 —, poly(vinyl chloride)
 C: 2434, 2437, 2447-2449, 5770
 G: 458, 461, 1747, 2028
 E: 1889
 —, poly(vinylidene fluoride)
 C: 5781
 G: 37, 468, 560, 1745, 2029, 2172
 —, poly(vinylpyrrolidone)
 G: 460, 463
see also Acrylic resins; Epoxy resins; Polyolefins; Rubber (natural and synthetic); Styrene polymers
- RNA, reviews
 C: 2929, 5602
 —, techniques
 C: 2217, 4066, 4068, 5576, 5605
 E: 389, 393, 509, 1024, 1099, 1249, 1744, 1747, 1759, 1795, 2321
 —, applications, non-biological applications (*in vitro* processing)
 C: 782, 783, 4068-4071, 5603
 E: 348, 349, 390, 395-397, 399, 401, 404, 406, 413, 573, 577, 583, 1021, 1022, 1024, 1026-1030, 1032, 1036, 1038, 1039, 1041, 1042, 1057, 1061, 1075, 1107, 1280, 1301, 1413, 1454, 1550, 1605, 1745, 1746, 1748, 1750-1755, 1757, 1760-1762, 1765-1768, 1770, 1773, 1775-1778, 1780, 1799, 1806, 1832, 1834, 2014, 2030, 2307, 2308, 2311-2313, 2317, 2320, 2322, 2324-2329, 2334, 2363, 2377
- RNA, applications, microorganisms
 C: 2215, 2216, 5374, 5442, 5603
 E: 400, 402, 403, 433, 1084, 1758, 1774, 2170, 2224, 2316
 —, —, plants
 E: 1023, 2310, 2318
 —, —, animal material
 C: 784, 2218, 3648, 4005, 4065, 4067, 4069, 4071, 5603-5605
 E: 267, 301, 310, 339, 394, 405, 407, 596, 905, 986, 1025, 1031, 1033-1035, 1037, 1038, 1040, 1043, 1086, 1489, 1586, 1643, 1743, 1749, 1756, 1763, 1764, 1769, 1771, 1772, 1779, 1794, 1883, 2223, 2306, 2307, 2309, 2315, 2319, 2323, 2336, 2374
 —, structural studies
 C: 2227, 4075
 E: 398, 434-440, 1102-1108, 1198, 1757, 1767, 1799, 1810, 1834-1838, 1851, 2334, 2380, 2381, 2384
- Rodenticides
 C: 1453, 2297, 2422, 5823
- Rubber natural and synthetic (inclusive pyrolysis products)
 C: 2432, 4314, 4328, 5776
 G: 471, 1099, 1324, 1747, 1867
 P: 896
- Rubidium, *see* Alkali metals
- ## S
- Saponins and sapogenins
 C: 403-406, 1646, 1647, 1649, 1650, 2696, 5137
 G: 1616, 2058
 P: 119, 214, 297, 443-445, 583, 610, 814, 1081
- Secretolytics
 G: 487, 507
- Selenium compounds, inorganic, *see* Cations, inorganic, analytical group IIb
 —, organic
 C: 4139
 G: 412, 1049, 1675, 2138
 P: 500
- Sexual attractants, *see* Pheromones
- Sialic acids, *see* Glycosaminoglycans
- Silicium compounds, inorganic
 C: 4683, 6061
 G: 582, 2273
 —, organic
 C: 4161, 4162, 5783

- G: 117, 175, 740, 1050, 1092, 1271, 1277, 1335
- Silver, *see* Cations, inorganic, analytical group I and IIA
- Snake venoms
- C: 611, 728, 3697, 3928, 3098, 5238, 5239, 5398, 5404, 5554
- E: 784, 1508
- see also* respective enzymes
- , structural studies
- C: 517, 3562, 3576, 3700, 3928
- Sodium, *see* Alkali metal
- Soil pollution
- C: 242, 415, 911, 1112, 1172, 1539, 2411, 2416, 2417, 2419, 2746, 2759, 2769, 2772, 4631, 5040, 5742, 5749, 5750, 5756
- G: 213, 229, 252, 328, 407, 431, 441, 449, 451, 455, 547, 611, 831, 851, 1037, 1064, 1078, 1080, 1083, 1195, 1207, 1208, 1221, 1228, 1230, 1253, 1259, 1443, 1466, 1473, 1477, 1484, 1488, 1495, 1697, 1702, 1713, 1716, 1724-1726, 1735, 1739, 1839, 1856, 1857, 1859, 1860, 1905, 2024, 2026, 2144, 2150, 2161, 2163-2165, 2167, 2244-2246, 2266
- P: 226, 945
- see also* individual polluting compounds
- Spasmolytics
- C: 994, 1025, 3470
- G: 361, 482, 487, 1006, 1107, 1128, 1767, 1775, 1782
- P: 566
- Specific binding proteins (receptors)
- C: 155, 556, 574, 605, 621-637, 749, 947, 1515, 1854, 1878, 1913, 1936, 1954-1973, 1976-1978, 1980-1987, 1991, 2000, 2048, 2272, 3214, 3672, 3675, 3677, 3714-3716, 3718-3721, 3723-3733, 3735, 3737-3756, 3862, 5221, 5325, 5364, 5410-5418, 5419 (review), 5420, 5421, 5423-5438, 5566
- P: 472
- E: 108, 241, 246, 267-279, 281-301, 568, 573, 588, 734, 776, 808-835, 837, 838, 840-844, 846-854, 856, 857, 1301, 1317, 1325, 1365, 1388, 1401, 1427, 1440, 1470, 1495, 1535-1542, 1544-1554, 1556-1576, 1579, 1601, 1628, 1639, 1705, 2073, 2150, 2191-2218, 2385, 2417
- Specific binding proteins (receptors), structural studies
- C: 614, 622, 623, 1816, 1825, 1974, 1975, 1979, 1988, 3558, 3717, 3722, 3734, 3736, 5270, 5422, 5437
- E: 280, 622, 624, 836, 839, 845, 855, 1332, 1543, 1555, 2216
- Spermicides
- C: 2668
- Sphingolipids (sulfatides, gangliosides, ceramides, cerebrosides)
- C: 360, 364, 1573, 1578, 1581, 1590, 1591, 1595, 1597, 1609, 3283, 3290, 3298, 3303, 3306-3308, 5064, 5069
- G: 957, 958, 1542
- P: 80, 84, 85, 93, 97, 102, 104, 345-347, 352, 355, 359, 366, 368, 372, 374, 375, 377, 390, 394, 397, 406, 410, 411, 413, 417, 420, 721, 728, 729, 735, 739, 741, 745, 747, 748, 754, 756-758, 762, 763, 771, 777, 783, 785, 791, 792, 794, 799, 991, 1027, 1045, 1046, 1051, 1056, 1060, 1071
- E: 570, 2006
- Stabilizers, *see* Plasticizers and stabilizers
- Starch components
- C: 284, 1529, 3159
- P: 53
- see also* Polysaccharides
- Steroid alkaloids
- C: 1426, 4083
- Steroids
- C: 390-403, 1621-1643, 3334-3375, 5101-5133
- G: 329-335, 961-977, 1590-1602, 2095-2098
- P: 110-118, 423-440, 801-813, 1074-1079
- E: 1308, 2036
- , reviews and books
- C: 3336
- G: 1590, 2006, 2182
- , general techniques and theory
- C: 133, 390, 1184, 1330, 1621-1624, 1643, 2367, 3248, 3334, 3335, 3340, 3347, 3338, 4722, 4810, 4850, 5101-5106, 5116, 5133, 5951
- G: 185, 687, 963, 1405, 1440, 1441, 1596
- P: 110, 111, 423, 422, 801
- E: 1308
- see also* Androstane derivatives; Oestrogens; Pregnane derivatives; steroids

Sterols, reviews

G: 2006

—, techniques

C: 1637-1639, 3357-3359, 3362, 5090,
5117, 5120, 5122, 5126

G: 184, 733, 1449, 1987

P: 429, 430, 740, 1075

E: 2005

—, applications, non-biological

C: 397, 3360, 3365, 3826

G: 189, 331-333, 335, 968, 970, 971,
1598, 1600, 2076, 2142, 2245

P: 109, 433, 1076

—, —, biological

C: 385, 644, 1408, 1600, 1640, 2338,
3355, 3361, 3363, 3364, 3366, 5118,
5121, 5123-5125, 5127, 5136G: 326, 334, 969, 972, 1494, 1581,
1599, 1601P: 92, 94, 98, 104, 113, 114, 361,
404, 431, 432, 434, 668, 749, 803-
806, 812, 938, 1074, 1075Stimulants, *see* PsychostimulantsStrontium, *see* Alkaline earths

Strychnine group

G: 1644

P: 848

Styrene polymers (inclusive pyrolysis products)

C: 923, 927-929, 933-936, 939, 1231,
1272, 2434-2436, 2447, 2450, 2924,
4315, 4318, 4320, 4322, 4330, 4333G: 61, 145, 194, 462, 463, 466, 473,
652, 751, 852, 1092, 1095, 1096,
1749, 1755, 1757, 2011, 2175, 2177

P: 546

E: 1890, 2398, 2399, 2401, 2402

Subcellular particles

C: 4621, 4624

G: 1550, 1601

E: 1161

Sulphatides, *see* Sphingolipids

Sulphides (thioethers) and polysulphides

C: 1101, 2268, 5684

G: 91, 171, 402, 412, 416, 581, 619,
685, 791, 805, 822, 1030, 1032,
1033, 1035, 1036, 1252, 1636, 1661,
1663, 1816, 1844, 1856, 1901, 1904,
1980, 2131, 2132, 2230

Sulphonamides

C: 897, 2532, 2565, 2601, 2617, 2631,
4230, 4474, 4487, 4489, 4492, 4504,
4506, 4508, 5483, 5938, 5948

G: 1135, 1139, 1191, 1800, 2004

P: 204, 574, 915-917, 921, 1175

Sulphonate esters

C: 2263

G: 1037, 1861

P: 859

Sulphones

C: 2268

G: 281, 441, 1034

P: 858

Sulphonylamines

G: 1801

P: 1113

Sulphoxides

C: 225, 818, 1101, 4893

G: 1034, 1221

E: 20

Sulphur compounds, inorganic

C: 150, 1169, 2774-2776, 2779, 2781,
4670, 4673, 4675-4677, 4691, 4719,
6086

G: 416, 577, 581, 1244, 1252, 1900

P: 228

—, organic, techniques

C: 1101, 2201, 2266, 2268, 2270, 2940,
4215, 4585, 4927, 5656, 5999G: 97, 171, 397, 802, 805, 1038, 1175,
1659, 1947

P: 241, 916, 1115

—, —, acids and derivatives

C: 457, 815, 817, 819, 1093, 2264,
2265, 2268, 2269, 2826, 4135, 4136,
4140, 5651, 6036

G: 1191, 1209, 1660

P: 628, 858, 1113

see also Heterocyclics, sulphur

Sulphur elemental

G: 171, 667, 1031, 1032, 1338, 2182

— oxides

C: 4692

G: 171, 416, 581, 685, 822, 1228,
1245, 1844, 1917

Sunburn preventives

C: 1089, 3238, 4535

Surfactants, emulsifiers and detergents

C: 1113-1116, 1232, 1236, 1671, 2666,
2726-2728, 2763, 2775, 4592-4596,
5994, 6032-6036G: 400, 1100, 1209, 1210, 1238, 1450,
1501, 1582, 1586, 1861-1864, 1867,
1892, 1989, 2093

P: 217-220, 325, 624, 666, 946-948

E: 62, 1157

Suspensions, various

C: 4622, 6049

E: 1159, 1900, 1904, 1908, 1909,
1985(review), 2410, 2411

Sweeteners, artificial

C: 1088, 1091, 2722, 2724, 3481, 5254,
5976, 5984, 5987

G: 1005

P: 858

Sympathomimetics, *see* Adrenergic and
adrenergic blocking agents

T

Tannins

C: 272, 1456, 3126-3128, 4947, 5032

Tantalum, *see* Cations, inorganic analyt-
ical group III

Technetium, *see* Cations, inorganic, ana-
lytical group IIb

Tellurium, *see* Cations, inorganic, ana-
lytical group IIb

Terpenes

C: 407-411, 1651-1660, 3377-3383,
5136-5139

G: 336-357, 844, 978-993, 1603-1616,
1825, 2099-2108

P: 121, 446-453, 815-817, 1082, 1083

—, general techniques

C: 408(review), 409, 2949, 3379-3381,
4569, 5138, 5139

G: 180, 338, 981, 1604, 2001

P: 447, 450

—, applications

C: 407, 1651-1653, 1655-1657, 3377,
3378, 4571, 4575, 5136, 5137

G: 75, 210, 213, 336, 337, 354, 529,
535, 557, 564, 771, 812, 979, 980,
983, 987, 993, 1170, 1227, 1519,
1600, 1606-1608, 1706, 1872, 1886,
2099-2101; 2104, 2218

P: 121, 430, 446, 448, 450, 451, 815,
816, 1082

—, acids

C: 1378, 1653, 1654

G: 2245

P: 449

—, alcohols

G: 335, 520, 535, 770, 978, 983, 987,
993, 1603, 1605, 1608, 1953, 2221,
2229

P: 668, 803, 1083

—, resins

G: 1223

Tetracyclines

C: 878, 887, 890, 1378, 2347, 2363,
2365, 4240, 4243, 4253-4255, 5704

P: 874, 875

Tetrazoles

C: 4450

Textile dyes (including bleaching
agents)

C: 5762

P: 1147, 1148

Textile materials

G: 1541, 1581, 1867, 1879

Thallium, *see* Cations, inorganic, ana-
lytical group I and IIa

Thiamine, *see* Vitamins, B₁

Thiazoles and isothiazoles

C: 816, 2166, 4153, 5657

G: 187, 394, 541, 1005, 1167, 1207,
1652, 1662, 2220, 2230, 2245

P: 1114

E: 2396

Thiocarbamates

C: 2291

G: 171, 444, 1136, 2162

Thiocyanates and isothiocyanates

G: 396, 2129

Thiols

C: 109, 846, 3245, 4133, 4137, 4138,
4357, 5652, 5655, 5658

G: 171, 791, 805, 822, 1032, 1033,
1035, 1224, 1252, 1277, 1657, 1662,
1844, 1916, 2128, 2220, 2230

P: 498, 857

E: 1877, 1878

Thiophenes

C: 4542

G: 171, 187, 791, 805, 832, 833, 855,
1031, 1277, 1331, 1438, 1465, 1496,
1497, 1525, 1658, 1986, 2025, 2127,
2133, 2230

Thiophosphates

G: 156, 400, 417, 435-437, 547, 619,
678, 1068, 1072-1074, 1163, 1651,
1692, 1694, 1710, 1714, 1717-1721,
1866, 1994, 2262

Thioureas

C: 2940, 4295

Thorium, *see* cations, inorganic, ana-
lytical group III

Thyreostatics

C: 1171, 4536

Thyreoglobulins and related compounds

C: 1771

—, structural studies

C: 3563

Tin, inorganic, *see* Cations, inorganic,
analytical group III

—, organic

C: 827, 2292, 2296, 4155, 4159, 5665

- G: 82, 404, 406, 407, 410, 411, 452,
1044-1047, 1337, 1670, 1673, 1674,
1695, 1946, 2012, 2135-2137
P: 1117
Titanium, *see* Cations, inorganic, ana-
lytical group III
Tobacco alkaloids
C: 797, 799, 2242, 4089, 4095, 4100,
5624
G: 389, 570, 751, 752, 1020, 1023,
1151, 1343, 1346, 1996, 1999
P: 147
Tocopherols, *see* Vitamins, E
Toxicological (and forensic) analysis,
reviews and books
C: 6071
G: 476, 477, 1590, 2200
P: 238
—, general techniques
C: 1098, 2687, 2688, 3067, 3093, 3234,
3257, 4375, 4391, 4565, 5796, 5948,
6003, 6005
G: 641, 1145, 1149, 1411, 1759, 1803,
1807, 2154, 2206
P: 210, 222, 285, 593, 596, 1159, 1182
E: 1842, 1844, 1870, 2404
—, applications
C: 462, 940, 1100, 1159, 1387, 2239,
2686, 2689, 2900, 3081, 3096, 3228,
3401, 4060, 4140, 4417, 4437, 4564-
4566, 4935, 4993, 5771, 5916, 5996-
6002, 6004, 6006, 6007, 6010
G: 198, 226, 242, 258, 366, 390, 484,
486, 503, 515, 516, 518, 849, 867,
874, 875, 890, 894, 895, 1020,
1023, 1063, 1069, 1072, 1120, 1122,
1131, 1146-1148, 1150-1152, 1251,
1458, 1462, 1472, 1490, 1510, 1535,
1536, 1602, 1634, 1642, 1646, 1661,
1698, 1717, 1718, 1723, 1730, 1763,
1769, 1785, 1787, 1791, 1796, 1797,
1802, 1804-1806, 1808, 1809, 1998,
2056, 2071, 2080, 2083, 2133, 2135,
2201-2205, 2207, 2213
P: 132, 186, 486, 592, 594, 595, 845,
930, 1183, 1184
see also Proteins of blood, serum and
blood cells
Toxins (non-proteinous or unidentified)
C: 268, 334, 1121, 2709, 3451, 4566,
4573, 4605
G: 874, 876
P: 953
E: 1250
see also Aflatoxins; Mycotoxins
Toxins, proteinous
C: 489, 555, 557, 1752, 1790, 1798,
1804, 1857, 1858, 1872, 1877, 1879,
1881, 1885, 1942, 3498, 3529, 3614,
3618, 3621, 3625, 5332, 5406, 5442
E: 164, 186, 685, 1424, 2079, 2224
see also Proteins of glands and gland
products; Snake venoms; individual
enzyme types
—, —, structural studies
C: 1046
E: 2051
Tranquilizers (anxiolytics)
C: 128, 225, 857(review), 1001, 1004,
1008, 1027, 1033(review), 1065,
2592, 3741, 4411, 4433, 4434, 4448,
4463, 4761, 5873, 5876, 5877, 5880,
5882, 5885, 5894, 5897, 5898, 5901,
5902, 5904, 5913, 5915
G: 476, 496, 504, 811, 1119, 1121,
1124, 1126, 1127, 1132, 1786, 1792,
1794, 1796, 1804, 2189, 2195, 2205
P: 201, 277, 565, 571, 907, 909
Transferases, transferring one atom
groups (methyl-, hydroxy-, formyl-,
carbonyl-, carbamoyl-, amidine) and
related transferases (E.C. 2.1.--)
C: 671, 682, 1670, 2063, 2064, 3610,
3847, 3874, 4040, 5482, 5487, 5492,
5511
E: 903, 1627, 1630, 1633, 2241, 2253
—, —, structural studies
C: 673, 2050, 2057, 3869
E: 320
—, transferring aldehyde or ketonic
residues (E.C.2.2.--)
C: 3843
—, transferring acyl- and aminoacyl
groups (E.C. 2.3.--)
C: 672, 678, 680, 2049, 2056, 2065-
2067, 3752, 3839, 3840, 3842, 3855,
3856, 3860, 3864, 3872, 3852, 5483,
5484, 5489, 5495
E: 897, 899, 901, 1613-1615, 1632,
2239, 2240, 2244
—, transferring glycosyl residues
(hexosyl and pentosyl transferases)
(E.C. 2.4.--)
C: 670, 675, 676, 679, 2052, 2058,
2061, 3859, 3861, 3862, 3865, 3950,
4349, 5479, 5486, 5491
E: 318, 319, 321, 324, 671, 894, 895,
898, 900, 1624-1626, 1628, 1629
—, —, structural studies
C: 683, 3873

Transferases, transferring alkyl or aryl groups (E.C. 2.5.--)

C: 674, 765, 2047, 2048, 2051, 2054, 2059, 3841, 3844-3846, 3848, 3849, 3854, 3858, 3863, 3866-3868, 3871, 3875, 4039, 5485, 5488, 5494
E: 323, 896, 902, 1616, 1617, 1619, 1620, 1631, 2242, 2243, 2246

—, transferring nitrogenous groups (E.C. 2.6.--)

C: 677, 681, 2053, 2062, 3850, 3857, 3870, 5490
E: 1618, 1621, 1623, 2245

—, —, structural studies

C: 1820, 5480
E: 322

—, transferring phosphorus containing groups (E.C. 2.7.--)

C: 544, 684-698, 733, 765, 1346, 1964, 2068-2076, 2078-2094, 3669, 3798, 3876-3906, 4035, 5496-5500, 5502-5510

E: 326-338, 361, 385, 785, 890, 904-933, 1010, 1634-1653, 1655-1659, 1661, 1662, 2247, 2249-2251

—, —, structural studies

C: 2077, 3884, 5274, 5501
E: 1343, 1654, 1660, 2248, 2252

—, transferring sulphur containing groups (E.C. 2.8.--)

C: 2055, 2060, 3780, 3853
E: 325, 893, 1622

—, —, structural studies

C: 3564

—, activity measurements

C: 2062, 3441, 3668, 3851, 3891, 5104, 5210, 5482, 5493

P: 409

E: 1632

Triazines and triazanes

G: 417, 428, 440, 446, 781, 782, 1081, 1082, 1386, 1391, 1710, 1727, 1730-1732, 1737, 1739, 2165

P: 250

Triazoles

C: 2260

G: 437, 449, 834, 1083, 1134, 1734

P: 569

Tropine alkaloids

C: 791, 2230, 2245, 4086, 4092, 4099, 4104, 5622

G: 184, 388, 515, 800, 931, 2204

P: 148, 844, 1168

Trypsin inhibitor (antitrypsin)

C: 35, 639, 1755, 3759

E: 202, 302, 559, 645, 868, 1442, 2125

Trypsin inhibitor, structural studies

C: 3577, 3700

Tryptophan metabolites

C: 1674, 1677, 1682, 2251, 3400, 3471, 5150

Tuberculostatics

C: 1047, 1053, 1058, 2402, 2488, 5930

P: 1174

E: 522

Tungsten, *see* Cations, inorganic, analytical group IIB

U

Ubiquinones (coenzyme Q)

C: 3138, 4956

P: 691

Uranium, *see* Actinides and uranium

Urea and urea derivatives

C: 225, 1364

G: 417, 448, 803, 1248, 1692, 1729, 1742, 1743, 1751, 1882, 2168

E: 120

see also Thiourea

Urethanes and polyurethanes (including pyrolysis products)

C: 931, 2446

G: 1747

Uricosuric drugs

C: 4352, 5977

Uric acids

C: 2199

G: 1018

E: 1737, 2301

V

Vanadium, *see* Cations, inorganic, analytical group IIB

Vasoconstrictors

C: 75, 991, 4446, 5224, 5820, 5990

G: 2210

E: 45

Vasodilatants (including coronar vasodilatants)

C: 86, 185, 961, 967, 988, 994, 2499, 2501, 2502, 2505, 2510, 2519, 2521, 2526, 2527, 2531, 4077, 4369, 4381, 4386, 4388, 4400, 4541, 5816, 5818, 5822, 5842, 5846, 5848, 5859, 6011
G: 54, 361, 363, 364, 384, 487, 492, 495, 1107, 1114, 1115, 1148, 1767, 1778, 1787, 2141, 2185, 2186, 2192

P: 208, 557, 900, 905, 1163

Venoms, proteinous, *see* Proteins, of glands and gland products; Toxins, proteinous; individual enzyme types

Vinca alkaloids

C: 4530, 5618, 5628, 5629

Vitamins (for vitamin protein complexes, *see* Specific binding proteins)

C: 831-857, 2303-2338, 4169-4216, 5672-5697

G: 2141, 2142

P: 153-157, 503-508, 864-866, 1118-1121

E: 452, 1883, 1884

—, reviews and books

C: 857, 2314, 4182

G: 414, 2006, 2182

—, techniques for fat soluble vitamins

C: 2333, 4200, 4861

P: 260, 503, 1121

E: 1884

—, techniques for water soluble vitamins

C: 2317, 4169, 4214, 5679, 5690

P: 260, 503, 1119, 1121

E: 1884

—, A group (including synthetic retinoids)

C: 838, 847, 850, 857, 1958, 2305, 2309, 2312, 2318, 2320, 2321, 2323-2325, 2327, 2328, 2332, 2334, 2336, 2429, 3014, 4173, 4176, 4177, 4186, 4187, 4189, 4196, 4197, 4201, 4203, 4303, 4307, 4311, 4563, 4861, 5415, 5677, 5683, 5691, 5693, 5697, 5765

G: 414, 1156

P: 188, 508, 893

E: 1883

see also Pigments, natural (and fluorescent substances)

—, B₁

C: 851, 2898, 3957, 4175, 4207, 4208, 4211, 4213, 5674, 5684

—, B₂ and other flavins

C: 844, 2185, 2337, 3007, 4175, 4192, 4193, 4208

P: 504, 865, 1118, 1120

E: 1221

—, B₃

C: 2898

—, B₆ group

C: 697, 839, 2322, 2898, 4175, 4180, 4204, 4209, 5678, 5680, 5687

—, B₁₂ group

C: 833, 2310, 2311, 2898, 4179, 5688

P: 505, 506, 864

E: 863

Vitamins, biotin group

C: 2306, 4195, 4216, 5675, 5690

—, C group

C: 834, 837, 841, 848, 2303, 2306, 2307, 2329, 2330, 2712, 3533, 4172, 4174, 4184, 4194, 4199, 4215, 4580, 5211, 5694

G: 1156

P: 157

—, D group

C: 644, 849, 845, 3726, 4202, 4205, 4206, 5695

P: 155, 866

—, E

C: 853, 2304, 2316, 2318, 2323, 2325, 2338, 3007, 3363, 4170, 4171, 4176, 4185, 4188, 4191, 4197, 4198, 4201, 4210, 4212, 4602, 5672, 5673, 5676, 5686, 5689, 5693, 6037

G: 168, 326, 556, 743, 771, 1054-1056, 1989, 2142

P: 153, 432

—, K group

C: 835, 2315

G: 771

—, P

C: 4208

Volatiles, flavours, odours, *see* Organoleptics

W

Water

C: 2767, 2959, 6091

G: 580, 582, 585, 609, 636, 1198, 1242, 1245-1247, 1588, 1750, 1890, 2272

Water analysis and pollution

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2164, 2238, 2239, 2241-2243, 2257,
2265, 2268, 2270, 2274

P: 223, 797, 944, 945, 1195

E: 1156, 1162, 1899, 2407, 2408

see also individual polluting com-
pounds

Water analysis and pollution, reviews

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G: 655, 1178, 1181, 1849, 2240

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C: 4141

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group III

Zirconium, *see* Cations, inorganic ana-
lytical group III

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1990 xvi + 212 pages

Price: US \$ 111.50 / Dfl. 195.00

ISBN 0-444-88623-0



Elsevier Science Publishers

P.O. Box 211, 1000 AE Amsterdam, The Netherlands
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PUBLICATION SCHEDULE FOR 1991

Journal of Chromatography and Journal of Chromatography, Biomedical Applications

MONTH	D 1990- M 1991	J	J	A	S	O	N	D
Journal of Chromatography	Vols. 535-545/1	545/2 546/1+2 547/1+2	548/1+2 549/1+2 550/1+2	552/1+2 553/1+2 554/1+2 555/1+2	556/1+2 557/1+2 558/1	558/2 559/1+2		
Cumulative Indexes, Vols. 501-550				551/1+2				
Bibliography Section	560/1	560/2			561/1			561/2
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(Detailed *Instructions to Authors* were published in Vol. 522, pp. 351-354. A free reprint can be obtained by application to the publisher, Elsevier Science Publishers B.V., P.O. Box 330, 1000 AH Amsterdam, The Netherlands.)

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