

Recent Reviews. 51

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Reviews are listed in order of appearance in the sources indicated. In multidisciplinary review journals, only those reviews which fall within the scope of this Journal are included. Sources are listed alphabetically in three categories: regularly issued review journals and series volumes, contributed volumes, and other monographs. Titles are numbered serially, and these numbers are used for reference in the index.

Major English-language sources of critical reviews are covered. Encyclopedic treatises, annual surveys such as *Specialist Periodical Reports*, and compilations of symposia proceedings are omitted.

This installment of Recent Reviews covers principally the middle part of the 1998 literature. Previous installment: *J. Org. Chem.* **1998**, 63(20), 7120–6.

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Regularly Issued Journals and Series Volumes

Accounts of Chemical Research

- Hao, M.-H.; Scheraga, H. A. Theory of Two-State Cooperative Folding of Proteins. **1998**, 31(8), 433–40.
- Sheldon, R. A.; Wallau, M.; Arends, I. W. C. E. Heterogeneous Catalysts for Liquid-Phase Oxidations: Philosophers' Stones or Trojan Horses? **1998**, 31(8), 485–93.
- Ragnarsson, U.; Grehn, L. Novel Amine Chemistry Based on DMAP-Catalyzed Acylation. **1998**, 31(8), 494–501.
- Kool, E. T. Recognition of DNA, RNA, and Proteins by Circular Oligonucleotides. **1998**, 31(8), 502–10.
- Prato, M.; Maggini, M. Fulleropyrrolidines: A Family of Full-Fledged Fullerene Derivatives. **1998**, 31(9), 519–26.
- Sen, A. Catalytic Functionalization of Carbon–Hydrogen and Carbon–Carbon Bonds in Protic Media. **1998**, 31(9), 550–7.
- Shen, Y. New Synthetic Methodologies for Carbon–Carbon Double Bond Formation. **1998**, 31(9), 584–92.
- Molander, G. A. Diverse Methods for Medium Ring Synthesis. **1998**, 31(10), 603–9.
- Yan, B. Monitoring the Progress and the Yield of Solid-Phase Organic Reactions Directly on Resin Supports. **1998**, 31(10), 621–30.
- Horvath, I. T. Fluorous Biphasic Chemistry. **1998**, 31(10), 641–50.
- Werst, D. W.; Trifunac, A. D. Observation of Radical Cations by Swiftness or by Stealth. **1998**, 31(10), 651–7.
- Bosnich, B. Asymmetric Catalysis. A Comparative Study of the Mechanisms of Intramolecular Hydroacylation and Hydrosilation. **1998**, 31(10), 667–74.
- Seeberger, P. H.; Danishefsky, S. J. Solid-Phase Synthesis of Oligosaccharides and Glycoconjugates by the

Glycol Assembly Method: A Five Year Retrospective. **1998**, 31(10), 685–95.

Acta Chemica Scandinavica

- Utleby, J. H. P. Selectivity in Electroreductive Carbon–Carbon Bond Forming Reactions: Redox Chemistry of Activated Alkenes, Quinonemethides and Quinodimethanes. **1998**, 52(3), 237–49.
- Wayner, D. D. M.; Houmam, A. Redox Properties of Free Radicals. **1998**, 52(4), 377–84.
- Nilsen, H. J.; Ghosh, A. Highlights of Carbaporphyrin Chemistry. **1998**, 52(7), 827–30.
- Hammerich, O.; Nielsen, M. F. The Competition Between the Dimerization of Radical Anions and Their Reactions with Electrophiles. **1998**, 52(7), 831–57.

Advances in Heterocyclic Chemistry

- Lloyd, D.; McNab, H. 1,5 Benzodiazepines and 1,5-Benzodiazepinium Salts. **1998**, 71, 2–56.
- El Ashry, E. S. H.; Rashed, N. 1,2,3-Triazolox[x,y-z]pyrimidines. **1998**, 71, 57–114.
- Haas, A. Some Recent Developments in Chalcogen-Heterocyclic Chemistry. **1998**, 71, 115–44.
- Hermez, I. Chemistry of Pyrido[2,1-c][1,4]oxazines, Pyrido[2,1-c][1,4]thiazines, Pyrido[1,2-a]pyridazines and Their Benzologues. **1998**, 71, 145–291.
- Belen'kii, L. I.; Kruchkovskaya, N. D. The Literature of Heterocyclic Chemistry, Part V. **1998**, 71, 292–378.
- Garnovskii, A. D.; Sadimenko, A. P. S. Five- and Six-Membered Heteroaromatic Compounds as Ligands. **1998**, 72, 1–78.
- Granik, V. G.; Kadushkin, A. V.; Liebscher, J. Synthesis of Amino Derivatives of Five Membered Heterocycles by Thorpe–Ziegler Cyclization. **1998**, 72, 79–126.

25. El Ashry, E. S. H.; Rashed, N. 1,2,4-Triazolo- and Tetrazolo[x,y-z]pyrimidines. I. **1998**, 72, 127–224.

26. Hermezc, I. Chemistry of Pyrido[2,1-b][1,3]oxazines, Pyrido[2,1-b][1,3]thiazines, and Their Benzologs, Part IV. **1998**, 72, 225–82.

27. Granik, V. G.; Makarov, V. A.; Párkányi, C. Enamines as Synthons in the Synthesis of Heterocycles. **1998**, 72, 283–360.

28. Rademacher, P. Fragmentations of Five-Membered Rings. **1998**, 72, 361–412.

Advances in Organometallic Chemistry

29. Fischer, H.; Stumpf, R.; Roth, G. Transition Metal Heteroaldehyde and Heteroketone Complexes. **1998**, 43, 125–96.

Aldrichimica Acta

30. Katritzky, A. R.; Belyakov, S. A. Benzotriazole-Based Intermediates: Reagents for Efficient Organic Synthesis. **1998**, 31(2), 35–45.

31. Melikyan, G. G. Manganese-Based Organic and Bioinorganic Transformations. **1998**, 31(2), 50–64.

Bulletin de la Societe Chimique de France

32. Krief, A.; Laval, A.-M. *o*-Nitrophenyl Selenocyanate, a Valuable Reagent in Organic Synthesis: Application to One of the Most Powerful Routes to Terminal Olefins from Primary-Alcohols (The Grieco–Sharpless Olefination Reaction) and to the Regioselective Isomerization of Allyl Alcohols. **1997**, 134(10 & 11), 869–74.

Canadian Journal of Chemistry

33. Manners, I. 1997 Canadian Society for Chemistry Award Lecture. Ring-Opening Polymerization (ROP) of Strained Metallocenophanes: The Discovery and Development of a New Route to High Molecular Weight Poly(Metallocenes). **1998**, 76(4), 371–81.

34. Chiang, Y.; Kresge, A. J.; Schepp, N. P.; Popik, V. V.; Rappoport, Z.; Selzer, T. The Acid Dissociation Constant of Triphenylethenethiol, A Simple Thioenol, and that of Its Oxygen-Enol Analog. **1998**, 76(6), 657–61.

Chemical Reviews

35. Bashkin, J. K. Introduction to RNA/DNA Cleavage. **1998**, 98(3), 937.

36. Oivanen, M.; Kuusela, S.; Loennberg, H. Kinetics and Mechanisms for the Cleavage and Isomerization of the Phosphodiester Bonds of RNA by Bronsted Acids and Bases. **1998**, 98(3), 961–90.

37. Kuimelis, R. G.; McLaughlin, L. W. Mechanisms of Ribozyme-Mediated RNA Cleavage. **1998**, 98(3), 1027–44.

38. Raines, R. T. Ribonuclease A. **1998**, 98(3), 1045–65.

39. Pogożelski, W. K.; Tullius, T. D. Oxidative Strand Scission of Nucleic Acids: Routes Initiated by Hydrogen Abstraction from the Sugar Moiety. **1998**, 98(3), 1089–107.

40. Burrows, C. J.; Muller, J. G. Oxidative Nucleobase Modifications Leading to Strand Scission. **1998**, 98(3), 1109–51.

41. Burger, R. M. Cleavage of Nucleic Acids by Bleomycin. **1998**, 98(3), 1153–69.

42. David, S. S.; Williams, S. D. Chemistry of Glycosylases and Endonucleases Involved in Base-Excision. **1998**, 98(3), 1221–61.

43. Ogura, K.; Koyama, T. Enzymic Aspects of Isoprenoid Chain Elongation. **1998**, 98(4), 1263–76.

44. Bloch, R. Additions of Organometallic Reagents to C:N Bonds: Reactivity and Selectivity. **1998**, 98(4), 1407–38.

45. Cera, E. D. Site-Specific Thermodynamics: Understanding Cooperativity in Molecular Recognition. **1998**, 98(4), 1563–91.

46. Johannsen, M.; Jorgensen, K. A. Allylic Amination. **1998**, 98(4), 1689–708.

47. Smith, H. E. Chiroptical Properties of the Benzene Chromophore. A Method for the Determination of the Absolute Configurations of Benzene Compounds by Application of the Benzene Sector and Benzene Chirality Rules. **1998**, 98(4), 1709–40.

48. Szejtli, J. Introduction and General Overview of Cyclodextrin Chemistry. **1998**, 98(5), 1743–53.

49. Schneider, H.-J.; Hacket, F.; Ruediger, V.; Ikeda, H. NMR Studies of Cyclodextrins and Cyclodextrin Complexes. **1998**, 98(5), 1755–85.

50. Saenger, W.; Jacob, J.; Gessler, K.; Steiner, T.; Hoffmann, D.; Sanbe, H.; Koizumi, K.; Smith, S. M.; Takaha, T. Structures of the Common Cyclodextrins and Their Larger Analogs—Beyond the Doughnut. **1998**, 98(5), 1787–802.

51. Harata, K. Structural Aspects of Stereodifferentiation in the Solid State. **1998**, 98(5), 1803–27.

52. Lipkowitz, K. B. Applications of Computational Chemistry to the Study of Cyclodextrins. **1998**, 98(5), 1829–73.

53. Rekharsky, M. V.; Inoue, Y. Complexation Thermodynamics of Cyclodextrins. **1998**, 98(5), 1875–917.

54. Gattuso, G.; Nepogodiev, S. A.; Stoddart, J. F. Synthetic Cyclic Oligosaccharides. **1998**, 98(5), 1919–58.

55. Nepogodiev, S. A.; Stoddart, J. F. Cyclodextrin-Based Catenanes and Rotaxanes. **1998**, 98(5), 1959–76.

56. Khan, A. R.; Forgo, P.; Stine, K. J.; D'Souza, V. T. Methods for Selective Modifications of Cyclodextrins. **1998**, 98(5), 1977–96.

57. Breslow, R.; Dong, S. D. Biomimetic Reactions Catalyzed by Cyclodextrins and Their Derivatives. **1998**, 98(5), 1997–2011.

58. Takahashi, K. Organic Reactions Mediated by Cyclodextrins. **1998**, 98(5), 2013–33.

59. Hedges, A. R. Industrial Applications of Cyclodextrins. **1998**, 98(5), 2035–44.

60. Uekama, K.; Hirayama, F.; Irie, T. Cyclodextrin Drug Carrier Systems. **1998**, 98(5), 2045–76.

61. Balch, A. L.; Olmstead, M. M. Reactions of Transition Metal Complexes with Fullerenes (C60, C70, etc.) and Related Materials. **1998**, 98(6), 2123–65.

62. Baekvall, J.-E.; Chinchilla, R.; Najera, C.; Yus, M. The Use of Sulfonyl 1,3-Dienes in Organic Synthesis. **1998**, 98(6), 2291–312.

Chemical Society Reviews

63. Archut, A.; Vogtle, F. Functional Cascade Molecules. **1998**, 27(4), 233–40.

64. Thomas Boyle, F.; Costello, G. F. Cancer Therapy: a Move to the Molecular Level. **1998**, 27(4), 251–61.

65. Green, J. C. Bent Metallocenes Revisited. **1998**, *27(4)*, 263–72.

66. Robert, A.; Meunier, B. Is Alkylation the Main Mechanism of Action of the Antimalarial Drug Artemisinin? **1998**, *27(4)*, 273–4.

67. Albrecht, M. Dicatechol Ligands: Novel Building-Blocks for Metallo-Supramolecular Chemistry. **1998**, *27(4)*, 281–8.

68. Jones, C. J. Transition Metals as Structural Components in the Construction of Molecular Containers. **1998**, *27(4)*, 289–99.

69. Cox, L. R.; Ley, S. V. Tricarbonyliron Complexes: An Approach to Acyclic Stereocontrol. **1998**, *27(5)*, 301–14.

70. Thatcher, G. R. J. NO Problem for Nitroglycerin: Organic Nitrate Chemistry and Therapy. **1998**, *27(5)*, 331–7.

71. Shindo, M. Ynolate Anions. **1998**, *27(5)*, 367–74.

Chemistry and Industry

72. Dorsey, J. G. The Future of Liquid Chromatography? **1998**, (12), 481–4.

73. Rosecrans, J. A. Nicotine: Helping Those Who Help Themselves. **1998**, (13), 525–9.

Chemistry in Britain

74. Crowley, P.; Fischer, H.; Devonshire, A. Feed the World. **1998**, *34(7)*, 25–8.

75. Luszniak, M.; Pickett, J. Self-Defence for Plants. **1998**, *34(7)*, 29–32.

76. Bartle, K.; Myers, P. Separations with Potential. **1998**, *34(7)*, 42–4.

CHEMTECH

77. Ojima, I.; Bounaud, P.-Y.; Bernacki, R. J. New Weapons in the Fight Against Cancer. **1998**, *28(6)*, 31–6.

78. Link, J. T.; Overman, L. E. Forming Cyclic Compounds with the Intramolecular Heck Reaction. **1998**, *28(8)*, 19–26.

79. Kamer, P. C. J.; Reek, J. N. H.; Van Leeuwen, P. W. N. M. Designing Ligands with the Right Bite. **1998**, *28(9)*, 27–33.

80. Hendrickson, J. B. Building the Shortest Synthesis Route. **1998**, *28(9)*, 35–40.

81. Jackson, P. T.; Carr, P. W. Improving Reversed-Phase Liquid Chromatography. **1998**, *28(10)*, 29–37.

CHEMTRACTS: Organic Chemistry

82. Zamojski, A. Diastereoselective Epoxidation of Olefins by Organo Sulfonic Peracids. II. **1996**, *9(6)*, 299–303.

83. Poli, G.; Scolastico, C. Catalytic Photoinduced Charge-Transfer Osmylation: A Novel Pathway from Arenes to Cyclitol Derivatives. **1996**, *9(6)*, 304–9.

84. Bianchini, C.; Barbaro, P. Nucleophilic and Electrophilic Allylation Reactions. Synthesis, Structure, and Ambiphilic Reactivity of (H3-Allyl)Ruthenium(II) Complexes. **1996**, *9(6)*, 310–3.

85. Bianchini, C.; Glendenning, L. (Chelating Diphosphine)Rhodium-Catalyzed Deuterioformylation of 1-Hexene: Control of Regiochemistry by the Kinetic Ratio of

Alkylrhodium Species Formed by Hydride Addition to Complexed Alkene. **1996**, *9(6)*, 314–7.

86. Bianchini, C.; Glendenning, L. Catalytic Production of Dimethylformamide From Supercritical Carbon Dioxide. Methyl Formate Synthesis by Hydrogenation of Supercritical Carbon Dioxide in the Presence of Methanol. Selectivity for Hydrogenation or Hydroformylation of Olefins by Hydridopentacarbonylmanganese(I) in Supercritical Carbon Dioxide. **1996**, *9(6)*, 318–21.

87. Vıcek, A., Jr. Highly Conjugated, Acetylenyl Bridged Porphyrins: New Models for Light-Harvesting Antenna Systems. **1996**, *9(6)*, 322–6.

88. Bianchini, C.; Glendenning, L. Efficient Diastereoselective and Enantioselective Nitro Aldol Reactions from Prochiral Starting Materials: Utilization of La-Li-6,6'-Distributed BINOL Complexes as Asymmetric Catalysts. **1996**, *9(6)*, 327–30.

89. Bianchini, C.; Glendenning, L. Homogeneous Catalysis. Mechanisms of the Catalytic Mukaiyama Aldol and Sakurai Allylation Reactions. **1996**, *9(6)*, 331–5.

Chirality

90. Feibush, B. Chiral Separation of Enantiomers *via* Selector/Selectand Hydrogen Bonding. **1998**, *10(5)*, 382–95.

Collection of Czechoslovak Chemical Communications

91. Katritzky, A. R.; Qi, M. Michael Additions of Benzotriazole-Stabilized Carbanions. A Review. **1998**, *63(5)*, 599–613.

92. Koutek, B.; Streinz, L.; Romanuk, M. Syntheses of Insect Sex Pheromones. A Review of the Literature 1990–1998. **1998**, *63(7)*, 899–954.

93. Cundy, C. S. Microwave Techniques in the Synthesis and Modification of Zeolite Catalysts. A Review. **1998**, *63(11)*, 1699–723.

Coordination Chemistry Reviews

94. Knor, G. Photocatalytic Reactions of Porphyrin-Based Multielectron-Transfer Sensitizers. **1998**, *171*, 61–70.

95. Hicks, C.; Fan, J.; Rutenberg, I.; Gafney, H. D. Excited State Acid–Base Chemistry. A New Quenching Mechanism. **1998**, *171*, 71–83.

96. Rudzinski, C. M.; Hartmann, W. K.; Nocera, D. G. Lanthanide-Ion Modified Cyclodextrin Supramolecules. **1998**, *171*, 115–23.

97. Willner, I.; Kaganer, E.; Joselevich, E.; Durr, H.; David, E.; Gunter, M. J.; Johnston, M. R. Photoinduced Electron Transfer in Supramolecular Assemblies of Transition Metal Complexes. **1998**, *171*, 261–85.

98. Ley, K. D.; Schanze, K. S. Photophysics of Metal-Organic π -Conjugated Polymers. **1998**, *171*, 287–307.

99. Harriman, A.; Ziessel, R. Building Photoactive Molecular-Scale Wires. **1998**, *171*, 331–9.

100. Kim, J.; Sistare, M. F.; Carter, P. J.; Thorp, H. H. Electron and Hydrogen Transfer Reactions of Nucleotides: From Stern–Volmer Quenching to Nucleoprotein Structure. **1998**, *171*, 341–9.

101. Jiang, B.; Yang, S. W.; Bailey, S. L.; Hermans, L. G.; Niver, R. A.; Bolcar, M. A.; Jones, J. W. E. Toward Transparent Molecular Wires: Electron and Energy

Transfer in Transition Metal Derivatized Conducting Polymers. **1998**, *171*, 365–86.

102. Reiter, W. A.; Gerges, A.; Lee, S.; Deffo, T.; Clifford, T.; Danby, A.; Bowman-James, K. Accordion Porphyrins. Hybrid Models for Heme and Binuclear Monooxygenases. **1998**, *174*(1), 343–59.

103. Hegedus, L. S. Transition Metals in Organic Synthesis, Highlights for the Year 1997. **1998**, *175*(1), 159–270.

Heterocycles

104. Katagiri, N.; Yamaguchi, M.; Kanenko, C. High Pressure in Enzyme Catalyzed Organic Reactions. **1998**, *48*(5), 1023–43.

105. Murata, S.; Kiguchi, K.; Sugimoto, T. Recent Advances in Selective Syntheses of 6- And 7-Substituted Pteridines. **1998**, *48*(6), 1255–74.

106. Lounasmaa, M.; Berner, M.; Tolvanen, A. Acid-Catalyzed C-3 Epimerization of Reserpine and Other Indolo[2,3-*a*]Quinolizidines. **1998**, *48*(6), 1275–90.

Journal of Heterocyclic Chemistry

107. Makino, K.; Kim, H. S.; Kurasawa, Y. Synthesis of Pyrazoles. **1998**, *35*(3), 489–97.

Journal of Macromolecular Science—Pure and Applied Chemistry

108. Vogl, O. Polyolefins: Syntheses and Structures. **1998**, *35*(7/8), 1017–35.

Journal of Physical Organic Chemistry

109. Kresge, A. J. Flash Photolytic Generation and Investigation of Short-Lived Reaction Intermediates: A Case Study. **1998**, *11*(5), 292–8.

110. Makosza, M.; Kwast, A. Vicarious Nucleophilic Substitution of Hydrogen. Mechanism and Orientation. **1998**, *11*(5), 341–9.

111. Laszlo, P. Heterogeneous Catalysis of Organic Reactions. **1998**, *11*(5), 356–61.

112. Bickelhaupt, F.; Wolf, W. H. D. Unusual Reactivity of Highly Strained Cyclophanes. **1998**, *11*(5), 362–76.

Natural Product Reports

113. Sattler, I.; Thiericke, R.; Zeck, A. The Manumycin-Group Metabolites. **1998**, *15*(3), 221–40.

114. Boland, G. M.; Donnelly, D. M. X. Isoflavonoids and Related Compounds **1998**, *15*(3), 241–60.

115. Hanson, J. R. Steroids: Reactions and Partial Synthesis. **1998**, *15*(3), 261–73.

116. Boyd, D. R.; Sheldrake, G. N. The Dioxygenase-Catalyzed Formation of Vicinal *cis*-Diols. **1998**, *15*(3), 309–24.

117. Toyota, M.; Ihara, M. Recent Progress in the Chemistry of Non-Monoterpenoid Indole Alkaloids. **1998**, *15*(4), 327–40.

118. Bentley, K. W. β -Phenylethylamines and the Isoquinoline Alkaloids. **1998**, *15*(4), 341–62.

119. Liddell, J. R. Pyrrolizidine Alkaloids. **1998**, *15*(4), 363–70.

120. Lewis, J. R. Muscarine, Imidazole, Oxazole, Thiazole and Peptide Alkaloids, Other Miscellaneous Alkaloids. **1998**, *15*(4), 371–95.

121. Steyn, P. S.; van Heerden, F. R. Bufadienolides of Plant and Animal Origin. **1998**, *15*(4), 397–413.

122. Lewis, J. R. Muscarine, Imidazole, Oxazole, Thiazole and Peptide Alkaloids, and Other Miscellaneous Alkaloids. **1998**, *15*(5), 417–37.

123. Grayson, D. H. Monoterpenoids. **1998**, *15*(5), 439–75.

124. Davies-Coleman, M. T.; Garson, M. J. Marine Polypropionates. **1998**, *15*(5), 477–93.

125. Jarman, M.; Smith, H. J.; Nicholls, P. J.; Simons, C. Inhibitors of Enzymes of Androgen Biosynthesis: Cytochrome P450(17 α) and 5 α -Steroid Reductase. **1998**, *15*(5), 495–512.

126. Bugg, T. D. H.; Winfield, C. J. Enzymic Cleavage of Aromatic Rings: Mechanistic Aspects of the Catechol Dioxygenases and Later Enzymes of Bacterial Oxidative Cleavage Pathways. **1998**, *15*(5), 513–30.

Organic Preparations and Procedures International

127. Xu, Y.-C. Recent Progress in the Synthesis and Reactions of Isothiochromans. A Review. **1998**, *30*(3), 243–89.

128. Martin, V. S.; Rodriguez, C. M.; Martin, T. Syntheses of Avenaciolide and Related Bisactones. A Review. **1998**, *30*(3), 291–324.

129. Vankar, P. S.; Reddy, M. V. R.; Vankar, Y. D. Applications of Trimethylsilyl Halide–Oxidant Combinations in Organic Synthesis. A Review. **1998**, *30*(4), 373–400.

130. Hashem, A. I.; Senning, A.; Hamad, A.-S. S. Photochemical Transformations of 2(5*H*)-Furanones. A Review. **1998**, *30*(4), 401–25.

Organic Reactions

131. Cowden, C. J.; Paterson, I. Asymmetric Aldol Reactions Using Boron Enolates. **1997**, *51*, 1–200.

132. Ciganek, E. The Catalyzed α -Hydroxyalkylation and α -Aminoalkylation of Activated Olefins (the Morita–Baylis–Hillman Reaction). **1997**, *51*, 201–350.

133. Rigby, J. H.; Pigge, F. C. [4 + 3] Cycloaddition Reactions. **1997**, *51*, 351–478.

134. Rickborn, B. The Retro-Diels–Alder Reaction. Part L. C–C Dienophiles. **1998**, *52*, 1–393.

135. Itsuno, S. Enantioselective Reduction of Ketones. **1998**, *52*, 395–576.

Progress in Nuclear Magnetic Resonance Spectroscopy

136. Wider, G. Technical Aspects of NMR Spectroscopy with Biological Macromolecules and Studies of Hydration in Solution. **1998**, *32*(3), 193–275.

137. Arrowsmith, C. H.; Wu, Y.-S. NMR of Large (>25 kDa) Proteins and Protein Complexes. **1998**, *32*(3), 277–86.

138. Wijmenga, S. S.; Van Buuren, B. N. M. The Use of NMR Methods for Conformational Studies of Nucleic Acids. **1998**, *32*(4), 287–387.

Pure and Applied Chemistry

139. Moss, G. P. Nomenclature of Fused and Bridged Fused Ring Systems. **1998**, *70*(1), 143–216.

- 140.** Baichi, M. D.; Melman, A. Enantioselective Total Synthesis of (–)- α -Kainic Acid **1998**, *70*(2), 259–62.
- 141.** Kershner, L. D.; Tai, J. J.; Rudolf, P. R. Utilization of Structure–Property Relationships as a Guide for Achievement of High Optical Purity in [(Aryloxy)Phenoxy]Propionates. **1998**, *70*(2), 325–30.
- 142.** Kingston, D. G. I. Studies on the Chemistry of Taxol. **1998**, *70*(2), 331–4.
- 143.** Kishi, Y. Complete Structure of Maitotoxin. **1998**, *70*(2), 339–44.
- 144.** Pour, M.; King, G. R.; Monck, N. J. T.; Morris, J. C.; Zhang, H.; Mander, L. N. Synthetic and Structural Studies on Novel Gibberellins. **1998**, *70*(2), 351–4.
- 145.** McDonald, F. E.; Towne, T. B.; Schultz, C. C. Metal-Oxo Induced Syn-Oxidative Polycyclizations of Hydroxypolyenes: Biomimetic Synthesis of Polycyclic Ether Natural Products. **1998**, *70*(2), 355–8.
- 146.** Moriarty, R. M.; Penmasta, R.; Rao, M. S.; Guo, L.; Werner, F.; Mehta, R. G. Synthesis of Novel Vitamin D Analogs. **1998**, *70*(2), 373–6.
- 147.** Berova, N.; Borhan, B.; Dong, J. G.; Guo, J.; Huang, X.; Karnaukhova, E.; Kawamura, A.; Lou, J.; Matile, S.; Nakanishi, K.; Rickman, B.; Su, J.; Tan, Q.; Zanze, I. Solving Challenging Bioorganic Problems by Exciton Coupled CD. **1998**, *70*(2), 377–83.
- 148.** Rao, A. V. R. Studies Directed on the Synthesis of Vancomycin and Related Cyclic Peptides. **1998**, *70*(2), 391–6.
- 149.** Hovorka, M.; Smiskova, I.; Holakovsky, R.; Beran, J.; Stibor, I. Chiral Tridentate Ligands Based on 3-Substituted Binaphthols, and Their Aluminum Hydride Complexes. **1998**, *70*(2), 415–8.
- 150.** Glink, P. T.; Stoddart, J. F. Concept Transfer From the Life Sciences Into Materials Science. **1998**, *70*(2), 419–24.
- 151.** Yu, D. Recent Results on Structural Chemistry of New Natural Products From Chinese Herbal Medicine. **1998**, *70*(2), 431–4.
- 152.** Li, L.-N. Biologically Active Components From Traditional Chinese Medicines. **1998**, *70*(3), 547–54.
- 153.** De Clercq, E. Recent Developments in the Chemotherapy of HIV Infections. **1998**, *70*(3), 567–77.
- 154.** Kumar, A. Ionic Solutions and Their Pivotal Roles in Organic and Biological Systems. **1998**, *70*(3), 615–20.
- 155.** Danil De Namor, A. F.; Hutcherson, R. G.; Sueros Velarde, F. J.; Zapata-Ormachea, M. L.; Pulcha Salazar, L. E.; Al Jammaz, I.; Al Rawi, N. An Overview of the Solution Thermodynamics of Lower Rim Functionalized Calixarene Derivatives and Metal Cations. New Derivatives Containing Amino and Thioalkyl Functional Groups. **1998**, *70*(4), 769–78.
- 156.** Sokolov, V. I. Fullerenes Coordinated to Transition Metals: Synthetic and Stereochemical Study. **1998**, *70*(4), 789–98.
- 157.** Fluck, E.; Heckmann, G.; Gorbunowa-Jonas, E. Coordination Compounds with 3-, 4- and 6-membered Heterocycles Containing Phosphorus. **1998**, *70*(4), 819–26.
- 158.** Kobayashi, S. New Types of Lewis Acids Used in Organic Synthesis. **1998**, *70*(5), 1019–26.
- 159.** Shibasaki, M.; Sasai, H.; Arai, T.; Iida, T. Heterobimetallic Asymmetric Catalysts. Developments and Applications. **1998**, *70*(5), 1027–34.
- 160.** Nugent, W. A.; Licini, G.; Bonchio, M.; Bortolini, O.; Finn, M. G.; McClelland, B. W. Homogeneous Catalysis as a Tool for Organic Synthesis. **1998**, *70*(5), 1041–6.
- 161.** Grigg, R.; Sridharan, V. Heterocycles *via* Pd Catalyzed Molecular Queuing Processes. Relay Switches and the Maximization of Molecular Complexity. **1998**, *70*(5), 1047–57.
- 162.** Dixneuf, P. H.; Bruneau, C.; Derien, S. Smart Ruthenium Catalysts for the Selective Catalytic Transformations of Alkynes. **1998**, *70*(5), 1065–70.
- 163.** Furstner, A. Low-Valent Transition Metal Induced C–C Bond Formations: Stoichiometric Reactions Evolving into Catalytic Processes. **1998**, *70*(5), 1071–6.
- 164.** Yamaguchi, M. Direct Vinylation Reaction of Phenols. **1998**, *70*(5), 1091–6.
- 165.** Carreira, E. M.; Hong, J.; Du Bois, J.; Tomooka, C. S. The Application of Nitrido Manganese Reagents to the Synthesis of Protected *N*-Methyl D-Fucosamine. **1998**, *70*(5), 1097–103.
- 166.** Shieh, S. J.; Liang, K. W.; Li, W. T.; Shu, L. H.; Chandrasekharam, M.; Liu, R.-S. Tungsten–Alkynyl and Propargyl Compounds for Organic Syntheses. **1998**, *70*(5), 1111–5.
- 167.** Johannsen, M.; Yao, S.; Graven, A.; Jorgensen, K. A. Metal-Catalyzed Asymmetric Hetero-Diels–Alder Reactions of Unactivated Dienes with Glyoxylates. **1998**, *70*(5), 1117–22.
- 168.** Doyle, M. P. New Catalysts and Methods for Highly Enantioselective Metal Carbene Reactions. **1998**, *70*(5), 1123–8.
- 169.** Kaminsky, W. New Polyolefins by Metallocene Catalysts. **1998**, *70*(6), 1229–33.
- 170.** Kricheldorf, H. R. Star Shaped and Hyperbranched Aromatic Polyesters. **1998**, *70*(6), 1235–8.
- 171.** Boulares, A.; Rodrigues, C.; Rozes, L.; Tessier, M.; Marechal, E. Preparation and Structure of Polyether-Block Containing Polymers. **1998**, *70*(6), 1239–44.
- 172.** Pillai, C. K. S. Liquid Crystalline Polymers: The Effects of Chain Disrupters. **1998**, *70*(6), 1249–52.
- 173.** Simonet, J. Anodic Generation of New Ionophoric Conducting Polymers. **1998**, *70*(6), 1253–7.

Research on Chemical Intermediates

- 174.** Chandrasekhar, S. Controversy and Complementarity in Mechanistic Organic Chemistry. The Transition State and Structural Theories Reexamined. **1998**, *24*(6), 625–42.
- 175.** Kacer, P.; Kuzma, M.; Liberkova, K.; Cerveny, L. The Synthetic Fragrant Compounds Based on 2-*tert*-Butylcyclohexanol. **1998**, *24*(6), 643–52.
- 176.** Velu, S.; Sivasanker, S. Alkylation of *m*-Cresol with Methanol and 2-Propanol over Calcined Magnesium–Aluminum Hydrotalcites. **1998**, *24*(6), 657–66.
- 177.** Dobrovolna, Z.; Cerveny, L. Catalytic Transfer Hydrogenation of Olefins. **1998**, *24*(6), 679–86.
- 178.** Zhang, H.-M.; Ruan, X.-Q.; Guo, Q.-X.; Liu, Y.-C. A Study on One-Electron Oxidation of Phenothiazine Derivatives by Piperidine Oxammonium Ion in SDS Micelle. **1998**, *24*(6), 687–93.
- 179.** O'Shea, K. E.; Aguila, A.; Vinodgopal, L. K.; Kamat, P. V. Reaction Pathways and Kinetic Parameters of Sonolytically Induced Oxidation of Dimethyl Methylphosphonate in Air Saturated Aqueous Solutions. **1998**, *24*(6), 695–705.

180. Ohashi, K.; Nishiguchi, M.; Inokuchi, Y.; Sekiya, H.; Nishi, N. Photodissociation Spectrum of Cyano-Benzene Dimer Cation. Absence of Intermolecular Resonance Interaction. **1998**, *24*(7), 755–64.

181. Kobayashi, T.; Kajimoto, O. Benzonitrile and Its van der Waals Complexes Studied in a Free Jet. III. Enhancement of the Intersystem Crossing Rate in the Benzonitrile Dimer and Other Complexes. **1998**, *24*(7), 785–802.

182. Ebata, T.; Saito, K.; Ishikawa, H.; Mikami, N. Discrimination of *s-cis/s-trans* Conformers of Jet-Cooled Methyl Cinnamate by Population Labeling Spectroscopy. **1998**, *24*(8), 803–12.

183. Mackenzie, V. J.; Steer, R. P. The Electronic Spectroscopy and Photophysics of Tropolone and Its van der Waals Complexes. **1998**, *24*(8), 813–29.

184. Wan, J. K. S.; Depew, M. C. Applications of ESR and CIDEP to Mechanistic Studies of Lignin Chemistry. **1998**, *24*(8), 831–47.

185. Nishiguchi, H.; Okamoto, S.; Nishimura, M.; Yamashita, H.; Anpo, M. Phosphorescence and Photochemical Properties of Benzophenone Included Within Alkali Metal Cation-Exchanged ZSM-5 Zeolites. **1998**, *24*(8), 849–58.

186. Sekihara, A.; Honma, H.; Fukuju, T.; Maeda, K.; Murai, H. CIDEP Study of Radical-Ion Pair Systems: Photooxidation Reactions of Carbazoles by Maleic Anhydride in Alcohol Solution. **1998**, *24*(8), 859–77.

187. Fujiwara, H.; Fukumoto, H.; Fukumura, H.; Masuhara, H. Dynamics of Excited and Ionic States of N,N,N',N'-Tetramethyl-P-Phenylenediamine in Poly(Methyl Methacrylate) Under Ablation Condition. **1998**, *24*(8), 879–92.

188. Tanaka, N.; Oike, J.; Shibuya, K.; Kudoh, S.; Nakata, M. Visible Light Induced Oxygen Atom Transfer From NO₂ to (CH₃)N in a Cryogenic Ar Matrix. **1998**, *24*(8), 893–903.

Reviews on Heteroatom Chemistry

189. Ogawa, A.; Hirao, T. Highly Selective Thioselective of Carbon–Carbon Unsaturated Bonds with a Disulfide–Diselenide Binary System. **1998**, *18*, 1–10.

190. Shimizu, T.; Kamigata, N. Isolation and Stereochemistry of Optically Active Tricoordinated Selenium and Tellurium Compounds. **1998**, *18*, 11–35.

191. Balczewski, P.; Mikolajczyk, M. Intermolecular Reactions of Phosphorus Containing Carbon Centered Radicals with Alkenes and Examples of Their Utilization in Organic Synthesis. **1998**, *18*, 37–59.

192. Ooi, T.; Maruoka, K. Exceptionally Bulky Lewis Acidic Reagent, MAD. **1998**, *18*, 61–85.

193. Ohkanda, J.; Katoh, A. N-Hydroxyamide-Containing Heterocycles: Synthesis, Reactivities, and Iron(III)-Chelating Properties. **1998**, *18*, 87–118.

194. Inomata, K.; Ukaji, Y. Development of New Asymmetric Reactions Utilizing Tartaric Acid Esters. **1998**, *18*, 119–40.

195. Ohta, A.; Aoyagi, Y. The Chemistry of Pyrazines. **1998**, *18*, 141–67.

196. Ikeda, M.; Sato, T.; Ishibashi, H. Syntheses of Nitrogen-Containing Natural Products Using Radical Cyclization. **1998**, *18*, 169–98.

197. Kajigaeshi, S.; Nishida, A.; Fujisaki, S. Rotational Isomerism in Fluorene Derivatives. **1998**, *18*, 199–230.

198. Kiyobayashi, T.; Yamamoto, K. Resonance and Strain Energies in Non-Planar Cyclic Conjugate Molecules. **1998**, *18*, 231–45.

199. Shibata, I.; Baba, A. Halogen Substituted Tin Hydride Systems for Chemo-, Regio- and Stereocontrolled Reductions. **1998**, *18*, 247–75.

Russian Chemical Reviews

200. Kozhevnikov, D. N.; Rusinov, V. L.; Chupakhin, O. N. 1,2,4-Triazine N-Oxides and Their Annelated Derivatives. **1998**, *67*(8), 633–48.

201. Alekseev, Y. E.; Garnovskii, A. D.; Zhdanov, Y. A. Complexes of Natural Carbohydrates with Metal Cations. **1998**, *67*(8), 649–69.

202. Askadskii, A. A. Peculiarities of the Structure and Properties of Highly Cross-Linked Polymer Networks. **1998**, *67*(8), 681–712.

203. Zanaveskin, L. N.; Aver'yanov, V. A. Polychlorobiphenyls: Problems of the Pollution of the Environment and Technological Neutralization Methods. **1998**, *67*(8), 713–24.

204. Filimonov, V. D.; Yusubov, M. S.; Ki-WhanChi. Oxidative Methods in the Synthesis of Vicinal Di- and Poly-Carbonyl Compounds. **1998**, *67*(9), 803–26.

205. Ouryupin, A. B.; Rakhov, I. A.; Mastryukova, T. A. The Reaction of Phosphorus Acid Halides with N-Silylated Organic Compounds. **1998**, *67*(9), 827–38.

206. Kabanov, V. Y. Preparation of Polymeric Biomaterials by Virtue of Radiation-Chemical Methods. **1998**, *67*(9), 861–95.

207. Luk'yanov, S. M.; Koblik, A. V.; Murad'yan, L. A. Alkynylcarbenium and Related Unsaturated Cations. **1998**, *67*(10), 899–939.

208. Cherkasov, R. A.; Galkin, V. I. The Kabachnik–Fields Reaction: Synthetic Potential and the Problem of the Mechanism. **1998**, *67*(10), 940–68.

209. Antipin, I. S.; Kazakova, E. K.; Konovalov, A. I. Phosphorus-Containing Calixarenes. **1998**, *67*(11), 995–1012.

210. Makarov, V. A.; Granik, V. G. Synthesis and Properties of N,N-Acetals of $\beta\beta$ -bis-Functionally Substituted Ketenes. **1998**, *67*(11), 1013–31.

211. Lapidus, A. L.; Krylova, A. Y. Catalytic Synthesis of Isoalkanes and Aromatic Hydrocarbons From CO and H₂. **1998**, *67*(11), 1032–43.

212. Beloshenko, V. A.; Askadskii, A. A.; Varyukhin, V. N. Promising Ways of Structural Modification of Polymers and Polymer Composites with the Use of High Pressure. **1998**, *67*(11), 1044–67.

213. Levina, I. S. Substituted Androstanes as Aromatase Inhibitors. **1998**, *67*(11), 1068–93.

Science

214. Letvin, N. L. Progress in the Development of an HIV-1 Vaccine. **1998**, *280*(5371), 1875–80.

215. Wyatt, R.; Sodroski, J. The HIV-1 Envelope Glycoproteins: Fusogens, Antigens, and Immunogens. **1998**, *280*(5371), 1884–8.

216. Schroder, F. C.; Farmer, J. J.; Attygalle, A. B.; Smedley, S. R.; Eisner, T.; Meinwald, J. Combinatorial Chemistry in Insects: A Library of Defensive Macrocyclic Polyamines. **1998**, *281*(5375), 428–31.

217. Gray, N. S.; Wodicka, L.; Thunnissen, A.-M. W. H.; Norman, T. C.; Kwon, S.; Espinoza, F. H.; Morgan,

D. O.; Barnes, G.; LeClerc, S.; Meijer, L.; Kim, S.-H.; Lockhart, D. J.; Schultz, P. G. Exploiting Chemical Libraries, Structure, and Genomics in the Search for Kinase Inhibitors. **1998**, *281*(5376), 533–8.

218. Albota, M.; Beljonne, D.; Bredas, J.-L.; Ehrlich, J. E.; Fu, J.-Y.; Heikal, A. A.; Hess, S. E.; Kogej, T.; Levin, M.; D.; Marder, S. R.; McCord-Maughon, D.; Perry, J. W.; Rockel, H.; Rumi, M.; Subramaniam, G.; Webb, W. W.; Wu, X.-L.; Xu, C. Design of Organic Molecules with Large Two-Photon Absorption Cross Sections. **1998**, *281*(5383), 1653–6.

219. Kley, P. W.; Vesell, E. S. Genetic Variation as a Guide to Drug Development. **1998**, *281*(5384), 1820–1.

Synlett

220. Marco-Contelles, J.; Alhambra, C.; Martinez-Grau, A. Carbocycles from Carbohydrates via Free Radical Cyclizations. Synthesis and Manipulation of Annulated Furanoses. **1998**, (7), 693–9.

221. Gansaeuer, A. Titanocenes as Electron Transfer Catalysts. Reagent-Controlled Catalytic Radical Reactions. **1998**, (8), 801–9.

222. Clayden, J. Stereocontrol with Rotationally Restricted Amides. **1998**, (8), 810–6.

223. Brown, A. R.; Hermkens, P. H. H.; Ottenheijm, H. C. J.; Rees, D. C. Solid Phase Synthesis. **1998**, (8), 817–27.

224. Tsay, S.-C.; Patel, H. V.; Hwu, J. R. Recent Developments of Compounds Containing the Nitrogen–Oxygen Moiety in Organic Synthesis. **1998**, (9), 939–49.

225. Nair, V.; Anilkumar, G. Cycloaddition Reactions of Heptafulvenes. An Overview. **1998**, (9), 950–7.

226. Coleman, R. S. Issues of Orthogonality and Stability. Synthesis of the Densely Functionalized Heterocyclic Ring System of the Antitumor Agents Azinomycins A and B. **1998**, (10), 1031–9.

Synthesis—Stuttgart

227. Koskinen, P. M.; Koskinen, A. M. P. Sphingosine, An Enigmatic Lipid. A Review of Recent Literature Syntheses. **1998**, (8), 1075–91.

228. Loupy, A.; Petit, A.; Hamelin, J.; Texier-Boullet, F.; Jacquault, P.; Mathe, D. New Solvent-Free Organic Synthesis Using Focused Microwaves. **1998**, (9), 1213–34.

Tetrahedron

229. Barton, D. H. R. Gif Chemistry: The Present Situation. **1998**, *54*(22), 5805–17.

230. Magnier, E.; Langlois, Y. Manzamine Alkaloids, Syntheses and Synthetic Approaches. **1998**, *54*(23), 6201–58.

231. Pan, S.; Amankulor, N. M.; Zhao, K. Syntheses of Isoxazoliny and Isoxazolidinyl Nucleoside Analogs. **1998**, *54*(24), 6587–604.

232. Glover, S. A. Anomeric Amides—Structure, Properties and Reactivity. **1998**, *54*(26), 7229–71.

233. Frater, G.; Bajgrowicz, J. A.; Kraft, P. Fragrance Chemistry. **1998**, *54*(27), 7633–703.

234. Doyle, M. P.; Protopopova, M. N. New Aspects of Catalytic Asymmetric Cyclopropanation. **1998**, *54*(28), 7919–46.

235. Crombie, L. Xanthrones, Glaucyrones, and Chelated Magnesium Enolates. **1998**, *54*(29), 8243–74.

236. Knochel, P.; Perea, J. J. A.; Jones, P. Organozinc Mediated Reactions. **1998**, *54*(29), 8275–319.

237. Chow, H.-F.; Mong, T. K.-K.; Nongrum, M. F.; Wan, C.-W. The Synthesis and Properties of Novel Functional Dendritic Molecules. **1998**, *54*(30), 8543–660.

238. Crimmins, M. T. New Developments in the Enantioselective Synthesis of Cyclopentyl Carbocyclic Nucleosides. **1998**, *54*(32), 9229–72.

239. Du, Y.; Linhardt, R. J.; Vlahov, I. R. Recent Advances in Stereoselective C-Glycoside Synthesis. **1998**, *54*(34), 9913–59.

240. Matteson, D. S. α -Halo Boronic Esters in Asymmetric Synthesis. **1998**, *54*(36), 10555–607.

241. Zhdankin, V. V.; Stang, P. J. Alkynylodonium Salts in Organic Synthesis. **1998**, *54*(37), 10927–66.

242. Taylor, C. M. Glycopeptides and Glycoproteins: Focus on the Glycosidic Linkage. **1998**, *54*(38), 11317–62.

Contributed Volumes

Targets in Heterocyclic Systems. Volume 1. Attanasi, O., Spinelli, D., Eds. Italian Chemical Society: Rome, Italy, 1997.

243. Claramunt, R. M.; Elguero, J.; Escolastico, C.; Fernandez-Castano, C.; Foces-Foces, C.; Llamas-Siaz, A. L.; Santa Maria, M. D. Polyazolybenzenes and Related Compounds: Propellene-Like Aromatic Compounds.

244. Babaev, E. V. Combinatorial Models and Polarity Control Rules in Heterocyclic Design.

245. Ghiron, C.; Rossi, T. The Chemistry of Trinems.

246. Palacios, F.; Aparicio, D.; Rubiales, G.; Ochoa de Retana, A. M.; Martinez de Marigorta, E. 4-Aminoquinolines. A General Approach.

247. Galeazzi, R.; Mobbili, G.; Orena, M. Recent Approaches to γ -Lactams via C–C Bond Formation.

248. Grassi, G.; Risitano, F. Five- and Six-Membered Heterocycles from Nucleophilic Addition to Nitrile Oxides.

249. Fringuelli, F.; Piermatti, O.; Pizzo, F. Hetero Diels–Alder Reactions in Aqueous Medium.

250. Forlani, L. Reactivity and Tautomerism of 2-Thiazoleamine Derivatives.

251. Chiacchio, U.; Rescifina, A.; Romeo, G. Stereoselective Synthesis of Functionalized Five-, Six- and Seven-Membered Heterocyclic Systems via Intramolecular Cycloaddition of C-Alkenyl Nitrones and Nitrile Oxides.

252. D'Auria, M. Photochemical Aryl–Aryl Coupling in Furan, Thiophene and Pyrrole Derivatives.

253. Vokin, A. I.; Turchaninov, V. K. UV and Photoelectron Spectroscopy Conformational Analysis of Radical Cations and Parent Molecules of Heterocyclic Ring Assemblies.

Monographs

- 254.** Binkley, E. R.; Binkley, R. W. Carbohydrate Photochemistry [In: *ACS Monogr.* **1998**; 191]. American Chemical Society: Washington, DC, 1998.
- 255.** Brown, W. H. Introduction to Organic Chemistry. Saunders College Publishers: Fort Worth, TX, 1997.
- 256.** Bruice, P. Y. Organic Chemistry, 2nd ed. Saunders College Publishers: Fort Worth, TX, 1998.
- 257.** Casanova, J., Ed. The Borane, Carborane, Carbocation Continuum. Wiley: New York, 1998.
- 258.** Doyle, M.; McKervey, M. A.; Ye, T. Reaction Synthesis with α -Diazocarbonyl Compounds. Wiley: New York, 1997.
- 259.** Dumitriu, S., Ed. Polysaccharides: Structural Diversity and Functional Versatility. Dekker: New York, 1998.
- 260.** Ferrier, R. J. Carbohydrate Chemistry, Volume 30. Royal Society of Chemistry: Cambridge, U.K., 1998.
- 261.** Graham Solomons, T. W.; Woodman, D. CD-ROM Organic Chemistry. Wiley: New York, 1997.
- 262.** Green, M., Ed. Organometallic Chemistry, Volume 26. Royal Society of Chemistry: Cambridge, U.K., 1998.
- 263.** Hudlicky, T., Ed. Asymmetric Synthesis [In: *Curr. Org. Chem.* **1998**; 2(3)]. Bentham Science Publishers: Hilversum, The Netherlands, 1998.
- 264.** Lambert, J. B.; Shurvell, H. F.; Lightner, D. A.; Cooks, R. G. Organic Structural Spectroscopy. Prentice Hall: Upper Saddle River, NJ, 1998.
- 265.** Morrison, R. T.; Boyd, R. N. Organic Chemistry, 7th ed. Prentice Hall: Englewood Cliffs, NJ, 1998.
- 266.** Rahman, Atta-ur, Ed. Studies in Natural Products Chemistry, Volume 19: Structure and Chemistry (Part E). Elsevier: Amsterdam, The Netherlands, 1997.
- 267.** Sainsbury, M., Ed. 2nd Edition of Rodd's Chemistry of Carbon Compounds, Second Supplement to Volume I Heterocyclic Compounds, Part C: Five-membered Heterocyclic Compounds with Two Hetero-Atoms in the Ring from Groups V and /or VI of the Periodic Table; Part D: Five-membered Heterocyclic Compounds with More than Two Hetero-Atoms in the Ring. Elsevier: Amsterdam, The Netherlands, 1998.
- 268.** Shriner, R. L.; Fuson, R. C.; Curtin, D. Y.; Morrill, T. C.; Hermann, C. The Systematic Identification of Organic Compounds, 7th ed. Wiley: New York, 1997.
- 269.** Sliwa, W. N-Substituted Salts of Pyridine and Related Compounds: Syntheses Properties Applications. Wydawnictwo: Czestochowie, Poland, 1997.
- 270.** Smith, H. J. Introduction to the Principles of Drug Design and Action, 3rd ed. Harwood Academic Publishers: The Netherlands, 1998.
- 271.** Vallee, Y., Ed. Gas Phase Reactions in Organic Synthesis. Gordon & Breach: Amsterdam, The Netherlands, 1997.
- 272. ERRATUM:** Recent Reviews 50, entry 110, page 7123, should be replaced with the following. Rappoport, Z.; Apeloig, Y. The Chemistry of Organic Silicon, Volume 2, Parts 1, 2, and 3. Wiley: Chichester, U.K., 1998.

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