

# JOC *Recent Reviews*

## Number 65

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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 early part of the 2002 literature. Previous installment: *J. Org. Chem.* **2002**, 67(7), 2387–92.

**Supporting Information Available:** A file containing this Recent Review compilation in Microsoft Word and the data in rtf format. This material is available free of charge via the Internet at <http://pubs.acs.org>.

### Regularly Issued Journals and Series Volumes

#### Accounts of Chemical Research

1. Sessler, J. L.; Davis, J. M. Sapphyrins: Versatile Anion Binding Agents. **2001**, 34(12), 989–97.
2. Okuyama, T. Solvolysis of Vinyl Iodonium Salts. New Insights into Vinyl Cation Intermediates. **2002**, 35(1), 12–8.
3. Perrin, C. L. Is There Stereoelectronic Control in Formation and Cleavage of Tetrahedral Intermediates? **2002**, 35(1), 28–34.
4. Fulton, J. R.; Holland, A. W.; Fox, D. J.; Bergman, R. G. Formation, Reactivity, and Properties of Nondative Late Transition Metal–Oxygen and –Nitrogen Bonds. **2002**, 35(1), 44–56.
5. Zimmerman, H. E.; Nesterov, E. E. Development of Experimental and Theoretical Crystal Lattice Organic Photochemistry: The Quantitative Cavity Mechanistic and Exploratory Organic Photochemistry. **2002**, 35(2), 77–85.
6. Hengge, A. C. Isotope Effects in the Study of Phosphoryl and Sulfuryl Transfer Reactions. **2002**, 35(2), 105–12.
7. Prakesch, M.; Gree, D.; Gree, R. The Propargylic Route as a Short and Versatile Entry to Optically Active Monofluorinated Compounds. **2002**, 35(3), 175–81.
8. Kobayashi, S.; Manabe, K. Development of Novel Lewis Acid Catalysts for Selective Organic Reactions in Aqueous Media. **2002**, 35(4), 209–17.
9. Chin, C. S.; Won, G.; Chong, D.; Kim, M.; Lee, H. Carbon–Carbon Bond Formation Involving Reactions of Alkynes with Group 9 Metals (Ir, Rh, Co): Preparation of Conjugated Olefins. **2002**, 35(4), 218–25.

10. Muges, G.; Singh, H. B. Heteroatom-Directed Aromatic Lithiation: A Versatile Route to the Synthesis of Organochalcogen (Se, Te) Compounds. **2002**, 35(4), 226–36.

11. Nelsen, S. F.; Pladziewicz, J. R. Intermolecular Electron-Transfer Reactivity Determined from Cross-Rate Studies. **2002**, 35(4), 247–54.

12. Marchand, A. P.; Coxon, J. M. On the Origins of Diastereofacial Selectivity of [4 + 2] Cycloadditions in Cage-Annulated and Polycarbocyclic Diene/Dienophile Systems. **2002**, 35(5), 271–7.

#### Advances in Carbohydrate Chemistry and Biochemistry

13. Fernandez-Bolanos, J. G.; Al-Masoudi, N. A. L.; Maya, I. Sugar Derivatives Having Sulfur in the Ring. **2001**, 57, 21–98.

14. Unger, F. M. The Chemistry of Oligosaccharide Ligands of Selectins: Significance for the Development of New Immunomodulatory Medicines. **2001**, 57, 207–435.

#### Advances in Heterocyclic Chemistry

15. Sadekov, I. D.; Minkin, V. I. Tellurium-Nitrogen-Containing Heterocycles. **2001**, 79, 1–39.

16. Aitken, R. A.; Thomas, A. W. Heterocyclic Acyl and Formyl Anion Equivalents. **2001**, 79, 89–114.

17. Sadimenko, A. P. Organometallic Compounds of Pyrrole, Indole, Carbazole, Phospholes, Siloles, and Boroles. **2001**, 79, 115–97.

- 18.** Belen'Kii, L. I.; Kruchkovskaya, N. D.; Gramenitskaya, V. N. The Literature of Heterocyclic Chemistry. Part VII. 1997–1999. **2001**, *79*, 199–318.

### Advances in Organometallic Chemistry

- 19.** Esteruelas, M. A.; Oro, L. A. The Chemical and Catalytic Reactions of Hydrido-chloro-carbonylbis(triisopropylphosphine)osmium(II) and its Major Derivatives. **2001**, *47*, 1–59.
- 20.** Kang, S. O.; Ko, J. Chemistry of *o*-Carboranyl Derivatives. **2001**, *47*, 61–99.
- 21.** Fu, G. C. The Chemistry of Borabzenes (1986–2000). **2001**, *47*, 101–19.
- 22.** Tokitoh, N.; Okazaki, R. Recent Advances in the Chemistry of Group 14-Group 16 Double Bond Compounds. **2001**, *47*, 121–66.
- 23.** Floriani, C.; Floriani-Moro, R. The M–C Bond Functionalities Bonded to an Oxo-surface Modeled by Calix[4]arenes. **2001**, *47*, 167–233.

### Angewandte Chemie, International Edition in English

- 24.** Bolm, C.; Hildebrand, J. P.; Muniz, K.; Hermanns, N. Catalyzed Asymmetric Arylation Reactions. **2001**, *40*(18), 3284–308.
- 25.** Doye, S. Catalytic C–H Activation of  $sp^3$  C–H Bonds in  $\alpha$ -Position to a Nitrogen Atom—Two New Approaches. **2001**, *40*(18), 3351–3.
- 26.** Eames, J.; Watkinson, M. Catalytic Allylic Oxidation of Alkenes Using an Asymmetric Kharasch-Sosnovsky reaction. **2001**, *40*(19), 3567–71.
- 27.** Dalko, P. I.; Moisan, L. Enantioselective Organocatalysis. **2001**, *40*(20), 3726–48.
- 28.** Albrecht, M.; van Koten, G. Platinum Group Organometallics Based on “Pincer” Complexes: Sensors, Switches, and Catalysts. **2001**, *40*(20), 3750–81.
- 29.** Klärner, F.-G. About the Antiaromaticity of Planar Cyclooctatetraene. **2001**, *40*(21), 3977–81.
- 30.** Nobis, M.; Driessens-Holscher, B. Recent Developments in Transition Metal Catalyzed Intermolecular Hydroamination Reactions—A Breakthrough? **2001**, *40*(21), 3983–5.
- 31.** Horn, D.; Rieger, J. Organic Nanoparticles in the Aqueous Phase—Theory, Experiment and Use. **2001**, *40*(23), 4330–61.
- 32.** Magriotis, P. A. Recent Progress in the Enantioselective Synthesis of  $\beta$ -Lactams: Development of the First Catalytic Approaches. **2001**, *40*(23), 4377–9.
- 33.** Chemler, S. R.; Trauner, D.; Danishefsky, S. J. The B-Alkyl Suzuki–Miyaura Cross-Coupling Reaction: Development, Mechanistic Study, and Applications in Natural Product Synthesis. **2001**, *40*(24), 4544–68.
- 34.** Christoffers, J.; Mann, A. Enantioselective Construction of Quaternary Stereocenters. **2001**, *40*(24), 4591–7.
- 35.** Rossen, K. Ru- and Rh-Catalyzed Asymmetric Hydrogenations: Recent Surprises from an Old Reaction. **2001**, *40*(24), 4611–3.
- 36.** Fagnou, K.; Lautens, M. Reviews: Halide Effects in Transition Metal Catalysis. **2002**, *41*(1), 26–47.

- 37.** Schweizer, F. Glycosamino Acids: Building Blocks for Combinatorial Synthesis — Implications for Drug Discovery. **2002**, *41*(2), 230–53.

- 38.** Weber, L. Phosphorus Heterocycles: From Laboratory Curiosities to Ligands in Highly Efficient Catalysts. **2002**, *41*(4), 563–72.

### Canadian Journal of Chemistry

- 39.** McGlinchey, M. J. Adventures in Organometallic NMR: Steric Restraints, Slowed Rotations, and Skeletal Rearrangements. **2001**, *79*(9), 1295–309.
- 40.** Godard, A.; Rocca, P.; Guillier, F.; Duvey, G.; Nivolières, F.; Marsais, F.; Queguiner, G. Ortho-directed Metalation of  $\pi$ -Deficient Heterocycles in Connection with Palladium-Catalyzed Biaryl Cross-Coupling. Synthesis of Marine Alkaloids of the Pyridoacridine Series. **2001**, *79*(11), 1754–61.

### Chemical Reviews

- 41.** Bansal, R. K.; Heinicke, J. Anellated Heterophospholes and Phospholides and Analogies with Related Non-Phosphorus Systems. **2001**, *101*(11), 3549–78.
- 42.** Dejaegher, Y.; Kuz'menok, N. M.; Zvonok, A. M.; De Kimpe, N. The Chemistry of Azetidin-3-ones, Oxetan-3-ones, and Thietan-3-ones. **2002**, *102*(1), 29–60.
- 43.** Krchnak, V.; Holladay, M. W. Solid-Phase Heterocyclic Chemistry. **2002**, *102*(1), 61–91.
- 44.** Schrock, R. R. High Oxidation State Multiple Metal–Carbon Bonds. **2002**, *102*(1), 145–79.
- 45.** Marinetti, A.; Carmichael, D. Synthesis and Properties of Phosphetanes. **2002**, *102*(1), 201–30.
- 46.** Mechref, Y.; Novotny, M. V. Structural Investigations of Glycoconjugates at High Sensitivity. **2002**, *102*(2), 321–69.
- 47.** Wormald, M. R.; Petrescu, A. J.; Pao, Y.-L.; Glithero, A.; Elliott, T.; Dwek, R. A. Conformational Studies of Oligosaccharides and Glycopeptides: Complementarity of NMR, X-ray Crystallography, and Molecular Modeling. **2002**, *102*(2), 371–86.
- 48.** Angata, T.; Varki, A. Chemical Diversity in the Sialic Acids and Related  $\alpha$ -Keto Acids: An Evolutionary Perspective. **2002**, *102*(2), 439–69.
- 49.** Kiefel, M. J.; von Itzstein, M. Recent Advances in the Synthesis of Sialic Acid Derivatives and Sialyl-Mimetics as Biological Probes. **2002**, *102*(2), 471–90.
- 50.** Lundquist, J. J.; Toone, E. J. The Cluster Glycoside Effect. **2002**, *102*(2), 555–78.
- 51.** Davis, B. G. Synthesis of Glycoproteins. **2002**, *102*(2), 579–601.
- 52.** Osman, F. H.; El-Samahy, F. A. Reactions of  $\alpha$ -Diketones and *o*-Quinones with Phosphorus Compounds. **2002**, *102*(3), 629–77.
- 53.** Aubert, C.; Buisine, O.; Malacria, M. The Behavior of 1,n-Enynes in the Presence of Transition Metals. **2002**, *102*(3), 813–34.
- 54.** Claessens, C. G.; Gonzalez-Rodriguez, D.; Torres, T. Subphthalocyanines: Singular Nonplanar Aromatic Compounds—Synthesis, Reactivity, and Physical Properties. **2002**, *102*(3), 835–53.
- 55.** Hrabie, J. A.; Keefer, L. K. Chemistry of the Nitric Oxide-Releasing Diazeniumdiolate (“Nitrosohydroxy-

lamine") Functional Group and Its Oxygen-Substituted Derivatives. **2002**, *102*(4), 1135–54.

**56.** Buriak, J. M. Organometallic Chemistry on Silicon and Germanium Surfaces. **2002**, *102*(5), 1271–308.

### Chemical Society Reviews

**57.** Csaky, A. G.; Plumet, J. Stereoselective Coupling of Ketone and Carboxylate Enolates. **2001**, *30*(5), 313–20.

**58.** Huerta, F. F.; Minidis, A. B. E.; Baeckvall, J.-E. Racemization in Asymmetric Synthesis. Dynamic Kinetic Resolution and Related Processes in Enzyme and Metal Catalysis. **2001**, *30*(6), 321–31.

**59.** Mayer, S. F.; Kroutil, W.; Faber, K. Enzyme-initiated Domino (Cascade) Reactions. **2001**, *30*(6), 332–9.

**60.** Gamez, P.; Aubel, P. G.; Driessens, W. L.; Reedijk, J. Homogeneous Bio-inspired Copper-catalyzed Oxidation Reactions. **2001**, *30*(6), 376–85.

### Chemistry and Industry

**61.** Butler, R. Ionic Solution to Chemistry Problems. **2001**(17), 532.

### Chemistry—A European Journal

**62.** Langer, P. Regio- and Diastereoselective Cyclization Reactions of Free and Masked 1,3-Dicarbonyl Dianions with 1,2-Dielectrophiles. **2001**, *7*(18), 3858–66.

**63.** Yamasaki, S.; Kanai, M.; Shibasaki, M. Zirconium Alkoxides in Catalysis. **2001**, *7*(19), 4066–72.

**64.** Taylor, R. Fluorinated Fullerenes. **2001**, *7*(19), 4074–83.

**65.** Groger, H. The Development of New Monometallic Bifunctional Catalysts with Lewis Acid and Lewis Base Properties, and Their Application in Asymmetric Cyanation Reactions. **2001**, *7*(24), 5246–51.

**66.** Palomo, C.; Oiarbide, M.; Garcia, J. M. The Aldol Addition Reaction: An Old Transformation at Constant Rebirth. **2002**, *8*(1), 36–44.

### Chemistry in Britain

**67.** O'Hagan, D.; Sandford, G. The Taming of Fluorine. **2001**, *37*(9), 32–5.

**68.** Ball, P. What a Tonic. **2001**, *37*(10), 26–9.

**69.** Mann, J. Killer Nanotubes. **2001**, *37*(11), 22.

### CHEMTRACTS: Organic Chemistry

**70.** Peri, F.; Cipolla, L.; Forni, E.; La Ferla, B.; Nicotra, F. Sugar-Derived Amino Acids: Powerful Secondary Structure-Inducing Elements in the Design of Novel Peptidomimetics. **2001**, *14*(9), 481–99.

**71.** McAtee, L.; Carruthers, N. I. High-affinity, Non-peptide Agonists for the ORL 1 (Orphanin FO/Nociceptin) Receptor. **2001**, *14*(9), 513–7.

**72.** Gilbertson, S. High-yielding Staudinger Ligation of Phosphinoesters and Azides to Form Amides. **2001**, *14*(9), 524–8.

**73.** Bergbreiter, D. E.; Bosanac, T.; Yang, J.; Wilcox, C. S. Precipitons—Functional Protecting Groups to Fa-

cilitate Product Separation: Applications in Isoxazoline Synthesis. **2001**, *14*(11), 603–9.

**74.** Wan, Y.; Ding, K.; Dai, L.; Ishii, A.; Soloshonok, V. A.; Mikami, K.; Gathergood, N.; Zhuang, W.; Jorgensen, K. A.; Jesen, K. B.; Thorhauge, J.; Hazell, R. G.; Jorgensen, K. A. Enantioselective Friedel–Crafts Reaction: From Stoichiometric to Catalytic. **2001**, *14*(11), 610–5.

**75.** Kellogg, R. M.; Cefalo, D. R.; Kiely, A. F.; Wuchrer, M.; Jamison, J. Y.; Schrock, R. R.; Hoveyda, A. H. Enantioselective Synthesis of Unsaturated Cyclic Tertiary Ethers by Mo-Catalyzed Olefin Metathesis. **2001**, *14*(11), 616–9.

**76.** Fleming, M.; Rigby, J. H.; Yoon, T. P.; MacMillan, D. W. C. Enantioselective Claisen Rearrangements: Development of a First Generation Asymmetric Acyl-Claisen Reaction. **2001**, *14*(11), 620–4.

**77.** Hoffman, R. V.; Gawley, R. E.; Low, E.; Zhang, Q.; Harris, R. The Steric Course of SE Reactions of Unstabilized  $\alpha$ -Aminoorganolithiums: Distinguishing between SET and Polar Mechanisms. **2001**, *14*(11), 625–30.

**78.** Kellogg, R. M.; Okamoto, S.; Subburaj, K.; Sato, F. Ti(II)-mediated Tandem Inter- and Intramolecular Coupling Reaction of Unsaturated Hydrocarbons: One-pot Preparation of Cyclopentanes and Cyclohexanes from Readily Available Acyclic Starting Materials. **2001**, *14*(11), 631–4.

**79.** Dandapani, S.; Curran, D. P.; Ley, S. V.; Massi, A.; Rodriguez, F.; Harwell, D. C.; Lewthwaite, R. A.; Pritchard, M. C.; Reid, A. M.; Zhang, S. Q.; Fukase, K.; Izumi, M.; Fukase, Y.; Kusumoto, S.; Bosanac, T.; Yang, J.; Wilcox, C. S. Phase Tagging Strategies for Facile Product Separation in Solution Phase Organic Synthesis. **2001**, *14*(11), 635–41.

**80.** Davies, H. M. L.; Doyle, M. P.; Phillips, I. M.; Hu, W. A New Class of Chiral Lewis Acid Catalysts for Highly Enantioselective Hetero-Diels–Alder Reactions: Exceptionally High Turnover Numbers from Dirhodium(II) Carboxamides. **2001**, *14*(11), 642–5.

**81.** Kellogg, R. M. A Polymer-Supported Thionating Reagent. **2001**, *14*(11), 646–9.

**82.** Thompson, A.; Belakon, Y. N.; Kochetkov, K. A.; Churkina, T. D.; Ikonomikov, N. S.; Larionov, O. V.; Harutyunyan, S. R.; Vyskacil, S.; North, M.; Kagan, H. B. Highly Efficient Catalytic Synthesis of  $\alpha$ -Amino Acids under Phase-Transfer Conditions with a Novel Catalyst/Substrate Pair. **2001**, *14*(11), 650–3.

**83.** Nicholas, K. M.; Ferreira, E. M.; Stoltz, B. M.; Jensen, D. R.; Pugsley, J. S.; Sigman, M. S. Palladium-catalyzed Oxidative Kinetic Resolution of Secondary Alcohols. **2001**, *14*(11), 654–8.

### Chirality

**84.** Borner, A. Biomimetic Asymmetric Hydrogenation. **2001**, *13*(10), 625–8.

**85.** Quack, M.; Stohner, J. Molecular Chirality and the Fundamental Symmetries of Physics: Influence of Parity Violation on Rovibrational Frequencies and Thermodynamic Properties. **2001**, *13*(10), 745–53.

**86.** Senda, Y. Role of the Heteroatom on Stereoselectivity in the Complex Metal Hydride Reduction of Six-membered Cyclic Ketones. **2002**, *14*(2/3), 110–20.

**87.** Brunet, E. Asymmetric Induction under Confinement. **2002**, *14*(2/3), 135–43.

### Coordination Chemistry Reviews

**88.** Gale, P. A.; Anzenbacher, P., Jr.; Sessler, J. L. Calixpyrroles II. **2001**, *222*, 57–102.

**89.** Gokel, G. W.; Barbour, L. J.; De Wall, S. L.; Meadows, E. S. Macroyclic Polyethers as Probes to Assess and Understand Alkali Metal Cation–π Interactions. **2001**, *222*, 127–54.

**90.** Silvestru, C.; Drake, J. E. Tetraorganodichalcogenoimidodiphosphorus Acids and Their Main Group Metal Derivatives. **2001**, *223*, 117–216.

### Current Organic Chemistry

**91.** Paulsen, B. S. Plant Polysaccharides with Immunostimulatory Activities. **2001**, *5*(9), 939–50.

**92.** Iorizzi, M.; De Marino, S.; Zollo, F. Steroidal Oligoglycosides from the Asteroidea. **2001**, *5*(9), 951–73.

**93.** Miyazawa, M. Biotransformation of Lignans and Neolignans. **2001**, *5*(9), 975–86.

**94.** Kuroki, S.; Yamauchi, K.; Ando, I.; Shoji, A.; Ozaki, T. <sup>17</sup>O-Isotope Labeling and Hydrogen-Bonded Structure Investigation in Peptides and Polypeptides by Solid State. **2001**, *5*(10), 1001–15.

**95.** Han, X.; Yan, Z.; Zhang, W.; Bao, X. Applications of *in situ* NMR in Catalytic Processes of Organic Reactions. **2001**, *5*(10), 1017–37.

**96.** Naumov, P.; Jovanovski, G. An Update to the Combined Vibrational-Diffraction Experimental and Theoretical Studies of Small Biologically Important Cyclic Imides: Reference to Saccharin. **2001**, *5*(10), 1059–77.

**97.** Forbes, D. C.; McMills, M. C. Catalytic Asymmetric Metal Carbene Transformations. **2001**, *5*(11), 1091–105.

### Heterocycles

**98.** Cacchi, S.; Fabrizi, G.; Goggiomani, A. Palladium Catalysis in the Construction of the Benzo[b]furan and Furan Rings from Alkynes and Organic Halides or Triflates. **2002**, *56*(1–2), 613–32.

**99.** Honda, T.; Saito, N. Recent Progress in the Chemistry of Polyacylated Anthocyanins as Flower Color Pigments. **2002**, *56*(1–2), 633–92.

**100.** Liu, Z.; Takeuchi, Y. Benzosultams: Synthesis and Applications. **2002**, *56*(1–2), 693–709.

**101.** Abraham, W.-R.; Spassov, G. Biotransformations of Alkaloids: A Challenge. **2002**, *56*(1–2), 711–41.

**102.** Liu, J. Biologically Active Substances from Mushrooms in Yunnan, China. **2002**, *57*(1), 157–67.

### Journal of Fluorine Chemistry

**103.** Berkowitz, D. B.; Bose, M. ( $\alpha$ -Monofluoroalkyl)-phosphonates: A Class of Isoacidic and “Tunable” Mimics of Biological Phosphates. **2001**, *112*(1), 13–33.

**104.** Prakash, G. K. S.; Mandal, M. Nucleophilic Trifluoromethylation Tamed. **2001**, *112*(1), 123–31.

**105.** Bravo, P.; Bruche, L.; Pesenti, C.; Viani, F.; Volonterio, A.; Zanda, M. Solution and Solid-Phase

Synthesis of Trifluoromethyl Peptides and Mimetics. **2001**, *112*(1), 153–62.

### Journal of Heterocyclic Chemistry

**106.** Levai, A. Synthesis and Chemical Transformations of 1,4-, 4,1-, and 1,5-Benzoxazepines. **2001**, *38*(5), 1011–23.

**107.** Jedlinski, Z. Nucleophilic Substitution and Electron Transfer in the Ring-Opening Reactions of  $\beta$ -Lactones: A Short Review. **2001**, *38*(6), 1249–54.

**108.** Tsukube, H.; Yamada, T.; Shinoda, S. Crown Ether Strategy toward Chemical Activation of Biological Protein Functions. **2001**, *38*(6), 1401–8.

### Journal of Macromolecular Science—Reviews in Macromolecular Chemistry and Physics

**109.** Schaffer, M. A.; Marchildon, E. K.; McAuley, K. B.; Cunningham, M. F. Thermal Nonoxidative Degradation of Nylon 66. **2000**, *40*(4), 233–72.

**110.** Gupta, K. C.; Ravi Kumar, M. N. V. An Overview on Chitin and Chitosan Applications with an Emphasis on Controlled Drug Release Formulations. **2000**, *40*(4), 273–308.

### Journal of Physical Organic Chemistry

**111.** Goncalves, R. M. C.; Albuquerque, L. M. P. C. Application of Correlation Analysis to Solvolytic Reactions of Tertiary Haloalkanes and Menschutkin Reactions. **2001**, *14*(11), 731–6.

**112.** Bowden, K.; Fabian, W. M. F. Reactions of Carbonyl Compounds in Basic Solutions. Part 36: The Base-Catalysed Reactions of 1,2-Dicarbonyl Compounds. **2001**, *14*(11), 794–6.

**113.** Jenner, G. High-pressure Mechanistic Delineation Based on Activation Volumes. **2002**, *15*(1), 1–13.

### Journal of the Brazilian Chemical Society

**114.** Padwa, A.; Danca, D. M.; Ginn, J. D.; Lynch, S. M. Application of the Tandem Thionium/N-Acyliminium Ion Cascade Toward Heterocyclic Synthesis. **2001**, *12*(5), 571–85.

### Natural Product Reports

**115.** Michael, J. P. Indolizidine and Quinolizidine Alkaloids. **2001**, *18*(5), 520–42.

**116.** Michael, J. P. Quinoline, Quinazoline and Acridone Alkaloids. **2001**, *18*(5), 543–59.

**117.** Connolly, J. D.; Hill, R. A. Triterpenoids (1999). **2001**, *18*(5), 560–78.

**118.** Whiting, D. A. Natural Phenolic Compounds 1900–2000: A Bird’s Eye View of a Century’s Chemistry. **2001**, *18*(6), 583–606.

**119.** Hanson, J. R. The Development of Strategies for Terpenoid Structure Determination. **2001**, *18*(6), 607–17.

**120.** Davis, B. G.; Boyer, V. Biocatalysis and Enzymes in Organic Synthesis. **2001**, *18*(6), 618–40.

**121.** Khanbabaei, K.; Van Ree, T. Tannins: Classification and Definition. **2001**, *18*(6), 641–9.

- 122.** Fraga, B. M. Natural Sesquiterpenoids. **2001**, *18*(6), 650–73.

## Organic Preparations and Procedures International

- 123.** Sorensen, U. S.; Krogsgaard-Larsen, P. Synthesis and Synthetic Utility of 3-Isoxazolols. **2001**, *33*(6), 515–64.
- 124.** Bradley, D.; Williams, G.; Blann, K.; Caddy, J. Fragmentation and Cleavage Reactions Mediated by SmI<sub>2</sub>. Part 1: X–Y, X–X and C–C substrates. **2001**, *33*(6), 565–602.

## Perkin Transactions 1

- 125.** Friesen, R. W. Generation and Reactivity of α-Metalated Vinyl Ethers. **2001**, *(17)*, 1969–2001.
- 126.** Jarowicki, K.; Kocienski, P. Protecting Groups. **2001**, *(18)*, 2109–35.
- 127.** Elliott, M. C.; Williams, E. Saturated Oxygen Heterocycles. **2001**, *(19)*, 2303–40.
- 128.** Gilchrist, T. L. Synthesis of Aromatic Heterocycles. **2001**, *(20)*, 2491–515.
- 129.** Steel, P. G. Recent Developments in Lanthanide Mediated Organic Synthesis. **2001**, *(21)*, 2727–51.
- 130.** Bowman, W. R.; Cloonan, M. O.; Krintel, S. L. Synthesis of Heterocycles by Radical Cyclization. **2001**, *(22)*, 2885–902.
- 131.** McCarroll, A. J.; Walton, J. C. Organic Syntheses through Free-radical Annulations and Related Cascade Sequences. **2001**, *(24)*, 3215–29.

## Pure and Applied Chemistry

- 132.** Ganesan, A. Integrating Natural Product Synthesis and Combinatorial Chemistry. **2001**, *73*(7), 1033–9.
- 133.** Sessler, J. L.; Zimmerman, R. S.; Bucher, C.; Kral, V.; Andrioletti, B. Calixphyrins. Hybrid Macrocycles at the Structural Crossroads between Porphyrins and Calixpyrroles. **2001**, *73*(7), 1041–57.
- 134.** Knolker, H.-J.; Braier, A.; Brocher, D. J.; Cammerer, S.; Frohner, W.; Gonser, P.; Hermann, H.; Herzberg, D.; Reddy, K. R.; Rohde, G. Recent Applications of Tricarbonyliron-Diene Complexes to Organic Synthesis. **2001**, *73*(7), 1075–86.
- 135.** Ane, A.; Prestat, G.; Manh, G. T.; Thiam, M.; Josse, S.; Pipelier, M.; Lebreton, J.; Pradere, J. P.; Dubreuil, D. Synthesis of Nucleoside Analogs and New Tat Protein Inhibitors. **2001**, *73*(7), 1189–96.
- 136.** Huang, T.; Venkatraman, S.; Meng, Y.; Nguyen, T. V.; Kort, D.; Wang, D.; Ding, R.; Li, C.-J. Quasi-nature Catalysis. Rhodium-Catalyzed C–C Bond Formation in Air and Water. **2001**, *73*(8), 1315–8.
- 137.** Konopa, J. Antitumor Acridines with Diaminoalkyl Phosphacophoric Group. **2001**, *73*(9), 1421–8.

## Russian Chemical Reviews

- 138.** Sadekov, I. D. Synthesis and Reactions of Organic Compounds Containing Bonds of Te to Group 14 Elements. **2002**, *71*(2), 99–110.

- 139.** Budnikova, Y. H. Metal Complex Catalysis in Organic Electrosynthesis. **2002**, *71*(2), 111–39.

- 140.** Dmitrienko, S. G.; Zolotov, Y. A. Polyurethane Foams in Chemical Analysis: Sorption of Various Substances and its Analytical Applications. **2002**, *71*(2), 159–74.

## Russian Journal of Organic Chemistry

- 141.** Malin, A. A.; Ostrovskii, V. A. Synthesis of Thymidine Derivatives as Potential Pharmaceuticals Against HIV/AIDS Infection. **2001**, *37*(6), 759–80.
- 142.** Averina, N. V.; Borisova, G. S.; Zefirov, N. S. Advances in the Chemistry of 4-Azatricyclo[4.3.1.13,8]-undecane (4-Azahomoadamantane) Derivatives. **2001**, *37*(7), 901–34.

## Science

- 143.** Boorum, M. M.; Vasil'ev, Y. V.; Drewello, T.; Scott, L. T. Groundwork for a Rational Synthesis of C<sub>60</sub>: Cyclodehydrogenation of a C<sub>60</sub>H<sub>30</sub> Polyarene. **2001**, *294*(5543), 828–31.
- 144.** Marko, I. E. Natural Product Synthesis: The Art of Total Synthesis. **2001**, *294*(5548), 1842–3.
- 145.** Hirama, M.; Oishi, T.; Uehara, H.; Inoue, M.; Maruyama, M.; Oguri, H.; Satake, M. Total Synthesis of Ciguatoxin CTX 3C. **2001**, *294*(5548), 1904–7.
- 146.** Jones, W. D. Synthetic Chemistry: The Key to Successful Organic Synthesis is.. **2002**, *295*(5553), 289–90.
- 147.** Cho, J.-Y.; Tse, M. K.; Holmes, D.; Maleczka, R. E., Jr.; Smith, M. R., III Remarkably Selective Iridium Catalysts for the Elaboration of Aromatic C–H Bonds. **2002**, *295*(5553), 305–8.

## Sulfur Reports

- 148.** El-Hiti, G. A. Recent Advances in the Synthesis of Sulfonic Acids. **2001**, *22*(3), 217–50.
- 149.** Ward, R. S.; Diaper, R. L. Synthesis of Aryl Sulfones. **2001**, *22*(3), 251–75.
- 150.** Volkov, A. N.; Volkova, K. A.; Trofimov, B. A. Diacetylene as a Potential Feedstock of Commercially Prospective Organosulfur Compounds. **2001**, *22*(3), 277–96.

## Synlett

- 151.** Vedejs, E.; Daugulis, O.; MacKay, J. A.; Rozners, E. Enantioselective Acyl Transfer using Chiral Phosphine Catalysts. **2001**, *(10)*, 1499–505.
- 152.** List, B. Asymmetric Aminocatalysis. **2001**, *(11)*, 1675–86.
- 153.** Palomo, C.; Aizpurua, J. M.; Ganboa, I.; Oiarbide, M. β-Lactams as Versatile Intermediates in α- and β-Amino Acid Synthesis. **2001**, *(12)*, 1813–26.
- 154.** Butkus, E. Stereocontrolled Synthesis and Reactions of Bicyclo[3.3.1]nonanes. **2001**, *(12)*, 1827–35.
- 155.** Betzer, J.-F.; Le Menez, P.; Prunet, J.; Brion, J.-D.; Ardisson, J.; Pancrazi, A. <sup>13</sup>C NMR Analysis as a Useful Tool for Structural Assignment of Vinyl- and Dienyltin Derivatives. **2002**, *(1)*, 1–15.

**156.** Vankayalapati, H.; Jiang, S.; Singh, G. Glycosylation Based on Glycosyl Phosphates as Glycosyl Donors. **2002**, (1), 16–25.

**157.** Le Roux, C.; Dubac, J. Bismuth(III) Chloride and Triflate: Novel Catalysts for Acylation and Sulfenylation Reactions. Survey and Mechanistic Aspects. **2002**, (2), 181–200.

### Synthesis—Stuttgart

**158.** Elgemeie, G. H.; Sayed, S. H. Synthesis and Chemistry of Dithiols and Dithiolanes. **2001**, (12), 1747–71.

**159.** Corsaro, A.; Chiacchio, U.; Pistara, V. Regeneration of Carbonyl Compounds from the Corresponding Oximes. **2001**, (13), 1903–31.

**160.** Gaber, A. E.-A. M.; McNab, H. Synthetic Applications of the Pyrolysis of Meldrum's Acid Derivatives. **2001**, (14), 2059–74.

**161.** Ghosh, A. K.; Bilcer, G.; Schiltz, G. Syntheses of FDA Approved HIV Protease Inhibitors. **2001**, (15), 2203–29.

**162.** Heath, H.; Wolfe, B.; Livinghouse, T.; Bae, S. K. New Methods for the Synthesis of P-Chirogenic Diphosphines: An Application to the Development of an Improved Asymmetric Variation of the Rh(I)-Catalyzed [4+2] Cycloaddition. **2001**, (15), 2341–7.

**163.** Li, Z.; Jin, Z.; Huang, R. Isolation, Total Synthesis and Biological Activity of Phenanthroindolizidine and Phenanthroquinolizidine Alkaloids. **2001**, (16), 2365–78.

**164.** Ichikawa, E.; Kato, K. Syntheses of Oxetanocin A and Related Unusual Nucleosides with Bis(hydroxymethyl)-Branched Sugars. **2002**, (1), 1–28.

### Tetrahedron

**165.** Jones, G. B.  $\pi$  Shielding in Organic Synthesis. **2001**, 57(38), 7999–8016.

**166.** Perreux, L.; Loupy, A. A Tentative Rationalization of Microwave Effects in Organic Synthesis According to the Reaction Medium, and Mechanistic Considerations. **2001**, 57(45), 9199–223.

**167.** Lidstrom, P.; Tierney, J.; Wathey, B.; Westman, J. Microwave Assisted Organic Synthesis: A Review. **2001**, 57(45), 9225–83.

**168.** Studer, A.; Bossart, M. Radical Aryl Migration Reactions. **2001**, 57(48), 9649–67.

**169.** Arterburn, J. B. Selective Oxidation of Secondary Alcohols. **2001**, 57(49), 9765–88.

**170.** Fleming, F. F.; Shook, B. C. Nitrile Anion Cyclizations. **2002**, 58(1), 1–23.

### Tetrahedron: Asymmetry

**171.** Daverio, P.; Zanda, M. Enantioselective Reductions by Chirally Modified Alumino- and Borohydrides. **2001**, 12(16), 2225–59.

**172.** Lauret, C. Epoxy Ketones as Versatile Building Blocks in Organic Synthesis. **2001**, 12(17), 2359–83.

**173.** Seco, J. M.; Quinoa, E.; Riguera, R. A Practical Guide for the Assignment of the Absolute Configuration of Alcohols, Amines and Carboxylic Acids by NMR. **2001**, 12(21), 2915–25.

### Topics in Current Chemistry

**174.** Metz, P., Ed. Stereoselective Heterocyclic Synthesis. III. **2001**, 216, 1–201.

**175.** Penades, S., Ed. Host–Guest Chemistry. Mimetic Approaches to Study Carbohydrate Recognition. **2002**, 218, 1–241.

**176.** Miyaura, N., Ed. Cross-Coupling Reactions. A Practical Guide. **2002**, 219, 3–540.

### Monographs

**177.** Allen, D. W., Tebby, J. C. Organophosphorus Chemistry, Volume 31. Royal Society of Chemistry: Cambridge, U.K., 2001.

**178.** Asfari, Z., Bohmer, V., Harrowfield, J., Vicens, J., Eds. Calixarenes 2001. Kluwer: Dordrecht, The Netherlands, 2001.

**179.** Aubagnac, J. L., Enjalbal, C., Eds. Monitoring in Combinatorial Chemistry. [In: *Comb. Chem. High Throughput Screening*, **2001**, 4(4)]. Bentham Science Publishers: Hilversum, The Netherlands, 2001.

**180.** Balzani, V., Ed. Electron Transfer in Chemistry, Vol. 2. Wiley-VCH: Germany, 2001.

**181.** Balzani, V., Ed. Electron Transfer in Chemistry, Vol. 3. Wiley-VCH: Weinheim, Germany, 2002.

**182.** Bringmann, G.; Günther, C.; Ochse, M.; Schupp, O.; Tasler, S. Biaryls in Nature: A Multi-Faceted Class of Stereochemically, Biosynthetically, and Pharmacologically Intriguing Secondary Metabolites; Vol. 82. Springer Wien: New York, 2001.

**183.** Burk, M. J.; Fessner, W. D.; Wong, C. H. Biocatalysis Issue. [In: *Adv. Synth. Catal.* **2001**, 343(6–7)]. Wiley-VCH: Weinheim, Germany, 2001.

**184.** Cooper, D. L. Valence Bond Theory. Elsevier Science: Oxford, U.K., 2002.

**185.** Fox, R. B.; Powell, W. H. Nomenclature of Organic Compounds: Principles and Practice, Second Edition. Oxford University Press: Oxford, U.K., 2001.

**186.** Hart, D. J., Ed. Organic Syntheses, Vol. 77. Wiley: New York, 2000.

**187.** Huneck, S. New Results on the Chemistry of Lichen Substances; Vol. 81. Springer Wien: New York, 2001.

**188.** Keinan, E.; Schechter, I., Eds. Chemistry for the 21st Century. Wiley-VCH: Weinheim, Germany, 2001.

**189.** Ligler, F. S.; Rowe Taitt, C. A. Optical Biosensors: Present and Future. Elsevier Science: Oxford, U.K., 2002.

- 190.** Murray, R. D. H. *The Naturally Occurring Coumarins*. Vol. 83. Springer Wien: New York, 2002.
- 191.** Pietra, F. *Biodiversity and Natural Product Diversity*. Elsevier: Oxford, U.K., 2002.
- 192.** Romeo, J. T.; Dixon, R. A. *Phytochemistry in the Genomics and Post-Genomics Eras*; Vol. 36. Elsevier: Oxford, U.K., 2002.
- 193.** Schmalz, H.-G., Ed. *Organic Synthesis Highlights IV*. Wiley-VCH: Weinheim, Germany, 2000.
- 194.** Swift, K. A. D., Ed. *Advances in Flavours and Fragrances: From the Sensation to the Synthesis*. Royal Society of Chemistry: Cambridge, U.K., 2002.
- 195.** Waluk, J., Ed. *Conformational Analysis of Molecules in Excited States*. Wiley-VCH: New York, 2000.
- 196.** West, R.; Hill, A. F., Eds. *Advances in Organometallic Chemistry*; Vol. 47. Academic Press: San Diego, CA, 2001.
- 197.** Yamamoto, H., Ed. *Lewis Acids in Organic Synthesis*. Vol. 1. Wiley-VCH: Weinheim, Germany, 2000.
- 198.** Zard, S. Z., Ed. *Special Issue on Free Radical Chemistry, Part I*. [In: *C. R. Acad. Sci., Ser. IIc: Chim.* **2001**, 4(6)]. Elsevier: Paris, France, 2001.
- 199.** Zard, S. Z., Ed. *Special Issue on Free Radical Chemistry, Part II*. [In: *C. R. Acad. Sci., Ser. IIc: Chim.* **2001**, 4(7)]. Elsevier: Paris, France, 2001.

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