

Book Review

J. Nat. Prod., **1994**, 57 (7), 1030-1030 • DOI:
10.1021/np50109a029 • Publication Date (Web): 01 July 2004

Downloaded from <http://pubs.acs.org> on April 4, 2009

More About This Article

The permalink <http://dx.doi.org/10.1021/np50109a029> provides access to:

- Links to articles and content related to this article
- Copyright permission to reproduce figures and/or text from this article



ACS Publications
High quality. High impact.

Journal of Natural Products is published by the American
Chemical Society, 1155 Sixteenth Street N.W., Washington,
DC 20036

BOOK REVIEW

Organic Reactions, Volume 43. Edited by L.A. PAQUETTE. John Wiley & Sons, Inc., 605 Third Avenue, New York, NY 10158. 1993. vii+823 pp. 15×22.5 cm. \$95.00. ISBN 0-472-58479-7.

Volume 43 of this extremely valuable compendium contains three contributed chapters, an index of Cumulative Chapter Titles by Volume, an Author Index for Volumes 1 through 43, and a Chapter and Topic Index for Volumes 1 through 43.

Chapter 1, by Stanley H. Pine, is on "Carbonyl Methylenation and Alkylidenation Using Titanium-Based Reagents." Although methylenation reactions have been reviewed extensively, this review, concerning titanium-based reagents, is particularly important in view of the ability of these reagents to convert esters and amides to the corresponding vinyl ethers and methylenamines. A number of examples of this useful synthetic transformation have been included in this review, which surveys the literature up to and including September of 1990. In addition to the Tebbe-based reagents, related zinc-titanium based modifications are also included. The experimental procedures that have been included utilize commercial sources of the Tebbe reagent (\$250 for 50 mmol), as well as procedures for its *in situ* generation. It should be noted that a potentially useful alternative employing dimethylitanocene, although included in the tabular summary (reference 131), was not included in the discussion. In spite of this omission, the importance of the carbonyl methylenation and alkylidenation transformation makes this chapter extremely valuable.

Chapter 2, by Stephen R. Wilson, is entitled "Anion-Assisted Sigmatropic Rearrangements". This is an interesting mechanistic grouping of pericyclic reactions that are anionically accelerated. The chapter includes [3,3], [5,5], [1,3] and [1,5] sigmatropic rearrangements as well as retro 2+2 and Diels-Alder reactions. This section begins with a brief introduction to the possible origins of anionic accelerated sigmatropic rearrangements, and then proceeds to give illustrations of the five classes of reactions covered. The grouping, by pericyclic type, provides food for thought for a number of possible extensions of this phenomenon. Sixteen representative experimental procedures are included, together with suggestions for the preparation of anions using potassium hydride. A tabular survey, which includes literature up to the end of 1989, is organized according to reaction type. The broad range of reaction conditions that are experienced for each reaction type suggest that many reactions may not be anionically accelerated since, in a number of examples, the conditions of the anionic reaction seem not to differ much from those of the neutral species. Regardless, the extensive compilation of anionic accelerated reaction types makes this an extremely valuable source of a broad spectrum of interesting and important chemical transformations.

The final chapter, by Grant R. Krow, occupies approximately two-thirds of this volume. It is concerned with a comprehensive review on "Baeyer-Villiger Oxidation of Ketones and Aldehydes." This chapter contains a review of the literature since the previous treatment in *Organic Reactions* in 1953. The chapter begins with a detailed discussion of the mechanism, kinetics, and stereochemistry of the Baeyer-Villiger oxidation and an evaluation of its scope and limitations. This section is particularly well-documented. In particular, attention is given to compatibilities and incompatibilities of a wide variety of organic functional groups, as well as an analysis of the peculiarities of many particular classes of substrates. A section has also been included on enzymatic Baeyer-Villiger type oxidations and the use of non-peracid oxidants to achieve related chemical transformations. The tabular survey consists of 420 pages of entries and should provide guidelines for almost any situation encountered by synthetic chemists. An extensive collection of experimental procedures has also been included, as well as a discussion of reagents and reaction conditions, including potential difficulties in securing some of the more common reagents used in previous studies (MCPBA). This chapter is well-written and relatively free of typographical errors.

Volume 43 continues the tradition of high standards that have come to be expected for this series. This volume will be a valuable aid to the synthetic organic chemist and is a welcome addition.

KENNETH J. SHEA, *University of California, Irvine*