

Book Reviews

Practical Methods for Biocatalysis and Biotransformations. Edited by J. Whittall and P. Sutton. Wiley: New York. 2010. 432 pages. £95. ISBN 978-0-470-51927-1.

Preparative Biotransformations by Stan Roberts (Wiley, 1999) provided a series of laboratory protocols for the use of biotransformations in organic synthesis. Given the expansion in use of biotransformations over the past decade, there is a need for a more up-to-date book on practical methods. This new volume, edited by John Whittall (University of Manchester) and Peter Sutton (GlaxoSmithKline) fulfills that gap. The emphasis is still on practical methods for which experimental detail is provided.

The opening chapter, however, is a review of recent activity on the use of biotransformations in small-molecule pharmaceutical development. This is an outstanding chapter of 82 pages with 220 references, covering mainly industrial uses of biotransformations in organic synthesis, with some scale-up issues covered too. The book is almost worth purchasing for this chapter alone.

This is followed by a chapter introducing chemists to molecular biology, focussing on biocatalyst identification and scale-up and covering all the latest techniques of gene manipulation. The rest of the book covers the actual biotransformations in more than 60 mini-essays covering each particular reaction, written by the authors who originally published the work. These “essays” are grouped into chapters covering related reactions, such as resolutions, selectivity, aldolase reactions, glycosides and glucuronides, cyanohydrins, ketone reduction, reduction of other functional groups, and finally oxidations.

The mini-essays are well written, and the experimental instructions are clear and easy to follow. However, I was expecting more industrial contributors, whereas most authors are from academia; thus, inevitably the work-ups are long and tedious, as well as being environmentally unfriendly. Perhaps they should have taken more procedures from *Org. Process Res. Dev.*!

Nevertheless, this is a minor criticism of an excellent book, which I can recommend to all those who are interested in carrying out biotransformations in the laboratory, and the book should help persuade those who have never used a biotransformation in an organic synthesis to try one for the first time.

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Heterocyclic Chemistry, 5th ed. Edited by J. A. Joule and K. Mills. Wiley: New York. 2010. 689 + xxviii pp. £39.95 (paperback). ISBN 978-1-405-13300-5.

Joule and Mills *Heterocyclic Chemistry* has always been the first book on my bookshelf I turn to when needing information about the reactivity or synthesis of a particular heterocycle. Volume 4 (2000) was excellent; this new and expanded fifth edition is even better.

The new chapters include Organometallic Heterocyclic Chemistry; Special Topics (e.g., Ring-Fluorinated Heterocycles and Isotopically Labelled Heterocycles as well as green chemistry issues); Heterocycles in Biochemistry (Chapter 32) and Medicine (Chapter 33). All these chapters enhance the scope of the book and make it an excellent teaching resource as well as a useful reference book.

Of course, the bulk of the chapters are on the synthesis and reactions of each particular group of heterocycles, and it is for these updated chapters that readers will most likely make their decision to buy.

My recommendation is, even if you already have the fourth edition, to buy the latest version. At only £39.95 for the paperback version, this is outstanding value for the money.

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