Esterification Methods, Reactions and Applications; edited by J. Otera; Wiley-VCH: Weinheim, **2003**; 303 pp, 139 €, ISBN 3-527-30490-8

In his book, Professor Otera gives the reader a compilation of the various esterifications and related reactions published in the literature since 1990. Indeed it gathers some 5000 references at the end of the book and on a CD-ROM. The volume is divided in two major parts, the first one deals with the methodology to obtain an ester, and the second one develops some synthetic applications of the esterification reaction.

The methodology section reviews the different possibilities for the synthesis of an ester, using an alcohol and an acid, an acid anhydride, acid halide, acyl derivative or a metal catalyst. For each type of reagent, the use of activators is examined. The use of enzymes is also largely described, as well as "unconventional" techniques such as microwave irradiation, phase transfer and enzymatic reactions in supercritical carbon dioxide or ionic liquids. For each case, the specificity of the method is succinctly discussed, and an experimental procedure is provided, along with a scheme of the reaction and the reference it has been taken from. The regiospecificity and the stereoselectivity of the reactions are discussed along with some mechanisms. In my opinion, the section will be very useful for synthetic chemists using the esterification reaction for purposes of linking building blocks in total synthesis as well as in protecting group chemistry. For the latter, transesterification reactions can be regarded as deprotection techniques. The last chapter of the first part shows interesting alternatives when the use of an alcohol is not possible.

The second part deals with synthetic applications of the esterification reaction such as kinetic resolutions of alcohols or asymmetric desymmetrisation. In the case of the kinetic resolution, a long list of enzymes and their particularities is given as well as a representative descriptive list of non-enzymatic reactions.

The last two chapters contain miscellaneous topics and industrial uses where one can find a summary of the synthesis of particular esters and their applications. In the miscellaneous topics chapter, the organic synthetic chemist will find methods for selective esterifications and references for new reaction media, such as biphasic mixtures. A long table gathers the use of the different methods of esterification for the synthesis of natural products, paclitaxel being one of the typical examples. For each entry in the table, the reference is given along with the conditions used and the number of the chapter to refer to.

All the references quoted in the book are compiled in the CD-ROM with a reaction scheme for each. The software used for the compilation is designed to allow the user to update and adapt it to one's requirements, by introduction of keywords and new references. Fast consultation of reaction parameters can then be achieved.

In conclusion, I would say that this book is a valuable source of information for all synthetic chemists. Whatever application of esterification is needed, references and a large range of conditions to carry out the reaction successfully will be found in this book.

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