

Preface

The late 20th and early 21st centuries have seen a phenomenal growth of the global economy and a continuous improvement of the standard of living in industrialized countries. Sustainable development has consequently become an ideal goal in recent years. In the early 1990s the concept of “green chemistry” was launched in the USA as a new paradigm, and since 1993 it has been promoted by the National Science Foundation (NSF) and the Environmental Protection Agency (EPA).

The success of the pharmaceutical industry is, in large part, due to the towering achievement of organic chemistry – a mature science that emerged as a distinct discipline well over 150 years ago. This history is both a blessing and a curse. Many of our most reliable strategies for assembling target molecules employ reactions that are 50 to 100 years old and that are often named in honour of their discoverers. During these early years, the chronic toxicological properties of chemicals were often completely unknown and many, unwittingly, became indispensable tools of the trade.

Early pioneers in green chemistry included Trost (who developed the atom economy principle) and Sheldon (who developed the E-Factor). These measures were introduced to encourage the use of more sustainable chemistry and to provide some benchmarking data to encourage scientists to aspire to more benign synthesis.

The present book is intended to provide an important overview of various processes and procedures devoted to the eco-sustainable syntheses of fine chemicals.

The contributions of catalyses as well as of photochemistry, high pressure and microwave irradiation are thoroughly examined. Nevertheless, the key role of solvents has also been considered. In addition, a chapter has been dedicated to the application of a simple reaction to the synthesis of complex molecules.

Thus, I believe that this book represents an important contribution to eco-sustainable chemistry and should be of interest for both young and senior researchers involved in this field.

I would like to thank all the distinguished scientists and their co-authors for their rewarding, timely and well-referenced contributions. Grateful acknowledgements are also offered to the RCS editorial staff.

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