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Preface

Multicomponent reactions

The complexity of organic target molecules is constantly increasing and novel strategies allowing the efficient formation of new carbon–carbon bonds between functionalized moieties are needed. The chemist's ability to make targets of utmost complexity, however, must not hide the fact that the practical construction techniques available to prepare elaborate products are still woefully inadequate. A seemingly trivial but rather serious limitation in practice is set by the mere number of steps accumulating in linear sequences and by the extensive protecting-group strategies used.

These drawbacks are serious and advocating the 'economy of steps' as a priority issue, the development of more and more efficient and new methodology has to be found. Despite the tremendous progress in this area, a much larger panel of reactions achieving a significant increase in structural complexity per chemical steps is necessary. This is particularly true for transformations, which involve more than one bond-making event and particularly if functional groups are present in the carbon skeleton. Indeed, the need for preparing complex polyfunctional molecules in the total synthesis of natural products and in pharmaceutical research requires the development of new reactions, selective organometallic reagents and catalysts for organic synthesis.

Therefore, multiple component (MC) reactions are particularly effective at building functionalized, drug-likes structures from different families of compounds in a single step and we believe that inventing and developing new ones is an important pursuit in academic chemistry.

The time is apt for synthetic chemists to fully enter the world of 'economy of steps' and the primary purpose in editing this special issue is to bring together, in a single volume, all the remarkable recent achievements in this field and to give a unique overview on the many possibilities that offer the multiple component condensation reactions in solving challenging problems in synthetic organic chemistry.

I wish to express my sincere and deep appreciation to all authors and coauthors who contributed insightful papers on their most recent research findings. I also would like to thank the reviewers for their critical comments and Professors Harry Wasserman and Richard Taylor for the invitation to edit this special issue and for their helpful suggestions.

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