

Preface

This book is a part of the book series entitled 'Green Bioactive Heterocycles' and mainly focuses on solvent-free synthesis of structurally diverse heterocyclic compounds having biological significance. As we all know, solvent plays a vital role in organic transformations. The application of different organic solvents is widespread in chemical syntheses. However, most solvents are not environmentally friendly due to their volatile nature and adverse effects. Although water is the safest solvent, the poor miscibility of most organic reactants in water is another problem. On the other hand, many catalysts are not stable in aqueous medium. As a result, in recent decades, solvent-free approaches have gained tremendous attention from chemists in academia and industry.

This volume (Volume 4) contains 13 chapters written by experts from different countries. In the first chapter, Prof. Basak and Ghosh summarised recent approaches to microwave-assisted synthesis of various bioactive heterocycles under solvent-free conditions. Chapter 2 is related to the synthesis of microwave-assisted benzazoles under solvent-free conditions written by Prof. Chakraborti and his group. In Chapter 3, Prof. Davor Margetić introduced the applicability of Ball-milling-assisted synthesis of various bioactive heterocycles under solvent-free conditions. Chapters 4 and 5 describe the recent advances in synthesising *N*-heterocycles under conventional solvent-free grinding conditions. In Chapter 6, Ranu et al. discussed the solvent-free and green synthesis of some *N*-heterocyclic scaffolds having pharmaceutical importance. Chapter 7 deals with the solvent-free synthesis of structurally diverse bioactive xanthene derivatives under conventional heating conditions. In Chapter 8, Prof. Das and his research group summarised the synthesis of structurally diverse quinazolines and quinazolinones under solvent-free conditions. Farooq et al., in chapter 9, summarised the recent advances in synthesising various bioactive nitrogen and oxygen-containing heterocycles under solvent-free conditions.

Similarly, chapter 10 described the synthesis of bioactive nitrogen and sulfur-containing heterocycles under solvent-free conditions. Chapters 10 and 11 discussed the catalytic role of ionic liquids for synthesising various bioactive heterocycles under solvent-free conditions. In the last chapter, Prof. Maiti and his group examined the applications of silica-supported acids as reusable catalysts under solvent-free conditions for synthesising various bioactive heterocycles.

Therefore, we hope this new book, 'Solvent-free Synthesis: Bioactive Heterocycles', will interest academic researchers and specialists developing industrial processes. Besides chemists and chemical engineers, postgraduate and undergraduate students may use this book's valuable data and expertise.

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