## **Contents**

Preface — V

Foreword — VII

A brief professional profile of Prof. Jitender M. Khurana — IX

List of contributors — XIII

Puja Basak and Pranab Ghosh

Solvent-free microwave-assisted green synthesis of heterocyclic compounds — 1

Nirjhar Saha, Soumili Biswas, Soham Naskar, Anirban Sarkar, and Asit K. Chakraborti

2 Microwave-assisted solvent-free synthesis of benzazoles —— 17

Davor Margetić

3 Ball-milling (mechanochemical) synthesis of bioactive heterocycles — 57

Simranpreet K. Wahan, Gaurav Bhargava, and Pooja A. Chawla

4 Synthesis of nitrogen-containing heterocyclic rings using grinding approach —— 87

Yadavalli Venkata Durga Nageswar, Katla Ramesh, and Katla Rakhi

5 Synthesis of bioactive *O*-heterocycles under grinding conditions —— 101

Brindaban C. Ranu, Sougata Santra, and Grigory V. Zyryanov

6 Solvent-free green synthesis of selective *N*-heterocycles of pharmaceutical importance —— 119

Bubun Banerjee, Manmeet Kaur, Jaswinder Kaur, Aditi Sharma, Anu Priya, and Arvind Singh

7 Solvent-free synthesis of structurally diverse bioactive xanthene derivatives under conventional heating conditions —— 145

Anindita Sarkar, Swarnali Ghosh, and Asish R. Das

8 Synthesis of quinazoline and quinazolinone under solvent-free conditions —— 177

Tahir Farooq, Razia Noreen, Kulsoom Ghulam Ali, Kiran Aftab, Muhammad Abdul Qayyum, Tanzeela Khalid, and Arruje Hameed

9 Synthesis of bioactive *N*,*O*-heterocycles under solvent-free conditions — 223

Bhupender Nehra, Manoj Kumar, Sumitra Singh, Viney Chawla, and Pooja A. Chawla

10 Synthesis of bioactive N,S-heterocycles under solvent-free conditions —— 257

Shubang Vyas, Avinash K. Rai, Rakshit Ameta, and Suresh C. Ameta

11 Catalytic role of ionic liquids for the synthesis of bioactive *N*-heterocycles under solvent-free conditions —— 283

Sabbasani Rajasekhara Reddy and Krishnaraj P.

12 Catalytic role of ionic liquids in the synthesis of bioactive *O*-heterocycles under solvent-free conditions —— 307

Prasenjit Das, Ramlal Baidya, and Dilip K. Maiti

13 Synthesis of bioactive heterocycles using silica-supported acids as reusable catalysts under solvent-free conditions —— 331

Index — 349