Foreword

Nowadays, the reduction in usage of conventional organic solvents in chemical processes is one of the major concerns in terms of green and sustainable development. This is mainly due to the high vapor pressure of conventional solvents resulting in potential risks such as low flash points, higher flammability and toxicity. Conventional volatile organic solvents are harmful to living organisms, and ozone layer destruction is also catalyzed by the vapors of chlorinated volatile solvents. Hence, nonconventional solvents with high recyclability and less volatility, toxicity and flammability are considered as a promising alternative to conventional organic solvents. These solvents have gained more attention in recent decades as a new generation of solvents with applications in various organic transformations, natural products isolation and drug design. Recently, the use of nonconventional solvents has increased significantly in pharmaceutical, chemical, cosmetics, paints and many other industries. However, certain scientific research revealed the risks related to nonconventional solvents which disprove the opinion that nonconventional solvents are fully harmless for the environment. Therefore, further study is highly required to redesign or modify the existing nonconventional solvents to make them more efficient and sustainable. Under this purview, I personally believe that this book, edited by Prof. Chhanda Mukhopadhyay and Dr. Bubun Banerjee, is going to be a valuable resource for the researchers working in the fascinating field of nonconventional solvents.

This book has nine unique chapters that are focused on this crucial contemporary subject. Dr. Reddy and his research group described various triethylamine-mediated synthesis of bioactive heterocycles in Chapter 1. In Chapter 2, Banerjee et al. summarized various organic transformations using nitromethane as solvent. In Chapter 3, Prof. Asish Ranjan Das and his group explored recent advances on tert-butyl hydroperoxide-mediated cross-coupling reactions. In Chapter 4, Prof. Kantharaju Kamanna and Yamanappagouda Amaregouda summarized applications of cyrene and ethyl lactate as bio-based solvents for various organic transformations. In Chapter 5, Animesh Mondal and Prof. Chhanda Mukhopadhyay established solid-phase platform as a nonconventional synthetic route for the synthesis of diversified heterocyclic and carbocyclic frameworks. Dr. Sasadhar Majhi and his group explored the role of nonconventional solvents in the isolation of natural products in Chapter 6. In Chapter 7, Nahid Ahmadi and Prof. Ali Ramazani discussed the utility of nonconventional solvents in drug design. Prof. Suresh C. Ameta and his group demonstrated

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industrial applications of various nonconventional solvents in Chapter 8. In Chapter 9, Prof. Kamla Pathak and her group reported the effects of nonconventional solvents on the environment.

Prof. Bimal Krishna Banik
C.Chem., F.R.S.C., F.I.C.S., F.I.S.R.O.S.E.T, F. I. C.
Professor and Senior Researcher,
Deanship of Research Development,
Department of Mathematics and Natural Sciences,
Prince Mohammad Bin Fahd University,
Al Khobar, Kingdom of Saudi Arabia
E-mail: bimalbanik10@gmail.com