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EDITORIAL

Multicomponent reactions in the synthesis of heterocycles

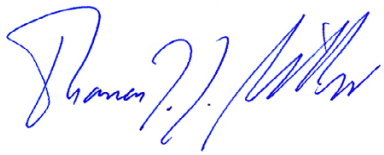
Heterocyclic scaffolds often constitute from more than two building blocks and, therefore, the development of highly convergent syntheses has been an ongoing evergreen in heterocyclic chemistry. Since the early days of organic chemistry of heterocycles their preparation by multicomponent reactions (MCRs) went hand in hand with their triumphal march toward functional molecules.

This has been impressively witnessed by many famous name reactions, such as Hantzsch dihydropyridine synthesis or Feist–Bénary furan synthesis, which coined mile stones of 19th century's heterocyclic chemistry and received far reaching importance in medicinal chemistry of 20th and 21st century. Interestingly, MCRs were considered as laboratory curiosities for a long time, until in 1959 Ugi's invention of the imine variation of the Passerini reaction set the stage for establishing MCRs as powerful methodological synthetic principle for simultaneously creating structural and functional diversity.

With Ugi products in hand or literally in the flask numerous avenues in heterocyclic chemistry were opened by changing the paradigm that only two component transformations could be reliably conducted. Encouraged by this fundamental principle of conducting multicomponent reactions in *sensu stricto* as one-pot processes in a domino, sequential or consecutive fashion, they have become a general reactivity-based principle and synthetic concept (Müller, T. J. J. In *Multicomponent Reactions 1. General Discussion and Reactions Involving a Carbonyl Compound as Electrophilic Component*; Müller, T. J. J., Ed.; Science of Synthesis Series; Georg Thieme Verlag KG: Stuttgart, 2014, p. 5–27). The generation and consumption of reactive functional groups is the name of the game of MCR and their potential is seemingly unlimited.

This special issue "Multicomponent reactions in the synthesis of heterocycles", using the formats of reviews, "Heterocycles in focus", and original contributions, represents a snap shot of a highly dynamic field and spans the broad range from recent advances in isonitrile-based heterocycle synthesis to Michael acceptors and their en route transformation, from cycloadditions and cyclization starting from carbonyl groups to their masked synthetic equivalents, from reactivity-based to property-based concepts. The interested reader will discover the dynamics and exciting new results in this compilation of heterocycle syntheses by MCRs.

As the guest editor of this special issue "Multicomponent reactions in the synthesis of heterocycles" I am very grateful to all authors for their excellent contributions and, in particular, to the Latvian editorial office of *Chemistry of Heterocyclic Compounds*, in particular Dr. Ieva Jaunzeme, Dr. Andris Amolins, and Dr. Janis Jaunbergs, for their excellent support and professional realization.



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