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ОТ РЕДАКТОРА

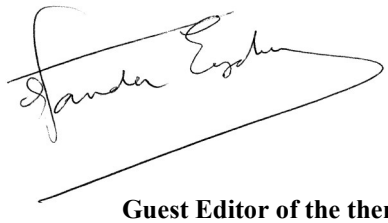
# Metal-catalyzed synthesis of heterocycles

Heterocyclic chemistry can be regarded as the cradle of novel chemical compounds of biological interest, due to the vast number of possible combinations of carbon, hydrogen, and heteroatoms. The domain of natural product chemistry, pharmaceuticals, agrochemicals as well as material sciences is largely dominated by heterocycles. Even today, the majority of the publication output in organic chemistry, including modern organic synthesis, is dealing with heterocycles in one way or other. Moreover, the recent growth in the intensification of new synthetic methodologies has largely been brought by the characteristic properties of various heteroatoms involved in heterocycles.

Among the variety of methods for the synthesis of heterocycles, transition metal-catalyzed reactions can directly construct complicated molecules from readily available starting materials under relatively mild conditions. The catalytic construction of heterocyclic skeletons is mainly classified into two major processes, a) C–C bond formation and b) C–X bond formation from the corresponding acyclic precursors with a variety of intra- and intermolecular catalytic processes *viz*. olefin metathesis reaction, cycloisomerization of dienes, diynes, and enynes. In addition, multicomponent reactions have been preferred to generate a variety of heterocycles due to step economy and diversity introduced in just one step. The combination of multicomponent reactions and transition metal-catalyzed post-transformations provides an enormous capacity to generate molecular complexity and diversity in a minimum number of steps. For example, the well-known Ugi reaction typically affords a linear peptide backbone, enabling post-Ugi transformations as an elegant solution to rigidify the Ugi adduct into more drug-like species.

Thus, given the importance of heterocycles in natural products, medicinal chemistry, and pharmaceuticals, this special issue on "Metal-catalyzed synthesis of heterocycles" will be an important contribution to the field. It covers seven review articles dealing with metal-catalyzed synthesis of various heterocyclic scaffolds, two microreviews on recent advances, and several full-length articles providing a snapshot of this highly dynamic field.

As a guest editor of this special issue, I am very grateful to all authors for their excellent contributions. I firmly believe that this will be of great help to both the novices in the field as well as to experts in academia and industry for future innovations.



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