

Heterosubstituted Alkynes: Copper-Mediated Syntheses and Applications

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Organic synthesis clearly is today a central science with deep implications in various domains such as biology, medicine or material science. Considering the extent of chemical methodology's contributions to other disciplines, there is a high and growing demand for efficient procedures to assemble complex molecules or pharmaceuticals from simple building blocks. This drive for shorter and more efficient synthetic procedures, as well as the quest for molecular diversity, has fueled the development of new reactions, and catalysts that efficiently contributed to the selective syntheses of ever larger and more complex systems with increased efficiency. In addition to the design of these new processes, novel ways to assemble molecules and the development of new building blocks are also important drivers for organic synthesis.

Hetero-substituted alkynes (ynamides, ynol ethers...)¹ clearly falls into this category: the chemistry of these compounds, which display an exceptional reactivity, has been extensively reinvestigated recently and they have clearly emerged as remarkably useful and versatile building blocks.

We have been recently involved in the development of various synthetic strategies,² mostly based on copper catalysis, for the synthesis of a panel of hetero-substituted alkynes as well as in the study of their reactivity³ and in the design of new chemical transformations from these building blocks,⁴ which will be highlighted in this presentation.

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