

Efficient Synthesis of Isoquinoline and Its Derivatives: From Metal Catalysts to Catalyst-free Processes in Water

Yajun Yu^a, Meng Guan^a, Yun-Hui Zhao^{a,b,*}, Wenlin Xie^a, Zhihua Zhou^a, and Zilong Tang^{a,**}

^a School of Chemistry and Chemical Engineering, Hunan University of Science and Technology, Xiangtan, Hunan, 411201 China

^b Key Laboratory of Synthetic Chemistry of Natural Substances, Shanghai Institute of Organic Chemistry,
Chinese Academy of Sciences, Shanghai, 200032 China

e-mail: *zhao_yunhui@163.com; **zltang67@aliyun.com

Received September 23, 2020; revised October 8, 2020; accepted October 23, 2020

Abstract—Isoquinolines constitute an important class of natural alkaloids, that demonstrate a wide range of biological activities. Therefore, development of new methods for efficient synthesis of isoquinoline and its derivatives has attracted considerable attention of chemists and pharmacologists over recent years. In this review the progress of isoquinoline synthesis that provides creative inspiration and expands novel ideas for researchers in this field is summarized.

Keywords: isoquinoline, transition metal catalysis, green synthesis

DOI: 10.1134/S1070363220100266