Regio- and Enantioselective Epoxy Ring Opening of 2,3-Epoxy-3-phenyl Alcohols/Carboxylic Acids and Their Derivatives

Xiaoyan Zhan[a] and Xi Du[b,*]

[a] *Department of Pharmacy, School of Pharmaceutical Science, Southwest Medical University, Luzhou, 646000 China*

[b] *Department of Chemistry, School of Basic Medical Science, Southwest Medical University, Luzhou, 646000 China*

**e-mail: dx.d@163.com*

Received October 29, 2019; revised February 19, 2020; accepted February 20, 2020

Abstract—The review highlights the progress of ring opening of 2,3-epoxy-3-phenyl alcohols/carboxylic acids and their derivatives over the past few decades. The presence of a phenyl group in epoxy alcohols/carboxylic acids make ring opening more complicated due to increase of steric hindrance and polarity. The varieties of methods for catalysis, organic solvent/water solvent and Lewis acid/base incorporation of epoxy groups into the target moiety attract more attention. In the ring-opening reaction of epoxides with water, alcohols, amines, ammonia, phenols, hydrogen halides, acids and thiols, the use of significant catalytic systems and appropriate solvents is often put into consideration firstly. Ring-opening reactions of epoxides in the presence of catalysts need to be explored, including 2,3-epoxy phenyl alcohols, phenylglycidyl ethers, and other conversions. The review will throw light on these reactions and inspire more efforts into the development of new ring opening reactions of epoxides.

Keywords: ring opening, 2,3-epoxy-3-phenyl alcohols, 2,3-epoxy-3-phenyl carboxylic acids

DOI: 10.1134/S107042802004017X