IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 7.53
Volume 4, Issue 1, December 2024

A Review of Organocatalytic Strategies for Addressing Stereochemical Control in Complex Molecule Synthesis

Varleen Kaur[1] and Dr. Ashish Narain Dubey[2]
Research Scholar, Department of Chemistry[1]
Professor, Department of Chemistry[2]
NIILM University, Kaithal, Haryana, India
varleen.kaur86@gmail.com

Abstract: *Organocatalysis represents a revolutionary advancement in asymmetric synthesis, providing precise stereochemical control in the preparation of complex molecules. This review highlights the diverse strategies employed in organocatalysis to address challenges in enantioselective transformations, especially in the pharmaceutical industry. By leveraging non-metal organic catalysts, these methodologies ensure environmentally friendly, metal-free, and efficient processes for synthesizing chiral compounds. The study also discusses key applications in medicinal chemistry, including the synthesis of drugs and natural products, and evaluates advancements like integration with photo- and electrocatalysis. Challenges and future prospects in scaling up organocatalytic processes are explored..*

Keywords: Organocatalysis, asymmetric synthesis, stereochemical control, enantioselective transformations, pharmaceutical synthesis, chiral molecules