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## Chemoenzymatic and photobiocatalytic strategies for chemical synthesis

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## Propositions

Belonging to the thesis

# Chemoenzymatic and Photobiocatalytic Strategies for Chemical Synthesis

by **Mohammad Faizan Bhat**

1. Biocatalytic and photobiocatalytic systems are powerful and sustainable alternatives for chemocatalytic systems.
2. Careful substrate design and an appropriate C-N lyase can enable synthesis of complex heterocycles from simple achiral building blocks (Chapter 2).
3. A biocatalytic process can be enhanced by reaction optimization and follow-up chemistry to provide a scalable and streamlined approach for the synthesis of challenging aminopolycarboxylic acids (Chapter 3).
4. A proper light source, a photocatalyst and a promiscuous flavin-dependent nitroreductase can be used for the chemo- and enantioselective synthesis of chiral alcohols (Chapter 4).
5. The synergistic combination of photo- and bio-catalysis can enable the use of sunlight to drive chemical synthesis (Chapter 5).
6. "A month in the laboratory can often save an hour in the library." (*Frank Westheimer*)
7. Caffeine extraction and cooking represent good examples of chemistry in daily life. (*my view*)