

APPLICATION OF STEREOSELECTIVE TANDEM *SELENO-MICHAEL*/ALDOL REACTION IN THE SYNTHESIS OF OPTICALLY PURE CYCLIC ALCOHOLS

All biological systems are an endless combination of overlapping tandem processes. By imitating nature, more and more scientists try to design experiments in such a way that several reactions can be carried out in one vessel. This requires more involvement of scientists in the preparation of experiments, but it also entails significant benefits in terms of saving time, money, materials, and nature. This project aims to develop a new method for the synthesis of optically pure, cyclic alcohols based on a tandem reaction initiated by nucleophilic selenium compounds. Selenium and its compounds have been used in organic chemistry for a long time, but there are still many undiscovered possibilities for its use. One of them, which will be explored in the course of this project is the use of selenium compounds as initiators of complex transformations, which will lead to obtain clean and simple products in isolation. Optically pure cyclic alcohols that will be the result of the reactions are the motif of innumerable natural compounds with very diverse biological activity. Particularly important when designing new methods of synthesis of compounds with potential applications in biological sciences, industry or medicine is that the given method allows to obtain these compounds with high optical purity. The designed procedure gives a lot of hope for the successful implementation of the assumptions and allows to broaden the existing knowledge in the field of tandem reactions, selenium chemistry, and stereocontrolled organic synthesis.

