

TITLE: APPLICATION OF LITHIUM SELENOLATES AS AN EFFICIENT CATALYST IN INTRAMOLECULAR RAUHUT-CURRIER REACTION – SYNTHESIS OF FUNCTIONALIZED 5-7 MEMBERED RINGS

The possibility of performing multiple chemical transformation in an efficient and selective way is a main goal of synthetic organic chemistry. For the organic synthetic chemists a multistep, fully controlled chemical reaction made in one pot is like a dream come true. This proposal addressed the problem of creation of 5-7 membered ring promoted by *in situ* generated lithium selenolates. Selenolates are excellent nucleophiles and gave Michael adducts in very good yield. A serious drawback of those reactions is a character of nucleophiles, since those compounds are volatile and very bad smelling. The main objective of this project is an application of elemental selenium for the generation of selenolates in reaction vessel directly before reaction. This approach is especially important to the fact that elemental selenium does not have odor, is very cheap and is not volatile.

Deep understanding of the reaction mechanisms would provide a solid foundation for the extension of the developed synthetic methods (fundamental research) as well as an application of developed methodology in synthesis of important compounds. The availability of a reliable toolbox of cyclic compound synthesis (hitherto possible via long and expensive multistep processes) is expected to trigger broad-range research on the application of this class of compounds in various branches of science, both academia and industry, including medicinal chemistry.

