Abstract

This diploma thesis deals with selected enantioselective cycloaddition reactions catalyzed by *N*-heterocyclic carbenes.

First, we focused on studying the [4+3] cycloaddition reaction. Non-commercial ketimines were prepared as starting materials for the model reaction. Subsequently, the reaction between ketimines and salicylaldehyde was studied, where, despite all efforts, preparing the desired product was impossible.

Furthermore, the [3+3] cyclization reaction was studied. Aminopyrazole and substituted α-bromenals were prepared for these purposes. However, while optimizing this reaction, the same concept was published.

Finally, our attention was focused on the [3+2] cycloaddition reaction between α-bromenals and hydrazides derived from oxalic acid esters. Here, the reaction conditions were optimized, and the substrate scope was subsequently studied.