

## ABSTRACT

This diploma thesis is focused on the synthesis of new bifunctional thiourea organic catalysts containing a carbohydrate moiety, in particular D-glucose with modification on the primary hydroxyl group.

The first part of this diploma thesis describes a modification of synthesis of the known bifunctional thiourea catalyst with 2,3,4,6-tetra-*O*-acetyl- $\beta$ -D-glucopyranose and (1*R*,2*R*)-diaminocyclohexane. The second part is dedicated to the synthesis of new bifunctional thiourea catalysts with modification of the carbohydrate moiety. We focused on per-*O*-acetyl- $\beta$ -D-glucopyranose derivatives with perfluoroalkyl moiety on the primary hydroxyl group. We examined different ways of the preparation of 6-*O*-perfluoroalkylated glucose derivatives. These perfluoroalkylated carbohydrate compounds were transformed into corresponding glycosyl isothiocyanates. Those derivatives upon treatment of (1*R*,2*R*)-diaminocyclohexane or 3,5-bis(trifluormethyl)aniline afforded new bifunctional thiourea organocatalysts.