

## **Abstract**

This Bachelor thesis is focused on the reactions of plants to low levels of available phosphorus, which is essential element for plant nutrition. In the context of plant stress, plant hormones strigolactones play very important role. Strigolactones influence growth and development of the whole plant. Biosynthesis of strigolactones increases under phosphate deficiency. This thesis consists of three parts. The first part is concentrated on phosphorus, its compounds and its availability in the environment. The second part is mainly dedicated to phosphate stress – its sensing by plants, their adaptations to stress and local as well as long distance signalling. Attention is also paid to phytohormones, namely auxins, cytokinins, gibberellins, ethylene, abscisic acid and other signal molecules, like sucrose, the phosphate molecule itself and microRNAs. The third part is focused mainly on the structure, biosynthesis, signal transduction and the mode of action of strigolactones during phosphate stress.

**Keywords:** phosphate, deficiency, strigolactone, phytohormones, stress