

## **Abstract**

This bachelor thesis is focused on plant defence mechanisms against drought stress and salinity stress associated with the production of compatible solutes, while attention is paid to the accumulation of cyclic sugar alcohols, *myo*-inositol and its methylated derivatives. It describes the occurrence of these substances, their biosynthesis and function in plants. Another part of this thesis focuses on the crystalline ice plant (*Mesembrianthemum crystallinum*), which is an important producer of these substances and serves as a model used to study the stress response in plants. It describes its life cycle and especially the mechanisms that makes it resistant to drought stress and salinity. The last chapter is dedicated to the knowledge gained through the study of transgenic plants, which were prepared using genes from crystalline ice plant and other stress tolerant plants.