

## **ABSTRACT**

Callose ( $\beta$ -1,3-glucan) is a significant plant cell wall polysaccharide, which participates in many developmental and stress responses. Despite the importance of this polymer, the knowledge on the causes of callose synthesis, its regulation and the meaning of callose deposition are still limited. The family of callose synthases was revealed thanks to molecular and genetic methods. They are responsible for callose deposition in different reactions and the different spaces of the plant body. This thesis summarizes the knowledge about the processes, in which callose is involved, and it presents an overview of the individual proteins from callose synthase family including their phylogenetic analysis and the comparison with the cellulose synthase focusing on the model plant *Arabidopsis thaliana*.

**Key words:** *Arabidopsis thaliana*,  $\beta$ -1,3-glucan, callose, callose synthase, plant cell wall polymer