

Senescence is the last stage of organism development, which leads to controlled death of cells, tissues, organs and finally the specimen. In plants, it is a highly coordinated process regulated at the genetic level, and initiated by the age of the organism, entering into the generative phase of development, as well as by environmental factors, e.g. drought and salinity. For plants, senescence of tissues is crucial in the matter of reproduction and the survival of adverse environmental changes. Molecular and biochemical basis of senescence are currently the subject of very intensive research. It has been shown that it is a very complex process, with a multi-level and multi-component nature. Certain, number of transcription factors and mechanisms regulating senescence have been identified. At the same time, our knowledge of protein kinases coordinating responses to adverse environmental conditions with the decision to initiate senescence and the role of phosphorylation in the senescence is still very limited. Based on our preliminary data and published materials, we postulate that ABA not activated SnRK2s can act as an important integrators of plant responses to adverse environmental conditions and the developmental ageing of the organism with the initiation and propagation of leaf senescence. The aim of the presented project is a detailed verification of this hypothesis and identification of mechanisms by which kinases from the SnRK2 family regulate the senescence of *Arabidopsis thaliana* leaves. Analyzed by us protein kinases and transcription factors are present in many species of plants, what indicates that the obtained results will be probably universal for the plant kingdom.