

Seed banking and seed conservation have been attempted due to concerns pertaining to the rapid erosion of plant diversity and the need to protect plant germplasm from the impact of adverse environmental conditions that are directly related to climate change. Seeds possess high genetic diversity, which makes them an excellent source material for the conservation of the natural genetic variation of a species. A comprehensive knowledge of seed physiology is essential, however, for developing successful seed storage methods. Understanding the process of seed aging during storage, which leads to a loss in seed viability, is vital for both long-term plant conservation and seed production in agriculture. All seeds die inevitable during storage due to aging associated with the burst of reactive oxygen species, which are the agents causing metabolic and chemical alterations, including nucleic acid degradation and an imbalance of epigenetic regulation involved in gene expression and maintenance of genome stability. The possibility to detect the initiation of aging will significantly improve the seed storage procedures, therefore the aim of project is to investigate the relations between cellular oxidative environment and damages to nucleic acids as well as viability of seeds in order to get a wider view of seed aging process, to complete the missing information about it and indicate molecular markers allowing the detection of the initiation phase of aging prior to the decrease of seed viability that makes the regeneration of plant from seeds impossible.