

INFLUENCE OF IMPULSE PRESSURE ON VITREOUSNESS, MOISTURE CONTENT AND GERMINATION OF WHEAT GRAINS DURING STORAGE

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The viability of seeds changes during the storage, which is associated with non-enzymatic oxidation reactions, hydrolysis, amino-carbonyl reaction, a decrease in the water-holding capacity of biopolymers, etc. During storage, phase transition of biopolymers from a glassy to a crystalline state is possible, resulting in an acceleration of non-enzymatic processes. Seed viability can be ensured by creating optimal storage conditions, as well as by treatments with physical and chemical agents before storage and germination. Grains with vitreous endosperm, due to the physical and chemical properties of biopolymers, retain their viability better during storage. Moisture content and germination decrease in soft wheat grains during storage, especially in grains with powdery endosperm. The treatment of soft wheat grains with impulse pressure can contribute to an increase in moisture content, especially in vitreous grains, and germination compared to the control after 3 years of storage. A decrease in germination of durum wheat seeds during storage was accompanied by a decrease in moisture content, but after 3 years of storage, the germination of seeds with vitreous endosperm was higher than that of seeds with powdery endosperm. The treatment of durum wheat seeds with an impulse pressure of 11 MPa did not contribute to a change in moisture content and germination during storage compared to the control. After treatment with an impulse pressure of 29 MPa, moisture content and germination of the seeds decreased during storage. The vitreous state of seeds is characterized by fragility. The impulse pressure caused its destruction and contributed to damage of a significant part of the seeds. The growth of micro-cracks continued during storage and, as a result, the seeds were characterized by the least longevity.

Keywords: *Triticum aestivum* L., *Triticum durum*, seed storage, seed viability, grain vitreousness.