

Effect of extreme physical factors on seeds germination

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Pressure and temperature are essential environmental factors that directly impact the state of living organisms. Identifying patterns of their action opens up new ways of regulating morphofunctional changes in living systems, particularly in plant seeds. For the full development of plants in agricultural crops, the leading importance is high germination and seed germination energy, the strength of seed growth, the resistance of seedlings to adverse environmental factors. The sowing qualities of seeds of a number of species (crops) are low due to their biological properties: high hard-seeding, insufficient maturity, rapid aging during storage, etc. To improve the sowing qualities of seeds, many methods are used. However, for certain groups of plants (for example, species of the legume family, as well as species with insufficient long-term preservation of high seed germination), the development of new, more effective methods of pre-sowing seed preparation remains relevant. Among the long-term cultivated and introduced plant species, a significant proportion are representatives of the legume family, as well as complex and cruciferous. The research was carried out by experimental methods, including the following physical and chemical effects on the seeds: high hydrostatic pressure, heat treatment at low and ultra-low (freezing in liquid nitrogen) temperatures, exposure to active oxygen (oxygenation), treatment under high pressure with substances containing phytohormones, enzymes and other biologically active substances. The effects of these impacts is assessed by germinating the seeds and examining the subsequent development of the seedlings.

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