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Effect of Aqueous Dispersions with NP_{Ag}, NP_{Cu}, NP_{Bi}, and ZnNO, Millimeter-Wave Radiation, and Weak Magnetic Fields on the Germination of Triticale and Wheat Seeds under the Action of a Pathogenic Fungus and Low Temperatures

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It has been found that the exposure of triticale and wheat seeds to aqueous dispersions containing low concentrations of Ag, Cu, Bi, and ZnO nanoparticles significantly stimulates seed germination (up to 30%). Aqueous dispersions with low concentrations of nanoparticles exhibit a fungicidal effect on the seeds in seed treatment prior to the exposure of the seeds to pathogenic fungus *Helminthosporium avenae*. The most informative parameter was seed germination capacity. Potassium permanganate, which is a conventional factor of seed disinfection, has proved to be less effective. In comparative experiments on studying the effects of the nanofactor and weak electromagnetic fields on the seeds, it has been generally found that there are some similarities between the factors in the responses of both normal seeds and the seeds subsequently exposed to the action of the pathogenic fungus and low temperatures. In some versions, the effects of the nanofactor and then of the magnetic field were more pronounced.