

THE STUDY OF THE INFLUENCE OF HUMATE TO THE PHYSIOLOGICAL AND CYTOLOGICAL INDICATORS OF BARLEY PLANTS OF ORDINARY VARIETIES HELIOS UA

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Barley is widely used in many countries of the world. One of the main and economically profitable crops. The main result of the use of modern and promising biotechnological methods, many experts believe the stabilization of agricultural production [1]. As a modern way to activate life processes. In stressed plants used stimulants of growth and development. To explore ways of improving the productivity of barley through the optimization of mineral nutrition. And the use of various modern drugs, growth regulators, including potassium humate K is of great importance. Humate K are non-specific activators of the immune system. Extremely effective is soaking seeds in humate K solutions to prevent seed infections and, in particular, root rot. The aim of this work was to study the features of influence of bio-stimulator potassium humate K on germination energy, germination. And mitotic activity of root meristems of barley plants in the early stages of ontogenesis. From barley sprouts cut the root (4–5 mm). After that, it was immersed in a

fixator solution for 1 day. Further transferred to a solution of 70° of alcohol and thus kept in the refrigerator. Coloring roots were acetocarmine Prepared temporary micropreparations. Presowing treatment of seeds with humate K to a dose of 0.05 mg/l increased germination energy. When soaking within 4 hours, the germination energy increased by 26.5 % compared to the control. And when soaking for 8 and 12 hours, this figure rose by 23.3 % and 21.0 % respectively. When using a growth regulator at a concentration of 0.075 mg/l. The greatest impact the drug had only when soaking for 4 hours. She increased the energy of germination of the test plants by 24.1 %. At the exposure of 8 and 12 hours, the figures did not exceed 15.0 %. The best germination was obtained under the influence of the drug on plants at a concentration of 0.05 mg/l. when soaked for 4, 8 and 12 hours, the germination increased by 36.0 %, 25.5 % and 33.5 % compared to the control. Further increase in the concentration of the studied growth regulator resulted in a decrease in the stimulating effect of the drug on germination seeds of the barley varieties of Helios UA. During the experiment, it was found that the treatment of barley seeds with humate K leads to a significant increase in mitotic activity. Application of 0.05 mg/l concentration during soaking for 4 hours increased mitotic activity by 15.7 %. At 8 and 12 o'clock, the mitotic index was 14 % and 12 % compared to the control. Seed treatment with a concentration of 0.025 mg/l increased mitotic activity by 11 % when soaked for 4 hours on 9,6 % – within 8 hours compared with the control. At an exposure of 12 hours the rate was 10.3 %. The researches about the influence of humate K on germination energy and laboratory germination was studied, and mitotic activity of root meristems at different concentrations and exposures was studied. Was used different concentrations of the drug humate K To: 0,013 mg/l 0.025 mg/l 0.05 mg/l 0.075 mg/l 0.1 mg/l. as control was used the water. The exhibition soak: 4, 8, and 12 hours. Stimulating effect had all the concentrations. It however, the best results were obtained using 0.05 mg/l and 0.025 mg/l. soaking. The optimal exposure was 4 hours. The optimal concentration of the drug humate K (0.05 mg/l) stimulate the process of germination of seeds of the barley varieties of Helios UA: the energy of germination amounted to 68,7 %; germination rate – 70.0 %. Soaking seeds in a solution of humate K (0.05 mg / l) significantly stimulated mitotic activity of root meristems and active growth of barley varieties Helios UA.

Keywords: barley, humate K, germination energy, germination mitotic index.

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