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## **PECULIARITIES OF IMPLEMENTATION OF STIMULATING ACTIVITY IN WINTER WHEAT**

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The need to use new growth-stimulating substances and their interaction with various environmental factors determine the differences in the technology of growing different varieties. In this regard, a study was conducted on the main characteristics of laboratory germination under the action of various substances of tri- and tetrazole nature and their concentrations [1, 3]. Winter wheat (*Triticum aestivum* L.) is one of the key grain crops in the world, with an annual production of about 757 million tons. It plays an important role in general agriculture and is a determinant of the diet for millions of people[2].

In the conditions of the scientific research field of the scientific and educational center of practical training of the Dnipro State Agrarian and Economic University, the following varieties were identified as more promising as a result of the preliminary test: Pozytsiya Odeska, MIP Feeria, MV Nador, Tenor, MV Menrot, for which the next stage was carried out to determine the characteristics of germination energy (4 days) and laboratory germination (7 days) for treatment with an aqueous solution of promising growth-regulating substances CA-64 (potassium [1,2,4]triazolo[1,5-c]quinazoline-2-thiolate), CA-79 (potassium tetrazolo[1,5-c]quinazoline-5-thiolate), CA-67 (5-(2-aminophenyl)-1H-1,2,4-triazole-3-thiol). Distilled water was used as the control. The working solutions were used in concentrations of 0.01%, 0.02% and 0.04%. Germination was carried out in rolls of filter paper. Four working samples of 50 seeds each were selected from a batch of winter wheat seeds. The repetition of the studies was fourfold. Mathematical and statistical processing was carried out using factor analysis ANOVA, grouping and classification of data using the cluster analysis method. In all cases, the packages "basic statistics" and "multifactor analysis methods" of the Statistic 10.0 program were used.

Germination energy and germination did not depend on the variety factor, but only on the concentration of the factor, and the effect on the second parameter was relatively less clearly differentiated by concentrations than for energy. However, when comparing varieties in pairs, the variety MV Menrot stood out, the seeds of which had lower quality in the control, but the effect of the action of this substance was the best and led to an increase in germination to 6%, while in the others 3-3.5% due to the action of the best concentration of CA-64 0.02%.

Germination energy increased up to a concentration of 0.02% under the action of CA-64, except for the Tenor variety, after which a significant negative effect was felt at the action of 0.04% (compared to the control, the indicator decreased by 2–3.5%, which was statistically

significant). That is, this concentration has a significant toxic effect on seed material. Laboratory similarity increased to a concentration of 0.02% under the action of CA-64, except for the varieties MV Nador and Tenor, in which the pairwise comparison showed a more complex picture - the difference between the control and CA-64 0.01% was unreliable, between the control and CA-64 0.02% was reliable, but between CA-64 0.01% and CA-64 0.02% was again unreliable, after which a significant negative effect was felt under the action of 0.04% (compared to the control, the indicator decreased by 2 - 3.5%, which was statistically significant). That is, this concentration has a significant toxic effect on seed material. Thus, in all cases, the action of CA-64 0.02% led to a significant positive effect, although the effect of the drug may not be as successful depending on the variety (mainly the variety Tenor) and the quality of the source material (seeds of the variety MV Menrot

The results of germination energy and laboratory germination under the action of CA-79 (also a pronounced hydrophilic compound) showed that germination energy and germination did not depend on the variety factor, but only on the concentration of the factor, and the effect on the second parameter was again relatively less clearly differentiated by concentrations than for germination energy (i.e., the mechanism is similar to the action of the previous substance). When comparing varieties in pairs, the MV Menrot variety stood out again, the seeds of which had lower quality in the control, but the effect of the action of this substance was at the level of the best (also the MIP Feeria variety) and led to an increase in germination to 5.5%, while in the others it was 2-5.5% under the action of the best concentration of CA-64 0.02%.

In general, germination energy increased to a concentration of 0.02% under the action of CA-79, except again for the Tenor variety, after which a significant negative effect was felt under the action of 0.04% (compared to the control, the indicator decreased by 3-4.5%, which was statistically significant). That is, this concentration has a significantly more toxic effect on seed material than the previous substance. Laboratory germination increased to a concentration of 0.02% under the action of CA-64, except for the MV Nador variety, in which a more complex picture was observed when compared in pairs – the difference between the control and CA-64 0.01% is unreliable, between the control and CA-64 0.02% is reliable, but between CA-64 0.01% and CA-64 0.02% is again unreliable 5.5 - 7.5 %, which was statistically significant). That is, this concentration has a significant toxic effect on the seed material. Thus, in all cases, the effect of CA-79 0.02 % led to a significant positive effect, the effect of the drug is significantly less dependent on the variety and quality of the starting material and is more even compared to the previous substance. However, the difference is statistically insignificant. The results on germination energy and laboratory germination under the action of CA-67 (a weakly expressed hydrophilic compound) showed that germination energy and germination did not depend on the variety factor, but only on the concentration of the factor, and the effect on the second parameter is an order of magnitude less clearly differentiated by concentrations than for germination energy (the mechanism of action is mainly negative or neutral at the same concentrations). When compared by varieties, none of the varieties stood out. In general, germination energy increased at a concentration of 0.01% under the action of CA-67, then decreased to the control under the action of 0.02% except for the variety MV Menroth where it was lower than the control, after which a very significant negative effect was felt under the action of 0.04% (compared to the control, the indicator decreased by 5-8%, which was statistically significant. The positive effect of 0.01% is quite weak. Laboratory germination did not increase under the action of CA-67, the difference was unreliable under the action of 0.01%, under the action of 0.02% it was mostly reliable worse than the first level but at the control level, or already worse than the control, after which a significant negative effect was felt under the action of 0.04% in all cases (compared to the control, the indicator decreased by 4.5-7.5%, which was statistically significant reliable). That is, for the indicator, the effect was at most slightly positive.

The study of the presented substances showed that it is more optimal to use CA-64 and CA-79 at a concentration of 0.02%, and CA-79 may be more effective and establishing the

possibility of obtaining a reliable difference requires a significant expansion of the volume of the research material. But the preliminary results already show significant possibilities for using these preparations as growth-stimulating substances, which are capable of significantly improving germination energy and laboratory germination, especially when compensating for the significantly lower quality of seed material of unknown genesis according to the regularity indicator (MV Menroth).

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