

THE EFFECT OF THE ZINC SALT OF GLYCYRRHIZIN ACID ON THE GERMINATION PARAMETERS OF WHEAT GRAIN

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Abstract: *The concentration-dependent (0.5-100 μM) concentration (0.5-100 μM) of glycyrrhizin acid complex with Zn^{2+} on the germination index, photosynthetic activity, chlorophyll content, root germination of wheat variety "Krasnodar" in laboratory conditions activity and chlorophyll content were studied. Under the influence of GK-Zn complex (1-100 μM), a significant increase in the amount of chlorophyll in the green biomass of wheat was noted, including a maximum increase of $112.4 \pm 5.7\%$ compared to the control at a concentration of 1 μM .*

Key words: *glycyrrhizin acid, zinc complex, biomass, chlorophyll, germination rate*

The metabolic process is also related to the presence of microelements in cells and tissues. In the studies, the influence of microelement Zn on metabolism and plant productivity is noted. Accordingly, in the course of research, the use of the GK-Zn complex to increase the productivity of crops in agriculture by optimizing the indicators of the level of activity in the growth and development of wheat considered promising.

Various exogenous compounds are used to stimulate plant growth and induce resistance to abiotic factors [1,2,3]. For example, foliar application of solutions of ascorbic acid and kinetin in a certain concentration helped the growth of plants [4]. The mono ammonium salt of glycyrrhizin acid can help the germination of cotton seeds [5]. Glycyrrhizin acid compounds are reported to have multifunctional properties. Some salts of glycyrrhizin acid regulation of growth and development of wheat [6].

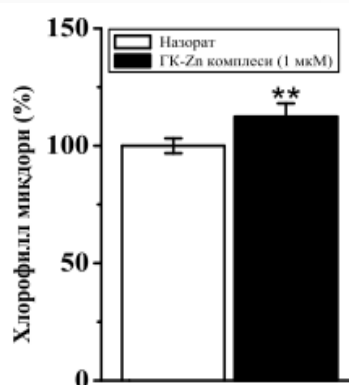
During the next series of research carried out in laboratory conditions, the concentration-dependent (0.5-100 μM) concentration (0.5-100 μM) of the glycyrrhizin acid complex with Zn^{2+} (GK-Zn) showed the germination index, photosynthesis activity of wheat variety "Krasnodar" in laboratory conditions. chlorophyll content, root germination activity and chlorophyll content were studied.

EFFECT OF GK-ZN COMPLEX ON THE GERMINATION PARAMETERS OF "KRASNODAR" WHEAT VARIETY ($M \pm m$)

Experience options	Benefit degree (%)	Length of the lawn (mm)	Rootlength (mm)	Weight of biomass in the case of wet (g)	Weight of biomass in the case of dry(g)
Control(distilled water)	84,1	13,13±0,55	10,04±0,43	2,004±0,32	0,201±0,03
GK-Zn (5×10^{-7} M)	92,1**	14,54±0,54	10,98±0,31*	2,011±0,12*	0,208±0,01*
GK-Zn (1×10^{-6} M)	95,2**	18,34±0,33**	14,13±0,45**	2,213±0,22**	0,234±0,02**
GK-Zn (1×10^{-5} M)	91,3**	16,02±0,41**	14,04±0,64**	2,105±0,17**	0,228±0,02**
GK-Zn (5×10^{-5} M)	90,1**	13,65±0,37*	11,12±0,23**	2,065±0,13*	0,219±0,05**
GK-Zn (1×10^{-4} M)	88,5*	13,02±0,28*	10,34±0,53*	2,011±0,53*	0,213±0,03*
GK-Zn (1×10^{-3} M)	85,8*	14,45±0,55**	9,43±0,54*	2,008±0,23*	0,205±0,03*

Note: represents the level of statistical reliability of the difference between the values of the experimental groups compared to the control group (* - $r < 0.05$; ** - $r < 0.01$). Under the influence of GK-Zn in laboratory conditions of wheat variety "Krasnodar" germination rate and, in turn, root length, biomass weight in wet and dry hoalt were increased compared to the control (Table 1).

EFFECT OF GK-ZN COMPLEX ON THE AMOUNT OF CHLOROPHYLL IN GREEN BIOMASS OF WHEAT



In subsequent experiments, a significant increase in the amount of chlorophyll in the green biomass of wheat under the influence of the GK-Zn complex (1-100 μ M), including a maximum increase of $112.4 \pm 5.7\%$ compared to the control, was noted at a concentration of 1 μ M (Figure 1).

FIGURE 1. THE EFFECT OF GK-ZN COMPLEX (10 MM) ON THE AMOUNT OF CHLOROPHYLL IN THE GREEN BIOMASS OF WHEAT VARIETY "KRASNODAR"

The amount of chlorophyll (%) is expressed on the ordinate axis. ** - $r < 0.05$ compared to the control (nq3-5).

It was also noted that there is a correlation between the length of the grass of wheat, the length of the root and the amount of chlorophyll.

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