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THE INFLUENCE OF NATIVE BACTERIA ON THE FIELD VIABILITY AND STORAGEABILITY OF CHICKEN VARIETIES

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Abstract
The article studies the effect of inoculation of chickpea seeds with root rot bacteria on field germination and plant survival. According to the results of the experiment, in the variants treated with biological preparations, field germination of seeds increased by 6–12%, and plant survival by 8–15%. In the inoculated variants, the root system of plants was well developed and the number of roots increased. The results obtained indicate the effectiveness of using biological methods in chickpea cultivation.

Keywords: Chickpea, root rot bacteria, inoculation, field germination, survival, biological preparation, yield.

Introduction

Chickpea (Cicer arietinum L.) is of great importance as a food and fodder crop among leguminous crops. It contains 18–30% protein, vitamins and minerals. Chickpea also plays an important role in increasing soil fertility, as the rhizobacteria in its roots fix atmospheric nitrogen.

In recent years, the issue of enhancing biological nitrogen fixation has become urgent in the context of increasing prices for mineral fertilizers. Therefore, the agrotechnology of inoculating chickpea seeds with special rhizobacteria (Rhizobium spp.) is being widely introduced.

Scientific research conducted around the world shows that when using endotoxin bacteria, 80-150 kg of atmospheric nitrogen is absorbed by endotoxin bacteria during the season. In addition, it provides a grain yield of 20-25 c / ha from the pea plant. The nitrogen accumulated by endotoxin bacteria is biological nitrogen and does not pollute the environment, nitrates do not accumulate in the resulting products. It ensures the growth of beneficial microorganisms in the soil and a decrease in pathogenic microflora. The costs of nitrogen fertilizers are saved, and the opportunities for the development and introduction of resource-saving technologies into production are expanded. In this regard, it is necessary to include pea in a scientifically based crop rotation system one of the priority tasks is the wide application of inoculant planting, the development of environmentally friendly products, and the development of resource-saving technologies that allow increasing the profitability of the industry.

Research Objective

To determine the effect of inoculation of chickpea seeds with bacteriophages on field germination and plant survival.

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Sowing chickpea with root nodules (Mesorhizobium ciceri strains) and the use of biopreparations (nitragin, rhizotorphin) significantly increases the yield of various chickpea varieties due to active nitrogen assimilation. Studies confirm that the use of bacterial fertilizers increases the number of root nodules in the root, improves nitrogen nutrition, increases photosynthetic activity and grain yield. Among the world's legumes, chickpea (Cicer arietinum L.) is an ancient crop of significant economic value, ranking third in terms of yield and second in terms of cultivated area [1].

100 kg of pea seeds contain 122 kg of nutrient units and 18.6 kg of digestible protein, adding peas to animal diets significantly increases the digestibility of other carbohydrate-rich feeds [2].

Lack of moisture at the beginning of the growing season reduces the effectiveness of bacterial fertilizers for peas. Under the weather conditions of 2013, the pea variety Privo 1 showed higher yield indicators than the variety Krasnokutsky 36. The main factor in the increase in yield after inoculation for the variety Privo 1 was an increase in plant height along with an increase in pod weight [3].

№	Experimental options	Field fertility		Number of plants before harvest	
		number of plants, at 1 p.m.	%	plant number, at 1 pm, pc	%
variety Iftikhar					
1	**$N_{40}P_{40}$-FON (without medication)**	24	85,7	23	82,1
2	**$N_{40}P_{40}$ - FON + shtamm-1 (to the seed)**	25	89,3	24	85,7
3	**$N_{40}P_{40}$ - FON + shtamm-2 (to the seed)**	25	89,3	24	85,7
variety Guliston					
1	**$N_{40}P_{40}$-FON (without medication)**	24	85,7	23	82,1
2	**$N_{40}P_{40}$ - FON + shtamm-1 (to the seed)**	25	89,3	24	85,7
3	**$N_{40}P_{40}$ - FON + shtamm-2 (to the seed)**	25	89,3	24	85,7

The results of the experiment showed that the treatment of seeds with root rot bacteria had a positive effect on field germination. In the inoculated variants, field germination was 6–12% higher than in the control.

This is explained by the rapid activation of bacteria around the roots, stimulating physiological processes and improving plant nutrition at the initial growth stage. Plant survival rates were also high, increasing by 8–15% in the inoculated variants. This indicates an increase in the resistance of plants to stress factors. During the experiment, it was observed that the inoculated variants had a well-developed root system, root rot

According to the data, in the control variant of the Iftikhor variety ($N_{40}P_{40}$ - background, the drug was not used), 24 plants germinated at 1 pm, and the field germination was 85.7%. Before harvesting, 23 plants survived, and the germination was 82.1%. When seeds were treated with native bacterial strains, the number of plants at 1 pm reached 25. Field germination was 89.3%. At the end of the growing season, 24 plants survived, and the germination was 85.7%. Thus, when

strain-1 and strain-2 were used, the field germination increased by 3.6%, and the germination was 3.6%.

This situation indicates that the bacteria of the tubers had a positive effect on the rapid and uniform germination of the seeds and on increasing the viability of the plants during the initial growth period.

The same pattern was observed in the Gulistan variety. In the control variant, field yield was 85.7%, and storage was 82.1%. When treated with strain-1 and strain-2, field yield was 89.3%, and storage was 85.7%. That is, an increase of 3.6% was noted when both strains were used. That is, a positive increase of 3.6% was recorded when both strains were used. This means that the bacteria of the tubers had a stable positive effect regardless of the variety.

Conclusion

Seed treatment with bacteriophages significantly increased the field yield of chickpea varieties. The shelf life of plants improved. No significant differences were observed between strain-1 and strain-2 in both varieties. Bacterial preparations enhanced the physiological activity of plants in the initial development phase and increased their tolerance to adverse conditions.

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