

**EFFECT OF BIOSTIMULATORS APPLICATION ON SEEDLING
THICKNESS OF SAREPT MUSTARD (BRASSICA JUNCEAE CZERN.)
VARIETIES**

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Abstract. In the article, data is provided on the effect of treatment with stimulators on the thickness of seedlings of Sarept mustard (*Brassica juncea* Czern.) "Nika" and "Yunona" before sowing seeds, during the period of leaf and flower formation. To maintain the number of seedlings of Sarept mustard (*Brassica juncea* Czern.) Uzgumi stimulator 600 ml/t before sowing seeds, 200 ml/ha during the budding period, 400 ml/ha during the flowering period and Fitovak application of stimulator at the rate of 200 ml/t to the seed before planting, 300 ml/ha during the period of leaf formation, and 400 ml/ha during the period of flower formation has a positive effect, at the end of the water cycle, compared to the control variant without stimulants, it was found that 64.0-83.0 plants/ha were kept in the Nika variety, and 62.0-78.0 plants/ha in the Yunona variety.

Keywords. Sarepta mustard (*Brassica juncea* Czern.), seedling thickness, Nika, Yunona, stimulator, Uzgumi, Fitovak, norm.

Introduction. Today, mustard (*Sinapis alba* L.) in the world is 1.0 million. it is grown on an area of more than 1 hectare, 12.0-15.0 centners of seeds and 30 tons of blue mass are obtained per hectare. Canada, the United States of America, India, Ukraine and Russia are the leading countries in mustard production. In these countries, a high-quality harvest is obtained due to planting mustard on time and at acceptable rates, correct application of mineral and organic fertilizers, and the use of growth regulators during the plant's growth period. is being achieved [2, 3, 7].

The level of study of the problem. Many researchers have found that when seeds are treated with growth substances before planting, the level of infection of seedlings is reduced by 19-51%. At the same time, when plants are treated with

growth regulators not only at seed, but also during the growing season, it reduces the damage of plants by diseases, preserves the number of stems and improves the quality of the grown product, as well as grain yield 1, increases by 9-8.0 t/h [4].

Biostimulants are environmentally friendly, accelerate the germination of seedlings, increase the biological activity of plants, reduce the amount of chemical substances used in plant protection, and create the possibility of obtaining a stable high yield [6].

Research conditions and methods. Our research was conducted in the fields of experimental scientific research and educational experimental farm of Tashkent State Agrarian University during 2023-2024.

The soil of the experimental farm is a typical gray soil that has been irrigated since ancient times. The 0-30 cm layer of the soil contains 0.836% humus, 0.085% nitrogen, 0.158% phosphorus. In the 0-50 cm layer, there is 0.720% humus, 0.074% nitrogen, 0.142% phosphorus, which indicates that the amount of nutrients used by plants during growth is very small (Table 2.1). In the 0-30 cm layer of the soil of the experimental field, the mobile forms of nutrients N-NO₃ -16.2 mg/kg, P₂O₅ -28.2 mg/kg and K₂O -190.0 mg/kg; In the 0-50 cm layer, N-NO₃ was 11.4 mg/kg, P₂O₅ was 20.1 mg/kg, and K₂O was 170.0 mg/kg.

The field experiment included 14 options, and the mustard plant was planted in the spring period. The occupied area of each option was 54 m², of which 27 m² were taken into account. Experiments are conducted in four replicates, and the total area of the experiment is 3024 m², arranged in four tiers.

Researches were conducted in field and laboratory conditions, in which field experiments placement, calculations and observations were carried out on the basis of methodological manuals "Methods of conducting field experiments", plant analyzes "Methodology of state variety testing of agricultural crops" [1, 5].

In the experiment, sarept mustard (*Brassica juncea* Czern.) varieties "Nika" and "Yunona" were sown in the first ten days of March at the rate of 1.5 million viable seeds at a depth of 2-3 cm.

Research results. It is known that, regardless of any type of crop, the thickness of the seedling has an effect on their growth, development and formation of the crop.

In our research, it was found that treatment of Nika and Yunona varieties of mustard with Uzgumi and Fitovak stimulator before planting the seeds in the spring

period, during the formation of the leaves and flowers of the plant, affected the seedling thickness.

The change in seedling thickness at the beginning of the growing season and at the end of the growing season after the sprouts have fully germinated was determined according to the experimental options.

According to the results of observations carried out in 2023, the highest indicators of seedling thickness at the beginning of the growing season of mustard varieties are 600 ml/t of Uzgumi stimulator in all varieties, before planting seeds, and during the period of leaf budding. 200 ml/ha, 400 ml/ha during the flowering period and 200 ml/ha to the seed before planting Fitovak stimulator, 300 ml/ha during the flowering period, and 400 ml/ha during the flowering period. ha was observed in the options used in the standards, and it was found that it was 1,221-1,237 million units/ha in the Nika variety, and 1,227-1,242 million units/ha in the Yunona variety.

Table 1

Effect of application of biostimulants on seedling thickness of Sarept mustard (Brassica juncea Czern.), million units/ha (2023)

No. var.	Varieties	Biostimulant name	Standard seed treatment	The ball is in the period of leaf formation	the flowering period	At the beginning of the growing season	At the end of the growing season
1	Nika	Control	Treated with water			1,152	1,002
2		Uzgumi	500 ml/t	200 ml/ha	400 ml/ha	1,189	1,041
3		Uzgumi	600 ml/t	200 ml/ha	400 ml/ha	1,221	1,066
4		Uzgumi	700 ml/t	200 ml/ha	400 ml/ha	1,201	1,053
5		Fitovak	100 ml/t	300 ml/ha	400 ml/ha	1,221	1,069
6		Fitovak	200 ml/t	300 ml/ha	400 ml/ha	1,237	1,085
7		Fitovak	300 ml/t	300 ml/ha	400 ml/ha	1,224	1,073

8	Yunona	Control	Treated with water			1,159	1,010
9		Uzgumi	500 ml/t	200 ml/ha	400 ml/ha	1,194	1,045
10		Uzgumi	600 ml/t	200 ml/ha	400 ml/ha	1,227	1,072
11		Uzgumi	700 ml/t	200 ml/ha	400 ml/ha	1,206	1,054
12		Fitovak	1 00 ml/t	300 ml/ha	400 ml/ha	1,228	1,076
13		Fitovak	2 00 ml/t	300 ml/ha	400 ml/ha	1,242	1,088
14		Fitovak	3 00 ml/t	300 ml/ha	400 ml/ha	1,232	1,080

500 ml/t of Uzgumi stimulator before planting the seeds, 200 ml/ha during the budding period, 400 ml/ha during the flowering period and 100 ml/t per seed before planting the Fitovak stimulator. 300 ml/ha in the period of leaf formation and 400 ml/ha in the period of flower formation, and the seedling thickness at the beginning of the growing season was 1,189-1,221 million units/ha in the Nika variety, Yunona and it was determined that it was 1,194-1,228 million pieces/ha in the variety.

700 ml/ha of Uzgumi stimulator before sowing seeds, 200 ml/ha during the period of budding, 400 ml/ha during flowering and 300 ml/ha of Fitovak stimulator before sowing, 300 ml/ha during the period of leaf formation and 400 ml/ha during the period of flower formation. and it was determined that it was 1,206-1,232 million units/ha (Table 1).

The highest indicators of seedling thickness at the end of the growing season of mustard varieties are 600 ml/ha of Uzgumi stimulator before sowing seeds, 200 ml/ha during the budding period of the leaf crop, 200 ml/ha during the flowering period of the flower crop. 400 ml/ha during the formation period and 200 ml/ha per seed before planting Fitovak stimulator, 300 ml/ha during the period of leaf formation, and 400 ml/ha during the period of flower formation were observed in the options used, it was found that in the Nika variety it was 1,066-1,085 million units/ha, and in the Yunona variety it was 1,072-1,088 million units/ha.

500 ml/t of Uzgumi stimulator before planting the seeds, 200 ml/ha during the budding period, 400 ml/ha during the flowering period and 100 ml/t per seed before planting the Fitovak stimulator. 300 ml/ha during the leaf formation period and 400 ml/ha during the flowering period. and it was found that it was 1,045-1,076 million pieces/ha in the variety.

700 ml/ha of Uzgumi stimulator before sowing seeds, 200 ml/ha during the period of budding, 400 ml/ha during flowering and 300 ml/ha of Fitovak stimulator before sowing, 300 ml/ha in the period of leaf formation and 400 ml/ha in the period of flower formation. and it was determined that it was 1,054-1,080 million units/ha.

Conclusion. Based on the information given above, it can be concluded that during the years of our research, treatment of seeds with stimulators before planting mustard varieties, during the period of the formation of petals and inflorescences of the plant through the leaf was found to be affected. To maintain the number of seedlings of mustard varieties, 600 ml/t of Uzgumi stimulator before sowing seeds, 200 ml/ha during the budding period, 400 ml/ha during flower formation and 200 ml/ha before planting Fitovak stimulator ml/t, application at the rate of 300 ml/ha during leaf formation and 400 ml/ha during flower formation had a positive effect, stimulants were not used at the end of the growth period compared to the control variant, it was found that 64.0-83.0 units/ha of Nika variety and 62.0-78.0 units/ha of Yunona variety were kept.

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