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THE EFFECT OF DIFFERENT PRE-SOWING TREATMENT METHODS ON THE FERTILITY OF CAPER CAPPARIS SPINOSA L SEEDS IN LABORATORY CONDITIONS IN ASSESSING PRODUCTIVITY INDICATORS

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Annotatsiya

Ковул-Capparis spinosa L. уруғини унувчанлиги лаборатория шароитида урганилди, стратификация қилиш йўли билан кўчат олишда юқори натежага эришилган.

Kalit Уруғларнинг унувчанлиги ва қатиқлиги, стратификациялаш.

Аннотация

В лабораторных условиях изучено оплодотворение семян Capparis spinosa L., достигнут высокий результат при получении сеянцев методом стратификации.

Ключевые слова: Оплодотворение и твердость семян, стратификация.

Abstract

The fertilization of Capparis spinosa L. seeds was studied in laboratory conditions, and high results were achieved in obtaining seedlings using the stratification method.

Keywords: Fertilization and seed hardness, stratification.

Introduction

Since direct sowing of cabbage seeds did not achieve the desired results, we used some methods of pre-sowing treatment. To increase the germination of hard seeds, the seeds of most plant species are scarified or stratified before sowing. The seeds of the Astragalus and Sainfoin species, which are forage plants growing in deserts and semi-deserts, are hard, and the seeds can lie in the soil for decades without

germinating. Such seeds, as we noted above, are called "macrobiotic" seeds. Scarification and stratification methods are used to increase the germination of such seeds. During scarification, the water-impermeable shells of the seeds are destroyed mechanically (rubbing on sandpaper) and chemically (using various acids). As a result, the passage of water and oxygen to the seed coat is ensured, and seed germination is accelerated. For example, when increasing the germination of astragalus and sainfoin seeds, the most optimal option was determined by storing them in sulfuric acid for different periods of time, and the maximum level of seed germination was achieved.

We studied the germination of fenugreek seeds by soaking them in concentrated sulfuric acid (H2SO4) for different periods of time. Analysis of the results obtained from the experiment shows that. storing seeds in concentrated sulfuric acid for 10, 40, 90 minutes did not give the expected result, except for the 40-minute storage option, the germination of seeds was not higher than the control, and even lower in the 10 and 90-minute storage options.

In the non-scarified variant, i.e., the control variant without sulfuric acid treatment, the germination rate of seeds was 5.8-11.3%, an average of 8.6±2.03%, and the coefficient of variation was 23.61%. In the variants of soaking seeds in concentrated sulfuric acid for 10 and 90 minutes, the germination rate, as noted above, was even lower than in the control variant. In these variants, the indicators were 4.7-9.3; 7.2±1.64; 22.70% and 5.4-9.7; 7.2±1.44; 20.03%, respectively, while in the variant where the seeds were soaked for 40 minutes, the germination rate was slightly higher, 9.7-15.4%; 12.0±2.17% and the coefficient of variation was 18.14%. Thus, in addition to their hardness, yam seeds also have a certain dormancy period. The dormancy period of seeds can also be due to physiological reasons, that is, the seeds are ripe, but the seed coat is not yet fully formed. In order for such seeds to germinate, they must be stored in certain special environments for a long time (from 2 to 7 months), that is, stratified.

An example of this is the method of long-term cold stratification. In this case, the seeds are mixed with moistened sand and stored for a long time in an environment with a temperature of 7-80C. The storage period is specific to each species, and for some species it is necessary to store for 2 months, for others for 7-8 months. In order

for such seeds to germinate, they need to be stored for a long time (from 2 to 7 months) in certain special environments, that is, stratified (Table 1).

Table 1 Effect of sulfuric acid treatment on the germination of pumpkin seeds, % (laboratory experiments, 2024)

№	Control (unprocessed)	Cool in H2SO4 for 10 min	Soak in H2SO4 for 40 minutes	Soak in H2SO4 for 90 minutes
1	11,3	5,8	9,7	6,7
2	7,6	4,7	15,4	5,4
3	5,8	8,8	14,8	6,6
4	11,4	9,3	9,7	9,7
5	6,4	6,7	11,3	8,7
6	8,9	6,2	12,4	6,8
7	8,8	8,7	10,5	5,9
8	8,7	7,6	11,8	7,8
∑	68,9	57,8	95,6	57,6
lim	5,8-11,3	4,7-9,3	9,7-15,4	5,4-9,7
M	8,6	7,2	12,0	7,2
m	2,03	1,64	2,17	1,44
V,%	23,61	22,70	18,14	20,03

For such seeds to germinate, they need to be stored in certain special environments for a long time (from 2 to 7 months), that is, stratified. An example of this is the method of long-term cold stratification. In this case, the seeds are mixed with moistened sand and stored for a long time in an environment with a temperature of 7-80C. The storage period is specific to each species, and for some species it is necessary to store for 2 months, and for others for 7-8 months. The shell of the pumpkin seeds is covered with a hard, waterproof film, as well as a hard, woody shell, that is, they are double protected. In order to stratify the seeds of saffron, they were mixed with river sand with a moisture content of 60% in a ratio of 3:1, placed in hermetic containers, kept in the open environment, buried in the ground for different periods: December-January, December-February, December-March, that is, for 30, 60, 90, 120 days, and their germination was studied. It is important to ensure that the temperature of the external environment is relatively uniform during

seed stratification. Because, during the process of stratification, physiological processes continue in the seeds, and through these processes, the complete development of the seed coat and the exit of the seeds from the dormancy period occur. Fertilization of stratified seeds at different times in laboratory conditions was studied using methods generally accepted in seed science, that is, seeds were collected in Petri dishes, using sterilized river sand as a substrate, in a TS-80M thermostat, in an environment with variable germination temperature (house temperature at night, 25 °C during the day). The results obtained from the experiment (Table 2) are presented.

Table 2 The effect of the duration of stratification on the germination of cabbage seeds, % (laboratory experiments, 2024)

№	Стратификациялаш давомийлиги, кун			
	30	**60**	**90**	**120**
1	32,6	73,6	88,7	81,2
2	19,7	65,3	89,4	82,3
3	30,4	70,8	89,1	82,0
4	26,4	71,3	88,7	80,6
5	31,8	69,7	82,8	75,4
6	26,4	66,4	82,3	74,8
7	25,7	68,7	81,5	73,2
8	29,4	71,6	88,7	81,6
∑	222,4	557,4	691,2	631,1
lim	19,7-32,6	65,3-73,6	81,5-89,4	73,2-82,3
M	27,8	69,7	86,4	78,89
m	4,18	2,77	3,50	1,2
V,%	15,04	3,98	4,06	1,5

As can be seen from the data obtained, with an increase in the stratification period, the germination of seeds in laboratory conditions also increased. In the variant with a stratification duration of 30 days, the germination of seeds was 19.7-32.6%, an average of 27.8±4.18%, and the coefficient of variation was 15.04%. In the variant with a stratification duration of 60 days, the indicators were 65.3-73.6%; 69.7±2.77%; 3.98%, respectively, in the variant with a stratification duration of 90

days, the indicators were 81.5-89.4%; 86.4±3.50%; 4.06%, respectively, and in the variant with a stratification duration of 120 days, the indicators were 73.2-82.3%; 78.89±1.2%; It was noted that it was 1.5%. Thus, the highest germination was observed in the variant of seed stratification for 90 days.

Conclusion

In conclusion, the most effective method for increasing the germination of cauliflower seeds is their long-term (90 days) cold stratification, which can increase the laboratory germination of seeds to 86.4% and the field germination to 69.7%.

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