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it can grow well in places where the amount of atmospheric precipitation per year is 120-160 mm. Forms a powerful, deeply penetrating (up to 7 meters) root system. In the east, prickly capers have been used since ancient times as a medicinal plant. The great healer Avicenna widely used this plant in the treatment of various diseases. The following components were identified in the chemical composition of the aboveground phytomass: 0.32 % rutin and quracetin, 150 mg% vitamin C, stachardine, thioglycosides, saponins, and dyes. In fruits, up to 36% sugars, 25-25.6 mg % vitamin C, 1.46 % flavonoids, thioglycosides. Seeds contain 25-36 % fat. The roots contain 1.2 % alkaloids (stachydrin), 0.44 % flavonoids, 4.5 % sugars, coumarins and other substances. At present, in official medicine, according to the results of numerous experiments, the healing properties of this plant have been scientifically proven [4-9]. The plant is the most valuable medicinal raw material for the pharmaceutical industry in many countries. Also, in many European countries, capers are used as a valuable product; they are included in gourmet salads. In this regard, in recent years, Uzbekistan has become a major supplier of raw capers abroad. The commodity raw materials are buds up to 1 cm in size. Entrepreneurs annually harvest thousands of tons of caper buds, mercilessly exploiting a natural resource, which poses a serious threat to the extinction of this plant from nature. Mass collection of buds excludes the possibility of seed reproduction of the plant, the populations become of the same age, and the process of extinction of the species and disappearance from the herbage is accelerated. Obviously, the most effective way to preserve any type of plant is to introduce it into culture and create industrial plantations. Therefore, the development of agrotechnical methods for the cultivation of prickly capers in relation to arid conditions and the creation of industrial plantations are very relevant for the Republic of Uzbekistan. For several years, we have been conducting research to study the sowing qualities of seeds, to study laboratory and field germination, to determine the optimal timing of sowing and planting seeds, to develop effective methods for pre-sowing seed treatment, which will increase their laboratory and soil germination.

MATERIALS AND METHODS

The main goal of our research was to study the seed productivity of spiny capers and the development of methods for increasing seed germination. The object of research was the seeds of a wild population of thorny capers, which are widespread in the Samarkand and Jizzakh regions, growing in natural conditions. In the studies, the generally accepted methods of seed production and seed science of agricultural crops were used [1-3], laboratory and field experiments were carried out.

RESULTS AND DISCUSSION

In the study of seed productivity, 15 fruits of almost the same size were selected from different populations and the average number of seeds in the fruit was determined (Table 1). As can be seen from the table, the greatest seed productivity was in the plants of the population of the Zamin district of the Jizzakh region, in which an average of 296.6 pieces of seeds was formed in one fruit, while in the plants of the Nurabad population of the Samarkand region this indicator was 86.3 pieces of seeds in one fruit. In the population of the Samarkand district of the Samarkand region, an average of 463 fruits was found on one bush of adult plants. Thus, it was found that an average of 91,674 pieces of seeds was formed on one bush, which is 458.3 g. Such a

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number of seeds is enough to create a plantation of thorny capers on one hectare.

Seed germination. When studying field germination, we first used seeds without pre-sowing treatment. The seeds were sown in December, January, February and March to a depth of 2 cm. It was found that the field germination rate of seeds sown in December was 2.5%, while the germination rate of seeds sown in January was only 1.5%.

Table 1. Number of seeds in one fruit, pcs.

№	Wild populations	M± m
1	Zaminsky district of Dzhizak region	296,6±22,7
2	Ishtykhan district of Samarkand region	228,6±19,3
3	Kattakurgan district of Samarkand region	193,6±12,8
4	Nurabad district of Samarkand region	86,3±5,3
5	Payaryk district of Samarkand region	224,8±21,7
6	Samarkand district of Samarkand region	198,1±17,1

From the seeds sown in February and March, there were no shoots at all. Analysing the results obtained in this experiment, we can conclude that sowing seeds without pre-sowing treatment is not advisable; to obtain the desired result, it is necessary to apply effective methods of scarification or stratification, since the seeds of thorny capers are macrobiotics, the proportion of hard seeds is up to 98%.

Influence of different methods of pre-sowing treatment on seed germination. To increase seed germination, prickly capers were soaked in concentrated sulfuric acid at different time exposures. An analysis of the experimental results shows that soaking the seeds in acid for 10, 40, 90 minutes did not give the expected result, except for the option of soaking for 40 minutes, the germination of seeds is low or even lower than in the control. Although a slight change was observed in the 40-minute variant, it was also not at the required level, the germination rate did not exceed 12.0%.

Efficiency of long-term cold stratification of seeds. To increase germination, the seeds were mixed with well-moistened river sand in a ratio of 1: 4 and in sealed bags, kept buried in the ground to a depth of 25-30 cm during December-February (90 days). In March, experiments were carried out to study the laboratory and field germination of stratified seeds. At the same time, there was a sharp increase in laboratory germination by 72-85%. The field germination capacity of stratified seeds was studied at various depths of their embedding (table 2).

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Table 2. Field germination of stratified seeds depending on the depth of their embedding, %, (n=100).

Embedment depth, cm	The number of germinated seeds, pcs.				M ±m	Germination, %
	I	II	III	IV		
0,5	7	12	6	8	8,2±1,3	8,2
1,0	12	18	19	23	18,0±2,2	18,0
2,0	42	46	53	74	53,7±7,1	53,7
3,0	31	48	32	46	39,2±4,5	39,2
4,0	16	12	7	5	10,0±2,4	10,0
5,0	-	-	-	-	-	-

From the data in the table it can be seen that high field germination is observed when seeding seeds to a depth of 2.0 cm -53.7%.

Slightly less when embedded at a depth of 3.0 cm - 39.2%. Thus, it can be stated that the optimal seeding depth is 2-3 cm.

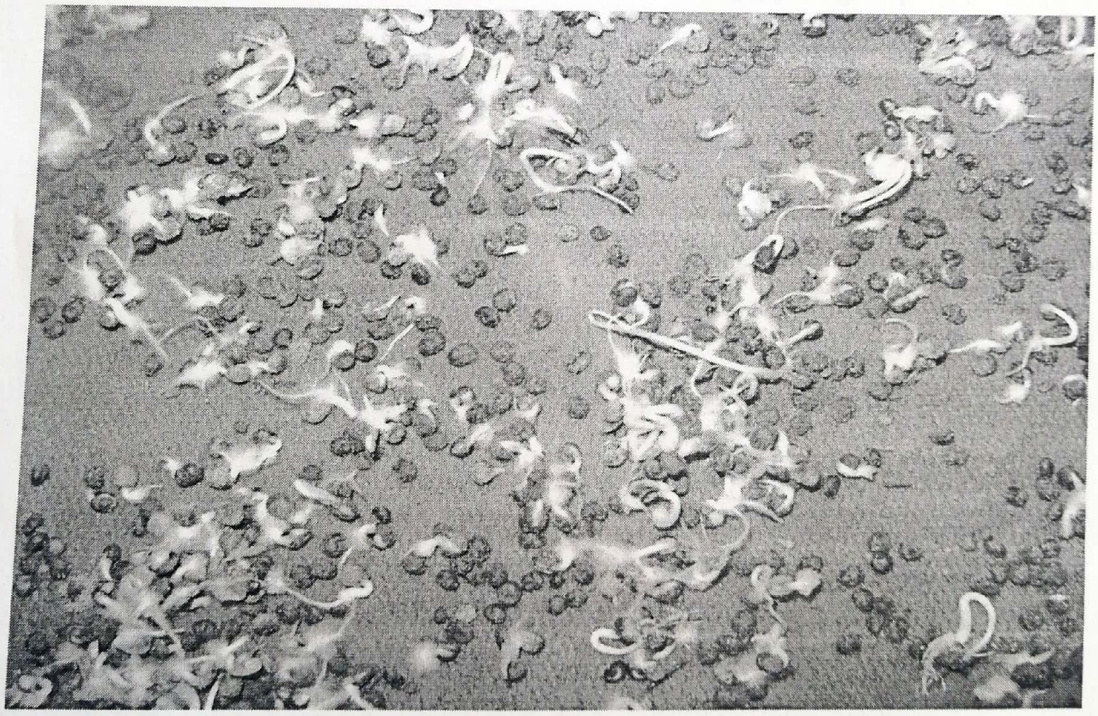

Figure 1. Germination of seeds during prolonged cold stratification

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CONCLUSION

Thus, according to the results of experiments on the germination of seeds of prickly capers, it can be concluded that prolonged cold stratification (90 days) contributes to a sharp increase in germination.

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Efficient Use Of Collector-Drainage Networks (On The Example Of Bukhara Region)

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ABSTRACT

The article presents opinions and comments on the use of collector-drainage networks and water sources in Bukhara region. Their hydromorphological data on the main collectors located in the region are also given. The changes in the flow and mineralization rate of collector-drainage networks were studied. Suggestions and recommendations were also provided in order to increase the efficiency of secondary use of some types of agricultural crops as an additional source of water from the collector-drainage water in Bukhara region.

KEYWORDS

Collector, ditch, Northern ditch, Central Bukhara ditch, Ayak ogitma ditch, irrigation water, natural drainage, water mineralization, water resources, vegetation, saline washing, reclamation, irrigated lands.

INTRODUCTION

At present, the development of scientifically based recommendations and proposals on the basis of research on improving the reclamation of irrigated lands in the Bukhara oasis, increasing soil fertility, efficient use of available water resources in times of water scarcity, the use of additional water sources is a requirement of the time. Compared to other oases, the hydrogeological reclamation conditions of irrigated lands in this oasis have

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their own characteristics and are more complex.

Scientific research has been conducted on the irrigation of agricultural crops with improved drainage water, reducing the mineralization of existing collector-drainage water in the region. In our country, the area irrigated with ditches and groundwater for irrigation is increasing compared to areas irrigated with irrigation water.

When N.F. Bespalov studied the possibility of using mineralized water for irrigation and washing of land in Bukhara region, he found that it is possible to irrigate agricultural crops (without mixing fresh water) with drainage water with a salt content of up to 2 g / l. In the conducted experiments, it was observed that the mineral content obtained from collectors, drains and vertical wells is used for irrigation of crops from 0.5-1.0 g / l to 15-16 g / l. The results show that in the conditions of Bukhara region, especially in the years of water scarcity, the effective use of drainage water for irrigation of agricultural crops and leaching of soil salinity is established. It is known that when irrigating with ditch water, it is necessary to wash the soil in the autumn-winter period, because in the autumn the soil is a certain amount of salinity.

Changes in the level of mineralization of collector-drainage waters of Bukhara region

Table 1

Region	The degree of mineralization is g / l			
	2016	2017	2018	2019
Bukhara	2.35-5.25	2.23-5.10	1.96-5.98	2.22-6.03

Irrigated lands in the districts of Bukhara region and the level of their provision with reclamation networks

Table 2

Districts	Irrigated area (thousand. hectare)	Areas provided with ditches (thousand. hectare)	Division	
			With vertical drainage wells (thousand. hectare)	With closed ditches (thousand. hectare)
By regions	274.9	241.23	42.8	18.37
Buxoro region	30.5	28.42	6.46	1.5
Vobkent	21.5	14.92	8.60	-
Jondor	33.0	31.54	0.10	2.7
Kagon	18.6	17.47	7.65	2.3
Karakul	25.1	22.72	0.3	1.3
Karavulbazar	19.3	14.28	-	1.6
Alat	21.5	21.46	-	2.8
Peshku	22.6	14.35	3.75	1.0
Romitan	27.3	22.83	2.53	1.8
Shofirkon	28.4	23.16	7.95	0.5