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METHODS OF GENERATIVE REPRODUCTION OF SALVIA OFFICINALIS L.

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СПОСОБЫ ГЕНЕРАТИВНОГО РАЗМНОЖЕНИЯ SALVIA OFFICINALIS L.

Аннотация. *Спрос фармацевтической промышленности Узбекистана в сырье для лекарственных растений растет день ото дня. К таким объектам относятся лечебный маврак, лечебный лак для ногтей, лекарственная ромашка, наматак, валериана, боярышник, барбарис и другие. Среди них лекарственный шалфей (Salvia officinalis L.) отличается широким использованием в фармацевтической, парфюмерной и медицинской промышленности.*

С этой целью в наших научных исследованиях мы стремились изучить лекарственное растение шалфей (Salvia officinalis L.) как научный объект. В этой статье вы можете познакомиться со способами размножения лекарственного растения маврак.

Ключевые слова: *лекарственный маврак, ГОСТ, качество, забывчивость, семена, лаборатория, чашка Петри, орошение, срок посева.*

Abstract. *The demand of the pharmaceutical industry in Uzbekistan for raw materials for medicinal plants is growing day by day. Such objects include medicinal salvia, medicinal nail polish, medicinal chamomile, namatak, valerian, hawthorn, barberry and others. Among them, the Salvia officinalis L. is widely used in the pharmaceutical, perfumery and medical industries.*

To this end, in our scientific research, we aimed to study the medicinal plant Salvia officinalis L. as a scientific object. In this article, you can get acquainted with the methods of propagation of the medicinal plant Salvia officinalis L.

Key words: *Salvia officinalis L., GOST, quality, forgetfulness, seeds, laboratory, Petri dish, irrigation, sowing time.*

Introduction. The cultivation of this plant, in turn, to some extent meets the demand of the pharmaceutical industry in Uzbekistan for this plant raw material. Overcoming these problems is directly related to the development of technology for the cultivation of medicinal plants and the preparation of raw materials.

Salvia officinalis L. is distinguished by its widespread use in the pharmaceutical, perfumery and medical industries.

Analysis of the literature on the subject. *Salvia officinalis L.* is not found naturally in Uzbekistan (I. Maltsev, 1994), it is cultivated as an ornamental and medicinal plant. It is also used in the CIS countries as a medicinal plant in Ukraine, Moldova, Russia and other countries. q. grown.

According to the literature, the following GOST requirements should be followed in the preparation of mavrak seeds. In this case, the seed must meet the requirements of class I, the purity of the seed should not be less than 94-96% and germination of 85-93%.

Research methodology. Experiments have shown that the seeds of *Salvia officinalis* L. have high quality indicators. In determining the quality indicators of plant seeds, the collected seeds were sorted and divided into clean and empty seeds. Its purity relative to the general condition was determined by proportion. At the same time, the purity was recorded at 94-96%.

Experiments have shown that medicinal mavrak seeds have high fertility rates. In order to determine the seed germination, seed samples collected from the model plant were tested in the laboratory and in the field by sowing 100 pieces on the basis of 4 repetitions. In determining the germination of seeds, germinated seeds were taken into account and determined as a percentage. In our experiment, the fertility of the seeds collected from the model plants in variants 1 and 2 was 70-75%, while in the plants of variant 4, these values were recorded around 70-80%.

Analysis and results. It is known that seed germination is a key indicator in the establishment of plant crop areas. To this end, our scientific research has studied the methods of propagation from plant seeds.



Salvia officinalis L. Fruits and seeds

The fruit of *Salvia officinalis* L. consists of 4 nuts. The seeds are 2.2–3 mm long, with a flat surface, dark brown or brownish-black. The weight of 1000 seeds is 7-8 g.

In order to study the germination of seeds in the laboratory, the experiments were carried out and tested on the basis of 4 replications, in which 100 seeds were sown by placing filter paper on a Petri dish. In the seeds sown on a Petri dish for testing, germination was observed after 16–20 days and lasted for 35–40 days.

1-table

Dependence of seed germination on sowing time

Sowing time	Sowing time, (months)	Date of sowing the seeds	Germination, %
Spring	March	1.03.20 y	85
		15. 03.20 y	83
	April	01. 04.20 y	80
		15. 04.20 y	73
	October	01.10.20 y	70

Autumn		15.10.20 y	73
	November	01.11.20 y	73
		15.11.20 y	81

Note: The germination of seeds sown in late autumn is observed in early spring.

Experiments have shown that the germination of seeds of *Salvia officinalis* L. is satisfactory and averages 80-85% under laboratory conditions (18-20 °C).

Thus, the germination of plant seeds under laboratory conditions was high, and these figures were recorded in all variants in the range of 80-85%.

In order to determine the optimal sowing time of plant seeds in field conditions, experiments were conducted during the sowing seasons (spring and autumn), taking into account seed germination in laboratory conditions. The seeds were sown and tested in March-April and November-December of the year to obtain accurate data.

Experiments have shown that in all sown variants, the germination of sown seeds was observed around 75-80%. However, the germination of seeds sown in early spring in the first days of March was relatively high, and these values were recorded at a slightly higher level of fertility observed in laboratory conditions 80-85% . When propagating from seed, medicinal salvia plant early spring seeds were sown at a depth of 2–3 cm, making row spacing 60–70 cm in late March when the soil temperature is 12–15 °C. Consumption of 8 kg of seeds from class 1 seeds per hectare gives an effective result.

The sown seeds germinated in 15-22 days and the seeds were observed to form leaves. The main root was 3.5–4 mm long, and the total length of the grass was noted to be around 1–1.5 cm. On 10–12 days of observations, the length of grass seed pods was 2–4 mm. It has been observed that since the grass period they have been covered with hairs. The main arrow root of the grass is 1-2 cm, and the widest first-order roots are 0.2-0.4 mm. At the same time it was observed that the total length of the plant reached 1.0-1.2 cm. When the appearance of the first true leaves in them is observed on 12-15 days of development, the upper part of the leaf blade is covered with fine hairs. Chin leaf shape is elongated, 0.5 mm wide and 0.8 mm long. At this time it was found that the main root reached 4.5–5 cm, the widest roots reached 0.8–1 cm.

The grasses grew slowly and their total length was 3-3.8 cm. In the spring, as a result of the harvest, foliage is observed in the areas planted with medicinal herbs. To eliminate stumps, the plant spaces were softened, mulched with wood chips and rotten manure, and at the same time uniformed, leaving 2-3 plants every 20 cm.

Observations showed that in the first growing year, the length of the main stem of the plant reached 40-48 cm, and the number of leaves reached 20-26. The inflorescence of the lower part of the main stem was 3-5 cm and the number of leaves shed from this place was on average 4-6. In the first growing year, the number of first-order branches reached 8-10 and 25-27 cm in length, the number of leaves reached 15-18. The leaf blade was 8-10 cm long, 2-2.8 cm wide, and 5-6.1 cm long.

Thus, scientific studies have shown that the medicinal mavrak plant grows sufficiently in irrigated soils with high fertility, moderate mechanical content. Sowing the seeds of the plant in autumn and early spring gives effective results. No generative period was recorded in the first year of development when propagated from seed. It was noted that the preservation of grass seedlings

grown at the end of the growing season is high 70-80%. It is now irrigated depending on the soil moisture and the surface layer of the soil is being softened and cleared of weeds.

Depth of sowing seeds. When propagating each plant from seed, it is important to determine their planting depth.

With this in mind, an experiment was conducted based on several options in order to determine the optimal planting depth of the seeds of the *Salvia officinalis* L. plant.

It was also found that when the seeds were sown on the surface, they germinated less, and when they were planted relatively deep, the germination rate decreased. This is due to the decrease in moisture levels due to direct sunlight on the sown seeds and the lack of sufficient conditions for the seeds to germinate in the soil.

Thus, the germination of plant seeds depends on the sowing depth, and these indicators were recorded in the variants around 70-85%. In field conditions, the optimal sowing depth of plant seeds is 2-3 cm.

Conclusions and Recommendations.

1. The germination of seeds of *Salvia officinalis* L. The soil conditions are directly related to its mechanical composition and planting depth. In particular, germination of seeds in soils with heavy mechanical composition and poor soil composition was relatively low. It was noted that seed germination is much higher in typical gray soils rich in mechanical composition and rich in humus.

2. The optimal sowing depth of *Salvia officinalis* L. plant seeds was noted to be 2-2,5 cm.

3. The germination rate of *Salvia officinalis* L. plant seeds was recorded to be around 80-85% (average 83%).

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