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PHYSIOLOGICAL FEATURES AND ANALYSIS OF SALVIA OFFICINALIS L. IN THE BOTANICAL GARDEN OF THE NATIONAL UNIVERSITY OF UZBEKISTAN

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ANNOTATION

Salvia officinalis L. is a shrub belonging to the family of mint.

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INTRODUCTION

There are 4,650 species of plants in the flora of Uzbekistan, of which 650 species are essential oils and more than 700 species are medicinal. 30 species of these plants are the main raw materials in various sectors of the economy, especially in the food industry and in the manufacture of medicines [3].

Today, in the world, special attention is paid to the involvement in the production of valuable plants that retain the medicinal, edible and aromatic properties of essential oils, as well as to improve the ways of cultivation. Among such promising plants we can include *Salvia officinalis L.*

Mint - Lamiaceae family has 3500 species of 200 genera, 214 species of 38 genera grow in Uzbekistan. They are distributed in hot and temperate climates. It is an annual, perennial herb, semi-shrub, and in the tropics it is sometimes a shrub and tree. The stems are 4-sided. Normally leafy, opposite the stem, without leaves. The petals have two petals, the upper lip has 2 petals and the lower petal has 3 petals. Dusters 4, sometimes 2. The seed has 2 fruits. Fruit-nut. The flowers are zygomorphic, sometimes actinomorphic, 5-membered, dicotyledonous [3].

Salvia L. belongs to the family of mint (*Lamiaceae Lindl.*) And is widespread. Category species are distinguished by their healing properties. In particular, *Salvia officinalis L.* The leaves of medicinal marmara accumulate more essential oil than other organs. In folk medicine, a tincture made from the flowers and leaves of marmalade is used to treat bronchitis, pyelitis, cystitis, hepatitis, enteritis, gastroenteritis, gastric ulcer, stomatitis, angina, rinsing the mouth, throat, skin diseases and dark wounds [2].

In modern medicine, galenic preparations made from marmara are used in inflammatory diseases of the oral cavity, nasopharynx and upper respiratory tract, bronchitis, bronchial asthma, hepatitis, cholecystitis, gastric and duodenal ulcers, cystitis, pyelitis, purulent wounds, dark wounds and other skin diseases prescribed for treatment. Marmara reduces sweating, so it is used during the climacteric period, when a person sweats profusely. Tea made from medicinal marmara is an important tool in the treatment of diseases of the urinary tract [2].

The phenological properties of *Salvia officinalis L.* were studied in the conditions of the Botanical Garden of the National University of Uzbekistan.

Results obtained and their analysis.

The water regime of the medicinal marmarak - *Salvia officinalis L.* in the conditions of the Botanical Garden of the National University of Uzbekistan was determined and the following results were obtained.

Medicinal marmara - *Salvia officinalis L.* is less demanding to heat and moisture. The seeds germinate at 10-1^{0}C. The grass can withstand 3^{0}C frost. Marmara is a light-loving plant.

The amount of water in the leaf of *Salvia officinalis L.* Water is one of the main environments for living organisms to live. In dehydrated conditions, organisms die. The amount of water in the body of plants can range from 70% to 90%. That is, it depends on their species and varieties, age, habitat, various organs, and even cell organelles [4].

The purpose of our study of water regime indicators of *Salvia officinalis L.* is that the factors limiting the vital activity of plants are mainly high temperature and lack of moisture. To find out how well they are supplied with moisture, we observed the water consumption of the leaves during the day by determining the amount of water in the leaves every 2 hours in the water regime indicators. The sample in the bag was dried in a thermostat at 105 ^{0}C until it reached a constant weight, and the weight after drying was also weighed. The total amount of water (in%) was calculated based on the formula.

The total amount of water (X) in percent was determined based on the following formula:

$$X = \frac{100x\ (v-s)}{v-a}$$

here:

a is the weight of the empty bag, g;

weight of the v-sac with the plant in the wet state, g;

s is the weight of the sac with the plant in the dry state, g [4].

Observations have shown that the amount of water in *Salvia officinalis L.* decreases from spring to summer, but this figure changes when the plants are watered or when heavy rainfall is observed. This is due to moisture in the soil. Therefore, it was 83.3% in April, 85.9% in May and 75.1% in June. - In May, it can be seen that the amount of water in plants is high (Table 1).

Table 1 Medicinal marmarac - Salvia officinalis L. The amount of water in the leaves of plants

Plant name	Date of Observation	The amount of water in the plant	Average %
Marmarak with medicinal properties - *Salvia officinalis L.*	15.04.2021	83.1 83.5 83.4	83.3+0.32
	16.05.2021	90.6 83.7 82.9	85.9+2.54
	10.06.2021	75.2 75.1 75.1	75.1+0.094

Water Storage Capacity:

The inverse of the rate of water loss is the water storage capacity of the leaves. This indicator of the water regime indicates the ability of the plant to withstand this or that level of dehydration. This indicator of the water regime is determined by the method of A.A. Nichiporovich [4].

We started work at 7-8 in the morning. We quickly brought a medicinal marmara plant from the experimental field wrapped in a wet cloth. To do the work, the plant was cut along with a leaf band (repeat 3 times), we weighed the initial weight on a torzion scale and wrote it down in a notebook. We then hung freely on the strings that were pulled in the room. After 1 hour, we weighed and recorded the weight again, and the weighing continued until the final weight was changed.

Weight was obtained after 3 h for calculation. After weighing, the plant leaf was carefully placed in pre-numbered paper bags and dried in a thermostat at

105 ^{o}C. We pulled out the dried plant leaf again and wrote down its weight in a notebook. We completed the work by calculating the water storage capacity based on the formula and filling in the table.

$$SSQ = \frac{\text{(weight after 3 hours - dry weight)} \times 100}{\text{(initial weight-dry weight)}}$$

When we determined the water retention capacity of the medicinal marmarac-*Salvia officinalis L.* (in% in 3 hours of exposure), it was 76.4% in April, 77.4% in May, and 68.7% in June (Table 2).

Table 2 Medicinal marmarac - the ability of Salvia officinalis L. to retain water
(In% of 3 hours of exposure)

Plant name	Date of Observation	The ability to store water in the plant itself	Average %
Marmarak with medicinal properties - *Salvia officinalis L.*	10.04.2021	77.2 75.3 76.7	76,4 +1.57
	15.05.2021	80.8 75.9 75.5	77.4+2.2
	10.06.2021	68.4 68.1 69.6	68,7+0.72

Medicinal marmarak:

Salvia officinalis L. Determination of the osmotic pressure of cell sap is an important factor in determining the indicators of ecological resilience of plants to external environmental conditions [4].

Medicinal marmarac-*Salvia officinalis L.* When we measured the osmotic pressure in the cell sap on a refractometer, it was 17 atm in April, 21 atm in May, and 25 atm in June (Table 3).

Table 3 Medicinal marmarak- Salvia officinalis L. osmotic pressure in cell sap, atm

Plant name	Date of Observation	Osmotic pressure, atm
Marmarak with medicinal properties - *Salvia officinalis L.*	10.04.2021	17
	06.05.2021	21
	10.06.2021	25

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