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FERTILITY OF FLOWER POLLEN OF *SALVIA OFFICINALIS* L GROWING UNDER THE CONDITIONS OF TERMIZ CITY

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Annotation. In the article, the percentage of flower pollen maturity of Salvia officinalis L acclimatized to the conditions of the Surkhandarya region was determined using a microscopic method. Research was carried out in Termiz city, the southern region of the area, and Shurchi district, the northern region. The fertility of dust grains was determined using the Acetocarmine method by staining dust grains with an acetocarmine solution.

Keywords. salvia, dust grain, acetocarmine, microscope, flower, androceum, bloom

Introduction. Mints - its wealth of medicinal plants distinguishes the *Lamiaceae* family. *Salvia officinalis* L. which is one of the medicinal species of the salvia family, is particularly important [1,2]. Among the plants taken for research, the medicinal plant belonging to the genus Salvia was one of the first to be described by Carl Linnaeus. The name of the category comes from the Latin word salvare, which means "healer". Because it is common in many countries, *Salvia officinalis* L. is known by different names. Specifically; Germans - edler Salbei, English - sage, Italians - Salvia, French - sauge, serve, Arabs - maryamiyah, khornak, Turks - ada cayi, Croatians - kadulja, [5].

The flowers of Salvia officinalis L are bisexual, bluish-purple in color, and zygomorphic. The flowers are located at the tips of the main and side branches in the form of a flower-shaped inflorescence. The inflorescence length is 4.0-4.5 mm and is covered with glandular hairs. Sepals 9.02 mm long, five-toothed and green, covered with glandular hairs. The sepals later turn brown and are stored until the fruit ripens.

The petals are double-lipped, and bluish-purple in color, the upper lip consists of two petals, and the lower lip consists of three petals bent down. The seed is single, 13.0–15.0 mm long, the beak is three-parted, and the upper node is four-parted and green. The leaves are two-lobed, 8.0–9.0 mm long, attached to the base of the yellow leaf.

The plant buds are initially tiny (2.0–3.0 mm). In 10-12 days before flowering, the buds grow to 7.09 mm, the upper part of the sepals opens and the sepal teeth appear. At first, the petals are light purple, and when the buds are fully opened, they turn bluish-purple. When the plant buds are fully formed, the length of the sepal is 9.02 mm, and the length of the sepal is 13.9 mm, and at this time the flowers open. In a fully opened flower, the sepal is twice as long as the sepal and is 18.2 mm. The opening of flowers continues acropetally. Plant flowers have an entomophilous method of pollination and are mainly pollinated by insects belonging to the bee family. The fruit is senobi, consisting of a nut formed by the union of four sepals [6].

Purpose of the study. The purpose of the study is to study the anthology of *Salvia officinalis* L., introduced to the soil and climatic conditions of the Surkhandarya region, to determine the seed productivity of the plant while determining the maturity level of its reproductive organs.

Research results and their discussion. Research work was carried out in the area of Shurchi district, which is the northern region of Surkhandarya region, and the city of Termiz, which is the southern region. Four plants were selected from two-year-old plants growing in the territory of Termiz city, and the flowers that opened were plucked and observed on the morning of April 5, 2024, at 06:00. Sampling for the study was carried out in 3 parts of the day. Samples were taken every four hours at 08:00, noon at 12:00, and 16:00 and were marked separately. In the scientific laboratory of Termiz State University, the androecium of the *Salvia officinalis* L. flower was removed and placed in a numbered slide for each plant, the pollen was crushed, the pollen grains were removed from the slide, and the pollen residues were removed, stained with acetocarmine dye, and placed in a petri dish. It was stored in a

refrigerator at +2 ℃ for 24 hours. The prepared samples were studied under a MIC D30 trinocular microscope and the results are shown in (Fig 1).

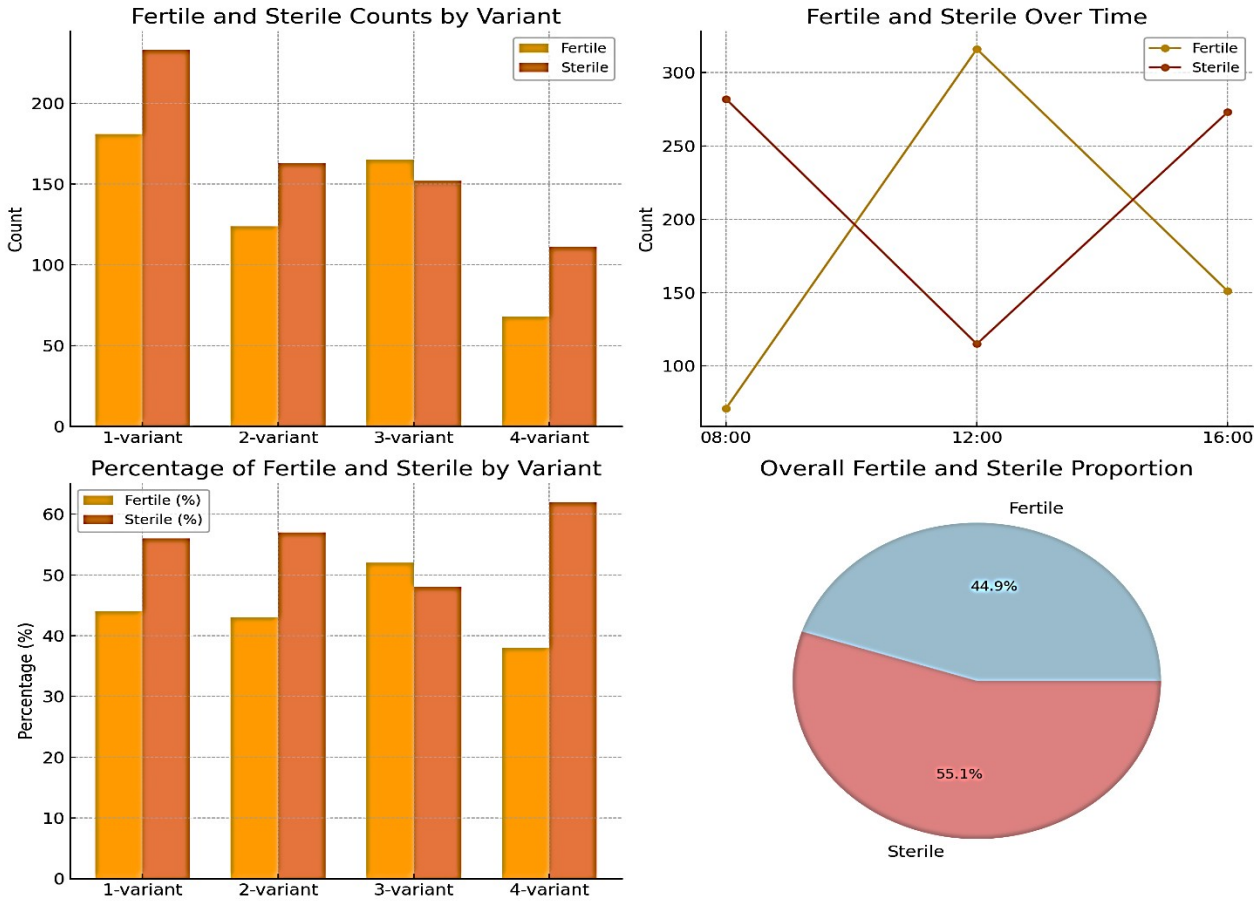

Fig. 1. Fertility of flower pollen of *Salvia officinalis* L growing under the conditions of Termiz city (Termiz 2024.04.05).

Microscopic research methods were used to determine the fertility of a grain of dust. Acetocarmine dye was used to stain the grain of dust. In this case, it was observed that the dust grains in the fertile state were red, and pink in color, and the immature ones remained colorless (Fig. 2).

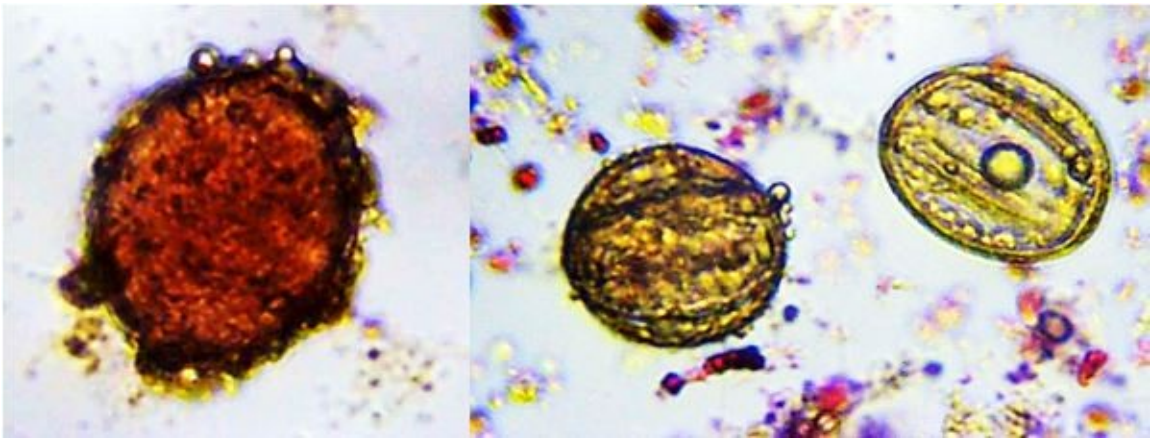

Figure 2. The stained dust grain is ripe, the unpainted one is immature

Samples of Salvia officinalis L flowers, introduced to the territory of the Shurchi district of the province, were taken on April 12 of this year at 08:00, 12:00, and 16:00, and microscopic analysis was carried out (Fig.3).

Fig.3. **Fertility of *Salvia officinalis* L flower pollen growing in the conditions of Shurchi district (Shurchi 2024.04.12)**

According to the results of the experiment conducted to determine the fertility of *Salvia officinalis* L flower pollen growing in the conditions of the Shurchi district, the percentage of fertility is low in all four options at 08:00 and 16:00, and the highest in flowers opened before midnight. was observed to have a pointer. It was determined that the percentage of pollen fertility in this area is 49% (Fig. 4).

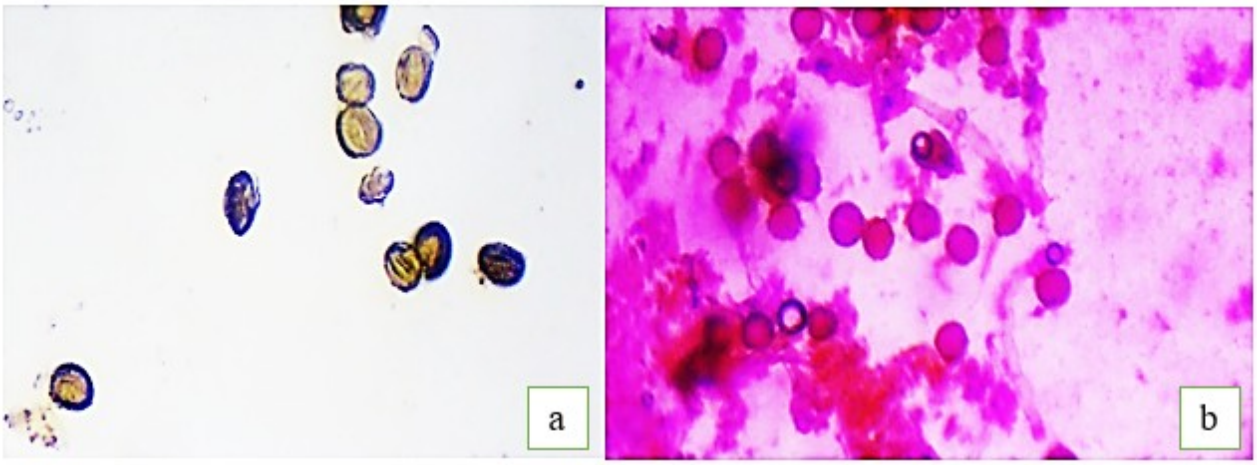

Fig. 4. View of a *Salvia officinalis* L. pollen grain when viewed with a 10x lens. a) sterile b) fertile

Conclusion. In conclusion, it can be said that the fertility of Salvia officinalis L flowers in the conditions of Surkhandarya region is 45% in the first decade of April, 49% in the second decade, and the fertility of flowers opened from 08:00 to 12:00 has the highest indicator was found to be.

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