

Medicinal Plant *Melissa Officinalis* L - Bioecological Properties

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Abstract: The article provides information on the botanical characteristics of *Melissa officinalis* and its bioecological features.

Keywords: Vegetation, tannin, nectar, vitamin, phenological phase, essential oils, neurosis, bronchial asthma, toxicosis, menopause.

Introduction

Melissa officinalis L is a perennial herb with an erect stem, mostly branched, covered with thick coarse glands and hairs, 30-50 sm tall, belonging to the mint family. The leaves are ovoid or round, the edges are serrated, the underside, the hairless top is slightly covered with hairs. [1,3]. The flowers are arranged in a banded ring. The seeds with the petals are triangular, small, dark brown. It grows in the mountainous areas of the Fergana Valley, and in some places on irrigated lands in cool places, among trees and shrubs. In some gardens it is found on the surface of ditches. The leaves of this plant, which are solitary or in small groups in Arslonbob, Pochchaota, Sokh, Chadaksay, Govasay and other places, are reminiscent of the smell of lemon. That is why it is also called lemon grass. [1].

This plant is known among the people as an essential spice and is grown in special areas in some countries. It is also used in the preparation of perfumes, as well as to give tea a pleasant aroma. The upper part of the plant contains vitamins C, B, tannins, citric and succinic acids, as well as mineral salts and essential oils. It refreshes and enhances the tone of the fragrant person, and is also used in the preparation of medicinal soft drinks. As raw materials are used leaves, small twigs. *Melissa* flowers have nectar-secreting properties and are an important source of honey for bees. Each flower produces 0.08-0.10 mg of nectar, and 50-60 kg of nectar per hectare can be collected from thick plant bags. The amount of sugar in nectar is much higher than 50-60% (Khamidov, 1968). [2,4].

Although *Melissa* is a wild plant, it is easily grown on the experimental plot, with seed germination in laboratory and field conditions at 83% and 58%, respectively. When sown in autumn (November), it germinates in mid-March. It flowers in the last ten days of June and the seeds ripen in October-November (Table №5). It is estimated that the mass per hectare can be 700-750 kg.

Table 1

Phenological phases of the citrus plant

Plants №	Vegetation Beginning	Buds	Flowering			Flowering period (days)	Fruiting		Seeds maturity (days)
			Beginning	sloping blooms	Ending bloom		beginning	ending	
1	15.03	10.06	20.06	5.07	20.09	110	25.10	25.11	30
2	20.03	12.06	22.06	4.07	23.09	92	26.10	20.11	24
3	16.03	11.06	24.06	10.07	22.09	88	23.10	23.11	30
4	17.03	11.06	25.06	15.07	21.09	86	25.10	22.11	27
5	15.03	13.06	26.06	12.07	23.09	87	26.10	24.11	28

A plant that grows quickly and easily from seed and root, its vegetation usually occurs in the first ten days of March. In spring, it grows rapidly, reaching a height of 60-80 cm by July, and the length of the side branches is 10-70 cm. Flowering begins on June 10-15. The last flowering lasts until the end of July. Although lemon grass is perennial, it will sprout new shoots on July 17 when the stems are cut. The height of new branches reaches 25-30 cm by the end of August. New shoots sprout forth and bloom from late August to September-October.

Lemongrass seeds ripen in mid-November and last until the end of the growing season. One bush weighs 7 kg when cut in the wet state and 600-700 g in the dry state. Per hectare: 90 tons in the wet state and 6.7 tons in the dry state. During the entire flowering period, bees use lemon nectar nectar, which releases 0.08-0.11 mg of nectar per flower, with a nectar concentration of 49-63%. Thick lemongrass plantations produce 50-60 kg of honey per hectare. According to long-term observations, the vegetation of lemons falls in the first decade of March. The length of the stem is 15-17 cm on April 17, 19-20 cm on April 26, 20-23 cm on May 5, 25-30 cm on May 19, and 30-35 cm on June 5.

The buds start on June 5, the first flowers on June 15, the slopes on June 20-23, the end of flowering on July 20-30, and the seeds ripen on August 20. In some cases, the last flowering lasts until late September.

In mid-July, part of the existing plant was cut down. The first flowers appeared on August 26, the height of the stem was 25-30 cm. Flowering of new branches lasted from late August to mid-September. In 2019, the height of the stems of melissa (17.07.2019) ranged from 62 cm to 77 cm, with 91 stems per bush. 1 bush weighs about 2.10 kg in the wet state and takes up 1 (harvested on July 17 - the first flowers opened on August 26, the height of the stems is 25-30 cm). Each flower blooms for 1 day, its flowers begin to open at 9-10 o'clock in the morning, and the opening lasts until 11 o'clock.

Table 2

The amount of nectar released from each flower root in different years

Years	Amount of nectar	Nectar concentration
2016 y.	0,19 mg	63%
2017 y.	0,14 mg	56%
2018 y.	0,11 mg	48%
2019 y.	0,05 mg	61%
2020 y.	0,20 mg	66%

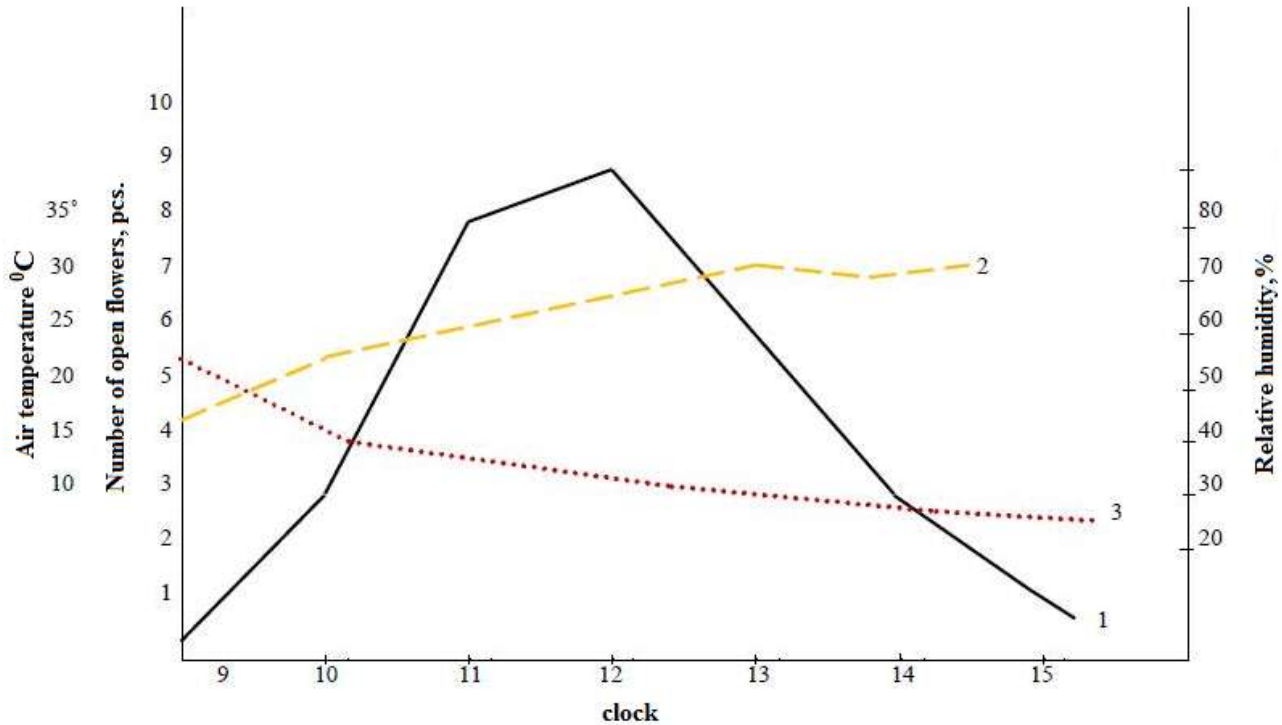
On average (5 years), each flower releases 0,05 to 0,20 mg of nectar, with an average of 0,13 mg; nectar concentrations range from 48 to 66%, with an average of 59%.

Table 3

Dynamics of nectar separation

Time, per day	Separation of nectar at the expense of a flower (mg)	Nectar concentration (%)
8	0,03	40

10	0,15	44
12	0,10	48
14	0,10	68
16	0,06	68
18	0,03	65



1- picture. Flowers blooming during the day

Melissa officinalis
opening of flowers
air temperature
relative humidity

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