



**OF ESSENTIAL OILS FROM PLANTS AND THEIR CHANGE WITH
VEGETATIVE PHASES AS AN EXAMPLE OF ASIAN MINT
(MENTHA ASIATICA BORISS)**

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Abstract

Mentha asiatica Boriss. in two phases received essential oils: in the phase of vegetation and flowering. The aboveground part in the phase of the growing season contains 0.10%, in the leaves - 0.13%; the phase in the aboveground part flowering contains 0.14%, in the leaves - 0.17%, and in inflorescences - 0.23% of essential oil.

Keywords: Asian mint, *Mentha asiatica* Boriss., plants with essential oil, Ginzberg's apparatus, hydrodistillation method, medicinal plants.

Mint (*Mentha*) is a perennial herbaceous plant belonging to the mint family (*Lamiaceaceae*), in Uzbekistan: Water mint - *M. arvensis* L., Peppermint - *M. Piper ita* L., Pamiroloy mint - *M. Pamiralaica* Boriss. and Asian mint - *M. asiatica* Boriss. There are four types [1].

Asian mint – *Mentha asiatica* Boriss. The plant was described for the first time in 1954 by A. Borisova as *Mentha asiatica*. Its homeland is Central Asia (Kazakhstan, Kyrgyzstan, Turkmenistan, Tajikistan and Uzbekistan), Western Asia (Afghanistan, Iran and Iraq) and China (South Central China, Tibet and Xinjiang). Almost all types of mint are used as medicinal, essential oil and aromatic plants [2,3]. In folk medicine and scientific medicine, they are used in the treatment of gastrointestinal diseases [4], intestinal colds and spasms [5], in improving the functioning of respiratory organs, in the treatment of itching and pain, and in improving the taste of medicinal preparations [6].

There is a lot of information about plant essential oils. At the beginning of the last century, M.I. By Kurbatov [7] 0.07% in the flora of Turkmenistan, S.N. Kudryashev [8] determined the presence of 0.065% essential oils in plants growing in Tajikistan, while Q. Dzhumaev [9] isolated 0.18-0.36% of essential oils from representatives of plants in Surkhondarya region. Q. According to Khodzhimatov [10], the presence of 0.17-0.23% of essential oils in the above-ground part of the plant growing in the Chotkal mountain ranges (flowering phase) is shown. As an object of study, we used Asian mint - *Mentha asiatica* Boriss, growing at an altitude of 1460 m above sea level in the Hisar mountain ranges (Pamir-Oloy mountains, Surkhondarya region, Vakhshivor village). we selected the plant.

The stem of the Asian mint plant is erect , branched, covered with gray fluffy hairs, 60-100 cm tall, leaves are opposite, lanceolate or oblong, purple flowers are collected in a simple spike-like inflorescence. It blooms in May - September and seeds in October - September.



Asian peppermint is a light-loving, moisture-loving plant, it grows near springs, streams and rivers, in the areas of the mountains up to the high hills.

We determined the dynamics of accumulation of essential oils in plant bodies using the method of hydrodistillation in the apparatus of A.S. Ginsberg [11]. The main part of essential oils (up to 80%) is collected in the Ginsberg apparatus within 30-40 minutes after boiling water. Essential oils are yellow in color and have a sweet smell.

We have presented the information about the essential oils of the plant in the table. It showed the accumulation of essential oils in different organs of the plant.

Schedule. Changes of essential oils in various organs of the Asian peppermint plant depending on the vegetative phase (% , determined by weight).

Vegetative phase			Full flowering phase			
The stem	Earth above part	Leaves	The stem	Earth above part	The leaves	Original
Traces	0.10	0.13	Traces	0.14	0.17	0.23

There are traces of essential oils in the girdle of the plant . Its fragrant essential oils are collected mainly from its leaves and flowers. In the vegetative phase before the flowering of the plant, a little less accumulation was found in the above-ground part and leaves of the plant compared to the flowering phase (0.10-0.13 %). After the flowering phase of the plant, it was found that the amount of essential oils in the above-ground part and leaves increased by 0.04%, and their maximum amount was collected in the flowers (0.23%).

According to our results, the amount of essential oils extracted from the above-ground parts of the plant M.I. Kurbatov (1927) and S.N. Much more information than Kudryashevlar (1932), but Q. Dzhumaev (1974) said that it is much less, only Q.H. It is possible to observe the agreement with the data of Hojimatov (1992).

In conclusion , it can be said that it is preferable to obtain the essential oils of Asiatic mint from the above-ground parts of the plant during the flowering phase. The obtained essential oils can be used in perfumery, in the food industry (in the preparation of soft drinks and tinctures, in the production of various candies), and in medicine to improve the taste of medicinal preparations.

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