

ASIAN MINT (MENTHA ASIATICA BORISS) PLANT ESSENTIAL OILS AND ITS CHANGES DEPENDING ON VEGETATIVE PHASES

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Abstract

Essential oils were extracted from different organs of Asian mint - *Mentha asiatica* Boriss. It was found that there are 0.10% of essential oils in the aerial part of plants in the vegetative phase, 0.13% in the leaves, 0.14% in the aerial part of the flowering phase, 0.17% in the leaves and 0.23% in the flowers (calculated as % wet mass).

Annotation

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 flowering phase in the aboveground part contains 0.14%, in the leaves - 0.17%, and in inflorescences - 0.23% of essential oil.

Keywords: Asiatic mint, *Mentha asiatica* Boriss., essential oil plants, Ginzberg apparatus, hydrodistillation method, medicinal preparations. The genus (*Mentha*) is a perennial herbaceous plant belonging to the (Lamiaceae) family, in Uzbekistan: Water mint - *M. arvensis* L., Peppermint - *M. Piperita* L., Pamiroloy mint - *M. Pamiralaica* Boriss and Asian mint - *M.* four species such as *asiatica* Boriss are found [1].

Introduction

Asian mint - *Mentha asiatica* Boriss. the plant was described for the first time in 1954 by A. Borisova as *Mentha asiatica* species. 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 to treat gastrointestinal diseases [4], intestinal

colds and spasms [5], to improve the functioning of respiratory organs, to treat itching and pain, and to improve 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. 0.07% in the flora of Turkmenistan by Kurbatov[7], S.N. Kudryashev[8] determined the presence of 0.065% essential oils in plants growing in Tajikistan, while K. Dzhumayev[9] isolated 0.18-0.36% of essential oils from the representatives of plants in Surkhandarya region. 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 indicated.

As an object of study, we used Asian mint - *Menthaasiatica* Boriss, growing at an altitude of 1460 m above sea level in the Hisar mountain ranges (Pamir-Oloy mountains, Surkhandarya region, Vakhshivor village). we selected the plant.

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

Asiatic mint is a light-loving, moisture-loving plant that grows on the banks of springs, streams and rivers, in the regions of the mountain up to the upper valleys.

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

We have given 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.

Table. Variation of essential oils in various organs of Asiatic mint depending on the vegetative phase (% , determined by wet mass).

Vegetative phase			Gross flowering phase			
Stem	Above ground part	Leaves	Stem	Above ground part	Leaves	With a ball
Traces	0.10	0.13	Traces	0.14	0.17	0.23

There are traces of essential oils on the stem of the plant. Its aromatic essential oils are mainly collected in the leaves and flowers. It was found that in the vegetative phase before the flowering of the plant, it is much less accumulated in the above-ground part and leaves of the plant than in the flowering phase (0.10– 0.13%). After the plant enters the flowering phase, it was found that the amount of essential oils in the tops and leaves increased by 0.04%, and their maximum amount was collected in the inflorescences (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 Kudryashev (1932), but K. Dzhumayev (1974) said that it is much less, only K.H.Dzhumayev. It is possible to observe the agreement with the data of K.H. Hozhimatov (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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