



UDC-58

BIOECOLOGICAL FEATURES OF MEDICINAL PLANTS

Mentha asiatica Boriss

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ANNOTATION

*The bioecological properties of the medicinal plant *Mentha asiatica Boriss* have been studied. The dynamics of plant haloaccumulation by development phases was revealed. According to the content of water-soluble salts in the plant, Asian mint in the ecological niche manifests itself as a glycophyte.*

KEY WORDS: *plant, leaves, bioecology, mesophyte, development phase, soil, total salts, glycophyte.*

Asian mint - *Mentha asiatica Boriss.*, a species of plants of the genus Mint (*Mentha*) of the Lamiaceae family. It is widely distributed along the banks of collectors, lakes, canals, on wet meadow soils, in the valley and delta of the Amudarya. It occurs in Western Siberia, Central and East Asia, China, including on the territory of Karakalpakstan in the Republic of Uzbekistan.

Perennial herbaceous plant with a straight, branched, more or less densely gray tomentose stem 60-100 cm tall. The stems are mostly thin, obtusely tetrahedral.

Leaves on both sides are velvety or finely tomentose, lanceolate or oblong, acute, rounded or slightly heart-shaped at the base, greenish or bluish-green from short thin hairs, sessile or short-petiolate; along the edge, the leaves are thin and elongated-toothed; bracts subulate, longer than false whorls [1].

Inflorescences dense or loose; flowers on thin, densely pubescent pedicels, in few-flowered whorls; bracts subulate, almost equal to calyx; calyx bell-shaped or funnel-shaped, with linear teeth; the corolla is light purple, 3-4 mm long, the stamens exceed the corolla of the staminate flowers and are hidden in the corolla of the pistillate ones. In Karakalpakstan, it blooms in June-August, bears fruit in July-September, October [6].

Asian mint herb has antispasmodic, anti-inflammatory, diaphoretic, choleric, analgesic, appetite stimulating and other properties. The plant is rich in antioxidants that provide reliable protection against many diseases, including oncology. This plant helps the respiratory tract, it is especially effective in the treatment of asthma and bronchitis. It is also useful for disorders of the stomach and intestines, headaches [2,4]. Therefore, as a medicinal plant, it is used in folk medicine by local residents.

Mint herb contains a large amount of essential oil, the main constituents are menthol and various triterpenes. In addition, the leaves contain organic acids, tannins, flavonoids, carotene, betaine, trace elements (copper, manganese, strontium, etc.) and other chemical compounds [3].

Research on the introduction of this type of plant into the medical practice of Uzbekistan is relevant and requires a comprehensive study of the plant. Therefore, we decided to study the bioecological properties of Asian mint herb.

Mint grows on non-saline and slightly saline soils, mesophyte. We studied the content of water-soluble salts in plant leaves by development phases (Table 1).



The total amount of the content of water-soluble salts is on average -4.5%, bicarbonates on average -22.8 mg-eq, in the phase of seed ripening (26 mg-eq). In the leaves, chlorides are mainly in the free state: the content of bound bicarbonates, chlorides, sulfates are negligible.

The content of water-soluble salts in the plant and in the soil differs from each other. Thus, Asiatic mint, as expected, manifests itself as a glycophyte in the ecological niche.

Table 1
Chemical composition and content of water-soluble salts in the leaves of *Mentha asiaticum* Boriss by development phases (1-free, 2-bound) (in % and mg-eq per 100 g of absolutely dry plant mass)

Development phase	Date Salt content	Total salt %	Ion content											
			HCO ₃ ⁻		CL ⁻		SO ₄ ²⁻		Ca ²⁺		Mg ²⁺		Na ⁺ +K ⁺	
			%	mg/eq	%	mg/eq	%	mg/eq	%	mg/eq	%	mg/eq	%	mg/eq
Intensive growth	1	5,1	1,34	22	1,3	39	0,99	20,6	0,48	24	0,36	30	0,63	27,6
	2	1,28	0,18	3	0,12	3,5	0,44	9,2	0,04	2	0,02	2	0,36	15,7
Budding	1	4,8	1,53	25	0,96	27	0,99	20,6	0,84	42	0,22	18	0,29	12,6
	2	1,33	0,12	2	0,24	7	0,52	10,9	0,08	4	0,09	8	0,22	9,9
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Bloom	1	3,9	1,2	20	0,43	12	1,5	33	0,75	12	0,3	44	0,35	9,0
	2	1,21	0,12	2	0,12	3,5	0,57	11,9	0,04	2	0,09	8	0,21	9,4
Fruiting	1	4,6	1,2	20	0,53	15	1,07	22,2	0,72	36	0,12	10	0,26	11,2
	2	1,03	0,12	2	0,12	3,5	0,43	9,07	0,04	2	0,07	6	0,19	8,57
Seed maturation	1	4,5	1,59	26	0,53	15	1,2	25	0,80	40	0,22	18	0,18	8
	2	0,93	0,12	2	0,12	3,5	0,33	7,02	0,04	2	0,02	2	0,24	10,5

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