

PHYTOCHEMICAL COMPOSITION OF PROSPECTIVE MEDICINAL PLANTS

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ABSTRACT

40% of the medicines used in medicine in our country are made from wild medicinal plants. Cardiac glycosides, alkaloids, saponins, terpenes, steroid and phenolic compounds and other biologically active substances cannot be obtained by synthesis until now. So far, the only source of them is plants. Therefore, it is possible to develop the ways of correct and effective use of medicinal plants and create a wide range of opportunities to provide the pharmaceutical industry of our Republic with natural medicines.

Keywords. *Flower is a fruit, oblong, ovoid, ovate, oval and elliptic in shape, introduction, vegetation, budding, general flowering, fruit, food additives, flavonoids, ascorbic acid, organic acids.*

АННОТАЦИЯ

40% лекарств, используемых в медицине в нашей стране, производятся из дикорастущих растений. Сердечные гликозиды, алкалоиды, сапонины, терпены, стероидные и фенольные соединения и другие биологически активные вещества не могут быть получены синтезом. Пока единственным их источником являются растения. Следовательно, можно разработать способы правильного и эффективного использования лекарственных растений и обеспечить фармацевтическую промышленность нашей республики натуральными лекарственными средствами.

Ключевые слова. *Цветки-плоды продолговатые, яйцевидные, яйцевидные, овальные и эллиптические по форме, интродукция, вегетация, бутонизация, общее цветение, плоды, пищевые добавки, флавоноиды, аскорбиновая кислота, органические кислоты.*

INTRODUCTION

In the Strategy of Actions for the further development of the Republic of Uzbekistan, "development of the pharmaceutical industry, providing the population and medical institutions with affordable, high-quality drugs..." PQ-251 dated May 20, 2022 "Cultural cultivation of medicinal plants" and decisions on measures to organize their wide use in processing and treatment were adopted [1].

In the implementation of these tasks, substantiating the morpho-biological characteristics of perforatum species in different climatic conditions, determining their phytochemical composition, and developing recommendations for the cultivation of raw materials are of great scientific importance.

Mentha piperita L. belongs to Labiatae family. Perennial herb, 30-100 sm tall. The stem is several, erect, four-sided, glabrous or sparsely hairy. The leaf is simple, elongated ovate or lanceolate, with a sharp tip, and a sharp saw-like edge. The leaves are opposite in short bands on the stem. The flowers are small, pink, light purple or red-purple in color, forming spike-like flower clusters with spikes at the ends of stems and branches. The calyx is tubular, purple, five-toothed, and remains with the fruit. The inflorescence is slightly curved, funnel-shaped, four-lobed (different from other labial flowers), the male node is 4, the female node is 4-lobed, located above. The fruit is 4 nuts united with a sepal.

Usage. Preparations of peppermint leaves, peppermint water and tincture made from essential oil are used against nausea and vomiting and improve digestion. The leaves are used as a sedative, an expectorant, in herbal teas used for stomach ailments, and in tablets and drops used to relieve abdominal pain[8,9].

N. scabrum L. Height 20 - 40 sm. The stem and branches are gnarled. The leaves are long - pencil or lanceolate, 10-15 mm. Branches grow from leaf axils. The ball-flowered thyrid flower blooms and seeds in May - July. It grows in rocky and gravelly areas of hills and mountains.

The plant contains alkaloid, essential oil, coumarin, cotechin 18%, saponin, vitamin C, P, flavoring substances and flavonoids 5.1%.

Medicinal preparations of field plant (tincture, nastoyka, liquid extract, imanin preparation) in scientific medicine for gastrointestinal (colitis, diarrhea), oral cavity (gingivitis, stomatitis) and II and III degree diseases used in the treatment of burns. In folk medicine, ground organs are used in the treatment of jaundice (decoction).

H. perforatum L. It is a perennial herb, its height reaches 30-100 sm. The stem grows upright, the upper part is branched, cylindrical in shape. The leaves are opposite to each other on the stem, oval and elliptic in shape, on a branchless stem. The leaves have a small amount of shiny black glandular hairs. The flower organs are

free actinomorphic, the calyx is five-membered, the corolla is five, the corolla leaves are light yellow in color, there are many pollinators, often their number is up to 50-60 pieces. Based on pollinators, they are united in three sets. The node is egg-shaped and its length reaches 3-5 mm. A large number of flowers are combined into a tuberous inflorescence. The fruit is an elongated ovoid capsule, 6 mm long and 5 mm wide. A large number of seeds are placed in a very small fruit. Medicinal properties. Hyperforin contained in dalachoe has an antimicrobial effect and has antibacterial activity, so it gives effective results in the fight against golden staphylococci. Almost 88% of hypericin and 51% of flavonoids are found in flowers. This means that it is much more than in other organs of the field. Perforatum has strong adaptogenic properties. That is, it refreshes the body and increases immunity, just like Jen-shen. As a result of Perforatum effect, physical and mental vitality of organisms increases. It is resistant to infectious diseases. It is used to treat severe colds. It has been proven that it can be used against urinary and parasitic worms [4,5,6,7,8].

RESEARCH OBJECT AND USED METHODS.

Determination of the phytochemical composition of plants was carried out in the Laboratory of Flavonoids together with the employees of the Institute of Plant Substances Chemistry. All chemical analyzes were carried out by the methods described in the XII edition of the State Pharmacopoeia [2, 3].

DISCUSSION AND RESULTS

In the process of analysis, the amount of nutrients, organic acids, flavonoids and ascorbic acid in the budding, flowering and roots of the plant was determined. The obtained results are presented in tables 1-2. It was clear from the analysis that the highest amount of additives was observed in the flowering phase, 9.79% in *H. perforatum*, 9.68% in *H. scabrum*. This indicator was equal to 7.55% and 7.65% in the root of *H. perforatum*. In *H. scabrum*, it was 6.93% and 6.87% in the root.



Figure 1. Budding and flowering process of *H. perforatum*, *H. scabrum*

Relatively high amount of organic acids corresponded to the flowering period and was 1.46% in *H. perforatum* and 156% in *H. scabrum*. When studying the composition of flavonoids, the highest amount of these substances was observed in the budding phase, 3.40% in *H. perforatum*, and 2.87% in *H. scabrum*. This index was 0.47% in *H. perforatum* and 0.69% in *H. scabrum* in the flowering phase, and 1.15% in *H. scabrum* and 1.26% in root composition. A relatively high level of ascorbic acid was observed in the budding phase and was equal to 0.012 (12.8 mg/100 g) in *H. perforatum* and 0.011 (12.8 mg/100 g) in *H. scabrum*. Ascorbic acid in the flowering phase is 0.010 (10.2 mg/100 g) in *H. perforatum*, and 0.010 (10.7 mg/100 g) in *H. scabrum*, and the lowest amount is observed in the root of *H. perforatum*, 0.0078 (7, 83 mg/100g) and it was found to be 0.0068 (6.82 mg/100g) in *scabrum*.

Therefore, from the results of the above analysis, it is clear that it is appropriate to use the flowering phase of field species for the purpose of obtaining food additives, and to use them when they enter the budding phase for the extraction of ascorbic acid and flavonoids.

Table 1

Phytochemical composition of H. perforatum

Accumulation of substances in organs	Biologically active substances, composition %				
	Moisture	Additives	Organic acids	Flavonoids	Ascorbic acid
Budding	6,34	7,55	1,28	3,40	0,012 (12,8mg/100g)
Flowering	5,72	9,79	1,46	0,47	0,010 (10,2mg/100g)
Root	7,51	7,65	1,15	0,49	0,0078 (7,83mg/100g)

Table 2

Phytochemical composition of H. scabrumni

Accumulation of substances in organs	Biologically active substances, composition %				
	Moisture	Additives	Organic acids	Flavonoids	Ascorbic acid
Budding	6,45	6,93	1,37	2,87	0,011 (11,8mg/100g)
Flowering	5,82	9,68	1,56	0,69	0,010 (10,7mg/100g)
Root	6,98	6,87	1,26	0,38	0,0068 (6,82mg/100g)

It is written in the literature that it is recommended to prepare the raw material from the field plant at the time of flowering and the time when the fruit is not yet ripe. Peppermint plant contains 2.75% essential oil in leaves, 4.60% in flowers and 0.3% in stems. New varieties of peppermint contain up to 4-5% essential oil. According to the XI DF, the composition of the leaf should not contain less than 1% essential oil (taking into account the volatilization of the essential oil during the storage period of the leaf). Essential oil is extracted from the upper part of the plant with the help of water vapor. The oil is a clear colorless or pale yellow liquid with a pungent odor and

a sharp taste that cools the mouth for a long time. According to the XI DF, the density of essential oil obtained from peppermint is 0.900-0.910, the refractive index is 1.459-1.470, the angle of deviation of the plane of polarized light is -180 (-200 - 320), the acid number is up to 1.30 and the ether number is 11.5 should be higher than (corresponds to not less than 4% menthol acetate complex ester). When the essential oil is cooled, its stearoptin - menthol crystals are separated. The oil contains 41-70% menthol, 6-25% menthone, pinene, limonene, dipentene, phellandrene, cineole, pulegone, jasmine and 4-9% menthol esters formed with vinegar, valerian and other acids. According to the XI DF, the total amount of menthol in the form of free and complex ether in the essential oil should not be less than 50%.

In addition to essential oil, peppermint contains 40 mg% flavonoids and 0.12% oleanolic acids. It is also worth mentioning that flavonoids are 42mg% in the flower of the plant, 38mg% in the stem, and 0.13% oleanolic acids in the flower. in the stem was 0.10%. Menthol, extracted from essential oil, is used for ear, nose, respiratory tract diseases and to relieve toothache. Menthol is used to make a migraine pen that relieves headaches. Menthol drug - validol, is used in chest tightness (angina).

Essential oil and menthol are also used in food and perfume industries. Medicinal preparations. A tincture is made from the leaves, mint water from the essential oil, nastoyka; Menthol is included in Migraine Pen and Validol (25-30% solution of menthol in the complex ether of isovaleric acid formed with menthol). Menthol is part of Ingofen. Other types of peppermint also contain menthol. Cultivated in Japan, *Mentha arvensis* L. var. *piperascens* Hom. 0.05% essential oil in the upper part, and 43-90% menthol in the oil[9,10,11].

Table 3

Phytochemical composition of Mentha piperita L

Accumulation of substances in organs	Biologically active substances, composition %			
	Moisture	essential oil	lavonoids,	oleanolic acids
On a plant leaf	8,22 %	2,75	40mg %	0,12 %
in flower	7,68 %	4,60 %,	42mg %	0,13 %
on the stem	8,22 %	0,3 %	38mg %	0,10 %



Figure 2. Peppermint - Menta piperita L.

CONCLUSION

Based on our analysis, we recommend to take raw materials of field species in the phase of gross budding and flowering. It should also be noted that under the conditions of introduction, it is possible to use the partially cultured field root to obtain the chemical elements necessary for the pharmaceutical industry.

Peppermint, a medicinal plant containing essential oils, contains 2.75% essential oil in its leaves, 4.60% in its flowers, and 0.3% in its stems.

REFERENCES

1. Ўзбекистон Республикаси Президентининг 2022 йил 20 майда қабул қилинган “Доривор ўсимликларни маданий ҳолда етиштириш ва қайта ишлаш ҳамда даволашда улардан кенг фойдаланишни ташкил етиш”даги 251 сон қарори. Тошкент. 2022.
2. Государственная фармакопея. ХИ издание. Выпуск 1. Общие методы анализа. 1987. М. С. 285.
3. Государственная фармакопея. ХИ издание. Выпуск 2. Общие методы анализа. 1987. М. С. 295-324.
4. Begmatova M., O'ralova S. Subject: some biological characteristics of cherry (*hypericum perforatum* l) planted in different crop schemes //Theoretical aspects in the formation of pedagogical sciences. – 2023. – Т. 2. – №. 6. – С. 51-58.
5. Бегматова М. Х., Уроқов А. У. Лекарственные свойства и фитохимический состав условиях *hypericum perforatum* интродукции //Eurasian Journal of Academic Research. – 2021. – Т. 1. – №. 9. – С. 177-182.

6. Бегматова М. Х., Мусурмонова Н. Х. *Hypericum perforatum* изучен в почвенно-климатических условиях при условии интродукции //Eurasian Journal of Academic Research. – 2021. – Т. 1. – №. 9. – С. 183-186.
7. Фарманов Н. и др. Далачой (*Hypericum perforatum* L.) ни дориворлик хусусиятлари ва кимёвий таркиби //Science and Education. – 2022. – Т. 3. – №. 4. – С. 59-64.
8. Бегматова М.Х. Далачой (*Hypericum perforatum* L.) ning морфо- биологик хусусиятлари. Диссертация // Самарканд 2021 й.-127 б.
9. Аралов Атлас и ресурсов лекарственных растений . Москва, 1976.
10. Ataboeva X., N. va boshqalar. O‘simlikshunoslik. T., “Fan” nashriyoti, 1995.
11. Акопов И.Э. «Важнейшие отечественные Лекарственные растения и их применение» Справочник - Ташкент-1990 й. 38 бет.