Journal of Chemistry of Goods and Traditional Medicine

J Chem Good Trad Med, Volume 4, Issue 2, 2025 Traditional Medicine

CHEMICAL COMPOSITION AND FOLK MEDICINAL USE OF BASIL (OCIMUM BASILICUM).

Sevarakhan T. Jalilova
Kokand State Pedagogical Institute Assistant of the Department of Medical and Biological Chemistry
https://orcid.org/0009-0004-4602-7046
E-mail: sevarajalilova07@gmail.com

Ibragim R Askarov
Andijan State University Professor of the Department of Chemistry, Doctor of Chemical Sciences, Honored Inventor of the Republic of Uzbekistan, Chairman of the Academy of Medicine of Uzbekistan
https://orcid.org/0000-0003-1625-0330

Shahobiddin M. Qirg‘izov
Andijan State University Professor of the Department of Chemistry, Doctor of Chemical Sciences
https://orcid.org/0009-0009-4718-5077

DOI: https://doi.org/10.55475/jcgtm/vol4.iss2.2025.439

Keywords:
Basil (Ocimum basilicum), antiseptic, essential oil, vitamins, antioxidant

Annotation
This article discusses the nutritional composition, biologically active substances and their beneficial properties of basil (Ocimum basilicum). The essential oils, vitamins, macro- and microelements contained in basil are discussed in terms of their role in strengthening immunity, supporting the nervous system, treating inflammation of the oral cavity, and improving the functioning of the cardiovascular and digestive systems. The article also provides several recommendations on the use of basil in folk medicine for neurosis and stomatitis.

How to Cite
Jalilova, S. T., Askarov, I. R., & Qirg‘izov, S. M. CHEMICAL COMPOSITION AND FOLK MEDICINAL USE OF BASIL (OCIMUM BASILICUM). Journal of Chemistry of Goods and Traditional Medicine, 4(2). https://doi.org/10.55475/jcgtm/vol4.iss2.2025.439

Introduction. It is known that traditional medicine has deep roots in our country, and there is evidence that our ancestors used methods of traditional healing thousands of years ago [1]. Medicinal plants are widely used in folk medicine, and there are many types of such plants worldwide. One of them is basil (*Ocimum basilicum*), a plant with a unique fragrant aroma. There are about 150 species of basil worldwide. These species grow wild in tropical and subtropical regions, and some species are cultivated annually for essential oil production in many countries. Basil is a plant with a strongly branched root system, an erect stem with many branches, short petioles, elliptical or oval-shaped leaves covered with short whitish hairs (2-4 cm long), and fruits containing four seeds. In the Commonwealth of Independent States, three species are cultivated: camphor basil, eugenol basil, and common basil [2].

Basil is rich in chemical composition and beneficial for living organisms. It contains carbohydrates, proteins, vitamins, minerals, macro- and microelements, which help support various functions and the normal functioning of the body. The aerial part of basil contains 1-1.5% essential oils, up to 6% tannins, glycosides, saponins, minerals, ascorbic acid, sucrose, cellulose, proteins,

vitamins, and camphor [3]. Basil extract and essential oil contain several classes of chemical compounds, primarily terpenoids, oxygenated sesquiterpenes, oxygenated monoterpenes, sesquiterpene hydrocarbons, monoterpene hydrocarbons, and non-terpene derivatives. Additionally, phenylpropanoids such as eugenol, methyl eugenol, chavicol, estragole, and methyl cinnamate are present. Monoterpenes like geraniol, myrtenol, pinene, camphor, and borneol have potential medicinal uses [4].

In the essential oil of basil, linalool (43.78%), eugenol (13.66%), and 1,8-cineole (10.18%) are the main components [5]. Almost all parts of the plant contain essential oils, especially in the aerial parts such as flowers and fruits. Research indicates that plants grown in southern regions contain higher essential oil content than those from northern regions. These substances exist either in free form or as part of glycosides in plants [6]. The main bioactive groups in basil leaves include alkaloids, tannins, flavonoids, and saponins [7]. Basil can be grown in unlimited quantities in all regions of Uzbekistan. Experimental studies show that the geographical location affects the chemical composition and antioxidant activity of basil [8].

Table 1. Nutritional Composition of Basil [9]

№	Component	Amount (g/100g)
1	Carbohydrates	2,65
2	Proteins	3,15
3	Fats	0,64
4	Ash content	1,49
5	Dietary fiber	1,6

Based on these data, basil is nutritionally rich, containing carbohydrates (2.65 g), proteins (3.15 g), fats (0.64 g), ash (1.49 g), and dietary fiber (1.6 g). Carbohydrates serve as an energy source, proteins are crucial for cell regeneration and metabolism [10], while the low fat content is beneficial for cardiovascular health [11]. Ash and dietary fiber promote digestive health and help remove toxins [12].

Table 2. Vitamin Content of Basil [13]

№	Vitamins	Amount
1	β-Carotene	3,142 mg
2	Vitamin A (Retinol)	264 mkg
3	Vitamin B1 (Thiamine)	0,034 mg
4	Vitamin B2 (Riboflavin)	0,076 mg
5	Vitamin B4 (Choline)	11,4 mg
6	Vitamin B5 (Pantothenic acid)	0,209 mg
7	Vitamin B6 (Pyridoxine)	0,155 mg
8	Vitamin B9 (Folic acid)	68 mkg
9	Vitamin C (Ascorbic acid)	18 mg
10	Vitamin E (Tocopherol)	0,8 mg
11	Vitamin K (Phylloquinone)	414,8 mkg
12	Vitamin PP (Niacin)	0,902 mg

Basil is rich in various vitamins, which enhances its health benefits. β-Carotene and vitamin A are crucial for vision and skin regeneration [14]. B-complex vitamins support the nervous system, energy metabolism, and blood formation [3]. Vitamin C boosts immunity and skin health; vitamin E

protects cells from oxidative damage [15]; vitamin K aids blood clotting and bone health [15]; vitamin PP (niacin) supports metabolism [16].

Table 3. Macroelement Content of Basil [9]

№	Macroelement	Amount (mg/100g)
1	Calcium	177
2	Magnesium	64
3	Sodium	4
4	Potassium	295
5	Phosphorus	56

Copper, for example, plays a crucial role in redox reactions and supports brain and nervous system functions.

Table 4. Microelement Content of Basil [9]

№	Microelement	Amount
1	Iron	3.17 mkg
2	Zinc	0.81 mkg
3	Copper	385 mkg
4	Manganese	1.148 mg
5	Selenium	0.3 mkg

Basil is widely used in folk medicine and is officially recognized as a medicinal plant in many countries [15]. Its leaves and flowers are used to strengthen the body, improve general well-being, and treat intestinal parasites, dysentery, nausea, and flatulence [3]. The essential oil is used to relieve spasms, rhinitis, mental fatigue, and cold symptoms, and also applied as first aid for insect bites and snake bites [14].

It is also used for headaches, digestion, dental and earaches (with camphor), and nosebleeds [11]. Infusions are applied for headaches, gout, fever, otitis, and snake bites [19]. Basil is consumed internally to treat stomach disorders, fever, cough, cystitis, nephritis, and hemorrhoids [3]. Basil seed infusions help with gonorrhea, chronic diarrhea, and dysentery [14].

In modern life, stress and anxiety are common and can cause various illnesses such as nervous exhaustion and hypertension. Basil is widely used in folk medicine to treat nervous system disorders because it is a safe option for restoring central nervous system function [19].

Conclusion. Based on scientific literature, this research analyzed the nutritional composition and biologically active substances in basil and their effects on human health. The results show that basil is rich in vitamins, minerals, and essential oils, which support immunity, the nervous system, digestion, and cardiovascular health. It is widely used in folk medicine for treating conditions like neurosis, stomatitis, and dysentery. Further studies on basil's therapeutic potential and modern applications in medicine are highly promising.

References

1. Asqarov I.R. Sirli tabobat. T: Fan va texnlogiyalar nashriyot-matbaa uyi. Toshkent. 2021-y. –B. 1010, 5-b

2. Asqarov.I.R. Tabobat qomusi. T.: Mumtoz so`z. Toshkent. 2019. 1590- b

3. Ro’ziboyev.G’.Z. Rayxon o'simligi uning foydali xususiyatlari xalq tabobatidagi o'rni. Pedagog respublika ilmiy jurnali 4 – son / 2022.

4. Zulfiqorov A.N., Hamroqulova N.K. Rayhon (ocimum bazilicum) ning dorivorlik xususiyatlari va xalq tabobatidagi o’rni. «Биология и интегративная медицина» журнал.2023.

5. Ch M. A. et al. Biological and pharmacological properties of the sweet basil (Ocimum basilicum) //Br. J. Pharm. Res. – 2015. – Т. 7. – №. 5. – С. 330-339.
6. Razzakov N. A., Aliyev L. M., Ortikov M. M. Efir moylari va ularni anfleraj usulida ajratib olish //Экономика и социум. – 2024. – №. 7 (122). – С. 247-250.
7. Dharmagadda, V. S. S.; Tandonb, M.; Vasudevan, P. Biocidal Activity of the Essential Oils of Lantana Camara, Ocimum Sanctum and Tagetespatula. J. Sci. Ind. Res. 2005, 64, 53–56.
8. Yusupova.Z.A., Sayramov.F.B., Azizov.R.O. Rayhon o`simligining morfologiyati, kimyoviy tarkibi va tibbiyotda qo`llanilishi. Eurasian journal of medical and natural sciences. 2023., https://doi.org/10.5281/zenodo. 7505372
9. Asqarov,I.R., Jalilov.B.A., Kanakunjut va zig'ir o'simligining vitaminlar miqdorini o'rganish// Xalq tabobati plus ilmiy, amaliy, ijtimoiy, tibbiy, ma'rifiy jurnal №2(19) 2024 yil
10. Аскаров И.Р. Фитотерапия. Тошкент. «Фан ва технологиялар нашриёт - матбаа уйи». - 2023. - 1114 б.
11. Аскаров, И. Р., & Раззаков, Н. А. (2023). Oltin tomir va uning xalq tabobatida qo'llanilishi. Журнал химии товаров и народной медицины, 2(2), 175-181.
12. Khulkar U., Saida A., Kuchkor D. Study of the process for the removal of dyeing matters of the plant Occimum basilicum l. Lamiaceae //chemistry and chemical engineering. – 2020. – т. 18. – №. 2. – с. 13.
13. Ibroximova, R.R, and Yusufova.Sh.R "Og'iz bo 'shlig'i shilliq qavatining kasalliklari. " SCIENTIFIC ASPECTS AND TRENDS IN THE FIELD OF SCIENTIFIC RESEARCH 3.29 (2025): 327-329.
14. Kiyamova Sh.D. Tog'rayhonining shifobaxshlik xususiyatlari //imras. – 2024. – т. 7. – №. 4. – с. 49-51.