



QUANTITY OF MICRO AND MACRO ELEMENTS IN TANACETUM VULGARE PLANT

Gaybullaeva Ozoda Obid kizi ¹
Islamov Akmal Khushvaktovich ²

Received 15th May 2021,
Accepted 26th May 2021,
Online 12nd June 2021

Navoi State Pedagogical Institute, teacher of the
Department of Biology Teaching Methods,
E-mail: ozoda_gaybullayeva-92@mail.ru

Institute of Bioorganic Chemistry named after
academician OS Sodikov of the Academy of
Sciences of the Republic of Uzbekistan, 100125,
Tashkent, Mirzo Ulugbek str. 83. Tel / fax
(+99871) 262 35 40, 262 70 63
e-mail: info@biochem.uz
e-mail: islomov-72@mail.ru

Abstract: *This article provides information on the determination of the amount of micro and macronutrients in the powder of the flowers of the plant Tanacetum Vulgare (simple sage, pajamas obyknovennaya), as well as the chemical composition of the plant and its use in medicine, methods of propagation.*

Keywords: *Tanacetum Vulgare, quercetin, rutin, ketone, camphor, borniol, luteolin, apigenin, antiseptic, anthelmintic, sugar, vitamin C, macro and micronutrients*

I. Introduction

Currently, a number of universities and research institutes are conducting extensive research on the search for medicinal plants and the creation of new effective drugs based on them. At the same time, it is important to create a base of raw materials for the production of cheap and high-quality import-substituting drugs by separating natural drugs from local raw materials. Effective use of the achievements of folk medicine in the creation of new drugs will certainly give positive results. It is known that Normal sage, which has been used by humans for many years, enhances the secretion of the glands of the gastrointestinal tract and tones its muscles, has antiseptic, anti-inflammatory and anthelmintic effect, eliminates intestinal parasites. Scientific and practical experiments conducted by scientists create opportunities for wider use of medicinal plants in medicine. Today, many of our scientists are conducting research in the country on the reproduction of medicinal plants and the determination of micro and macronutrients.

II. Theoretical part.

Tanacetum Vulgare (simple daisy) belongs to the family *Astradace Asteraceae* (complex *Compositae*). Perennial, 50-150 cm tall, peculiarly fragrant herbaceous plant. Stems erect, hairy, hairless or slightly hairy. The leaves are simple, sessile, dark green on the upper side, gray-green on the lower side. The leaves at the bottom of the stem are banded, while those in the middle and top are banded, arranged in a row on the stem. The flowers are yellow, gathered in a basket, forming a thyroid inflorescence. The fruit is an elongated pistachio that blooms throughout the summer. Its geographical distribution is widespread in Moldova, Ukraine, Belarus, the Russian Far North, and everywhere in Central Asia, even in the wild. It grows mainly in populated areas, meadows, forest edges and along waterways. grows on roadsides, near settlements, and in wooded areas. It is also used in animal husbandry as fodder. In medicine, flowers and leaves are used. [1-4] (Figure 1)



Figure 1. The upper part and flowers of *Tanacetum Vulgare* plant

The *Tanacetum Vulgare* plant consists of flowers collected in a hemispherical basket. The flowers in the basket are yellow, tubular, in place of the flower. The basket is 6–8 mm transverse, gray-green, lanceolate-shaped, covered with a general rounded leaves. The flowers at the edge of the basket are three-toothed, while the flowers in the middle of the basket are five-toothed, the paternal 5, the maternal node one-sided, downward. The *Tanacetum Vulgare* plant has a distinctive odor and pungent taste similar to that of camphor. According to XI DF, the moisture content of the product is 13%, total ash 9%, brown and darkened baskets 8%, other parts of the plant (leaves, some flower clusters longer than 4 cm) 7%, small parts through a sieve with a diameter of 2 mm 10% , organic compounds 1% and mineral compounds more than 1%, inflorescences baskets and their fragments 60%, and the sum of flavonoids and phenolic carboxylic acids should not be less than 2.5% in relation to luteolin [1-4].

In the chemical composition of *Tanacetum Vulgare* plant Flowers contain 1.5-2% of essential oil, flavonoids (quercetin, luteolin, apigenin, chrysoeriol, diosmetin, isoramnetin, axillarin, etc.) Figure 1. Alkaloids, additives, lactone (polyunsaturated lactone) and tanacetin, which have many unsaturated bonds, are bitter substances.

Essential oils contain a and b (up to 47%) tuyon, camphor, tuyol, borneol, pinene and other compounds.

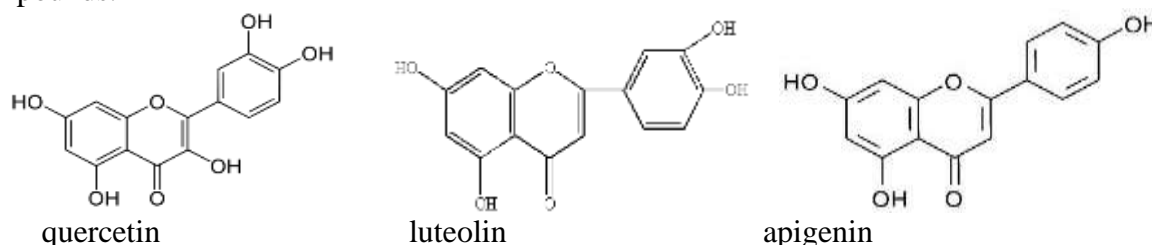


Figure 1. Chemical formulas of flavonoids quercetin, luteolin, apigenins in the plant *Tanacetum Vulgare*.

The flower of the *Tanacetum Vulgare* plant is used in medicine for insect repellent as well as in the treatment of liver and intestinal diseases. [1-4].

Medicinal preparations and tinctures of the flower of the plant *Tanacetum Vulgare*, for example, the drug Tanatsexol (the sum of flavonoids and phenolic carboxylic acids obtained from the inflorescence is released in the form of powder or tablet). The drug is used in medicine as a herbal remedy. The product is part of the tea-collection and Zdrenko collection used in liver diseases (cholecystitis, hepatitis, etc.). [1-2].

The technology of growing the common dastarbosh plant has been developed, and since the ordinary dastarbosh is a perennial plant, it can be planted and propagated in autumn and early spring. Grows well in all soils of Uzbekistan. Given that its root system is well developed, it is advisable to plant it in eroded soils. Protects soil from erosion. Normal dastarbosh is plowed to a depth of 25-28 cm, feeding the soil with local fertilizers and superphosphate before plowing in the fall. In early spring, the lands are stormed, leveled with a rake, and cleared of weed debris. Seeds are sown in early spring when the soil temperature is 15–17 °C, along a line, with row spacing of 60 cm. Since its seeds are small, it is sown by mixing it with rotten manure or sand for a flat planting. Seeds are sown at a depth of 0.5 cm. 7-8 kg of seeds are used per hectare. Seeds sown in late March germinate in 10–12 days. Grasses are obtained by cultivation with the emergence of 3–4 true leaves. In each hive, 1-2 seedlings are left alone. The distance between the nests should not be less than 10–12 cm. The common weed competes easily with weeds and in the second year completely squeezes them out. In order to ensure good growth and development of the plant and higher yields, it is necessary to carry out agro-technical measures at a high level. The first feeding of Dastarbosh begins after the plant sprouts, with 30 kg of nitrogen and 20 kg of potassium fertilizer per hectare. Dastarbosh is more demanding on nutrients. The second feeding coincides with the mating period and requires more phosphorus and potassium fertilizers. In order to accelerate its growth and development, 30 kg of nitrogen, 20 kg of phosphorus and 30 kg of potassium fertilizer per hectare are fed. The height of the plant reaches 1 meter in August of the first year and enters the flower. In its flowering phase, feeding is completed by giving 40 kg of nitrogen per hectare.

Fertilizing the table is done before watering. Depending on the air temperature and soil moisture condition, it is treated 8-9 times during the growing season. In the year when the air temperature is high, watering should be increased. Dastarbosh inflorescences are harvested in the first year. The plant blooms until November and has to be harvested frequently. [5-7].

In the second year of the terrestrial part of the *Tanacetum Vulgare* plant, the baskets are harvested without interruption when the flowers collected in the basket begin to open before the inflorescences emerge in early spring. Dastarbosh crops can be used for up to 5 years. Once its raw material is harvested, it is spread thinly on covered canopies and is often ventilated. After drying, it is placed in bags of 20 kg or tied up to 50 kg without compaction. Dastarbosh seeds ripen in October. Ripe flat inflorescences are cut in sheds and collected in threshing floors and thoroughly dried and stored in bags for up to 3 years. [5-7].

Discussion and Results

In determining the amount of micro and macronutrients in the flowers of *Tanacetum Vulgare* plant «X-ray fluorescent spectrometer Spectro Xepos 111, technical index: 120 / 230V, power 150W. device (SSA). To do this, the flowers of the plant are crushed into a powder and 5 g is weighed in special containers for X-ray analysis, and the plant powder is placed in separate containers mounted on a disk with a circular shape. The device analyzes for 20 minutes. When the analysis of the results is complete. The results are automatically displayed on a computer connected to the device. The results of these studies are presented in Table 1.

Table 1.

The amount of micro and macronutrients in the flowers of Tanacetum Vulgare plant

№	Element	Name	The amount of	Error	Element	Name	The amount of macro	Error
---	---------	------	---------------	-------	---------	------	---------------------	-------

			macro and micro elements of the plant flower is mg			№			and micro elements of the plant flower is mg	
1	MgO	Magnesium oxide	< 139		-	34	Y	Ittiri	1.4 µg/g	0.1
2	Al ₂ O ₃	Aluminum oxide	4012		76	35	Zr	Zirconiu m	2.8 µg/g	0.2
3	Al	Aluminum	2124 µg/g		40	36	Nb	Niobium	1.9 µg/g	0.2
4	SiO ₂	Silicon oxide	20760 µg/g		110	37	Mo	Molybden um	1.0 µg/g	0.2
5	Si	Creamy	9704µg/g		50	38	Ru	Rutheniu m	<0.2 µg/g	-
6	P ₂ O ₅	Phosphorus oxides	11520 µg/g		50	39	Rh	Rhodium	<0.2 µg/g	-
7	P	Phosphorus	5027 µg/g		20	40	Pd	Palladium	<2.1 µg/g	-
8	SO ₃	Sulfoxide	11440 µg/g		30	41	Ag	Silver	<0.2 µg/g	-
9	S	Sulfur	4582 µg/g		13	42	Cd	Cadmium	1.0 µg/g	0.2
10	Cl	Chlorine	8849 µg/g		10	43	In	Now	<0.3 µg/g	-
11	K ₂ O	Potassium oxide	43830µg/g		20	44	Sn	Tin	3.8 µg/g	0.9
12	K	Potassium	36380µg/g		20	45	Sb	Surma	<0.4 µg/g	-
13	CaO	Calcium oxide	29250 µg/g		20	46	Te	Tellurium	<0.5 µg/g	-
14	Ca	Calcium	20900 µg/g		10	47	I	Iodine	<0.6 µg/g	-
15	Sc	Scandinavian	47.5 µg/g		1.7	48	Cs	Tseziy	<0.8 µg/g	-
16	Ti	Titan	40.8 µg/g		0.4	49	Ba	Barium	8.6 µg/g	2.1
17	V	Vannadiy	2.4µg/g		0.2	50	La	Lanthanu m	<1.5 µg/g	-
18	Cr	Chrome	1.7 µg/g		0.1	51	Ce	Series	<1.5 µg/g	-
19	MnO	Manganese oxide	134.3 µg/g		0.4	52	Pr	Prazeodi m	<0.9 µg/g	-
20	Mn	Manganese	104.0 µg/g		0.3	53	Nd	Neodymi um	<0.2 µg/g	-
21	Fe ₂ O ₃	Iron oxide	527.6 µg/g		3.3	54	Sm	Samaritan	3.2 µg/g	0.4
22	Fe	Iron	369.0µg/g		2.3	55	Yb	itterbiy	<2.0 µg/g	-
23	Co	Cobalt	<1.0 µg/g		-	56	Hf	Gafniy	<1.2 µg/g	-
24	Ni	Nickel	9.3 µg/g		0.3	57	Ta	Tantalum	<0.2µg/g	-
25	Cu	Mis	19.2 µg/g		0.3	58	W	Tungsten	1.0 µg/g	0.4
26	Zn	Rux	40.4 µg/g		0.3	59	Au	Gold	<0.1µg/g	-
27	Ga	Galiy	<0.2 µg/g		-	60	Hg	smob	<0.1 µg/g	-
28	Ge	German	0.14 µg/g		0.07	61	Tl	Tally	<0.1 µg/g	-
29	As	Arsenic	0.3µg/g		0.1	62	Pb	lead	2.1 µg/g	0.1
30	Se	Selen	<0.1 µg/g		-	63	Bi	Bismuth	<0.2 µg/g	-
31	Br	Bromine	10.9 µg/g		0.1	64	Th	Tori	<0.2 µg/g	-
32	Rb	Rubidium	8.9 µg/g		0.1	65	U	Uranium	0.8 µg/g	0.1
33	Sr	Strontium	9.8 µg/g		0.1					

The data in the table show that the amount of 65 elements in the root of the Tanacetum Vulgare plant was determined and K₂O (1,167 %), K (0,9687), CaO (0,1029 %), Ca (0,07357 %), P₂O₅ (0,5367 %), P (0,2342 %), the amount of elements was found to be greater than that of the other elements

Experiment section

In determining the amount of micro and macronutrients in the flowers of Tanacetum Vulgare plant «X-ray fluorescent spectrometer Spectro Xepos 111, technical index: 120 / 230V, power 150W. device (SSA). To do this, the flowers of the plant are crushed into a powder and 5 g is weighed in special containers for X-ray analysis, and the plant powder is placed in separate containers mounted on a disk with a circular shape. The device analyzes for 20 minutes. When the analysis of the results is complete. The results are automatically displayed on a computer connected to the device and the results are recorded in a table.

Conclusion

1. The amount of macro and micro elements in the root of Tanacetum Vulgare plant is determined by «X-ray fluorescent spectrometer Spectro Xepos 111, technical specification: 120 / 230V, power 150W. A study of the device (SSA) revealed that the root of the plant contained 65 macro- and micronutrients. Contains Tanacetum Vulgare plant root. Potassium, calcium, phosphorus, elements were found to be more abundant than other elements.

References

1. Pharmacognosy (H.Kholmatov, O.Ahmedov) Abu Ali ibn Sino Tashkent 1997.
2. Kh.Kholmatov, O.A.Akhmedov, Pharmacognosy: textbook, Tashkent, NMB named after Ibn Sino, 1995.
3. Voprosy agrotekhniki vozdeleyvaniya lekarstvennykh kultur. Chast 1, Moscow, 1978.
4. Guide to medicinal cultures. Voronezh, 1963.
5. Murdaxaev Yu. M. Medicinal culture in Uzbekistan, Tashkent, 2001.
6. Murdaxaev Yu. M. Medicinal plants native to Uzbekistan. Tashkent, 1990.
7. O'. Ahmedov, A.Ergashev, A.Abzalov // Medicinal plants and technology of their cultivation // Tashkent 2008.