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Studying the Content of Macro and Micro Elements in the Composition of Seeds of Magnolia Plants

F.Tukhtabaeva[1], D.Tuychieva[2], Lapasova O[3]

[1]Ph.D., Associate Professor of the Department of Zoology and Biochemistry, Andijan State University;

[2]Ph.D., Professor of the Department of Zoology and Biochemistry, Andijan State University;

[3]4rd year student of the Biological direction of Andijan State University

Cancer phone: +99897 995 58 25, +99897 339 98 16

E-mails address: feruzatuxtaboyeva1971@gmail.com, tds.bio@mail.ru,

**ORCID ID:* https://orcid.org/0000-0003-4953-5252, https://orcid.org/0000-0002-5292-7292

Abstract: The article studied the amount of chemical elements in the seeds of Magnolia soulangeana and Magnolia Grandiflora species belonging to the Magnolia family in the conditions of Uzbekistan. As a result of the research, 27 different elements were considered in the composition of the seeds of these plants, among them a large number of elements such as phosphorus, potassium, calcium, magnesium, sodium and aluminum, heavy metals such as manganese, chromium, iron, nickel, copper, zinc , lead, toxic elements arsenic, lead, mercury, barium, cadmium. It has been established that the amount of heavy and toxic elements in the seeds of Magnolia soulangeana and Magnolia Grandiflora does not exceed the permissible limit (MAC), which indicates the ecological purity and safety of raw materials of medicinal plants.

Key words: Plant, magnolia, seeds, microelement, macroelement, heavy metals, toxic, poisonous elements.

It is known that about 50% of the medicines produced in the pharmaceutical Sox worldwide are made from the medicinal plant CLAR hops. The rapid development of the pharmaceutical industry in developed countries, including Uzbekistan, is the reason for a sharp increase in the demand for medicinal plant raw materials. Due to the insufficient reserve of medicinal plants growing naturally, the extirpation of pharmaceutical industrial enterprises on the raw materials of medicinal plants, the cultivation of these plants orcali showed that it is possible to satisfy [1].

The decision of the president of the Republic of Uzbekistan PQ-4670 was adopted on measures for the development of wild-growing medicinal plants, cultural cultivation, processing and rational use of available resources. The resolution established a number of scientific research works on the cultivation and use of medicinal plants as medicines. In accordance with it, it is planned to carry out a number of scientific studies on the cultivation of medicinal plants in our country, for this purpose, on the organization of plantations adapted to the plant variety and its use as a medicine [2].

Due to the variety of geographical and climatic conditions, Uzbekistan is the richest region of Medicinal Plants [3]. In this regard, Abu Ali ibn Sina noted in his invaluable legacy "the laws of medicine" that the use of many healing plants in medicine is a mechanism of pharmacological action using modern studies, which have been explained [4]. It is worth mentioning that Ibn Sina was well versed in medicinal science and used medicinal plants a lot, as well as that, according to Arab allomas, 1,400 of the 2,600 drugs are made up of plants [5,6,7].

In the last 10 years, many plants all over the world and in Uzbekistan have been devoted to the use in the treatment of known diseases, the advantage of which is their low toxicity and long-term use [9], the pharmacological activity of phytopreparations is not inferior to their synthetic analogues, while the complex of biologically active substances has a beneficial effect on the human In Uzbekistan, plant flora remains an important source of Natural Resources, and of the more than 4,300 plants native to the local flora, 750 are supplied with medicinal plants, of which 112 are obtained for additional use and scientific medicine, and 70 species are actively used by the Republican industry [2].

In some literature, the existing wild and cultural plants in the Fergana Valley have been comprehensively studied, but those that have been introduced into our country, the maxalized plants have not been fully studied [11]. Together with this, plants have not been sufficiently studied to determine the quantitative composition of Bioelements and correlate the biological activity of medicinal plants, the macro - and microelements they contain, the biologically active substances in plants and their structure [12].

In this regard, the purpose of our research is to study the amount of micro – and Macroelements contained in the plants Magnolia - Magnolia soulangeana and Magnolia Grandiflora, which are acclimatized in our republic in order to improve the functioning of the human body. The following tasks were set to achieve the goal:

1. Determination and taxing of the amount of macro - and microelements contained in the generative organs of the acclimatized plants Magnolia soulangeana and Magnolia Grandiflora in the Andijan region.

2. Determination of the content of heavy metals and toxic substances such as Cd, Sb, nd, and, As in Magnolia soulangeana and Magnolia Grandiflora.

As a result of scientific research, it was determined that for the normal development of plants, 20 elements are very necessary and 12 elements are conditionally necessary. For the normal development of plants, in addition to S, o, n nitrogen, phosphorus, potassium, calcium, magnesium, iron, sulfur Kerak. These are partial ash elements (phosphorus, potassium, calcium, magnesium, iron). The above elements are in relatively large quantities in plants, from a few percent of dry matter, up to a hundredth of a percent, and therefore they are also called Macroelements. For normal growth and development of plants, in addition to the macronutrients mentioned above, you will need low amounts of boron, manganese, molybdenum, copper, zinc, cobalt and vannadium. The amount of each of these elements in the plant ranges from one thousandth of a percentage to one hundred thousand to one share, for this reason they are called micronutrients. Plants include a large amount of Silicon, sodium and chlorine, as well as many ultramicroelements, the content of which in plants is extremely low – from 10-6 to 10-6%. It should be noted separately that the physiological functions of these elements and how much they are necessary for plant organisms have not yet been fully determined in science [12,13].

Magnolia (Magnolia) is an evergreen or deciduous tree in the Magnolia family. There are about 80 species in East and Southeast Asia, North America and Central America. In Uzbekistan, 3 species are grown as ornamental plants. The height of the Magnolia is up to 10-13 meters, the leaves are

ellipsoid or ovoid, shiny, banded, successively located. Flowers are large, white, dark pink, fragrant, singly. The leaves contain essential oils, glucose, peel and alkaloids at the root. The extract made from the Leaf is used to lower blood pressure [13].

Material and methodology: in this study, the seeds of the acclimatized Magnolia soulangeana and Magnolia Grandiflora plants were used in the Andijan region.

For the purpose of analysis from the studied samples, it is taken on an analytical scale (FA220 4n) in an amount of 200 mg to bring it to the state of a clear solution. A mineralization device (MILESTONE Ethos Easy, Italy)was used to convert the sample to mineral. To do this, a sample (200 mg) is placed in the device's test tube, 6 ml of nitric acid (HNO3) purified on the basis of distillation, that is, acid purification (Distillacid BSB-939-IR), which works on the basis of infrared light, and 2 ml of hydrogen peroxide (H2O2) as an oxidizer. For 20 minutes at 1800s, all the mixture is reduced to mineral.

Once the mineralization process is complete, the mixture in the test tube is placed in a separate conical measuring flask and diluted with discolored water (BIOSAN, Latvia) until it is 40 ml.

The solution in the flask was placed in special test tubes in the autonamuna intake compartment to obtain analysis. The prepared sample was analyzed in the Avio 200 ISP – OES inductively coupled plasma optical emission spectrometer (Perkin Elmer, USA)for analysis. The accuracy of the device is high, which allows you to measure the elements contained in the solution to a resolution of 10-9 g.

The data obtained as a result of the analysis is as follows: ... mg/100g 27 elements were analyzed and the following results were obtained.

Table 1

Micro-and Macroelements content in Magnolia soulangeana and Magnolia Grandiflora plants

Chemical element name	Quantity mg/100g	Chemical element name	Quantity mg/100g	Chemical element name	Quantity mg/100g
Mg	172,18	**V**	0,36	**Pb**	0,66
Na	17,46	**Mo**	0,22	**Ag**	0
Li	0,06	**Mn**	0,96	**As**	3,286
K	285,3	**Cr**	0,22	**Sb**	0,144
Ca	241,4	**Fe**	0,551	**Hg**	0,04
Al	1,51	**Co**	0	**Ba**	0,06
B	0,04	**Ni**	0,094	**Cd**	0,14
P	830,24	**Cu**	0,276		
S	1,68	**Zn**	0,478		
Se	0,246	**Sn**	0,132		

According to the result obtained, 27 different chemical elements were examined in the samples, from which the following elements were found in large quantities in the seeds of the generative organ of the plant and consider them in decreasing order: P – 830.24 mg, K–285.3 mg, sa–241.4 mg, Mg–172.18 mg, Na–17.46 mg, As–3,286 mg, Al-1,51 mg.

In combination with this, a number of heavy metals were detected in the plant seed: Mn-0.96, Cr-0.22, Fe-0.551, Ni-0.094, Cu-0.276, Zn-0.478, Sn-0.132, Pb-0.66, as well as substances with toxic properties from among heavy metals: as-3.286, SB-0.144, Hg-0.04, Ba-0.04 0.06, cd-0.14. Sometimes the term" toxic elements " is not suitable, since any elements and their compounds can be

toxic to living organisms in a certain concentration and environmental conditions. Of the micro - and Macroelements in the studied Namu, it was found that poisonous and heavy metals do not exceed the permissible norm (PDK).

Many heavy and toxic chisobed metals, such as iron, copper, zinc, molybdenum, are involved in biological processes, and a certain amount of trace elements necessary for the activities of plants, animals and humans are lysobed. On the other hand, heavy metals and their compounds can have a detrimental effect on the human body, they can accumulate in tissues and cause a number of diseases. Elements such as vannadium or cadmium, which are usually poisonous to living organisms, can be useful for certain species of plants or animals [13].

Conclusions.

1. Elements in studied plant species (MD, K, Mp, Se) are promising sources for obtaining biologically active substances.

2. The amount of heavy and toxic elements contained in the seeds of the Magnolia soulangeana and Magnolia Grandiflora species was found to not exceed the permissible Meyer (PDK), which indicates the environmental friendliness and safety of medicinal plant raw materials, indicating that they can be recommended for use as a biologically active substance for medical purposes.

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