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*Isomiddinov Zokirjon Jaloldinovich**PhD, dotsent Kokand State Pedagogical Institute**Abdupattoyeva Mubinabonu,**Student Kokand State Pedagogical Institute***BIOGEOCHEMISTRY OF ONION (ALLIUM CEPA L.) IN DESERT SOILS**

**Abstract:** The concentrations of chemical elements in the vegetative organs of the onion (*Allium cepa* L.) plant were determined. It was established that Na, K, Ca, Fe, Ba, and Cl are present in higher concentrations in the bulb, leaves, and roots than Sr and Ni. The presence of chemical elements in the soil is reflected in the plant body, where elements considered as macroelements from a geological perspective are predominantly found as microelements.

**Keywords:** onion (*Allium cepa* L.), soil, macro- and microelements.

**INTRODUCTION.** Nowadays, the world of plants in nature and culture is used in all spheres of human economic activity. It is widely used in food, medicine, folk medicine, and industry. In recent years, extensive developments in modern science have made it possible to study the chemical composition of many plant species, isolate various substances, and study their physiological properties.

The term microelements was initially widely used in agricultural, medical, and biological sciences. In this regard, microelements are understood as elements that are present in the human body in amounts ranging from 0.001% to 0.00001% from a biological point of view. In general, elements with an amount of less than 0.01% are called microelements. According to A.P. Vinogradov, microelements include chemical elements that are mandatory for living organisms, that is, the plant and animal world, the amount of which is measured in values of the order of  $n \cdot 10^{-2}$  -  $n \cdot 10^{-5}\%$  [1.2].

Conducting chemical studies on the composition and physiological processes of each plant, in particular, analyzing the quantity and quality of elements in studying the correlation between plants and the soil-climatic conditions in which they grow, is important studies [3.4]. This, in turn, allows programming the activities of farms specializing in the cultivation of vegetables, melons, and medicinal plants, assessing the quality of crops, satisfying people's needs for agricultural plant products, and studying the level of chemical composition of plants. This indicates the importance and relevance of the research being conducted.

**MATERIALS AND METHODS.** The onion (*Allium cepa* L.) plant is grown in loose soil in the fields of the "Bu Ayisha" farm in the Baghdod district of the Fergana region.

The chemical element composition of the onion (*Allium cepa* L.) plant was studied using the neutron-activation method in the activation analysis laboratory of the IT Institute of Nuclear Physics of the Republic of Uzbekistan. In this case, the samples were irradiated in a nuclear reactor with a neutron flux of  $5 \times 10^{13}$  neutrons/cm<sup>2</sup> s, and their amounts were determined based on the half-life of the chemical elements.

**RESULTS AND DISCUSSION.** Onion (*Allium cepa* L.) is a biennial plant, the bulb is ovoid or spherical in shape, and the skin is yellow and reddish-white in color. The stem is up to 1 m long, and the leaves are cylindrical and porous. It blooms mainly in May-July, and the seeds ripen. It is planted and cultivated in all regions of the Republic.

In medicine, the bulb contains essential oils, sugars, vitamins C and B, carotene, and flavonoids, and the leaves contain vitamins, carotene, citric and malic acids, sugars, and phytoncide compounds. The drug, its alcoholic extract, has the effect of killing bacteria and microbes, namely trichomonads. It is used to treat colitis, atherosclerosis, and some types of hypertension. Onion is widely used as a plant rich in vitamins for hypo- and avitaminosis [5].

It is important to know the amount of macro- and microelements in the whole body of the onion (*Allium cepa* L.) plant and also to determine the amount in its individual generative and vegetative organs, including roots, leaves, and fruits, which expands the importance of their use.

Elements considered macro- and micro-elements for different plants have the ability to accumulate in large quantities in other types of plants or their organs. Macroelements are found in the soil environment, and most chemical elements considered as macroelements from a geological point of view are found in the body of plants as microelements.

According to scientific experience [6.7.8], it was proposed to divide plants into two groups, basipetal and acropetal, depending on the concentration of chemical elements in their organs. If the amount of chemical elements is observed to accumulate in the aboveground organs, then this plant is recommended to be included in the basipetal group, and if it accumulates a lot of chemical elements in the underground part, then such plants are recommended to be included in the acropetal group. Based on the above data, we will get acquainted with the data on the composition of a number of chemical elements in the vegetative organs of onion (*Allium cepa* L.) plants grown in old and newly irrigated brown soils.

It was found that Na, K, Ca, Fe, Ba, and Cl were more abundant than Sr and Ni in the bulb, bulb leaves, and roots of the onion (*Allium cepa* L.) plant. The chlorine content in the leaves of the onion grown on newly irrigated brown soils was 19900 mg/kg, whereas in the crop, that is, in the ripe onion, it was 1620 mg/kg, and in the roots, it was 5500 mg/kg. This indicator was 3300 mg/kg in the leaves, 2000 mg/kg in the bulb, and 3100 mg/kg in the roots of the onion grown on old irrigated brown soils. According to these indicators, the chlorine element in the onion (*Allium cepa* L.) plant is clearly concentrated in the basipetal group; that is, the amount of Cl element in the leaf is significantly higher than in the bulb and root.

**CONCLUSION.** When a certain type of onion (*Allium cepa* L.) was grown in different soil and climatic conditions, there was a general pattern in the amounts of macro- and microelements in the organs of this plant, that is, roots, leaves, and bulb. It was found that in the vegetative organs of onion (*Allium cepa* L.), bulb, leaves, and roots, the elements Na, K, Ca, Fe, Ba, and Cl were quantitatively higher than Sr and Ni.

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