

## THE ROLE OF MINERAL FERTILIZERS IN THE CULTIVATION OF MEDICINAL PLANTS

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**Abstract.** *The article presents data on the role of mineral fertilizers in the cultivation of medicinal plants. Information is given on the effect of mineral fertilizers in the cultivation of medicinal plants, on the physiology of plants, their development and their effect on medicinal properties.*

**Keywords:** *Coronavirus, medicinal plants, wildlife, landscape, biotope, agricultural products, fertilizer, organic fertilizer, mineral fertilizer, humus, phosphorus, potassium, nitrates, nitroammophos.*

**Introduction.** In subsequent years, outbreaks of various viral diseases among the world's population, especially the widespread spread of the "Coronavirus" and its other strains, require increased attention to public health. Taking into account the harmful aspects of the use of a large number of medicines for the human body, the use of various medicinal plants for preventive purposes among the population is increasing. This imposes a great responsibility and burden on the employees of the field of science, the responsibility for the preparation of high-quality medicinal plants and their mixtures increases. On the territory of Uzbekistan, medicinal plants are mainly grown in natural conditions and harvested in the wild.

The territory of Uzbekistan is distinguished by a variety of flora and fauna. According to official data, 750 species of more than 4.3 thousand plants of the local flora are considered medicinal, of which 112 species are registered for use in scientific medicine, of which 70 species are actively used in the pharmaceutical industry. clusters for the cultivation, storage, primary or deep processing of medicinal plants began to be created in Uzbekistan from May 1, 2020. In agriculture, 13,400 hectares of land were planted with medicinal plants last year, and this year this figure has increased to 15,800 hectares. Which indicates the demand for medicinal plants. Organic and mineral fertilizers are widely used in the cultivation of medicinal plants.

The need for organic and mineral fertilizers in different agricultural regions of the country depends on a complex of factors. These include: soil type, its mechanical composition and humidity, bioclimatic conditions of humus formation and mineralization of organic matter, zonal features of agrotechnical systems, productivity and biological features of culture.

The yield and quality of medicinal plants can be significantly stimulated through regulated top dressing, in other words, fertilizer, depending on the composition and availability of active nutrients in the soil and the needs of individual crops for them.

In general, the following principle can be adopted: medicinal plants grown for the purpose of obtaining roots and rhizomes should be fed with potash fertilizers; plants grown for the purpose of obtaining flowers and fruits - with phosphorus fertilizers; for fertilizing plants grown for the purpose of obtaining grass and leaves, it is advantageous to use nitrogen fertilizers. Here an example is Licorice-Glycyrrhiza glabra. Licorice, or licorice naked, or licorice smooth,

or licorice (Lat. *Glycyrrhiza glabra*) is a perennial herbaceous plant; a species of the genus *Licorice* (*Glycyrrhiza*) of the Legume family (*Fabaceae*). Licorice is widely used as a medicinal, food plant, grown as a leafy vegetable crop and a technical plant as a foaming agent. Licorice root in many countries of the world is experiencing its renaissance: in huge quantities it is "consumed" by the global food industry, pharmacological and cosmetic companies. Over 70 percent of licorice grown and processed in our country is exported abroad. The global licorice root market is measured in tens of thousands of tons annually. radiation licorice root is most actively (due to climatic features) grown in the north-west of Uzbekistan - in the Republic of Karakalpakstan and Khorezm region. Licorice, or licorice, is called "boyan" in Karakalpakstan. It grows in the valley and delta of the Amu Darya, tugai, along ditches, channels, collectors, salt marshes and fallow lands. There are two types of licorice in the flora of Karakalpakstan - naked and zaisan. Naked licorice is often grown in Bukhara.

**Results and discussion.** The cadastral list of the flora of the Bukhara region contains information about 765 species of vascular plants from 340 genera and 67 families. The role of nitrogen fertilizer is indisputable in order to increase the production of alkaloids, especially if the appropriate dose is divided and fertilizing is also carried out during the growing process. In accordance with generally accepted recommendations, mineral fertilizers for medicinal crops are applied in fractions: 45% for plowing, 20% for pre-sowing cultivation, 15% for sowing in rows, 20% for fertilizing in the vegetation phase. Depending on the content of nutrients in the soil, their biological removal by plants and the coefficient of fertilizer use, the total norms of mineral fertilizers for medicinal crops during the year are 90-120 kg NPK. When combined with organic fertilizers, the autumn rate of mineral fertilizers is halved. On perennial medicinal plants during the first 2 years and in subsequent years of vegetation, top dressing is used: 45-60 kg / ha of NPK in the phase of the beginning of plant regrowth and 30-45 kg / ha of NPK in the budding phase. Currently, the production of medicinal plant raw materials of cultivated medicinal plants lags far behind in its development from the needs of the pharmaceutical industry, healthcare and other socially oriented sectors of the economy. At the same time, the steady trend of increasing demand for vegetable raw materials and products from it is due to a sharp increase in the number of consumers in recent years, as well as the expansion of the range of such raw materials.

To maintain a deficiency-free balance of humus on sod-podzolic and other unsaturated soils of the Non-Chernozem zone, it is necessary to introduce from 30 to 50 tons/ha of organic fertilizers in the form of manure, organic compost (manure-humus, grass, leaf, straw, etc.) and green fertilizers (siderates) in three to four years. In the latter case, they can be nitrogen-fixing alfalfa (in the phase of the formation of silver beans), seradella (in the phase of the beginning of flowering), yellow and white clover (before the beginning of the flowering phase).

**Conclusions.** Medicinal crops along with other row crops (potatoes, sugar beets, fodder root crops, vegetables) are responsive to the application of organic fertilizers and pay for the costs with a high yield increase. For long-term medicinal crops, organic fertilizers are applied in a dose of 40-60 t / ha after harvesting the predecessor or in a steam field; for annual crops - for the previous crop in an amount of 20-40 t / ha. The depth of embedding of organic fertilizers is set depending on the physical properties of the soil: no more than 10-15 cm on clay and heavy loamy soils and no less than 15-20 cm on light loamy and sandy loam. In accordance with generally accepted recommendations, mineral fertilizers for medicinal crops are applied in fractions: 50% for plowing, 25% for pre-sowing cultivation, 5% for sowing in rows, 20% for

fertilizing during the growing season. Depending on the content of nutrients in the soil, their biological removal by plants and the coefficient of fertilizer use, the general norms of mineral fertilizers for medicinal crops during the year amount to 90-120 kg of NPK nitro (ammo) fosca with an active substance content of about 50%. When applied together with organic fertilizers and siderates, the effectiveness of mineral fertilizers (especially on acidic soils) increases with the local method of their application for some medicinal crops: valerian, marigolds, plantain, motherwort, turn, sage. Local fertilization is carried out during sowing, placing them with ribbons, 5-7 cm away from the row and 3-5 cm below the location of the seeds. This method allows you to combine fractional application of mineral fertilizers in one operation and reduce fertilizer consumption rates by 30-50% without crop loss.

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