

Technology of Maintaining the Medicinal Properties of Peaches through Organic Production and Increase Valuable Economic Characteristics

Abdumuminova R. N., Makhmudov K. Kh., Mukhitdinov Sh. M.

Samarkand State Medical University

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ABSTRACT

In order to ensure that the quality and safety indicators of agricultural products in our republic comply with international standards, the Cabinet of Ministers adopted the decision No. 729 dated 18.11.2020 "On approval of certain legal documents on the safety of organic products and raw materials and organic-mineral fertilizers". Accordingly, growing organic clean fruits and vegetables is now urgent. Also, ensuring food safety in maintaining a healthy lifestyle today depends to some extent on the composition of fruits and vegetables. It is known that the amount of nitrates in fruits and vegetables increases above the allowed rate due to the excessive use of mineral fertilizers to increase the yield of agricultural products (1). For this reason, with the help of the methods recommended by the scientific research institute of horticulture, viticulture and winemaking of Uzbekistan, using green fertilizers (siderate) was carried out in a way that would provide a moderate amount of nitrate in the fruit and vegetable composition. According to the data obtained in the study, the amount of nitrate in the fruit fed with mineral fertilizer was 80.8 mg/kg (the norm is 60 mg/kg), and in the biological fertilizer option, this indicator was 50.9 mg/kg. As a result, while the nitrate content of the fruit is in moderation, mineral and organic contamination of the soil, which is currently relevant, is prevented (2). In conclusion, it should be said that the use of biological (siderate) fertilizers, which are an alternative to mineral fertilizers, is acceptable in all respects for the prevention of nitrate poisoning.

Relevance. Today, organic products are a global brand. 50.9 million people in 179 countries in Europe in 2015 in USA, Japan, Turkey, Germany, Holland and other countries. if organic products were grown on the area of 71.5 mln. in 2019. is forming (3). Also, in 2019, the turnover of organic agriculture in international markets amounted to 96.7 billion euros, 71.5 million. 2.8 million producers were engaged in this type of activity on the area of 5, 15. In developed countries of the world, it is urgent to improve the technology of growing quality fruits and vegetables, to increase the efficiency of using biological fertilizers, to strengthen the possibility of healthy eating by growing organic products using biopreparations that are alternatives to pesticides, to increase the quality and safety of food products, to ensure the reduction of negative effects on the environment. (4,5).

According to experts, the world market of organic products has grown by an average of 15% per year for the past 5 years, and in 2022, the trade turnover is forecast to reach 212 billion US dollars (20% of the total volume of world agricultural production). As a result of these practical works, the possibility of healthy eating of the population will be strengthened, the quality and safety of food products will be increased, and the negative effects on the environment will be

reduced. By using biological fertilizers (siderates) that are an alternative to mineral fertilizers in the development of organic products, soil fertility and other quality indicators are improved, contributing to the provision of biological diversity in nature.

In recent years, a number of reforms have been carried out in the republic in order to ensure food safety of the population, to fully satisfy their needs for fruit products, to process and export them, and to grow products in an environmentally friendly manner. In particular, there are several decisions and decrees aimed at food safety in our Republic, including the Decree of the President of the Republic of Uzbekistan No. PF 5303 of January 16, 2018 "On measures to further ensure food safety of the country" filling with safe, affordable food products " is marked.

Organic production is a holistic production management system that avoids the use of synthetic fertilizers, pesticides, and genetically modified organisms, minimizes air, soil, and water pollution, ensures systemic connectivity in the ecosystem, and optimizes productivity. Supplying humanity with complete and ecologically safe food products is one of the most urgent problems of our time. The peace of our planet, our country and our region is an important indicator of the quality of human life and civilization in general.

Quality nutrition is one of the important factors determining the health of the population. Healthy nutrition is what helps to strengthen the health of a person and reduce diseases, ensures his growth, normal development and life activity. Any disturbance of the balance in the structure of food has a negative effect on human health, and is also one of the main factors of the decrease in the quality of life.

It is known that organic products have a great role in quality nutrition. A product grown in healthy soil, clean atmosphere, and clean water is certainly one of the organic indicators. However, due to improper application of mineral fertilizers to the soil in order to increase the yield, it affects the ecological and hygienic properties of the soil and affects the organic characteristics of the grown vegetables. At this point, it should be said that vegetable crops differ from other crops in their requirement for nutrients and fertilizers in the soil. This is due to their short growing season, during which they absorb a lot of nutrients from the soil, mainly nitrogen, potassium and less phosphorus. For this reason, the amount of nitrates in vegetables may exceed the norm, and their daily consumption may lead to the development of various disappointments.

In solving this problem, it is important to use technology based on growing organic products. One such technology is siderate fertilizers, an alternative to mineral fertilizers, which absorb nutrients from parts of the soil that cannot be absorbed by vegetables in the lowest layers of the soil and accumulate them in biomass. It is also important in ensuring the biodiversity of the ecological system. When this biomass is driven into the soil, the mineralization process accelerates, and the health characteristics of the soil are significantly restored. Products grown in such healthy soil are guaranteed to be of good quality.

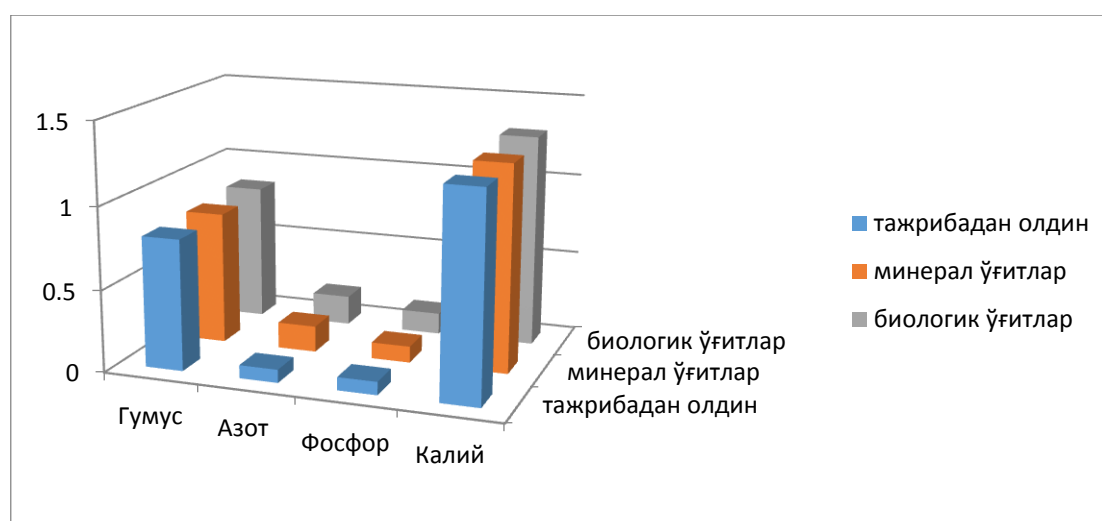
The purpose of the study. Strengthening the possibility of healthy eating by growing organic products based on biological fertilizers, improving the quality and safety of food products, improving the technology of reducing negative effects on the environment.

Research methods. Experiments were conducted on the basis of methodological manuals and scientific recommendations such as "Metody agrokhimicheskikh analizov pochv i rasteniy" (1979), "Metodika gossortoizpytaniya selskohozyaystvennykh kultur" (1983). Biochemical analyzes of vegetable contents were carried out based on the method presented in the methodical manual "Metody biokhimicheskikh issledovaniy rastenii" published under the editorship of A.I. Ermakova, the amount of nitrate in the fruit was carried out by means of Soeks nitrate-tester-2 (2009), sugar content in a refractometer, and acidity titration. , and the dry matter was carried out in the Bertrand method. The amount of humus in the tilled layer of the soil was determined by I.V. Tyurin, the amount of gross nitrogen, phosphorus, and potassium by I.M. Maltsev and L.P.

Gritsenko, the exchangeable potassium flame photometer, nitrate nitrogen in the methods of Granwald-Lyaju, as well as mobile phosphorus by B.P. Made in Machigin style.

The results obtained. Experience 2014-2016 in the mountainous region of the Zarafshan oasis. Horticulture, viticulture and winemaking named after M. Mirzaev was carried out at the experimental station of ITI Samarkand. In the experiment, mineral fertilizers and their alternative biological (siderate) fertilizers were used. Also, their gross and mobile content in the soil was analyzed and the data in Table 1 were obtained.

The presented table shows that the humus content before the experiment was 0.80%, but it increased to 0.84% in the biofertilizer option for three years. It was found that the total amount of nitrogen, phosphorus and potassium was 0.08% before the experiment, and after the experiment, it increased by 0.16-0.10-1.26%, and their mobile forms increased by 8.62, 25.59, 274.5 mg/kg.



Picture 1. The amount of nutrients in the soil after mineral and biological fertilizers in the experiment

Compared to the control (before the experiment), the amount of nitrogen, phosphorus, potassium was found to be higher by 0.08, 0.02, 0.01%. In the variant fed with biological fertilizers, the gross percentage of nitrogen, phosphorus, and potassium from the nutrients in the soil is 0.14-0.16-1.30%, and the mobile form is 8.75, 31.3, 291.3 mg/kg. , by 0.05%, and the amount of movement increased by 2.25, 5.9, 18.9 mg/kg. When we compared these parameters to the option of mineral fertilizers, it was found that the gross percentage was 0.02, 0.03, 0.04%, and the mobile form was 0.13, 5.4, 6.8 mg/kg. Also, in the version fertilized with mineral fertilizers, it was observed that minerals are quickly absorbed into the soil and accumulated more than the norm in the vegetables. Also, during the chemical analysis of the vegetable composition, it was found that more nitrates were accumulated in the variant fed with mineral fertilizer compared to biological fertilizer.

The quality of vegetables is one of the factors that determine health indicators. Fruits and vegetables provide the human body with the need for vitamins with its medicinal properties, aroma, and taste. However, due to the excessive use of mineral fertilizers in order to increase the yield of fruits and vegetables, it has a negative effect on the amount of nitrate in the fruit.

In the experiment, the amount of nitrate was 200-750 mg/kg in carrots and cabbage planted between garden rows in the version fertilized with biological fertilizers, and in the version fed with mineral fertilizers, this indicator was 280.5-950.3 mg/kg. It was found that the allowed amount of nitrate for carrots is 250 mg/kg, and for cabbage it is 900 mg/kg.

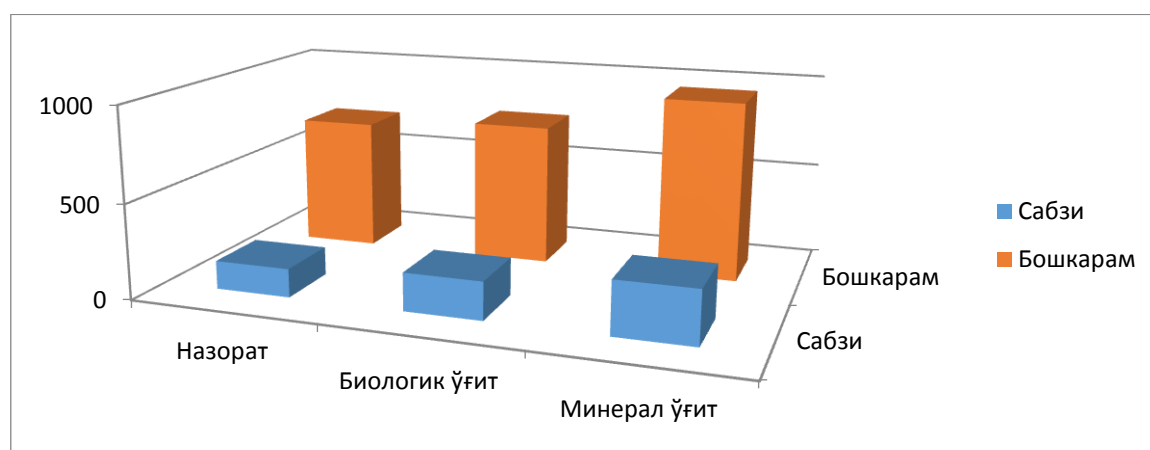


Figure 2. Effect of fertilizer types on nitrate content of vegetables

Discussion. Nowadays, attention is paid to food safety in world health care, and nitrate poisoning has been reported due to the high content of nitrate in fruits and vegetables. Excessive accumulation of nitrates in feed raw materials reduces its nutritional value: vitamins, carbohydrates, amino acids decrease, the mineral composition of the product changes. Uzbek scientist Botaev J.I. determined the daily norm of nitrates at the level of 250 mg. In some literature, it is said that the daily intake of nitrates should not exceed 600 mg. 222 mg per 60 kg body weight is the daily limit of nitrate.

The main carriers of nitrate to the body are vegetables, potatoes, legumes, fruits and berries. Among them, the maximum level of nitrates is recorded in leafy greens, beets and white cabbage (summer varieties). An increased amount of nitrites in the body causes serious health problems (primarily in children and the elderly). Absorption of nitrates occurs mainly in the stomach. Up to 90% of nitrates are excreted in urine within 8 hours. Clinical signs of nitrate poisoning appear 1 - 6 hours after they enter the body and are characterized by an enlarged liver and pain on palpation, dyspeptic disorders mixed with scleral subicterism. Also, changes in the nervous system can be observed - symptoms of general weakness, severe headaches in the temple, drowsiness, dizziness, darkening of the eyes, incoordination of movements. The vasodilating effect of nitrates causes a decrease in arterial blood pressure, sinus arrhythmia, chest pain, and shortness of breath.

Summary. The increase in the number of people in the world leads to an increase in the demand for food. Quality food is a guarantee of health. Based on the above information, it can be concluded that organic products are not only a guarantee of our health, but also ensure the genetic diversity of the environment, maintain and increase the long-term fertility of the soil, and also mean a complete, high-quality product. Mineral fertilizers affect not only the nitrate content of the product, but also the vitamins, organic acids, additives, proteins and carbohydrates contained in it, and have a negative effect on the quality indicators of fruits and vegetables. Eating fruits and vegetables without analyzing the amount of nitrates is dangerous for our health. Not exceeding the daily norm guarantees our health. The presence of sugar, acid, vitamins and other biologically active substances in daily consumed fruits and vegetables can be called quality nutrition. Regulation of the daily intake of nitrates is one of the important factors that every person should follow. Let's introduce the concept of "organic products" into our lives and be healthy.

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