THE IMPORTANCE OF IMPROVING THE DRYING PROCESSES OF FRUIT AND VEGETABLE PASTILLES

Mukhriddin Kholikov
Doctoral student,
Navoi State Pedagogical Institute,
Republic of Uzbekistan, Navoi
E-mail: muxri0770@gmail.com

Hayrullo Djurayev
Doctor of technical sciences, professor,
Bukhara Engineering and Technology Institute,
Republic of Uzbekistan, Bukhara
E-mail: sayrullo.djurayev@mail.ru

Shaira Nasirova
Doctor of technical sciences, Assistant professor,
Navoi State Pedagogical Institute,
Republic of Uzbekistan, Navoi
E-mail: nasirova_61@mail.ru

ABSTRACT
This article provides information on the importance of improving the drying processes of fruit and vegetable lozenges. In order to obtain high-quality fruit and vegetable products, it is necessary to create conditions that ensure their quick and good drying.

АННОТАЦИЯ
В данной статье представлена информация о важности улучшения процессов сушки фруктовых и овощных леденцов. Для получения качественной плодовоовощной продукции необходимо создать условия, обеспечивающие их быструю и хорошую сушку.

Keywords: fruit, vegetable, product, drying, sun, conditions, quality, technology, raw materials, preparation, method.

Globally, the supply of fruit and vegetable products to the population with natural vitamins, micro- and macro elements is increasing day by day, and 47% of the total cultivated products are prepared dried. At the same time, it is important to carry out scientific research on improving the technology of drying all fruits and vegetables.
vegetables in the form of lozenges and creating a systematic analysis. Today, in the world, the production of fruits and vegetables rich in natural vitamins, micro- and macroelements in the form of lozenges with the help of modern technologies and equipment, in which the maximum preservation of natural components, as well as improving the consumption qualities of products, their nutritional safety and biological value increase, it is necessary to carry out scientific researches in the directions of developing technologies for obtaining high-quality dried lozenges.

The tasks of increasing the energy efficiency of the apparatus for drying fruits and vegetables using new methods are also relevant.

The fruit and vegetable sub-branch is an important branch of Uzbekistan’s agriculture. This network satisfies the demand of the country's population for food products, and the demand for raw materials of the processing industries. Fruit and vegetable growing is one of the industries that provides integration to the world agricultural and food markets and foreign currency income for Uzbekistan.

Resolution No. 03-13-1 of the Cabinet of Ministers of the Republic of Uzbekistan dated January 28, 2014 "Measures to increase the production of food products in 2014 in the regions specializing in fruit and vegetable growing in the Republic, the weight of their processing, and the volume of exports to On the basis of the decision of the meeting "on" in order to continuously provide the population with food products, to increase the volume of processing and export, to ensure the stability of prices in the domestic market, fruit and vegetables in the districts specializing in fruit and vegetable growing in the republic, it is planned to increase the production of grape, apple and potato products, to implement new intensive fruit orchard construction projects.

The high temperature and low humidity of the climatic conditions of our republic are very convenient for drying fruits in the sun. Sun-dried products are highly valued in terms of quality compared to artificially dried ones.

The ease of natural conditions in our republic allows fruits and vegetables to be ventilated and dried in the sun. The purpose of drying fruits and vegetables is to remove moisture from them and prevent the development of microorganisms and various biological processes. There is such a criterion for drying that microorganisms cannot develop if the moisture content drops below that level. This minimum level is 30% for bacteria and 15-20% for yeast bacteria. Therefore, if the humidity of vegetables after drying is 15-25%, they can be stored without rotting.[1]

In order to obtain high-quality fruit and vegetable products, it is necessary to create conditions that ensure their quick and good drying. In order to obtain a cheap and high-quality product, it is necessary to correctly select and organize drying points, to follow the specified technology, and to use advanced methods in the preparation of raw materials.[2]

Ensuring food safety and providing the population with a wide range of fruit and vegetable products throughout the year is the priority of the rational policy of our country. It is known that in the conditions of the soil climate of our republic, a large amount of fruit and vegetable products rich in vitamins and minerals, which can compete with the fruits and vegetables grown in many developed countries of the world in terms of their biochemical composition, are grown annually. It is not a secret to anyone that dried products can be stored for a long time without deterioration in quality, have excellent taste qualities, and are one of the incomparable sources of providing the human body with the necessary vitamins and minerals at any time outside of the season.

Due to the fact that dried products have such high properties, today the demand for them is increasing year by year.

The importance of drying fruits and vegetables is very high.
Therefore, drying fruits and vegetables is a promising direction for farms. Our republic has excellent natural and climatic conditions for drying fruits and vegetables and grape products. At the same time, the development of science and technology in recent years has also been expressed in the field of drying. Consequently, many resource-saving technologies and equipment suitable for the sunny climate of our republic have been created and put into production by scientists. According to the type of product, the exact determination of drying exposure in these equipments, choosing the most optimal among them and saving natural resources as much as possible requires additional research.

According to its physical essence, the drying process is a complex diffusion process. Its speed is determined by the rate of diffusion of moisture from the material being dried to the environment. It is known that the drying process is the movement of heat and matter (moisture) inside the material and its transfer from the surface of the material to the environment. Thus, drying is a set of interconnected processes of heat and mass exchange processes.

It is an important task to dramatically increase the supply of high-quality raw materials for drying. In order to successfully fulfill this task, it is necessary to carry out comprehensive and high-quality complex agrotechnical activities in the gardens and vineyards of each farm. In order to properly organize the drying process, it is necessary to know well the biochemical, physical and chemical composition of raw materials.

In addition to drying in the sun, vegetables are also dried using artificial heat. In this case, drying cabinets, tunnels, continuous networks are used. Drying of vegetables consists of two stages - preparation for drying and drying. The first stage includes sizing, washing, sorting, cleaning, grinding, blanching or boiling. The second stage consists of drying the vegetable. Drying vegetables is not only about removing moisture from them, but also involves complex physiological and biochemical processes. The duration of the drying process depends on many factors, namely, the nature of the drying object, the form and degree of crushing of raw materials, its thickness on the drying floor, the method of preparation for drying, drying temperature, air exchange rate, humidity and a number of other factors.

Figure 1. Factors pointing to the importance of drying fruits and vegetables

Firstly with the organization of high-quality drying of fruits and vegetables, it is possible to increase the production profitability of farms specializing in horticulture and vegetable growing, to increase their competitiveness and further economic development. Because organizing the drying of fruits and vegetables is one of the most inexpensive, simple and popular directions in the field of processing agricultural products.

Secondly dried fruits and vegetables are sold at much higher prices both in the domestic market and in export compared to their fresh state.

Thirdly by drying fruits and vegetables, there is an opportunity to increase their shelf life and fully satisfy the demand of the population for these products in the off-season.

Fourthly in summer in our country, many fruits spill over and die (for example, apricots, plums, etc.). The organization of drying allows you to prevent these products from spilling and perishing due to rapid drying.

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To substantiate the optimal parameters of drying fruit and vegetable pastilles in an unconventional way, to improve the principle scheme of the device and the high-efficiency, energy-saving drying process of obtaining dried pastilles with different composition based on fruits and vegetables with a high moisture level, to determine the technical and economic indicators, serves to reduce the loss of raw materials during processing.
References: