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METHOD OF ARTIFICIAL DRYING OF FRUITS.

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Abstract: *This article provides analytical data for selecting fruit drying methods for specific production conditions.*

Key words: *fruits; drying methods; dryer; technology; duration of drying; air temperature; humidity; analysis.*

Аннотация: *В статье приведены обзорная информация и анализ по способам сушки фруктов для выбора в конкретных условиях производства.*

Ключевые слова: *фрукты; способы сушки; сушилка; технология; продолжительность сушки; температура воздуха; влажность; анализ.*

Introduction. Nowadays, the production of dried products from agricultural products is becoming more and more popular. That's why it is important to take measures to quickly harvest the fruit products grown in Uzbekistan, because the fruits ripen during the hot days, taking this into account, the products are sent to the processing industry, including drying workshops. In our country, a lot of attention is paid to the drying of fruits and vegetables, and as a result, mini-drying workshops with a small size are developing rapidly and intensive drying processes are being improved without quickly wasting fruits.

When choosing the main good drying technology, the quality of the finished product is the main indicator. The large number of drying means, the variety of types of aggregates gives an opportunity to choose the most alternative drying technology among them.

Problem: The selection of technological means and methods of drying depends on the cost of the product in the general technological chain of drying and the characteristics of the product being dried. One of the most important factors in the drying process is the intensification of the technological regime. Acceleration takes place in three stages, and the drying process is accelerated. The temperature is 110-1200C at the initial stage, and it is reduced to 70-80oC at the final stage.

Scientists of Namangan Institute of Engineering and Technology and Karshi State University are conducting scientific research work on fast and high-quality drying of fruit and vegetable products in cooperation. This article presents analytical data for selection of fruit and vegetable drying methods for specific production conditions.

Analysis of drying technologies. Since ancient times, people have discovered the drying of products. Currently, there are two types of food drying: drying with the help of heat and drying at low temperatures, which is also called sublimation or molecular drying.

In the industry, there are various methods of drying with the help of heat, which are divided into convective, radiative, conductive methods.

The main essence of convective drying is to transfer heat to the product being dried using gas and to remove moisture from the products using a heat exchanger. Heated air is

used as a heat transfer agent. The conductive drying method consists in placing the product layer on a hot surface, for example, placing the drying device on its valets.

In this case, the product being dried touches the heated metal valets and heats up. Moisture from the material is removed from the dryer by means of ventilation.

The method of drying with the help of rays is based on the transfer of heat to the product through radiation sources. A heated metal surface or other material (black light emitter) or infrared radiation lamps (light emitter) are used as heat exchangers.

The kinetics and dynamics of the drying process depend on internal and external heat transfer and weight change, as well as heat exchange in abnormal conditions in the ongoing processes, i.e., changes in the continuous movement of the drying carrier and the product.

In products being dried, the bond between dry and wet has four different forms depending on the amount of energy of the body.

If the products being dried are chemically bonded, the energy of the bond in the product molecule is so high that it cannot be removed without breaking it.

When the colloid binds, there is adsorbed moisture on the inner and outer surfaces of the product, which is held in the form of an elegant film by surface tension. Long drying is required to release the adsorbed moisture.

In osmotic bonding, the moisture is easily or loosely bound to the product through a physicochemical bond, and it is easy to release the moisture from the product.

In capillary binding, product moisture is mechanically bound to dry matter. During drying, the interaction of moisture in the product with the environment is characterized. Buda is divided into free, hygroscopic and equilibrium humidity.

Free moisture is the rate at which moisture evaporates from the surface of the product. It is known that the amount of moisture evaporating from the free surface is directly proportional to the duration, the level of the evaporating liquid and the evaporation coefficient, and it depends on the speed of air movement. If the air movement rate is 0, no evaporation occurs. As the speed of air movement increases, the evaporation coefficient increases. But if the speed of air movement is very high, its effect on evaporation is less noticeable. It should also be taken into account that when the steam coming out of the moisture evaporates from the air and from the free surface, a convective flow is formed, taking out the steam molecule and accelerating the evaporation. The amount of free moisture is found based on the difference between the initial moisture content of the product and the hygroscopic moisture content.

Hygroscopic humidity is the humidity of the product, the elasticity of vapors from moisture on its surface is lower than the level of freely evaporating moisture. In this case, the release of moisture from the product is slower, and free level evaporation is accelerated. The ratio of free and hygroscopic moisture depends on the colloidal properties of the product. The higher the free moisture in the product, the faster it dries.

Equilibrium moisture is the moisture that occurs in the product at which equilibrium occurs between the product and the drying medium. Such balanced humidity depends on the temperature and relative humidity of the air and goes with their changes.

The drying process involves the removal of moisture from the product to a balanced moisture content. Balanced humidity is of great importance in the drying process,

depending on its value, the potential possibility of the air as a drying agent, the moisture associated with the product, the conditions of the level of the dried product, and the type of containers for its packaging determine. The moisture permeability and moisture-giving properties of the material are of great importance to the progress of the drying process.

In short, we chose the method of drying fruits using convective dryers at the private enterprise "AFRUZ KAMOL NABI". In the future, scientific and research work on improving the equipment of this private enterprise and determining its optimal modes is being continued.

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