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The Importance of Fruit Drying in Different Methods Today

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Abstract: The quality and yield of grain fruits largely depend on raw materials. It is advisable to dry only those fruits that meet standard requirements. Requirements for types and grades of raw materials are different. Raw materials should not be used, not rotten, not melted, they must contain enough necessary substances, especially sugar and acids.

Key words: Nuts, evaporation, decomposition, fruit drying, fruit storage, heat and air flow, nutrients, water activity, sugars, diffusion.

The theoretical concept of fruit drying is to remove water from fruits by evaporation. Fruits contain a high percentage of water (usually 80-95%), which makes them prone to spoilage and degradation. Drying fruit reduces the water content to a level that inhibits microbial growth, slows down enzymatic reactions, and extends the fruit's shelf life.

The fruit drying process can be done by sun drying, air drying or using a dryer in different ways. These methods use heat and airflow to evaporate moisture from the fruit. The rate of moisture removal depends on factors such as temperature, humidity and air flow.

The benefits of drying fruit are to preserve nutrients and flavor. Many fruits, especially those with a high water content, lose some of their vitamins and minerals during the drying process. However, some nutrients such as fiber and antioxidants are more concentrated in dried fruit. In addition, the natural sugars in the fruit have a higher concentration, making the product sweeter and tastier.

Research methods. Fruit drying is a common storage method that involves removing moisture from fresh fruit to extend shelf life. The theoretical aspects of fruit drying include:

Water activity. Water activity (Aw) is an important factor in determining the quality and safety of dried fruits. Aw is the ratio of the water vapor pressure in the food product to the vapor pressure of pure water at the same temperature. Generally, dried fruits with an Aw of 0.6 or less are considered safe for storage.

Water activity is a crucial parameter in fruit drying. Water activity or aw is defined as the ratio of the water vapor pressure in a food product to the vapor pressure of pure water at the same temperature. When drying fruits, water activity is used to control the moisture level remaining in the fruit during the drying process.

Research results and their analysis. The optimum level of water activity for fruit drying depends on the type of fruit and the desired final product. For example, the optimal water activity for dried apricots is about 0.5-0.6, and for raisins - 0.6-0.7. Water activity that is too high can cause microbial growth and spoilage, and levels that are too low can cause the fruit to become hard, brittle, and unattractive.

To achieve the desired level of water activity, fruits are usually dried to a certain moisture content. The moisture content is usually measured with a moisture meter and then the water activity level is determined with a water activity meter. The drying process is then adjusted accordingly by controlling temperature, humidity and air flow to achieve the desired moisture and water activity levels.

Mass transfer: During drying, mass transfer occurs between the fruit and the drying air. This includes the transfer of moisture from the fruit to the drying air by diffusion and evaporation.

Fruit drying is the process of reducing the moisture content of fruits to increase their shelf life. Mass transfer is an important aspect of the fruit drying process because it involves the transfer of moisture from the fruit to the environment.

During the drying process, the moisture in the fruit evaporates and spreads through the surface of the fruit into the surrounding air.

Temperature and humidity. The temperature and humidity of the drying air are important factors in determining the speed and efficiency of drying. High temperatures and low humidity result in faster drying, but can also lead to quality problems such as overdrying and browning.

Temperature and humidity play an important role in fruit drying, as they directly affect the drying speed and the quality of the final product. As a rule, drying of fruits is carried out at a temperature of 50 to 70 ° C and a humidity of 40 to 60%.

High temperatures dry fruits faster, but this can also lead to loss of nutrients and poor quality. On the other hand, low temperatures can slow down the drying process and increase the risk of spoilage due to microbial growth.

In addition, we dried fruits brought from Tashkent region in different ways. Drying methods Products can be dehydrated in three different ways: mechanical, physical-chemical and thermal. In mechanical dehydration, moisture is separated by compression or centrifugal force in centrifuges. The physico-chemical method is based on the use of water-absorbing substances. The method of dehydration (drying) under the influence of heat is widely used in the food industry. There are two types of drying: natural and artificial. The artificial drying method is carried out in the open air. The artificial drying process is carried out in special drying devices.

The following apricot varieties are popular in the south-western regions of Uzbekistan: "Yubileyniy Navoiy", "Korsodiq", "Sovetskyi", "Yakobiy", "Ruhiy juvanan", "Komsomolskyi", "Subkhaniy", " Khurmani", "Iskandari", "Mokhtabi", "Almond", "Gulongi almond" and others. Depending on the method of drying apricots, turshak, kuraga and kaisa are obtained from it. Turshak is a dried apricot with seeds. The drying process consists of harvesting, transporting, storing, sorting, calibrating, washing, soaking in boiling water, smoking, drying, dehumidifying, placing in containers and storing.

Apricots are cut when they have reached the color and shape characteristic of their variety, and the flesh is sufficiently firm. Dry matter in the above-mentioned varieties should be 23-26% during ripening. Apricots are picked 2-3 times per season. Usually, you can pick apricots that are 2-3 days before ripening

to make turshak, but in such cases, it is necessary to preserve and ripen a little before processing. This method is sometimes useful, as a result of which the damage during transportation and storage of the crop is significantly reduced.

A maximum of 12 kg in pushchairs or pushchairs. they are transported in boxes that fit. Do not put too many apricots in the boxes, because when they are placed together, the apricots may be crushed. Apricots are stored in stacks in well-ventilated buildings or sheds. 6-8 boxes are placed on stacks. A label is attached to the boxes with the type and quality of apricots and the time of delivery of the product to the warehouse. Ripe apricots are stored for 12 hours, and apricots that are 2-3 days before ripening are stored for 58-72 hours. When drying apricots, it is taken into account when they were brought. Empty boxes should be rinsed with 0.5-1.0% chlorine lime solution, then rinsed with clean water and dried.

Fruits are divided into varieties (calibrated) depending on their size. For this purpose, various calibration machines are used - disk, cable, drum, roller, roller-belt machines. Wire or roller-belt machines are very convenient for separating apricots. In such machines, the harvest is divided into 3-4 types, depending on the size. Smooth apricots are suitable for blanching, smoking and drying. Apricots can be separated by hand. It is also important to classify according to quality. In this, rotten, moldy, crushed, infected and diseased ones are removed. Fruits are also sorted according to the degree of maturity. Because the processing of raw materials, immersion in boiling alkali, smoking, drying depends on the level of ripening of the fruits. Apricots are sorted according to their quality on belt or roller conveyors and on tables.

Apricots to be dried are cleaned of dust and mud and washed. Then the fruits treated with toxic substances are rinsed in a 1.0% hydrochloric acid solution, and then again in clean water. For this, special machines with fans or elevators are used, or a simple bath is used. Apricots are blanched in a boiling solution or with steam. In this case, the peel of the fruit sweats and small cracks are formed. This accelerates the processes of smoking and drying with sulfur.

Blanched and washed fruits are immediately laid out in rows on wooden containers and sent to the smoking chamber or smoked in plywood boxes. Smoked apricot preserves its natural color and is resistant to insects. It is smoked for 2-1.5 hours using 2-2.5 grams of sulfur per kilogram of fruit.

Drying in the open takes 3-4 days. then the apricots are taken to the shade and placed on stacks. In this case, it will be dried for a few more days. Total drying takes 8-10 days. Drying is complete when the fruit dries evenly and the skin does not separate. Fruits that are squeezed and stuck together are easily separated. But it is not possible to dry fruits evenly on trays. If the humidity is 15-17% in 75-80% of the turshak, it will be completely dry. Therefore, after harvesting, it is now dried in order to balance its moisture. For this, the fruit taken from the pods is placed in wooden boxes. Such boxes are 1.2 meters long, 0.7 meters wide, and 0.5 meters high, and they hold 80-100 kg. the product is placed from Boxes are stored in closed buildings. This process takes 12-15 days. During this period, the moisture of not well-dried fruits is transferred to over-dried ones.

25 kg of product with 16% moisture according to the standard. are placed in cardboard boxes or kraft bags. Turmeric is stored in a clean warehouse with a temperature of 0-10 degrees and a relative humidity of 60-65%.

CONCLUSION. Today, the importance of drying is to preserve the fruits for a long time, to preserve the protein, vitamins, and minerals contained in them. For this, it is necessary to use drying technology wisely in modern drying devices, taking into account external and internal factors in the drying process, and always keeping the following temperature and humidity indicators under control.

Адабиётлар:

1. Максименко М.Г. Особенности производства сухофруктов / М.Г. Максименко, Д.И. Марцинкевич // Плодоводство: сборник научных трудов / РУП "Институт плодоводства". – Минск: Республиканское унитарное предприятие Издательский дом "Белорусская наука", 2021. – С. 227-238. – DOI 10.47612/0134-9759-2021-33-227-238. – EDN CASSSN.
2. Санникова Т.А. Сушка сливы и абрикоса в условиях Астраханской области / Т.А. Санникова, В.А. Мачулкина, Н.И. Антипенко // Аграрная Россия. – 2011. – № 4. – С. 11-14. – EDN TMVGTR.
3. Бўриев Х.Ч., Ризаев Р. Мева, узум маҳсулотларни биокимёси ва технологияси. – Т.: Меҳнат, 2000.
4. Бўриев Х. Ч., Жўраев Р., Алимов О. Мева сабзавотларни сақлаш ва даслабки ишлов бериш. – Т.: Меҳнат, 2002.
5. Шаумаров Х.Б. Исламов С.Я. Қишлоқ хўжалиги маҳсулотларини сақлаш ва бирламчи қайта ишлаш технологияси. – Тошкент, 2011.
6. Широков Е.П., Полегаев В. Технология хранения и переработки продукции растениеводства с основами стандартизации. – М.: Агропромиздат, 2000.