

CARROTS DRYING DEVICES AND METHODS

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Abstract

In this article, opinions were expressed about the devices and methods of drying carrots.

Keywords: fruits, carrots, vitamin, based, mode, product, material.

When drying fruits and vegetables with high-efficiency transportation, the main composition changes, the number of vitamins and other biologically necessary substances decreases. Drying methods have been developed that maintain the quality close to the parameters of the raw material.

The drying rate is very high at the beginning of the drying period, because the moisture in the product is reduced from the material between the product surface and the large cell. Then the drying rate decreases, but remains at a constant level. When the drying mode is properly organized, the external and internal diffusion is almost the same and the product is dried evenly. The drying temperature will cause overheating and over-drying.

In addition, the quality of the product changes, the taste and smell disappear. Many vitamins lose their potency. The main thing is to keep it at a constant temperature during the drying period. An increase in temperature leads to deformation of the product, reduces the ripening process of the product. The high quality of dried fruits and vegetables is based on air temperature and drying speed. The drying mode depends on the morphological and dimensional properties of the products, the level of grinding, and the method of preliminary preparation. Mainly apples, pears, apricots, plums, grapes, potatoes, cabbage, carrots, shallots, onions are dried, but other products can be dried as well. Raw materials must meet the given standards and must be of high quality.

Preparation of raw materials mainly consists of sorting, selecting according to size, washing. Many vegetables and fruits have their skins and inedible layers removed. Potatoes and berries are cleaned in mechanical cleaning machines, and the rest of the process is done by hand. Sometimes fruits and vegetables are treated with hot water. Softened skin is cleaned in washing machines. Burning the dried onion peel and subsequent washing are carried out together. Apples and pears are seeded, apricots and peaches are removed. Plum, cherry, poppy are dried without changing. Large fruits and vegetables are cut into slices, cut into plates and cubes, and

crushed. The higher the grind, the faster the drying. Briquetting the product is easy. The main process of preparing fruits and vegetables for drying is steaming.

Potatoes, carrots, radishes, cabbage are dried until half-ready. Steam is used in steaming. Medicinal herbs such as onions, garlic, onions, white roots (cilantro, celery) are not steamed, as they lose the aromatic substances and essential oils contained in them.

Apricots, peaches, apples, and grapes are treated with sulfur dioxide when drying. This processing is carried out according to technological instructions.

In solar drying, it is dried in the air in sunny, rainless, hot areas in summer and autumn. During such drying, fresh water source trays and sieves, tables for product preparation, drying of apricots and grapes are installed on separate surfaces.

If the seed is removed from an apricot, a leaf will come out. The fruits are treated with sulfuric anhydride. Next, it is dried to a moisture content of 16-18%. Be careful when drying grapes and apricots. Because the grains interfere with these. Drying is carried out for 12 days, the moisture content drops to 18%. The next dried product will remain moist for several days after drying. If the fruits and vegetables are dried at the enterprise, they undergo a process of transformation, i.e. cleaning and sorting, washing and final drying, packing the finished product in boxes and sending it to the market.

The climatic conditions of our republic, with high temperature and low air humidity, are considered very favorable for drying fruits and grapes in the sun. Sun-dried produce is rated much higher in terms of condition than dry-dried. To dry grapes and fruits in the sun, it is necessary to prepare specially equipped drying areas in an open place. The correct selection of drying areas affects the reduction of product cost and the improvement of product quality. Drying stations are arranged near gardens and vineyards. The level of the drying area depends on the type of product to be dried, the amount of fruit to be placed per square meter. Carrot drying devices. In the republics of Central Asia, the convenience of natural conditions allows vegetables to be ventilated and dried in the sun. The purpose of drying vegetables is to remove moisture from them and prevent the development of microorganisms and various biological processes. There is such a rate of drying that, if the moisture content falls below that level, microorganisms cannot develop. This is at least 30% for bacteria and 15-20% for yeast. Therefore, if the moisture content of vegetables after drying is 15-25%, they can be stored in good quality without rotting [Andreev Yu.M. 2002]. Different types of drying devices are used in the industry. Dryers differ from each other in different features. Devices are divided into convective, contact and other types of dryers according to the method of heat transfer to wet material. Air, gas or steam can be used as a heat carrier. According to the value of the pressure in the drying chamber, there are atmospheric and vacuum dryers. There will be periodical and continuous devices for organizing the process. According to the constructive structure, drying

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devices are different. Cabinet, chamber, corridor (tunnel), shaft, drum tube, screw, cylindrical, turbine, cascade, carousel, pneumatic, conveyor, spray and similar dryers are used in industry.

References:

1. Azimov.B.J., Boriev. H.Ch.. Biology of vegetable crops. Т., "UzMEDIN" 2002. 219 pages.
2. Abdolnizozov B. Maintenance of nutritious repeated crops // Agriculture of Uzbekistan. - Tashkent, 2002. - #2. - p. 43-44.
3. Айтжанова С. Д. Плодоовощеводство : учебное пособие для вузов / С. Д. Айтжанова, В. Е. Ториков. — 2-е изд., стер. — Санкт-Петербург : Лань, 2022. — 276 с.
4. Антипов, С. Т. Технологическое оборудование для сушки пищевых продуктов Текст.: Уч. Пособие / С.Т. Антипов, В.Я. Валуйский, И.Т. Кретов; Воронеж, технол. ин-т, 1989. 80 с.
5. Арапов В. М. К вопросу выбора тепловых режимов сушки термолабильных продуктов Текст. / В. М. Арапов, М. В. Арапов, М. В. Мамонтов // Вестник ГГТУ им. И.О. Сухого. 2006. №3. С. 8-15.