

“TECHNOLOGY OF STORAGE OF POTATOES IN A CONTROLLED GAS ENVIRONMENT”

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Potato (Latin: *Solanum tuberosum* L.) is a perennial herbaceous plant belonging to the Solanaceae family. Potatoes, which are one of the main food products, are considered annual food and are widely used as technical and hay crops. Homeland - South America. There are about 150 wild and cultivated species. Most of the cultivated species grow in South and Central America. In farming, 2 types of sugar potato (*S.andigenum*) and chili potato or European potato (*S.tuberosum*) are planted and used as annual crops. Potatoes are used as food and fodder, as well as raw materials for obtaining starch, alcohol, glucose, dextrin and other products.

Potato tubers contain 75-80% water, 23.7% dry matter, including 17.5% starch, 1-2% protein, 0.5% sugar, 1% mineral salts, as well as vitamins B1, B2, B6 , contains vitamins C, PP, D and provitamin A (carotene). In addition, the bark contains a poisonous substance - solonin. Potatoes play an important role in people's diet. According to physiological recommendations, the annual consumption of potatoes for one person is 45 kg.

Potatoes have been cultivated in Uzbekistan since the middle of the 19th century. Here, too, it was not well received at first. But in the years when there was no wheat, as in other places, the potato, which is considered a barren and fruitful plant, failed in hard times in Uzbekistan. Now potato is the most common crop in the world. Potatoes are currently planted in more than 130 countries on several million hectares. In addition to being a more nutritious food, potatoes produce faster and take up less space than any of the staple crops such as wheat, corn or rice. It can be seen that the need for potatoes in the food industry is greater than that of other fruits and vegetables.

The technological processes that take place in the storage of vegetables, including potatoes, are very complex, the operations that take place in them depend on many external and internal factors. The technology of storing vegetables and fruits in a variable gas environment has been widely introduced in recent years. They provide an opportunity to extend the shelf life of products and at the same time maintain their quality, that is, their chemical composition, taste and aroma at the level of the original product indicators. But this technology differs

sharply from other storage methods due to its technical complexity and high cost. Therefore, it is currently used to store valuable fruit types and varieties, as well as some vegetables.

The methods of creating a variable composition of the gas environment can be divided into the following:

1. Inhalation is used to change the composition of the gas environment by inhaling the product itself, which is stored in a closed volume or chambers.

2. Active - a gas mixture prepared with a certain composition is sent to the products in a closed volume or stored in chambers with the help of special units and devices.

In the first case, the desired composition of the gas environment is not created immediately, but depends on the rate of respiration of vegetables and fruits, and is achieved approximately after 0.5-1 month of storage. This gas environment can be reached quickly or for a short period of time. But the work is more complicated and expensive. To achieve the simplest modified gas environment, it is necessary to pack vegetables and fruits in polymer films, including polyethylene films. Using this method, the amount of wastage is reduced and the high quality of the product is maintained. In order to successfully store the product using the film, it is advisable to follow the following conditions:

- taking into account the type characteristics of storage facilities;
- correctly choose a film of appropriate thickness and air permeability, as well as a container of suitable size;
- degree of compaction;
- prevention of condensation of moisture inside the container.

The passing of the physiological rest period is the main characteristic or biological property that determines the storage periods and the amount of wastage. The rest period depends on the conditions of cultivation and storage of the variety and can be 1-3 months. The resting period is a complex physiological and biochemical process, which depends on the specific changes of cells and the exchange of substances in the nodes. During storage, the rate of life activity in the buds is different. For example, when the temperature drops to 4^oC, during the resting period, the pods emit 3-6 mg/kg of carbon dioxide. At the end of the dormant period, buds on the buds begin to grow. The rate of breathing increases by 3-5 and more. However, the processes related to the differentiation and development of growth points, that is, their preparation for the next growth period, continue in a peaceful state. The same processes determine the essence of the dormant period, that is, the biological characteristics of the variety. One of the main factors affecting the shelf life of potatoes is the ability of the covering tissue that protects the damaged part of the tubers to recover. Healing of the lesion is usually best in growing or newly excavated buds. This ability does not lose its power during the initial period of storage. For the formation of periderm tissue, the temperature should not be lower than 7^oC and the air should be almost humid. New periderm tissue is formed quickly when potatoes are harvested on time and stored for 2-3 weeks at an air temperature of 10-18^oC and relative

humidity of 90-95%, as well as good ventilation. It is recommended to spread the immature and skinless tubers on the fields near the warehouse before placing them in coolers. After 1-3 weeks, the product is placed in a warehouse for long-term storage. The exchange of starch and sugars is of great technological importance. Ripe tubers stored under normal conditions contain an average of 15-18% starch and 0.5-1% sugar. When the temperature is below 30 C, sugar increases as a result of starch sugaring, and most of it is spent on respiration. At the same time, the opposite or the formation of starch from sugar also happens. If the accumulation of sugar content does not increase when the buds are stored in a cold place, then a certain part of the sugar in the first place turns into starch again. In this way, the physiological health of the potato tubers is preserved, and the taste returns to normal. When stored in cold conditions, the temperature is low, and the longer the potatoes are stored, the more slowly the conversion of starch into sugar slows down. To bring the tubers to their normal state, they are kept in a special warm and bright room for a few days, then they are placed in containers and taken out to sales outlets. Another important feature of potatoes is that they do not release as much heat and moisture as other vegetables. Therefore, high-quality potatoes can be stored in piles up to 1.5m in natural ventilation and 3.5-4m in active ventilation.

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