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ANALYSIS OF EXISTING MELON DRYING METHODS

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Abstract:

One of the economic options for consuming melon fruit is drying, so it has become one of the most common ways of processing farm-grown produce. There has been a steady increase in the demand for dried vegetable ingredients used extensively in cooking. The production of dried products with high nutritional value, containing high amounts of vitamins, carbohydrates and rich in minerals with minimized destructured biological components has become an urgent task of today.

Keywords: Consuming melon, vegetable ingredients

INTRODUCTION

The solution to this problem necessitates the development of resource-saving drying technology to ensure the production of high-quality products. Development of drying technology is associated with the implementation of drying methods in two cascades, using electromagnetic fields of infrared and ultrahigh frequency ranges of energy input.

Pre-treatment of drying object - melon provides new, more intensive modes of drying process and improved properties of the finished product, because it can improve the drying speed, reduce the residual moisture, which is associated with a change in physical and chemical properties of moisture in vegetables, before the main process of drying.

MAIN PART

The efficiency of energy input in the form of infrared electromagnetic fields for pretreatment of material consists in obtaining a product with optimum composition of actively acting in it substances at minimum energy consumption and is an important scientific problem of drying of agricultural products, which solution ¬ should include the concept of selection and justification of rational modes of infrared energy input

It is known that drying is the most energy consuming process of conservation of high-moisture agricultural products. For example, it takes from 4.0 to 8.6 kg of moisture to get 1 kg of dried product, which requires from 9980 to 21480 kJ of energy. The heat generator efficiency lies in the range $\eta = 0.6$ to 0.8.

In terms of energy costs, the most economical way to dry fruits and melons is air-solar drying.

Below we will consider methods and techniques of melon drying, apparatus and technological design of drying facilities, their actual implementation and technical and economic efficiency.

Traditional air-solar drying

Melon drying is carried out exclusively by farms and private households in rural areas where high sugar melon varieties are grown and cultivated. These farms are mainly located in Khorezm, Bukhara, Samarkand, Syrdarya regions and Fergana valley.

The popular method of melon drying includes the following technological operations.

* manual peeling of fruits from peel;
* cutting of peeled fruit into longitudinal slices with removal of placenta with seeds;
* hanging the slices on hangers;
* removal of dried fruit and inspection;
* twisting the dried slices into "braided" bundles and packing.

For this purpose, melons intended for drying are cut lengthwise into slices 2-4 cm thick, the skin is removed, leaving a "patch" 3-4 cm in size from the stalk side, the slice is cut lengthwise and hung on hangers or poles, and exposed to drying, covered with gauze to protect against flies, wasps and natural dust.

According to some researchers, it takes 10-12 days to dry in the air-sun method. The yield of the finished product of melons of summer varieties: Ok-kavun, Ichikizil, Gulobi, etc. is 7.5-10.7%. Taking into account the weight of rind and testis, to produce 1 ton of dried melon, about 11.5-15.2 tons of fresh fruits are required [39; P.167].

A disadvantage of the folk method of melon drying is sticking of separated slices together, due to which aeration is reduced and caramelization of natural sugars occurs, leading to the formation of melanoids, i.e. rancidity and a change in colour of the product to a dark brown. All this, of course, affects the quality of dried melon and reduces its taste and tasting properties.

To improve the drying process and improve the quality of the finished product, we proposed cutting the melon fruit into annular slices perpendicular to its axis with a thickness of 15-20 mm and drying in a stream of hot air at a temperature of 55-60°C.

REFERENCES

1. Shaimardanov B.P. Technological foundations and justification of the scheme and parameters of mechanization of waste-free processing of melon fruits. Diss. Doct. tech.Sciences, Tashkent, 2000. -443 p.
2. Rakhmatov O.O. Tukhtamishov S.S., Ravshanov Zh.N. Production of high-calorie food products from Uzbek varieties of melons // Collection of materials of the international scientific and practical conference dedicated to the year of ecology in Russia. FGBNU "Prikastiskiy NPI" of arid agriculture. - S. Saline Zaymishche - pp. 1342-1316
3. Shaimardanov B.P. Waste-free technology of melon processing / Abstracts of scientific and technical conference dedicated to the 60th anniversary of TIIIMSH. - Tashkent, 1994. - pp. 76-77.
4. Iskandarov Z.S., Saidkhuzhaeva N., Norkulova K, Abdieva G., Solomov M , Amirov A ,Usmanov S.Patent No. FAP 01240 Chamber-chain drying plant for agricultural products Tashkent 2016.