THE EFFECT OF PRELIMINARY PROCESSING ON VITAMIN C WHEN DRYING VEGETABLES

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Abstract. *During the drying period of vegetables and the initial processing before drying, the effect on vitamin C in the composition of the products was determined and the effect on the quality indicators of the product during storage, packaging.*

Keywords: *vitamin C, carbohydrate, macro-micro elements, organoleptic indicator, storage, packaging, processing period.*

The duration of the drying period of products and their initial workings during the period of time, the processing of Vegetable Drying Kinetics on the results of experiments aimed at researching the first type of boundary conditional diffusion model of Fik showed that the value of the ratio of the square of the particle main dimensions of the integrated moisture diffusion coefficients during the drying cycle is.

Treatment of the drying line using a third type of boundary conditional diffusion model (with Bio coefficients values close to 0.1) reliably confirms the transition of the process from a conventional diffusion-in-form to an external diffusion-in-form in the convective technology being researched. In conclusion, it is worth saying that the sugar content in the products and the change in vitamins C over time were studied on the basis of studies.

A description of the quantitative change of vitamin C in potatoes that occurred during the drying process presented in Figure .1 is provided without preliminary processing and using all three selected preliminary types of processing. Drying potatoes by preliminary processing IR for 2 hours showed that the amount of ascorbic acid remaining in its composition is 72.4 mg%, when processed in an electromagnetic field of the etching and IR-etching range, it is 60.1 and 64.2 mg%, and without preliminary processing, it is 65.1 mg%.

IQ the quantitative indicator of vitamin C in dried potatoes with preliminary processing is high.

Based on the graphs presented, it can be concluded that the minimum loss of vitamin C is seen in samples of potatoes, where IQ is dried by preliminary processing.

Figure 2 shows a graph of the change in the proportion of ascorbic acid in the drying process of carrot samples.

In dried carrot samples, the amount of ascorbic acid is more than the recommended (10 mg%) amount under GOST 52622-2006 when first processed and dried in the IQ and IQ-etching ranges, respectively 28.5 and 25.46 mg%, while in the etching range the amount of vitamin C when first processed is 23.6 mg%. The long duration of the process in drying without preliminary processing indicates a decrease in vitamin C, and its amount is 22.5 mg % when dried for 2.5 hours; 16.1 mg% in 3 hours.

From the information presented in the graph, it is known that there is a time limit for each method of drying, after the passage of this time, the proportion of vitamin C decreases. IR, etching and IR-etching are processed, the duration of the process for drying is 2.5 hours, without preliminary processing – 3 hours. If the duration of the procedure is increased, the amount of

ascorbic acid is reduced. This is due to the fact that the duration of the product's coupling with oxygen in the air increases, oxidation reactions lead to the loss of valuable components.

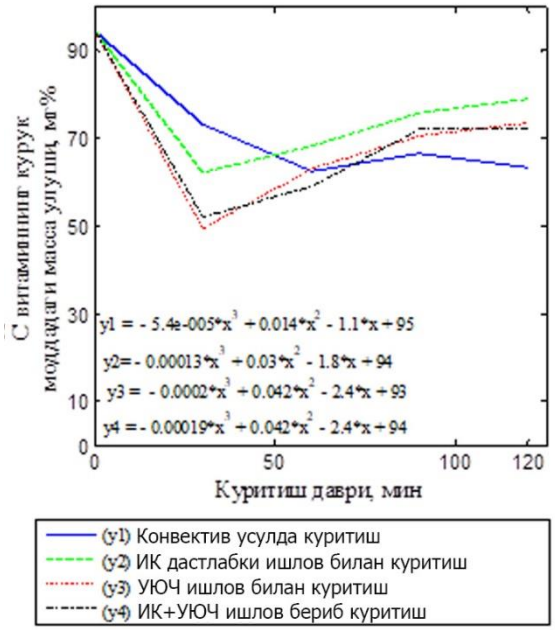

Figure 1. In potato samples Change of mass fraction of vitamin C in dry matter by drying period.

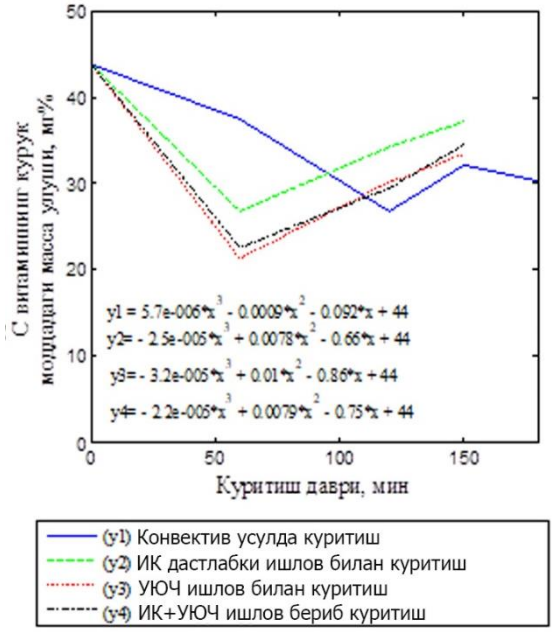

Figure 2. In the samples of carrots Change of mass fraction of vitamin C in dry matter by drying period.

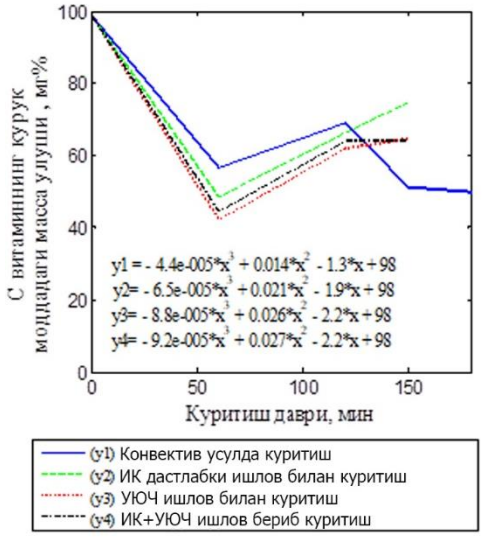

Figure 3. Vitamin C in onion samples in dry matter change in mass fraction by drying period

Figure 2 shows all methods of preliminary processing and the dynamics of the change in the quantitative indicators of ascorbic acid in carrots in dry matter in drying without preliminary processing. It shows changes in vitamin C levels during initial processing when drying to product samples as well as during the drying period without initial processing.

Graphs show that the least loss of vitamin C levels is observed in samples of carrots, which were originally processed in an IQ field.

In the graphs presented, the sequence of changes in the amount of vitamin C in the sample shows that this change goes according to a certain law.

The maximum amount of vitamin C IQ was found in dried onions with initial processing and reached 46.8 mg% in 2.5 hours. This figure is 12 mg% per gost requirement. The maximum amount of ascorbic acid in the dried product was reached in 2.5 hours and 40.1 mg% when the etching was first processed in the field, while the combined IQ-etching was 38.4% when first processed, and 42.3 mg%when dried without initial processing. When the onion was dried for up to 3 hours without preliminary processing, the amount of ascorbic acid decreased to 37.8 mg%. Numbers indicate the advantage of initial processing drying of IR.

The dynamics of the change in quantitative indicators of vitamin C in dried onion samples during the drying process was obtained in this way and is shown in Figure 4.

On the basis of the obtained graphs, the minimum loss of vitamin C in dried samples of onions IQ was obtained in preliminary processing drying.

IQ is high in vitamin C in samples of dried potatoes, carrots and head onions with preliminary processing.

Each type of raw material: potatoes, carrots and onions are illuminated by the preparation strategy for drying; methods of implementation of Operations, mode and devices, quality control in the implementation is provided. Special attention has been paid to vegetable cleaning, preliminary IQ-processing and sulfitation.

Table 1.

Chemical composition of dried vegetables
(E.N. Volkov information)

Product name	Composition, %			Calories
	dry matter	Protein	Carb	100 g of kcal per product
Carrots	86,0	7,44	52,96	247,6
Potato	89,0	5,25	71,73	315,6
Beets (Red)	86,0	7,36	54,32	252,9
Karam	88,0	12,36	39,61	214,2
Onion	88,0	11,64	52,96	265,7

When drying vegetables, the bulk of moisture goes away from them. Cell juice and osmotic pressure increase many times. Therefore, the development of pathogenic microorganisms is impossible, and biochemical processes stop.

Table 2.

Chemical composition and energy capacity of dried vegetables

Product	Dry matter	Carbohydrates	Nli substances	Energy capacity
Carrots	86	53,0	7,4	1037,4
Potato	89	71,7	5,2	1322,4
Beets (Red)	86	53,0	11,8	1113,3
Onion	88	43,3	20,6	1096,5

When the transportation of vegetables with a high main productivity is slow drying, the main composition changes, the number of vitamins and other biologically necessary substances decreases. Drying paths have been developed, the quality of which is preserved, which is close to the indicators of raw materials.

The real technology of drying vegetables is given. In addition to preparing raw materials, it included drying it using energy consisting of an electromagnetic field in the IQ range. The structure of the semi-industrial device, the function of its parts and the order of use are given.

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