

FUNDAMENTALS OF THE DEVELOPMENT OF FUNCTIONAL FOOD PRODUCTS FROM LOCAL RAW MATERIALS

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Introduction

One of the outstanding achievements of the late twentieth century is the development of a fundamentally new concept of "probiotics and functional nutrition", affecting many fundamental and applied aspects of human health, medicine, nutrition and biotechnology [1-3]. The concept of functional nutrition is currently understood as such foods that, when included in the diet, provide the human body not so much with energy and plastic material, how much control and modulate (optimize) specific physiological functions, biochemical and behavioral responses, contribute to the maintenance of health, reduce the risk of disease and accelerate the healing process [4-6]. In recent decades, in Uzbekistan, as well as throughout the world, there has been an increased demand for high-quality products with targeted properties. This phenomenon is associated, on the one hand, by the growth of the purchasing power of the population, on the other hand, by the desire to ensure health at the expense of harmless and healthy food. Judging by the forecasts of the world's leading experts in the field of nutrition and medicine, in the next 15-20 years the share of functional food products will reach 30% of the total food market. At the same time, they will displace many traditional medicines from the scope of sale by 35-50% [7-9]

The aim of the research was to study the main biologically active substances in processed vegetables and fruits of Uzbekistan using new technologies to find opportunities for their production as functional food products.

Objects and methods of research. The research was carried out in the form of a public-private partnership between the State Dental Institute and the production enterprise "MAVR" LLC in the Tashkent region. The raw materials for industrial processing were fresh vegetables, fruits and melons, dried fine powders obtained using the author's technology of MAVR LLC.

Studies of the content of vitamins were determined by V. B. Spiricheva (Moscow, 1984.) [10]. The content of minerals according to A.P. Nechaev (St. Petersburg, 2003) [11].

Results. The results of the research indicate the safety of the main biologically active substances in the composition of fruit and vegetable powders obtained using new drying technologies (Table 1). The relatively high content of biologically active substances in the finished product in comparison with raw materials is associated with moisture loss.

Table 1. The content of the main biologically active substances from mineral elements, in raw materials and finished products of functional nutrition, mg \ 100 gr. M±m.

Biologically active substances	staple	Finished products
Iron, mg\100 gr	Red carrots-1.2±0.03	2,3±0,04
	Garlic-1.5±0.04	2,2±0,06
	Tomatoes-1,4±0,03	2,4±0,05
	Eggplant-04±0.02	0,5±0,02
	Zucchini: 0.4±0.02	0,6±0,02
	Dill:1.5±0.04	2,0±0,03
	Celery (greens): 0.5±0.02	0,6±0,02
	Parsley:1.8±0.04	2,0±0,03
	Spinach: 3.0±0.05	3,5±0,04
	Sweet red pepper:0.8±0.04	1,0±0,05
	Beetroot: 1.4±0.05	2,0±0,05
	Onion:0.8±0.05	0,9±0,05
	Cucumbers: 0.6±0.05	0,8±0,05
	Radish: 1.2±0.04	1,4±0,03
	Radishes:1.0±0.03	1,3±0,04
	Apricots-2.1±0.05	3,3±0,06
	Quince-3,0±0,06	4,0±0,03
	Sweet cherry-1.8±0.06	3,4±0,08
	Apples-2.2±0.07	3,5±0,09
	Pear:2.3±0.1	2,6±0,07
	Fig:	
	Raspberry-1,6±0,03	2,7±0,08
	Lemon-0.6±0.02	2,0±0,04
	Watermelon: 0.8±0.02	1,5±0,04
	Melon:1.0±0.03	1,4±0,04
	Pumpkin-0.8±0.02	1,5±0,03
	Cherry plum: 1.8±0.04	2,0±0,03
	Cherry: 1.4±0.03	1,6±0,03
	Garnet: 1.0±0.03	1,2±0,03
Beta-carotene, mg \ 100 g	Red carrots-9.0±0.3	14,2±0,4
	Garlic-0.3±0.02	0,7±0,06
	Tomatoes-1,2±0,03	2,5±0,05
	Pumpkin-1.5±0.04	3,1±0,05
	Apricots-1.6±0.05	3,3±0,06
	Quince-0.4±0.03	1,0±0,02
	Sweet cherry-0.1±0.02	0,3±0,03
	Apples-0.03±0.007	0,06±0,001
	Raspberry-0,2±0,03	0,5±0,04
	Lemon-0.01±0.002	0,02±0,004
	Eggplant-0.02±0.002	0,03±0,002
	Zucchini: 0.03±0.002	0,04±0,002
Vitamin C, mg\100 g	Red carrots-5.0±0.3	8,2±0,4
	Garlic-10.5±0.4	17,2±0,5
	Tomatoes-25.0±0.3	28,4±0,4
	Pumpkin-8.0±0.05	14,0±0,07
	Apricots-10.0±0.5	14,2±0,6
	Quince-23.0±0.6	26,0±0,3
	Sweet cherry-14.8±0.6	18,2±0,4
	Apples-13.0±0.3	14,5±0,5
	Raspberry-25.2±0.5	28,7±0,6
	Lemon-40.2±0.3	42,6±0,4
	Eggplant-5.0±0.1	5,8±0,1
	Zucchini: 15.0±0.4	18,6±0,2

Based on the results of the research, the standard of the organization Ts 204611884-02: 2020 "Functional food products "MAVR" under the brand "NUMA" for 16 types of products was developed.

Findings:

1. New innovative technologies for processing vegetables and fruits make it possible to ensure a high degree of preservation of biologically active substances.
2. The pharmacodynamic properties of most fruits and vegetables with their various combinations can have targeted effects on the organs and systems of the body in the quality of functional nutrition products.

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