



Use of Soy Flour in a Balanced Diet

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Abstract: This article discusses the possibility of using soy flour as a food additive in order to expand the range of finished products and to enrich vegetable fillings with complete proteins containing essential amino acids. It also provides the results of the use of secondary food products, in particular the use of radish leaves, which are thrown into waste, after the use of root crops, both in catering establishments and housewives, although it is rich in vitamins and minerals that are necessary for the human body, which have phytoncidal properties.

Keywords: Soy flour, dietary supplement, complete protein, balanced diet, essential amino acids.

Introduction

Soy is one of the technological plants that seem to be specially created by nature for the benefit of man. It finds exceptionally wide application in the national economy. Very promising is the production of minced meat and fish products of increased nutritional value due to the enrichment of their concentration with milk protein isolates, blood of slaughter animals, soybeans, sunflower, etc. However, there is almost no evidence to enrich the nutritional value of fillings of vegetable origin.

In this regard, the task was set to explore the possibility of using soy flour as a food additive in order to enrich the fillings from vegetable products to increase the protein content and expand the range of finished products. At the same time, special attention is paid to the waste-free use of food products.

A huge number of radish leaves, both in catering establishments and housewives, are thrown into waste after using root crops, although it is rich in vitamins and minerals that are necessary for the human body, especially in early spring. 100 g of radish contains 15-44 mg of ascorbic acid, 0.05 mg of vitamin B1, and the taste and smell of radish are due to the presence of essential oils and glucosides, which have volatile properties. In addition, in order to organize a balanced diet, enrichment of ready-made food products with high-grade proteins containing essential amino acids is of no small importance. It has been established that soy protein in terms of amino acid composition, i.e. in terms of the content of essential amino acids, it may well replace the proteins of meat and eggs.

Soy is also an oil plant (up to 27% oil in seeds), so products from it are very high in calories. A positive feature of soy is the presence of many valuable nutrients in it. It is recognized that such a rich natural complex of protein, fat, carbohydrate, mineral salts and vitamins, as in soy, is not found in other products of plant and animal origin. The proximity of the composition of soy protein to

animal proteins makes this crop especially valuable. At present, soybean production is expanding from year to year, which is associated with the need to solve the protein problem of human nutrition. Such a high rate of soybean production is due not only to the chemical composition, but also to the economic profitability of the crop, which is especially enhanced as a result of a comprehensive study and organization of processing of raw materials on a broad industrial basis. Therefore, it is of particular interest to study the possibility of using radish leaves, soy flour and other additives for nutritional and organoleptic properties of food products. Experimental part. The objects of the study were semi-finished products and ready-made flour culinary products with the fillings "Manti with potatoes" and "Manti with greens".

When developing the recommended recipe, the technological processing carried out by the authors was taken as a basis, allowing you to choose the optimal products for the filling in terms of composition and quantity.

Product name	Manti with potatoes	Manti with greens
	net wt, g	net wt, g
Ingredients for the filling:		
onion	34	34
potato	34	-
Leaf of radish	-	34
carrot	8,4	-
Mutton fat	8,2	8,2
Soy flour	4,1	4,1
Weight of minced meat:	88,7	88,7
Ingredients for the dumpling:		
Wheat flour	47	47
Soy flour	4,7	4,7
Water	23	23
Sour cream	20	20
With sour cream, pcs	160 (3 pcs.)	160 (3 pcs.)

An objective assessment of the quality of finished culinary products is impossible without knowledge of its physical and chemical parameters.

The effect of adding soy on the physicochemical parameters of the studied samples was studied.

The results of the study to determine the content of solids and ash in semi-finished products and finished products of prototypes are presented in table 2.

Table 2

The content of solids and ash in the studied (experimental) samples of manti with the addition of soy flour

The name of indicators	Manti with potatoes		Manti with greens	
	raw	boiled	raw	boiled
Dry content	35,83	34,04	38,10	36,20
Ash content	1,1630	1,0950	1,1001	0,0580

These tables show that the loss of solids during heat treatment is up to 5%.

There is a decrease in ash during heat treatment in "Manti with potatoes" by 6% and "Manti with greens" by 13%.

The study of the protein content of semi-finished products before after heat treatment revealed that in products with the addition of soy flour, an increase in protein content is observed (table 3).

Table 3

Protein composition of the studied samples

The names of samples	Sample	Average amount of protein, %
Manti with potatoes		
Experiment (raw)	1	11,31
Boiled	2	9,52
Control (raw)	3	3,6
Boiled	4	3,12
Manti with greens		
Experiment (raw)	1	11,52
Boiled	2	10,86
Control (raw)	3	4,48
Boiled	4	4,07

Conclusion. During heat treatment, the protein content decreases in “Manti with potatoes” from 11.31 to 9.52%, in “Manti with greens” from 11.52 to 10.88%.

In semi-finished products and finished products with the addition of soy flour, there is also an increase in the fat content in “Manti with potatoes” up to 27.50 before heat treatment and 18.1% after heat treatment.

In "Manti with greens" 30.98 to 26.50% after heat treatment.

Analyzing the obtained data, it can be noted that the addition of soy flour in products increases the content of protein and fat. The dynamics of nutrient losses in control and experimental samples is similar.

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