

Production technology of flavors

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Abstract. The urgent problem of the products creation for preventive nutrition caused a need to optimize the prescription formulations and technology solutions in the manufacture of fat emulsions. In Kazakhstan, there is the traditionally high popularity of mayonnaise products, which occupies an important place in the structure of supply of all segments of the population. Industrial production of mayonnaise products is becoming more common, which requires additional research materials and manufacturing techniques.

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Introduction

Keeping all the nutritional advantages of vegetable oil, mayonnaise is different in that it is better absorbed by the body. High nutritional value and an important physiological role of this product make it necessary to create new variations of its good organoleptic and trade analysis merchandising characteristics. [1; 2; 3]

In most cases, the use of new technologies and the use of new ingredients in products for a healthy diet become a reason for the increasing in value [4, 5, 6, 7].

Mayonnaise belongs to the highly nutritious foods. It contains a complex of nutrition which is necessary for the body: proteins, fats, carbohydrates, minerals, etc. The presence of therein flavorings, such as vinegar and mustard stimulates appetite and consequently improves digestibility in which mayonnaise sauce is used as a sauce. Vegetable oil mayonnaise is in a highly dispersed state, and it is also well absorbed by the body. The presence of oil in natural unsaturated fatty acids in mayonnaise is an important biological value [8]

Currently, the use of biologically - active ingredients in the manufacture of mayonnaise is very important [9]. The most important tasks of improving the population food supply are efficient use of the resource potential and the restructuring of food complex due to priority of the most valuable, energy-intensive products and raw materials [10].

In order to produce the products of healthy diets most of all organic and inorganic components of

the plants, that have not only edible, but also therapeutic value for the person, should be used. Moreover, the efficiency usage of them depends on increasing of biological stability of the final product and decreasing calories, and improving physiological effect on body tissue [11]. Therefore, a scheme of the experiment, and the formulation prototypes have been worked out [12].

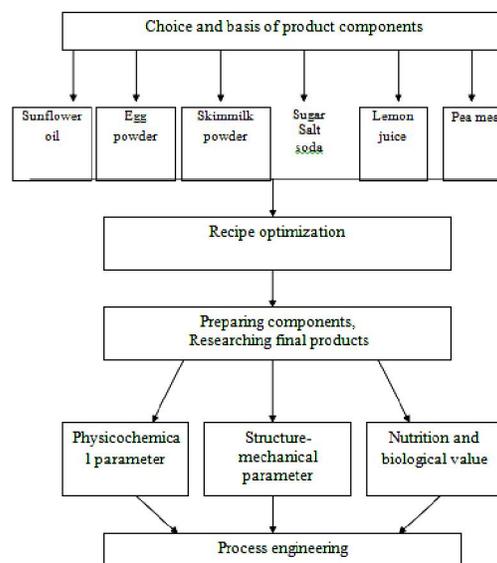


Figure 1. The scheme of the experiment

As a component of plant for a new product has been pea flour selected.

With the introduction herbal supplements from 2% to 5% 3 variants of mayonnaise recipe have been developed.

The data are summarized in Table 1.

Table 1 - Formulations of test samples

Raw for 100 g	№1	№2	№3
Sunflower oil	50,0	50,0	50,0
Egg powder	3,0	2,0	1,0
skimmilk powder	2,0	2,8	2,5
sugar	2,0	1,7	2,5
salt	0,7	0,5	0,5
soda	-	0,2	0,2
Lemon juice	0,4	0,5	0,6
mustard	0,2	-	-
Pea meal	2,0	3,0	5,0
water	39,7	39,3	37,7
total	100	100	100

Organoleptic parameters of mayonnaise must be responsible for these standard requirements: consistency - creamy, not stratified, the color - light cream, milk, tastes - sweet, without a trace of bitterness [13].

Organoleptic parameters of mayonnaise we weigh up 5- point scale and the results are recorded in Table 2.

Table 2 - Organoleptic prototypes

Indicator	№1	№2	№3
Color	5	5	5
taste	4	5	4
smell	4	5	5
Consistency	5	5	5

Also, data on the chemical composition tabulates 3.

On the basis of these experiments rational recipes of mayonnaise #2 are chosen, which contains the following component ratio, weight is %:

Sunflower oil refined and deodorized-50.0;

egg powder - 2.0 ;

skimmed milk - 2.8 ;

sugar - 1.7 ;

Iodized salt - 0.5 ;

lemon juice - 0.5 ;

Drinking Soda - 0.2 ;

pea meal- 3.0 ;

Water - 39.3 .

Thus, mayonnaise formulation developed by addition of pea flour with a high content of vitamins, minerals and high biological value [14].

Table 3 - Chemical composition of test samples

Indicator	№1	№2	№3
water, g	42,9	42,5	40,7
protein, g	1,8	2,0	2,2
fat, g	50,8	50,8	50,8
Mono-and disaccharides, g	3,0	3,1	3,0
ash, g	1,5	1,6	3,3
Na, mg	445	490	478
K, mg	31	35	32
Ca, mg	30	40	33
Mg, mg	10	10	11
P, mg	48	47	48
1	2	3	4
Fe, mg	4	5	4,5
A, mg	0,02	0,03	0,02
β- Carotene,mg	0,001	0,002	0,002
B1, mg	0,01	0,02	0,02
B2, mg	0,02	0,03	0,04
PP, mg	0,03	0,04	0,03
Energy, kcal	485	492	493

Table 7 shows the microbiological characteristics of mayonnaise with the addition of pea flour.

Table 7 - Microbiological mayonnaise

Indicators	Possible norms	Notes	
CFU/g, not more	-	used without thermal treatment	
Product weight (g), which is not allowed	Coliforms		0,1
	Pathogenic, salmonella including		25
Yeast CFU/g, no more then	5x10(2)		
Mold CFU/g no more than	10		

Evaluation of the mayonnaise quality is produced in accordance with the methods of food producing.

According to the optimized formulation, the experimental model of mayonnaise with the pea flour has been prepared. The mayonnaise " Ryaba " that is similar to the developed recipe has been investigated as a sample, producing by JSC "NMGK" Russia, Nizhnii Novgorod.

The usage of plant raw materials which is improving the quality of mayonnaise has been theoretically and practically proved.

As a result, the plant component significantly improving the vitamin and mineral content of the product has been selected.

The reasonable proportion of components that provides improved organoleptic properties has been set by optimization of recipe.

The aim of this work has been to develop a science-based formulation and production technology of mayonnaise based on studies of food and biological value of the product, using plant raw material, which is enriched with vitamins and minerals.

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