The American Journal of Engineering and Technology
(ISSN – 2689-0984)
Published: May 31, 2021 | **Pages:** 134-138
Doi: https://doi.org/10.37547/tajet/Volume03Issue05-18

IMPACT FACTOR
2021: 5. 705
OCLC - 1121105677

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The Use Of Biological Active Additives (BAA) In The Production Of Flour Confectionery Products

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ABSTRACT

The chemical, vitamin composition of polyfunctional herbal supplements (BAA) (germ flakes of wheat grain, powders of plant seeds - nigella) and their possible use for enriching food have been investigated.

KEYWORDS

Wheat germ flakes, plant seeds - nigella, technological modes, fried multifunctional vitamin plant supplements.

INTRODUCTION

Protecting and strengthening the health of the population, improving the quality of food are one of the most important tasks of the state , thus in the republic, large-scale measures are being taken to implement them. The main reason for micronutrient deficiency is a sharp decrease in energy expenditure and a corresponding decrease in the need for food as a source of energy [1-3]. It does not allow to provide the formed physiological needs of

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essential nutrients through a diet consisting of only fresh natural products.

In conditions of increased exposure to environmental factors in irreplaceable nutrients, including micronutrients as an important protective factor, not only does not decrease, but increases significantly.

A number of methods of technological, culinary processing, improper storage of food raw materials and food products lead to a sharp decrease in the content of vitamins, minerals and other essential nutrients in them.

The chemical, vitamin composition of semi-functional herbal supplements (BAA) (germ flakes of wheat grain, powders of plant seeds - nigella) and their possible use for enriching food have been studied.

In the germ of wheat grain contains; 30-35% protein, 15-20% sugar, 10-27% lipids, 4-6% minerals, 8-14% fat, rich vitamins, 2-3% fiber. The proteins of the embryo are more complete in terms of amino acid composition than proteins of wheat flour. In terms of the content of amino acids lysine, methionine, tryptophan, which are deficient for confectionery products, the protein of the embryo is similar to the protein of eggs.

In recent years, as vitamin substances, attention has been paid to nigella. Nigella is an annual herbaceous light green plant with a straight, branched stem. She got the name because of the seeds - black, triangular, which are the spice. The seeds contain a semi-drying fatty oil (31–44%), a glycoside melantin, an essential oil (0.8–1.5%) [4]. In the leaves of chernushka sowing, there is up to 0.43% of ascorbic acid. The essential oil is a yellow liquid with a pungent spicy odor. The chemical composition of nigella has not been studied enough, there are indications of the presence of a compound of the terpene series-melantol in it.

Before introducing semi-functional herbal additives into food products, optimal frying and grinding modes are required. The frying process was carried out in an oven at a temperature of 120-1300C. Grinding of semi-functional herbal supplements was carried out in a conventional coffee grinder.

The quality, increase in the nutritional and biological value of some products (confectionery, juices and drinks) have been studied when enriching micronutrients are added to the food mass.

The recipes for gingerbread "Simferopol" are proposed with the replacement of 10, 15 and 20% of the flour with multifunctional vitamin supplements (BAA) in the amount of 10 and 15%. Analysis of indicators (table. 1) of the products showed that they practically did not differ in appearance, organoleptic characteristics and taste properties from gingerbread control samples. (Tables 2. and 3.)

Gingerbread cookies with a content of biologically active additives (BAA) in the amount of 20% were slightly worse in terms of organoleptic indicators, had a denser structure. Considering this, biological active additives (BAA) in an amount of no more than 15% are offered to the confectionery industry.

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Table 1.

Organoleptic indicators of the quality of gingerbread with the use of multifunctional vitamin herbal supplements (BAA)

name of raw materials	Sample			
	No supplement of BAA (counter)	With the addition of BAA supplements,% to the mass of flour in the dough		
		10	15	20
Appearance	matches confectionery products			
Shape, surfaces	consistent with gloss, equally colored	correct gloss equally colored	half-oval. glossy	Semi-oval. don't look glossy
Peel color	well developed	well developed	dyed	dyed
Structure	peculiar	peculiar	equal	unequal
Taste and smell	16.5	18.5	peculiar	insufficiently
Score in points			17.0	16.5

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Table 2.

Main components of gingerbread samples

Sample	Content of components in% on dry matter		
	Protein	Fat	Sugar
Control (100% flour)	11,2	1,8	1,50
Experienced (85% flour + 15% dietary supplement)	14,7	4,2	5,2

From the above data, it can be seen that a 15% supplement of dietary supplements increased the protein content in gingerbread by 3.5%, fat by 2.4% and sugar by 2.7%.

Table 3.

The recipe for gingerbread "Simferopol" with the use of biologically active additives (BAA)

name of raw materials	unit of measurement	Sample	
		Without supplements of BAA (control)	Experienced with supplements of BAA
Biological active additives (BAA)	Gr	-	15
Wheat flour 1 s	gr	100	85
Sugar - sand	gr	36,2	36,2
Syrup	gr	5,6	5,6

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Melange	gr	2,585	2,585
Margarine	gr	0,538	0,538
Ammonium salt	gr	4,845	4,845
Drinking soda	gr	0,15	0,15
Dry perfume	gr	0,127	0,127
Water	ml	17	17

Fried vitamin multifunctional herbal supplements in the production of confectionery products must be consumed whole and crushed, in the form of flour.

Vitamin multifunctional herbal supplement after heat treatment acquires a nutty flavor. They can be used to make cookies, gingerbread, waffles, sweets, chocolate, caramel.

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