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VEGETARIANITY AS A VECTOR FOR THE DEVELOPMENT OF THE WELLNESS-INDUSTRY

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The possibilities of vegetarian food in the concept of the wellness industry are considered. The recipe composition and technology for preparing a vegetarian cheese dessert is suggested, which is advisable to use in the concept of wellness nutrition. The developed product is a cheesecake, the technology of which involves the preparation of dough for a tart, which serves as the basis of the dessert, using oat flour, psyllium, dates fruits and walnuts. The curd mass used to fill tarts is prepared on the basis of coconut milk and walnuts, honey is used as a sweetener, and agar is used as a stabilizing gelling agent. It is suggested to cover the surface of the dessert with raspberry filling.

The possibility of using psyllium to improve the moisture content of the dough for the preparation of tarts was studied, which provides the necessary degree of wetting of the dessert during the stuff with cheese filling and during the storage of the finished dessert, and also serves as an additional source of dietary fiber. The recipe composition of the cheese filling for the dessert of vegetarian food was selected, taking into account changes of the fatty-acid-composition of the mass. The technological parameters of the preparation of coconut cheese filling or cake by the mass walling method have been established to give the finished product an airy texture. The technology of dessert preparation is described, the chemical composition of finished products of coconut dessert is investigated. A comparative analysis was made of a cheesecake dessert prepared according to traditional technology and recipe.

Key words: *healthy nutrition, wellness-industry, vegetarianism, cheesecake, superfood, coconut milk, psyllium, innovative food products.*

Today, the Wellness-industry is in wide demand among the population of the whole world and directly in Ukraine. This industry is aimed at improving the human body, both physically, mentally and psycho-emotionally. To ensure the physical health of a modern person, it is necessary to follow "healthy" habits, namely, moderate physical activity, timely examination and treatment of various diseases, and a healthy, rational diet. The very concept of Wellness is based on the expression "to feel good". Taking into account the popularization of proper nutrition as one of the integral parts of the wellness-industry, the vegetarian diet is gaining a lot of interest from the visitors of public catering establishments. Most often people become vegetarians who believe that giving up meat, possible not only improve their health, but also find harmony with nature. Like any type of diet, vegetarianism has a number of advantages and disadvantages. The main disadvantage of vegetarian nutrition is the insufficient supply of full-fledged proteins and some nutrients that come only from products of animal origin to the human body, therefore dishes for vegetarian nutrition should be as combined as possible and contain biologically valuable substances. Considering the popularity and wide implementation of superfoods in the technology of existing dishes, there is a great competitiveness of products using them, therefore, the production of products using psyllium and coconut milk will ensure demand among modern consumers.

The role of proper nutrition in strengthening and maintaining health is obvious. In today's world, the number of people who for various reasons (religious, ethical, economic, or simply for the purpose of health) refuse meat food is growing rapidly, and therefore various alternative types of eating habits and superfoods are now at the peak of popularity. Considering this, vegetarian food and vegetarianism as a way of life best meet the criteria of wellness [1].

Analytical review of the literature: many scientists of the world are conducting research and scientific development on improving the production of classic dishes using in their composition products with an increased content of certain biologically valuable substances, in particular superfoods. It should also be noted that the majority of restaurants in our

country do not have full-fledged vegetarian dishes, which creates inconvenience for this category of visitors, there is also a lack of separate restaurants for vegetarians, so the expediency of creating vegetarian dishes and catering establishments for vegetarians, the number of which increases every year is obvious.

Currently, the food industry produces a significant number of products exclusively on a plant basis – these are bakery and confectionery products, alternative types of dairy products, such as plant-based substitutes for milk, yogurts, cheese desserts, the basis of which are grain-legume and nut crops, sausage products based on flour and grain-legume isolates. All of the listed products can be included in the vegetarian diet, because usually the products of industrial production have a combined chemical composition adapted to the needs of the nowaday human body, the products are vitaminized and mineralized, which ensures the lack of some substances, such as calcium and vitamin B12, in the diets of vegetarians.

To replace milk and lactial products in the recipes of dessert products, researchers suggest using "vegetable milk" drinks. To date, the food industry has developed dozens of products of this type [2–5]. Scientists suggest making ice cream, mousse, blamange, candies and cheesecakes using vegetable-milk and other non-traditional products [6–13].

Today, cheesecake is one of the most popular desserts among consumers in restaurants. Enrichment, as well as improvement of its physicochemical indicators is necessary, since most of the products of this group have, rather, a negative, rather than a positive, effect on the human body, which makes them objects of research and improvement [14]. Cheesecake is a popular dessert based on cream cheese. This dish can be found on the menu of almost every restaurant [15]. According to the latest data, modern confectioners believe that there are two types of cheesecakes – in America, baked cheesecakes are more common, while in Europe, raw varieties are popular, the recipes of which have come down to us since ancient times [14].

Currently, there are many scientific developments to improve the existing technologies of dessert – cheesecake. They primarily involve the use of plant raw materials in the recipe to increase the content of biologically valuable substances, but at the same time, they usually also contain livestock products, which makes it impossible for vegetarians to consume such products.

The purpose of the research is to develop a dessert for vegetarians, which is an analogue of cheesecake, made exclusively on the basis of vegetable raw materials, which will provide the physiological needs in food ingredients of people who follow a vegetarian diet. The new product will allow to expand the assortment of desserts for vegetarians and supporters of healthy food, who adhere to the Wellness food concept.

Presentation of the main research material. At the first stage of scientific development, nutritional composition research of the selected raw materials – was carried out for the production of a dessert for vegetarian food – a cheesecake based on coconut milk. The main nutrient composition of plant raw materials for the production of coconut cheesecake dessert is presented in the table. 1.

As can be seen from the given data, all the selected raw materials are characterized by completely different indicators of the content of the main nutrients, such as protein, fats and carbohydrates, in particular dietary fibers, and have different caloric and ash content of products. Ingredients such as oat flour, psyllium and date-fruits are characterized by a high carbohydrate content, with a significant content of dietary fibers at the level of 4.5–8 g per 100 g of product.

Coconut milk and walnuts act as a source of high-quality proteins, also like walnuts, they are a source of high-quality nutritious fats, because they contain the necessary polyunsaturated fatty acids in a balanced composition for better absorption by the human body.

Taking into account the fact that the technological process of preparing a classic dessert - cheesecake according to traditional European technology was chosen as the basis of scientific development, which involves preparing the product without using a baking mode, which allows you to preserve a larger amount of biologically valuable substances of raw materials, it is advisable to investigate the use of a food additive – psyllium, with the help of which it is possible to control the humidity of the finished

Table 1

Nutrient composition of vegetable raw materials for the production of coconut cheesecake dessert

Ingredient	Nutrient					
	Calorie content, kcal	Protein, g	Fats, g	Carbohydrates, g	Dietary fibers, g	Ash, g
Oat-flour	369	thirteen	6.8	64.9	4.5	1.8
Psyllium	15	0.5	0.4	4	8	0.1
Date-fruits	292	2.5	0.5	69.2	6	1.5
Walnuts	656	16.2	60.8	11.1	6.1	2
Agar	16	4	–	–	–	2
Coconut milk	181	16	18.5	1.95	2,2	0.72
Honey	328	0.8	–	80.3	–	0.3

product, prevent a high level of wetting of the tart, as a basis for a cheesecake, and enrich the finished product with dietary fibers.

Psyllium dietary fibers consist of three fractions, each of which provides a therapeutic effect for various types of intestinal dysfunction:

1. Fraction A (30%) – soluble in an alkaline environment, not fermented by bacteria (acts as a bulking agent) – provides an effect that normalizes motility.

2. Gel-forming fraction B (55%) (highly branched arabinoxylan, consisting of a base formed by xylose, with arabinose- and xylose-containing side chains) is a partially fermented fraction that binds water and bile acids, provides a fixing effect due to elimination of excess water and enterotoxins.

3. Fraction C (15%) is viscous and quickly fermented by intestinal bacteria. It slows down the evacuation of food lumps from the stomach (earlier the development of a sense of satiety, which is important in the treatment of metabolic syndrome) and prebiotic action: this fraction is a substrate for the growth of normal intestinal microflora [16].

During the contact of psyllium with a liquid that consist water with a neutral pH , the gel-forming fraction, which is 55% in the composition of psyllium, forms a hydrocolloid matrix, which allows psyllium to retain up to 40 times more moisture than its weight, i.e., the moisture-absorbing and retaining capacity of psyllium is up to 4000%.

To make the base for the cheesecake tart we used a component mixture of oat-flour, psyllium, date-fruits and walnuts. The compound of the composite mixture is presented in Table 2.

According to regulatory documentation, the moisture content of tarts for making cheesecake should be about 5%. Such samples are characterized by favorable fragility, are convenient during use in the technological process and are characterized by high organoleptic properties. We investigated the influence of the quantitative content of oat flour in the composition of cheesecake tarts on the moisture content of the dough mass for making the tart. The results of the study are presented in Fig. 1.

The change in humidity with an increase in the content of oat flour is characterized by a high moisture absorption and moisture retention capacity of oat flour. By adding oat flour at the level of 35% of the component composition of the tart dough allows to obtain a product with a moisture content of 5.3%. Depending on the content of oat flour in the composition of the dough, the indicator of the degree of wetting of the finished product changes. The results of the study are presented in fig. 2.

When adding oat flour, the degree of wetting of the tart dough mass changes. Taking into account the content of psyllium, as a moisture-retaining component, and the use of tart as a basis for a cheesecake with a jelly-like filling, a sample with the highest degree of wetting should be chosen , which will allow you to get the most elastic dough mass for the tart and prevent the fragility of the finished product – coconut cheesecake.

Table 2

Component composition of the mixture for preparing tart dough

Ingredients:	Netto, g
Oat-flour	35
Psyllium	3.7
Date-fruits	46
Walnuts	15.3
Total	100

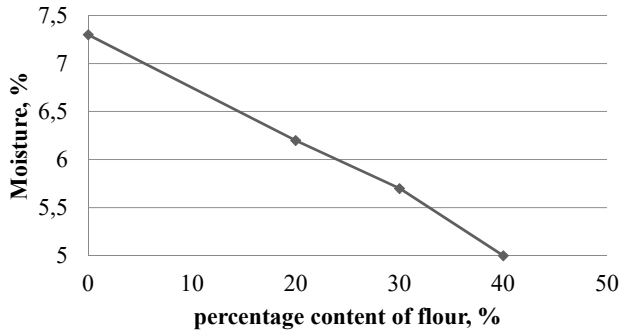

Fig. 1. Changing the moisture content of the dough mass for making the base of the coconut cheesecake tart depending on the amount of flour

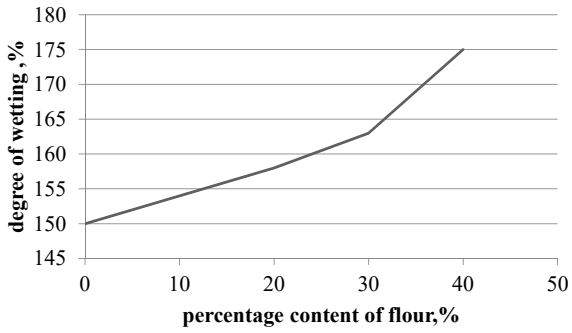

Fig. 2. Dependence of the change in the degree of wetting of the tart dough mass on the content of oat flour

Fig. 3. Image of the product formed by combining coconut milk and agar

Fig. 4. Image of the product, when combining coconut milk and agar, with preliminary foaming

To obtain a cheese-like mass for a cheesecake dessert, it is necessary to stabilize the structure of coconut milk in a jelly-like state, for this it was decided to use agar as a gelling agent.

When mixing agar and coconut milk in a ratio of 1 to 25, a stable, smooth structure is formed, which is more characteristic of jelly. The results of the study are presented in fig. 3.

Therefore, in further work decided to foam up coconut milk before mixing with a stabilizing agent, thus forming a porous structure of the finished dessert filling - coconut cheesecake. Foaming was carried out with a manual frother – a cappuccino machine with a power of 19,000 rpm for 60 seconds, the structure of the obtained product is shown in fig. 4.

To make a cheese dessert for vegetarian food, namely coconut cheesecake, a technology was used, the stages of which are presented in the technological diagram, fig. 5.

The content of recipe components for making coconut cheesecake is presented in the table. 3

The chemical composition of the finished vegetarian dessert – coconut cheesecake is presented in the table. 4.

The chemical composition of the produced coconut cheesecake is characterized by a protein content of 8.4 g per 100 g of product, fats of about 14.58 g, and carbohydrates at the level of 13.025 g, of which 3.08 g is represented by dietary fibers. this composition of the product ensures a sufficiently high calorie content of the product at the level of 246.7 kCal.

Our coconut cheesecake has a significantly lower calorie content of 246.7 kcal compared to the classic cheesecake, which has a calorie content of 469 kcal.

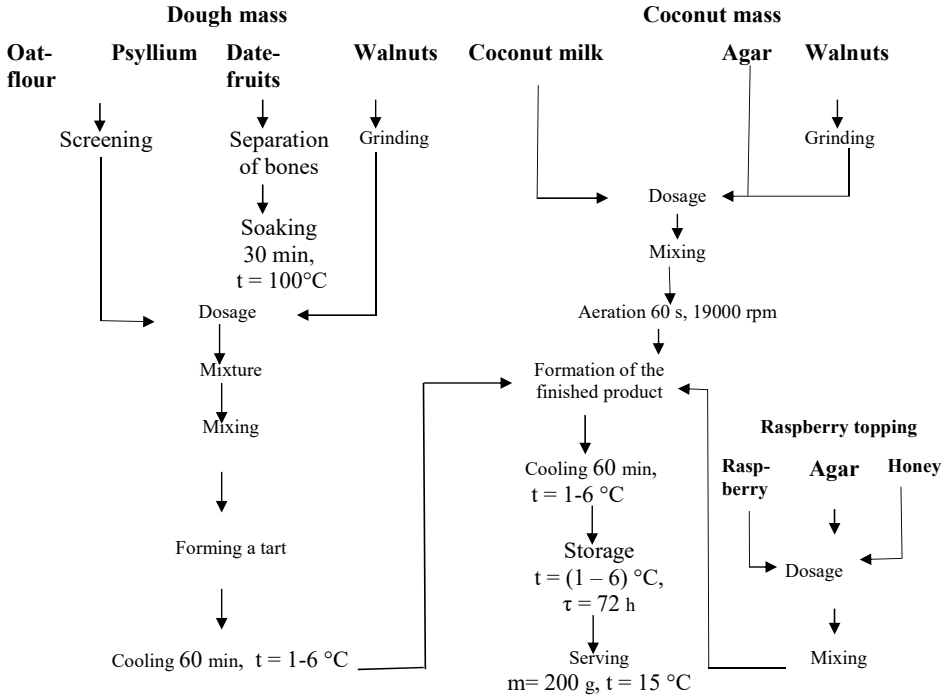

Fig. 5. Technological scheme of production of coconut cheesecake

Table 3

Coconut cheesecake recipe

Ingredients:	**Netto, g**
Dough mass	
Oat-flour	11
Psyllium	1.25
Date-fruits	17
Walnuts	5
Coconut mass	
Coconut milk	25
Walnuts;	10
Honey	1.75
Agar	1
Raspberry filling	
Raspberry	25
Honey	2
Agar	1
Total	100

Table 4

Characteristics of the chemical composition of coconut cheesecake

Indicator	**Contents**
Caloric content	246.7 kcal
Protein	8.4 g
Fats	14.58 g
Carbohydrates	13.025 g
Dietary fibers	3.08 g

The content of proteins and carbohydrates in the coconut and the classic dessert is approximately the same and contains 8.4 g and 7 g of proteins and 13.025 and 13 g of carbohydrates respectively, but the coconut cheesecake, unlike the traditional dessert, contains about 3.1 g of dietary fiber and contains 3 times more fats, the composition of which is characterized by the content of omega 3 and omega 6 fatty acids due to the use of walnuts in the coconut cheesecake.

Conclusions from the mentioned problems and prospects for further research. The chemical composition of the raw materials was studied – coconut milk, oat-flour, honey, walnuts, psyllium, agar, raspberries, date-fruits and it was determined how the component composition of the raw materials will affect the main physicochemical and rheological parameters of the product. The selected component composition allows the production of a tart for coconut cheesecake in accordance with the relevant regulatory and technical documentation of humidity and the degree of wetting of the dough mass. In the future work, it is planned to conduct a study of the physicochemical parameters of the fillings for this type of tarts and the fatty acid composition of the finished products. The selected recipe composition and the developed technology for the production of cheesecake based exclusively on vegetable raw materials allow you to obtain a product with high organoleptic indicators, relatively low calorie content compared to cheesecakes made according to the traditional recipe.

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***Анотація.** розглянуто можливості вегетаріанського харчування в концепції велнесс-індустрії. Запропоновано рецептурний склад та технологію приготування сирного десерту вегетаріанського харчування, який доцільно використовувати в концепції веллнесс харчування. Розроблений продукт представляє собою чизкейк, технологія якого передбачає приготування тістової маси тарту, що слугує основою десерту, з використанням вівсяного борошна, псиліуму, фініків та волоських горіхів. Сирна маса, яку використовують для заповнення тартів готується на основі кокосового молока та волоських горіхів, у якості підсолоджувача використовують мед, як стабілізуючий желюючий агент – агар. Поверхню десерту запропоновано окривати малиновою заливкою.*

Досліджено можливість використання псиліуму для покращення вологості тістової маси для приготування тартів, який забезпечує необхідний ступінь намокання десерту під час наповнення сирною начинкою та в процесі зберігання готового десерту, а також слугує додатковим джерелом харчових волокон. Підібрано рецептурний склад сирної начинки для десерту вегетаріанського харчування, враховуючи зміни жирнокислотного складу маси. Встановлено технологічні параметри приготування сирної начинки кокосового чизкейку методом вспінювання маси, для надання готовому виробу повітряної текстури. Описано технологію приготування десерту, досліджено хімічний склад готової продукції кокосового десерту. Проведено порівняльний аналіз виготовлено десерту з чизкейком приготованим за традиційними технологією та рецептурою.

***Ключові слова:** здорове харчування, Wellness-індустрія, вегетаріанство, чизкейк, суперфуд, кокосове молоко, псиліум, інноваційні харчові продукти.*