Actual problems of production of functional and specialized food products in the food industry

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Abstract. The Russian Federation includes 89 regions in which, in accordance with climate and environmental factors, the predisposition of the population to various types of diseases is revealed. A measure to prevent these diseases is the development of biologically active additives, functional and specialized food products. The problem of morbidity of one of the regions of the Russian Federation was studied. This was based on the example of the population of the Orel region where the greatest increase in diseases of the digestive system was detected. The legislative framework of the Russian Federation allows for the production of functional products, but the lack of economic incentives for food industry enterprises and trade organizations does not contribute to the promotion of existing developments and formulations of such products in the consumer market. It is proposed at regional level to reduce the tax rate on functional food products and reduce selling prices. It is recommended to the enterprises of the food and processing industry to enrich food products with biologically active additives. To create scientific and technological centers with the involvement of health authorities, food and processing industry and trade enterprises to develop functional and specialized food products and bring them to consumers.

1 Introduction

The fundamental principles of the development of the food and processing industry are to provide the population with a wide range of food products that meet safety requirements and create conditions for improving the quality of life of the population.

Bad eating habits and lack of physical activity can cause the development of many diseases [1]. The increased interest of people in improving health and prevention of disease has led to the development of functional products that are enriched with bioactive components [2, 3].

The strategy for improving the quality of food products in the Russian Federation until 2030 provides for the introduction into production and promotion to the consumer market of food products that promote good health, popularization of healthy food culture, the creation
and inclusion of biologically active additives in the diet, the introduction of new high-quality organic products into production without the use of artificial food additives.

Currently, there is an objective need to create enriched, functional and specialized food products that allow not only to provide the body with energy, but also to fill the deficit of essential nutrients. Functional foods are richer in biologically and physiologically active compounds in contrast to traditional foods [4-6].

The components of such foods that are responsible for their functionality are usually called “biologically active compounds” [7].

Bioactive compounds have the ability to interact with one or more components of living tissue, providing a wide range of potential effects [8].

In modern conditions, biologically active additives are used in the food industry for the prevention of morbidity of the population. A special role is assigned to preparations based on plant raw materials, therefore, the assortment is expanding annually, their number is increasing. The advantages of biologically active additives and phytocomponents over synthetic ones are their low toxicity and mild effect on the human body, relieving symptoms of exacerbation and restoring impaired body functions.

Recipes of food products that have properties that promote health are being developed. Food products can be called functional if they contain components that provide energy and nutrients necessary for the growth, development and maintenance of the body [9].

The nutritional status of the population, as a factor of quality of life, does not meet the established requirements. Malnutrition is one of the causes of a number of diseases. Deviations from a balanced diet lead to various disorders in the human body. To analyze the nutritional status of the population, a monitoring system has been created, which includes: RAMS, the Ministry of Health of the Russian Federation, Rosstat, etc.

### 2 Results and discussion

Long-term independent studies indicate an extreme insufficiency of consumption of almost all groups of vitamins and minerals in the majority of children and adults, which leads to metabolic disorders, decreased immunity and various diseases [10]. Hypovitaminosis in the majority of the population is aggravated by any diseases, especially diseases of the gastrointestinal tract, liver, kidneys, which causes a violation of the absorption and utilization of vitamins. In addition, the use of medications and antibiotics in various diseases further aggravates hypovitaminosis [11].

The report of the sanitary and epidemiological welfare of the population of the Russian Federation noted that the consumption of the main groups of food products remained at an insufficient level and does not meet the standards [12].

Scientists have developed dozens of recipes and technologies for biologically active additives, functional and specialized food products, but their introduction into production is weak for the following reasons: lack of interaction at the regional level between health authorities and the food industry, economic interest in food industry enterprises, lack of vitamin substances, lack of innovative scientific and technical centers.

We have studied the problem of legislative support for the production of dietary, functional, specialized food products. In the program "Development of Healthcare until 2025". The goal is to increase life expectancy to 76 years, which is not possible without observing a healthy lifestyle, including disease prevention, through functional and specialized nutrition. The legislative framework of healthcare includes Presidential Decree No. 254 "On the Strategy of Healthcare Development", Federal Law No. 122 "On the Sanitary and Epidemiological Welfare of the Population", Federal Law No. 29 "On the Quality and Safety of Food Products", Decree of the Government of the Russian Federation No. 208-R "On measures to ensure food security, stimulate entrepreneurial Activity and self-
employment”. Despite the sufficient legislative framework aimed at ensuring food security in general, the problem of dietary nutrition of the Russian population is poorly solved. The solution to the problem should be at regional levels.

To justify the production of functional and specialized food products, it is necessary to analyze the incidence in a particular region with the definition of the most significant diseases and recommendations for the production of functional and specialized food products.

We conduct research on the prevention of gastroenterological diseases and the development of functional and specialized dietary supplements. The problem of the morbidity of the population of the gastroenterological orientation of the Orel region was studied, which showed that from 2015 to 2020 the greatest increase in the incidence of diseases of the digestive organs was noted. Since 2020, the relative incidence rate has decreased, which is explained by the occurrence and incidence of Covid-19 and a significant increase in the relative indicator [13]. To reduce the incidence of diseases of digestive organs in certain categories of citizens, it is necessary to supply functional and specialized food products that reduce the risk of ulcerative and inflammatory processes of the gastrointestinal tract and have choleretic properties. To solve these problems, there should be constant interaction at regional level between the Departments of Health, Industry and Trade.

According to the United Nations Sustainable Development Goals (SDGs), by 2030, food processing enterprises, government agencies and consumers should take action on food production and consumption patterns to reduce the formation of by-products and increase their cyclicity by developing nutrient-rich products [14].

An important problem of the production and promotion of functional and specialized food products to the consumer market is the lack of economic incentives, both in the food industry and in trade. In our opinion, food enterprises engaged in the production of such important, socially significant products should have a reduced tax rate, taking into account production volumes. Retail enterprises should reduce trade surcharges, which in the end will help reduce the cost of finished products and increase the availability of goods in this category for more consumers.

The problem of the production of functional and specialized food products is the lack or complete absence of vitamin substances. If in the Soviet Union the need for vitamins and minerals, for the enrichment of products in the food industry, was fully met by its own production, and only 10% of the products were exported, then after the collapse of the USSR, the chemical synthesis of vitamins in the Russian Federation practically ceased. Mandatory fortification of mass-consumption food products was not carried out. The needs of the industry were met by imports (China, Germany, Switzerland, etc.). Since 2014, when the supply of vitamin substances from many countries stopped, there has been a threat to food security [15, 16].

The solution to this problem is possible only with the resumption of own production of substances and the development of functional and specialized food additives. In addition, the source of biologically active substances for food products is medicinal plant raw materials approved for use in the food industry in accordance with TR RS 021/2011 "On food safety" [17]. A number of enterprises are engaged in the harvesting of monosbora herbs in Russia: "Ryazan expanses", "Raw Materials Company of Siberia", "Agroberes", "Kalita", "Altai-ECO", "BioCor", "Naturing", etc. Scientists in the field of food technologies have developed, tested and recommended dozens of recipes and technologies of functional and specialized food products for mass consumption and for certain categories of consumers. Food industry enterprises can be provided with supplies of raw materials on contractual terms.

Federal Law No 216 of July 29, 2017 specifies the creation of innovative scientific and technological centers that regulate the relations that arise when creating centers and ensuring their functioning in order to implement the priorities of scientific and technological development, increase the investment attractiveness of the research and development sphere.
It is planned to expand the access of citizens and legal entities to participate in projects. Moreover, the territory of the center may be located on the territory of one or more subjects of the Russian Federation [18].

In this regard, the participation of stakeholders in the creation and promotion of functional and specialized products to the consumer market is extremely important. Scientific and technical centers should conduct fundamental research aimed at studying the mechanisms of action of biologically and physiologically active substances on the human body, changes under the influence of certain negative factors.

The Presidential Decree "The Doctrine of Food Security" indicates the need for scientific research in the development of enriched products of a new generation [19].

3 Conclusion

Based on the above, in order to solve the problem of production and bringing functional and specialized food products to consumers, the following is necessary:

- guided by the legislative framework for improving the quality and creation of a new generation of food products aimed at preventing the morbidity of the population, health authorities should identify the most characteristic diseases for a particular region on the basis of statistical data and recommend dietary supplements for food fortification to Departments of the Food and processing industry;
- to stimulate the production of functional and specialized food products at the regional level to solve the issue of reducing the tax rate, retailers to reduce selling prices to reduce trade surcharges. Control over the pricing policy of new generation goods should be assigned to Роспотребнадзор on the basis of regional legislation;
- health authorities recommend the use of dietary supplements, including those based on medicinal plant raw materials, to enterprises of the food and processing industry for the enrichment of food products;
- at the regional level, create scientific and technological centers for conducting fundamental and applied scientific work, organizing production and bringing functional and specialized food products to the consumer with the participation of health authorities, food processing industry and trade enterprises.

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