SYNDIOTICS BASED ON PLANT RAW MATERIALS

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Introduction. Modern methods of host (human or animal) microbiota correction are based on the use of a wide range of bacteriotherapeutic drugs and functional foods enriched with probiotic microorganisms [2]. The range of such drugs is becoming wider every year: probiotics, prebiotics, synbiotics, metabiotics, kobiotics, immunobiotics, psychobiotics, nutraceuticals, etc. [4, 5, 7, 8, 10]. Particular attention today deserves prebiotics and synbiotics, which contain substances of plant origin, and not only to stimulate the growth and reproduction of host normobiota [2, 6, 9].

Materials and methods. The analysis of the scientific literature on the diversity of plant sources as the basis of bacteriotherapeutic drugs and functional foods enriched with probiotic microorganisms, as well as a review of a new direction in probiotic technology - the creation and search for non-dairy functional foods enriched with probiotic microorganisms. Used databases: PubMed, Elsevir, EBSCO.

Results and discussion. To prevent and correct the normal host microbiota, so-called prebiotics are increasingly used, which are able to selectively stimulate the growth of "friendly" microorganisms (primarily lactobacilli and bifidobacteria), thus improving various physiological functions and metabolic reactions associated with the functioning of the symbiotic microbiota. The concept of "prebiotic" was first used by R. Gibson, who replaced the prefix "about" in the term "probiotic" with "pre" "for" life. Currently, this term is used to define drugs of non-microbial origin that can positively affect the host through selective growth stimulation or metabolic activity of the normal intestinal microflora [1, 2].

Among prebiotics, the most popular are poly- and oligofructans, soybean oligosaccharides, galactooligosaccharides isolated from natural sources or obtained by biotechnological or synthetic methods. It is estimated that in the coming years, world production of such prebiotics will reach several hundred thousand tons.

Synbiotics are drugs obtained as a result of a rational combination of pro- and prebiotics. In such drugs, the prebiotic is a stratum component of the growth of microorganisms without interfering with its metabolism. Most often, synbiotics include dietary supplements.

As well as non-dairy probiotic products are of great importance worldwide due to the current trend of vegetarianism and the high prevalence of lactose intolerance in many populations around the world. Undoubtedly, the dairy sector, which is closely linked to probiotics, is the largest functional food product, accounting for almost 33% of the market, while cereals account for just over 22%. Currently, 78% of current sales of probiotics in the world are through yogurt. Fruit juices, desserts and cereal-based foods may be other alternative media for the delivery of probiotics [3].

Technological progress has allowed to change some structural characteristics of fruit and vegetable matrices by modifying food components in a controlled way, such as changing the pH, enrichment of nutrient media and the like. This can make them ideal substrates for probiotic crops, as they already contain beneficial nutrients

such as minerals, vitamins, dietary fiber and antioxidants, while not containing dairy allergens that can interfere with consumption by some populations. Dairy allergies are affecting many people around the world, whose numbers are steadily growing. Traditions and economic reasons that limit the use of dairy products in developing countries such as Japan, China and some African countries contribute to the idea of reducing milk components as a means for probiotic agents or even replacing other media such as cereals, fruits and vegetables. Lactose intolerance, cholesterol and allergenic milk proteins are the main disadvantages associated with the consumption of dairy products, which makes it necessary to develop new non-dairy probiotic products.

Fruits and vegetables are rich in minerals, vitamins, dietary fiber, antioxidants and do not contain any milk allergens that can interfere with consumption by certain segments of the population. The use of probiotic cultures in non-dairy products is a serious problem. The viability of probiotic microorganisms in the food matrix depends on factors such as pH, storage temperature, oxygen level and the presence of competing microorganisms and inhibitors. It is important that the composition retains the activity and activity of the probiotic for a long period of time. Storage at room temperature, typical of many types of non-dairy products, such as cereals, beverages, confectionery, etc., can pose a serious problem for the stability of probiotic microorganisms. Adding probiotics to fruit matrices based on cereals and grains is more complex than formulating dairy products because bacteria need protection from acidic conditions in these media. Therefore, microencapsulation technologies have been developed and successfully applied using various matrices to protect bacterial cells from damage caused by the external environment [1-3].

Conclusions. Thus, the benefits of using prebiotic compounds of plant origin in the composition of bacteriotherapeutic drugs and functional foods is an undoubted and promising direction. Prebiotic compounds of plant origin, in addition to directly stimulating the growth of normobiota and also show other positive functions in the host's body: they regulate stool; promote the passage of food and waste through the colon; provide energy to the beneficial intestinal microflora; modulate blood sugar levels; contribute to the preservation in the body of water necessary for the normal course of digestive processes; contribute to the systematic purification and deoxidation of the host organism.

Literature

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