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**ТЕХНОЛОГІЧНІ АСПЕКТИ ВИРОБНИЦТВА ХАРЧОВИХ
ПРОДУКТІВ ЛІКУВАЛЬНО-ОЗДОРОВЧОГО НАПРЯМКУ**

DEVELOPMENT OF THE VEGAN DESSERT TECHNOLOGY

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The modern pace of life accompanies a person with the risk of constant stress, negative environmental influences and an inadequate diet. As a result, weakening of the immune system and metabolic disorders occurs. Moreover, food products contribute to the development of food allergies or food intolerances.

After analyzing the data of world studies [1-5], it was found that gluten intolerance is one of the new diseases of civilization, and lactose intolerance is confirmed in 30...45 % of the population of Western Europe.

Milk and dairy products are a staple food group for most people around the planet. Currently, about 60 % of the world's population suffers from lactose intolerance [1]. People who are lactose intolerant are forced to limit or completely eliminate traditional dairy products from their diet or take lactase supplements on a daily basis [3].

Gluten is often called “a modern poison” and research has convincingly shown that it is necessary to pay special attention to the sensitivity to it, especially when it comes to neurological disorders and brain diseases [4-5]. Not only gluten sensitivity far more prevalent than is known, it is potentially harmful to almost everyone and hides where it is least expected [6].

American and German scientists have found that people who consume huge amounts of sugar shorten their lives by an average of 15 years, since sugar provokes the development of atherosclerosis [8]. There are over 100 million people in the world suffering from diabetes mellitus. The number of such patients is increasing and “according to the WHO forecast, by 2030 it may reach 400 million people” [7].

In the development of the food industry, there is a tendency to create new innovative technologies for the production of healthy and functional food for various groups of the population [6-7]. As confectionery products are popular around the world, there has been progress in the development of alternative, updated desserts: gluten-free, lactose-free, and with natural sugar substitutes. These desserts are vegan in origin.

The growing popularity of the vegan lifestyle in North America and Europe is driving the vegan dessert market around the world. The global vegan dessert market size was valued at USD 2.77 billion in 2019 and is expected to grow at a compound annual growth rate (CAGR) of 10.1% from 2020 to 2027 [6]. The graph of the growth in the market for modern vegan desserts is shown in fig. 1.

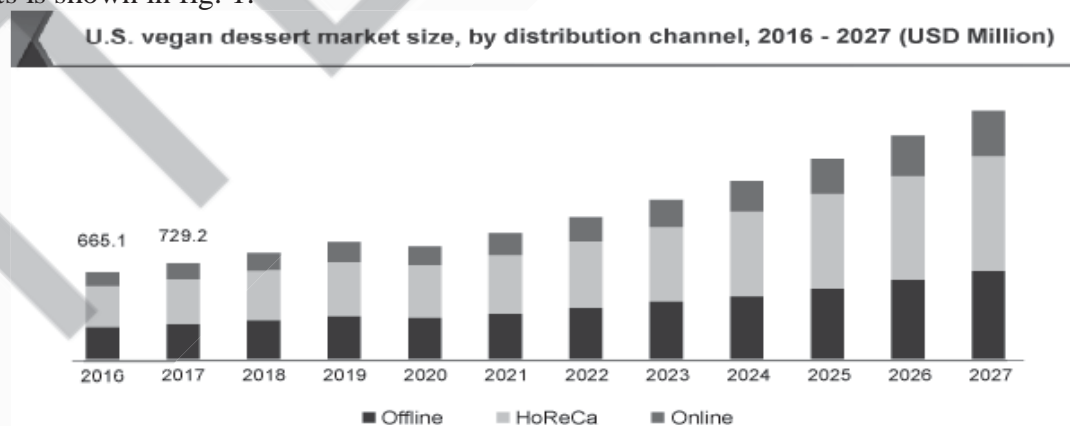


Fig. 1. Market size of vegan desserts in the world [6]

The development of gluten-free products will be popular not only among people with intolerances, but also among people following the “fashion in nutrition”. Therefore, including in Ukraine, there is a need to create innovative vegan desserts without lactose and gluten, as well as without the addition of refined sugar.

We have developed and presented an alternative version of the famous classic dessert “Esterhazy” for people with lactose, gluten intolerance and for vegans. In this work, milk proteins are replaced with plant ones, gluten and refined sugar are excluded.

The technology of the vegan dessert “Esterhazy” has been developed, it is a healthy and innovative alternative to the classic dessert “Esterhazy”. The developed product is lactose-free, gluten-free, cholesterol-free and instead of refined sugar, also it contains a natural sweetener - erythritol. The dessert is made from the vegan butter and the vegan custard, the technologies of which were also developed by the author. Vegan components of the dessert have been compared with dairy-based alternatives. Organoleptically, the vegan butter and the vegan custard has a 99,99 % similarity to dairy-based butter and custard. Chemically, the vegan butter is 18,81 % lower in calories and 20,68 % less total fat than dairy-based one. The vegan custard contains 38,77 % less total fat than dairy-based custard due to its low-fat vegan butter content, and 71,38 % less carbohydrates than classic custard due to the lack of high-carbohydrate refined sugar. The vegan dessert “Esterhazy” is a source of vitamins and minerals and satisfies the daily requirements in the following elements, respectively (%): vitamin E by 33, beta carotene - 31, vitamin B9 - 15, vitamin PP - 6, vitamin B4 - 5, manganese - 31, phosphorus - 21, magnesium - 20, potassium - 13, zinc - 13, calcium - 12, iron - 9.

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References

1. Antipova, T.A., Felik, S.V., Simonenko, S.V., Sedova, A.E. (2019). Studies in the development of low-lactose mixtures for baby food. *Innovative research and development for scientific support of production and storage of ecologically safe agricultural and food products*. (In Russian)
2. Food intolerance network. (2013, November 21). *Prehistoric man and lactose intolerance*. <https://www.food-intolerance-network.com/food-intolerances/lactose-intolerance/ethnic-distribution-and-prevalence.html>
3. Nyankovsky, S.L., Nyankovskaya, E.S., Trotsky, G.M., Kamut, N.V. (2019). Cow's milk protein allergy or lactose intolerance? Principles of differential diagnosis and diet therapy. *Child Health*, 14 (3), 171-176. <https://doi.org/10.22141/2224-0551.14.3.2019.168769>(In Russian)
4. Perlmutter D., Loberg C. (2016). *Food and the Brain: What Carbohydrates Do for Health, Thinking, and Memory*. Alma littera. (In Russian)
5. Zhu, J., Mulder, C., & Dieleman, L. A. (2019). Celiac Disease: Against the Grain in Gastroenterology. *Journal of the Canadian Association of Gastroenterology*, 2(4), 161–169. <https://doi.org/10.1093/jcag/gwy042>
6. Grand view research. (2020, July). *Vegan Dessert Market Size, Share & Trends Analysis Report By Product (Cakes & Pastries, Frozen Desserts), By Distribution Channel (Offline, HoReCa, Online), By Region, And Segment Forecasts, 2020 – 2027*. <https://www.grandviewresearch.com/industry-analysis/vegan-dessert-market>
7. Palatkin, V.V. (2017). The effect of sugar on the human body. *The medicine. Sociology. Philosophy. Applied Research*, (2), 42-45. (In Russian)

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