УДК 811.111:602.6

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Cultivated Meat

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Nutrition is one of the most important human needs. Every year the food industry brings millions and millions of dollars in profit to farms, companies, corporations. People spend exorbitant amounts on food. On the check of most people returning from the store, you can find meat products, ranging from cheap sausages to expensive beef and other delicacies. Meat does not grow on trees. Such a branch of agriculture as animal husbandry provides us with meat products. But every year it becomes more expensive. This means not only the amount of land used for raising animals, but also the harm that is done to our ecology, the so-called greenhouse gases, industrial waste, etc. More than 150 million animals die at the hands of humans for food every day.

All these facts gave rise to the idea of cultivated meat or ‘meat from test tubes’. Scientists and entrepreneurs are interested in obtaining a hypoallergenic product that does not differ in taste from real meat, which does not bring environmental problems and losses during production. Nowadays, meat cultivation is expensive. In the future, when the technology is mastered by food concerns, the cost of the product will not exceed the price of ordinary chicken. Bioengineering helped in solving this problem, which made it possible to grow meat on the basis of animal cells under certain laboratory conditions. Since animal cells are required to obtain cultured meat, the product is not vegetarian, in contrast to wheat/soybean substitutes. Despite the possible difficulties,

many investors are ready to invest their money in the creation of artificial meat, such as Bill Gates, Sergey Brin, Richard Branson and others.

Industrial meat production raises not only ethical, but also environmental issues. Moreover, finding a quality meat product on the shelves is a very difficult task. Manufacturers often use antibiotics and hormones in their production, which question the benefits and safety of the finished product. Keeping livestock and industrial production of meat products affects the production of greenhouse gases, the consumption of fresh water, the rational distribution of territories – and this is not a definitive list. Fodder pastures and fields for industrial livestock occupy 30% of the useful land of the entire planet, and vegetable gardens / orchards/ greenhouses and fields occupy only 4-5%. We will have to solve global problems with the ecology and quality of meat in the coming years. Today there are only 2 ways: the creation of meat based on vegetable (peas / soy / wheat) or animal protein [1].

The production of cultivated meat consists of several successive stages, each of which has its own nuances, which must be solved to bring the technology "to mind". Production stages are: 1) selection of cells for production; 2) adding environment and growth factors; 3) placement in a bioreactor; 4) using scaffolds for proliferation [2].

Cultivated meat is nowhere to be found in the public domain. What to do for those who, for whatever reason, do not eat ordinary meat? There are such meat analogues as soy products: schnitzel, tofu, tempeh, lupins, beans and beyond.

This technology will continue to develop, but at what pace it is not yet clear. The pace of its development is primarily influenced by the interest from investors, who can provide financial support to enthusiasts involved in the development of this technology. However, gradual technological development makes it possible to find new methods for improving the

production process of cultivated meat. Research suggests that attitudes will depend on many different factors, but with the right presentation and affordability, consumers are likely to have a positive reaction to ‘test tube meat’ on store shelves.

Thus, after solving the problems that hinder the industrial scale of production, humanity will smoothly switch to the consumption of cultivated meat – in a sense, a healthier and cleaner product, allowing it to move away from traditional production by raising and slaughtering farm animals. This process is most likely inevitable – the population is growing every year, as well as its demands for meat products. It remains to be hoped that this technology will be perfected and put into production before the onset of acute food shortages, and fully satisfy the demands of future generations for meat [3].

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