

in the samples of the studied chocolate with the addition of red pepper and rosemary. The anti-radical activity of these types of chocolate is also slightly higher than the classic.

Thus, there is an obvious interest in questions about the beneficial properties of chocolate as experts in dietetics, nutrition physiology, food chemistry, and ordinary buyers.

A comparative analysis of the results obtained from the study of chemical composition and antioxidant activity for chocolate with data for other plant systems (fruits, honey, bakery products, and juices) allows us to state that chocolate has a leading position and can be recommended as a source of flavonoids.

However, the high price of some types of chocolate, beautiful packaging do not give them advantages as products with antioxidant properties over more "modest" samples of chocolate. Undoubtedly, not only in terms of taste diversity, but also in terms of functionality are the new names of chocolate with the addition of plant extracts.

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## POSSIBLE REASON INCREASE OF JELLYFISH POPULATION IN THE SEA OF AZOV

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The Sea of Azov is the shallowest sea in the world, its depth is only 14 meters, its volume compared to other seas is not so great and perhaps that is why this sea is very well researched. For example, the deepest point of the Black Sea reaches 2212 meters. The Sea of Azov washes the shores of the two countries and it is the center of the fishing industry of Ukraine, and the popular place for

summer vacation. But recent large changes in the number of jellyfish can have negative consequences for the flora and fauna of the water area and for the economy of our country. In the summer of 2021, the number of jellyfish in the sea reached a critical point. The catastrophic increase in the population of two species of jellyfish *Rhizostoma pulmo* and *Aurelia aurita* not only disturbed the ecological balance of the Sea of Azov and the recreational opportunities of the resorts, but also became dangerous to human health.

Starting in the second half of June, going into the seaside was problematic. People who dared to swim in the sea noted that they felt burning and pain at the place of the jellyfish's touch, and a red rash appeared on their bodies. For children, these symptoms were several times stronger. Such consequences from the encounter with jellyfish are due to the fact that these animals have on their tentacles streak cells, which they paralyze their victims –small representatives of zooplankton, for further nutrition [1]. For humans, the venom of jellyfish is not lethal, but for people with allergies can have serious consequences. It should be noted that in August, in order to feel the effect of the poison of jellyfish on yourself, it was no longer necessary to come into direct contact with jellyfish, the amount of mucus concentration in the water was so high that even water burned. The hotels located by the coast have suffered heavy economic losses this season, as most customers have chosen to fly to other countries due to the jellyfish invasion.

According to environmental scientists, the increase in the number of jellyfish population in the Sea of Azov may be because of increasing salinity of the water [2]. This factor is a key hydrochemical and environmental factor for any water creatures. More over, it should be noted that jellyfish of the species *Rhizostoma pulmo* and *Aurelia aurita* in the Sea of Azov have been found since 1974. This year, the salinity level of the water has reached its maximum for the last 50 years, namely 14 ‰. Now, due to the fragmentation of high-water rivers, such as the Don and Kuban, which are the largest sources of fresh water for the sea, the salinity of the water has again reached 14 ‰. In our region, the source of fresh water for the Sea of Azov is the Molochnaya River, but over the past few years we can observe that the water level in the river is critically low. The small amount of fresh water is due to the fact that there is a drought and little rain in these regions. At the same time, there is a huge influx of salt water from the Black Sea through the Kerch Strait, which increases the salinity of the Sea of Azov. It is from the Black Sea that jellyfish of such species as *Rhizostoma pulmo* and *Aurelia aurita* enter the Sea of Azov. The dynamics of water salinity in the Sea of Azov since the first appearance of scyphoid jellyfish in 1974 and the beginning of modern population growth in 2018 is shown in Table 1 [3].

*Table 1*

**Dynamics of salinity in the Azov Sea**

Years	Salinity, ‰
1974	13,13
1975	13,37
1976	14,04
1979	12,46
1980	12,34
1981-1987	12,38–11,25
2018	14,25

Based on modern studies of long-term changes in the salinity of the Sea of Azov, we can say that the dynamics clearly shows 3 periods: desalination –salinization –desalination of water, and we are probably at the beginning of the next period of salinization of the Sea of Azov. If the tendency to increase salinity continues, jellyfish are likely to continue to live and breed in our waters. An increase in the number of jellyfish may have some effect on zooplankton numbers, but this may not have serious consequences and the planktonic invertebrate community will not be affected.

In conclusion, it is worth to noting that since the increase in the sea salinity is directly dependent on rising air temperatures, probably the global trend of rising temperatures makes itself felt, precisely on the example of the Sea of Azov. Perhaps such an urgent problem of the surrounding

world related to jellyfish, which this summer directly affected all of us, will force modern society to decide to pay attention to the problem that the world community of ecologists has been talking about for decades – Global Warming.

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## IMPROVING DANDELION JAM PRODUCTION TECHNOLOGY

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Nutrition is one of the major problems of our time. Today, a large percentage of the ready-to-eat market represents a variety of tasty but unhealthy foods. The preparation of healthy and tasty products is therefore the focus of the food industry.

The food industry is one of the most competitive sectors of Ukraine's economy. The developed food production base and the ever-present income of the population contribute to comparatively fast turnover of assets and return on investments.

Production of jams with natural components, which satisfies the market of healthy food products and people with diabetes is a promising direction for the development of competitiveness of the product, and further development, through the addition of various food additives will satisfy the different flavors of consumers.

Plants of the genus *Taraxacum* have long been considered a useful product that is used as food raw and cooked. These plants also have medicinal properties, so they are used in folk medicine. They have choleric, hepatoprotective, anti-inflammatory, antioxidant, antitumor and diuretic properties.

Plant compounds have many essential trace elements: phosphorus, boron, selenium, chromium, copper, cobalt, manganese and others. Dandelion is also rich in ascorbic acid; its concentration can vary from 300 to 650 ml. The high content of carotenoids, B vitamins, inulin, fatty acids and lutein makes dandelion flowers a very valuable raw material for the food industry. The plant is particularly useful for people who suffer from diabetes – it reduces the amount of sugar in the blood and regulates insulin secretion, promotes the elimination of bile, cleanses and performs a blood-soothing and calming effect.

The aim of our study was to analyze the possibility of improving the taste of dandelion jam and fructose-glucose syrup by adding fresh lemon instead of flavoring. A technological scheme for the preparation of jam was proposed.

Jam is a food product that is made by boiling a variety of fruits, berries and some vegetables with sugar. Correspondingly jam is a nutritious product because it contains a lot of sugar, organic acids, mineral salts and vitamins. We have used the addition of fructose-glucose syrup to optimize products for the diabetic market.

Fructose-glucose syrup is a mixture of glucose and fructose. In fact the syrup is also known as isoglucose, high-glucose corn syrup. The content is approximately 51 % glucose, 42 % fructose and 7 % oligosaccharides (impurities). It is obtained by enzymatic liquefaction and saccharification of the starch to a high glucose content and conversion of part of the glucose into fructose. Based on the