

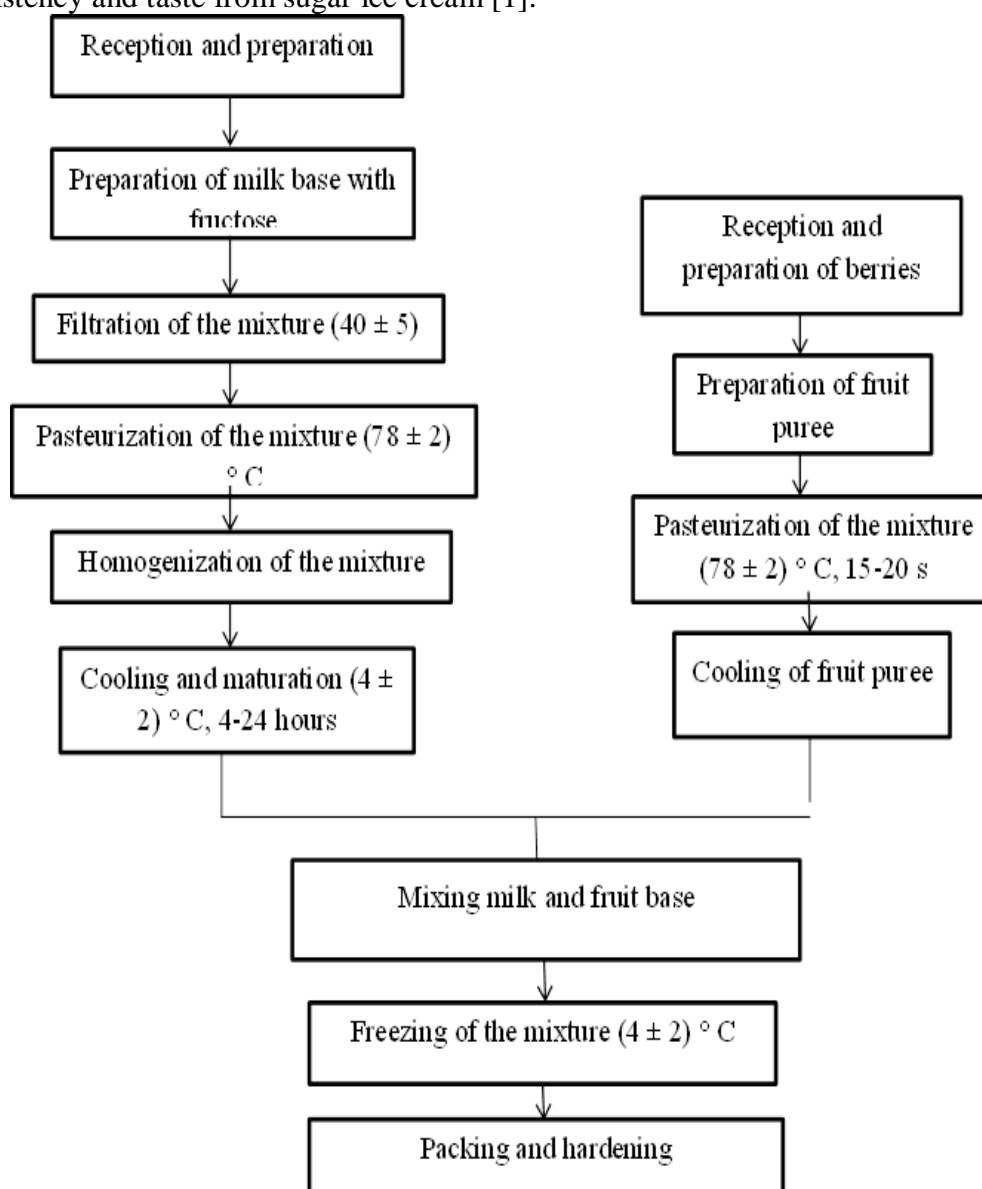
## IMPROVEMENT OF FRUCTOSE ICE CREAM TECHNOLOGY

**Shekhovtsova D.S.**, *shekhovtsovadiana1709@ukr.net*  
*Dmytro Motornyi Tavria State Agrotechnological University*

Today, many people who care about their health switch from sugar to fructose, in order to reduce the caloric content of foods and replace in their diet "easily digestible" sugar. So-called "diet products" or "sweets for diabetics" are suitable for this purpose.

The aim of our work was to obtain ice cream sherbet with sugar substitutes with a balanced composition of raw materials. The technology of ice cream-sherbet "Barberry" with a natural sugar substitute (fructose) and biologically complete plant ingredients (pear and barberry puree) has been developed.

The use of the sugar substitute fructose in ice cream has a number of positive properties. It is a promising substitute for sugar, as it reduces the freezing point and melting of ice cream. As we know fructose is a sugar found in fruits and honey. It is also called "slow sugar", fructose is absorbed by cells without requiring the hormone insulin and without causing - like sugar - hormonal surges, which is very important for the proper functioning of the body. Fructose ice cream does not differ in consistency and taste from sugar ice cream [1].



Moreover, fructose is a natural substitute for sugar, which is found in all fruits, berries, flower nectar, honey, 1.7 times sweeter than sucrose and at the same time, contains a third less calories. But, among other things, fructose has another advantage - it accelerates the breakdown of alcohol in the blood and its excretion. Fructose by 20-30% reduces the risk of caries and inflammation in the mouth, does not cause allergies. In fact it is sweeter than sugar, so it needs less to sweeten foods. In addition fructose will not raise blood sugar (will not cause a jump in insulin). Such products can be consumed by people who limit their dietary sugar intake: those who are overweight, obese [2].

The technological process of production of ice cream-sherbet "Barberry" is carried out according to the technological scheme (Fig.1). The technology of the developed ice cream provides:

- *Cooling of fruit puree.* After pasteurization, the mixture is cooled to temperature 0-6°C.

- *Mixing milk and fruit base.* The milk and fruit base are mixed for temperatures  $4\pm 2^\circ\text{C}$ .

- *Freezing of the mixture.* Freezers are used for freezing mixtures continuous operation of domestic and imported production. In the freezer the mixture should to act with a temperature of 2-6°C. The temperature of the ice cream at the outlet of the freezer should be not higher than -3.5°C.

- *Packing and hardening of ice cream.* Packed ice cream is hardened in the air flow at a temperature of -25 ...- 35°C in special freezers that are part of the production lines. The temperature of packaged ice cream after hardening should not exceed -10°C. Before placing the ice cream in the storage chamber, the ice cream is re-hardened in the hardening chambers for 24-36 hours. After re-hardening, the ice cream is placed in a storage chamber.

It can be concluded that the use of fructose and biologically complete ingredients provides a new type of ice cream with a pleasant taste, delicate texture, diabetic properties and quality indicators. Thus, the complete replacement of sugar with fructose in the composition of ice cream-sherbet will reduce the caloric content of the product, and the introduction of biologically complete ingredients will provide products with attractive consumer characteristics, with improved vitamin composition. New data can be useful to scientists and food industry workers; they have scientific and practical significance.

## References

1. Larry Hobbs. Sweeteners from Starch: Production, Properties and Uses Starch (Third Edition). San Diego, CA, USA. 2009. Pp. 797-832: website. URL: [http://nfscfaculty.tamu.edu/talcott/courses/FSTC605/Papers\\_Reviewed/Sweeteners from starch.pdf](http://nfscfaculty.tamu.edu/talcott/courses/FSTC605/Papers_Reviewed/Sweeteners_from_starch.pdf) (Last accessed 29.10.2021).

2. Kaprelyants L.V., Iorgachova K.G. Functional products. Odessa: Druk, 2003. 312 p. (in Ukrainian)

**Language adviser:** Kryvonos I.A., Senior Teacher of the Department of Foreign Languages, Dmytro Motornyi Tavria State Agrotechnological University

## SOIL AMENNDMENTS

**Sholukha T.A.,** [tarassholuha@gmail.com](mailto:tarassholuha@gmail.com)

*Dmytro Motornyi Tavria State Agrotechnological University*

A soil amendment is any material added to a soil to improve its physical properties, such as water retention, permeability, water infiltration, drainage, aeration and structure. The goal is to provide a better environment for roots. There are two broad categories of soil amendments: organic and inorganic. *Organic amendments:* It is the composition of organic moieties derived from biomass and/or living beings. It generally includes compost, wood chips, biochar, animal manure, straw, husk, geotextile, and sewage manure. These substances are extremely rich in organic matter and macro- and microelements that increase the fertility of soils by ameliorating microclimatic conditions and may also provide substrates for microbial growth. Inorganic amendments are either mined or