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SABZI ILDIZMEVASIDAN SHARBAT TAYYORLASH TEXNOLOGIYASINING NAZARIY ASOSLARI.

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Annotatsiya: *Ushbu maqolada sabzining inson organizmiga foydali hususiyatlari ko`pligidan kelib chiqib innovatsion texnologiyalar asosida sabzi ildizmevasidan uch turdagi "Ommabop", "Parxezbop", "Yosh bolalar uchun maxsus" sharbat namunalari retseptlari, tayyorlash usullari, texnologiyasi, foydalanilgan jihozlar tasniflari, texnologik sxemasi keltirilgan.*

**Kalit so`zlar:** *daucus carota, FAOSTAT, texnologik sxema, "Ommabop", "Parxezbop", "Yosh bolalar uchun maxsus", avtoklav, dozator, sterilizatsiya, VBK-vakuum-bug`latish kompleksi*

ТЕОРЕТИЧЕСКИЕ ОСНОВЫ ТЕХНОЛОГИИ ПРИГОТОВЛЕНИЯ СОКА ИЗ КОРНЕПЛОДОВ МОРКОВИ.

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Аннотация: *В статье представлены рецептура, способы приготовления, технология, классификации используемого оборудования, технологическая схема трех видов образцов морковного сока «Оммабоп», «Пархезбоп», «Специальный для детей раннего возраста» на основе инновационных технологий, основанных на пользе моркови. для человеческого тела.*

Ключевые слова: *daucus carota, FAOSTAT, технологическая схема, «Популярный», «Пархезбоп», «Специальный для детей раннего возраста», автоклав, дозатор, стерилизация, вакуумно-испарительный комплекс*

THE THEORETICAL FOUNDATIONS OF THE TECHNOLOGY OF MAKING JUICE FROM CARROT ROOTS.

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Annotation: *This article presents the recipes, preparation methods, technology, classifications of the used equipment, technological scheme of three types of carrot juice samples "Ommabop", "Parkhezbop", "Special for young children" based on innovative technologies based on the benefits of carrots for the human body.*

Key words: *daucus carota, FAOSTAT, technological scheme, "Popular", "Parkhezbop", "Special for young children", autoclave, dispenser, sterilization, vacuum-evaporation complex*

According to the United Nations Food and Agriculture Organization (FAO), carrots (Daucus carota L.) ildizmevasi is grown on an area of approximately 1.2 million hectares worldwide, producing 40 million tonnes (MT) for human consumption (FAOSTAT 2022). Currently, 61% of the world's crops are grown in Asia, 24% in Europe, 9.7% in the Americas, and 4% in Africa. At the moment, carrots are planted in almost all categories of oxen of the Republic for a total of 149.1 thousand hectares, producing 3.1 million tons of products. The main part of the grown product is directed to the consumption of the population, while a part is stored and processed. The scientific basis for making curative juices with the addition of ingredients in the processing industry from Carrot ildizmeva, and bread and bakery products from organic powder in the food industry has hardly been studied. In this regard, the introduction of innovative technologies in rural agriculture and the preparation of new types of products in the industry, the orientation to exports are current issues today. The decree of the president of the Republic of Uzbekistan on the development strategy of New Uzbekistan dated 28.01.2022 PF-60 for 2022-2026 sets out a number of priorities such as “bringing the annual growth of rural agriculture to at least 5%, growing export products and developing fruit and vegetable production, further developing the export potential of local industries with full potential”.

From these decisions and decrees, a number of scientific research works were carried out at the Namangan Institute of engineering and technology, including the technology of making healing juice from Carrot roots.

Carrots (Daucus carota var. sativus is a moth in the family pseudomelidae. The umbrella family name is named after The Shape of the flower. Typical of most family plants, the umbrella has separate flower stems arising from a point on the stem. Known mainly as a medicine to the Greeks and Romans, it has been used to treat stomach problems and treat ulcers, ulcers, liver and kidney diseases. Carrots were used as food crops in India, China and Japan by the 13th century. The greatest development and improvement of the original wild carrot with thin, long roots occurred in France.

Juice samples were prepared from carrot juice according to the technological scheme developed to determine the methods, technology and norms of preparation of various healing drinks.

The following raw materials are required to make juice samples.

- Fresh carrots prepared and supplied according to GOST 1721-85
- GOST 4429-82 lemon fruit;
- plant extracts
- GOST 31361-2008 sugar syrups

To improve the taste of vegetable juices, it is allowed to use lemon juice or lime juice (in an amount of no more than 3 g/dm3 on anhydrous citric acid); Scientific research work was carried out in conditions with a room temperature of 22 ºC, a humidity level of 75%. The raw materials used for drinks containing vegetable and fruit and vegetable juices, nectars and juice meet the requirements of SanINM 0366-2019 for safety reasons. The products brought to the processing plant were washed in a bath washer, sorted in an inspection transporter, and the back of 1-2 cm was shaved, treated with high-temperature steam and cleaned of bark, washed again in a syringe washer and cleaned of industrial waste. Refined products were re-weighed to determine the net product quantity. The sorted product was blanched at a temperature of 170 ^{0}C and transferred to a grinding machine on a "goose" transporter. The product from the grinding machine goes to the milling machine. With the help of a mass compression (press) device, which came out of the milling machine, the juice was squeezed out. The juice output rate was 75-80%, the secondary product was 20-25%. The resulting juice was filtered using a pump. A semi-finished product was obtained. Pure juice is heated to the desired temperature at the" pipe in pipe " heat exchanger and cooled to the desired temperature in such a structural apparatus. Juice is collected for fermentation inside the reactor. The ingredients are poured into the inlet and outlet stures and the pump-fed hydrolyzing agent back-up. The semi-finished puree according to the recipe was placed in a bowl with a blender, and the amount of ingredients required according to the developed recipe was added. Since carrot juice is light in color, it is recommended to add apricot acid in the form of a 5-10% solution prepared in juice drinks or drinking water to prevent the juice from darkening when processing. When used to heat batch devices, apricot acid is added at the end of heating. 0.15-0.20% citric acid was also added to lower the pH and improve the taste. Citric acid was added to the syrup before mixing in the juice.

To make honey syrup, honey was dissolved in enough water and syrup of the desired concentration was prepared. After dissolving the honey, the syrup was boiled for 5 minutes, and filtered. The finished syrup should be transparent and without mechanical impurities. The concentration of the syrup is determined by a refractometer. Even for the preparation of ginger syrup, ginger powder was mixed with a sufficient amount of water, boiled for minutes and filtered. The ingredients are homogenized after mixing, in the absence of homogenizers, it is allowed to carry out double filtering for stone fruits through sieves, the diameter of which does not exceed 4 mm. Sugar syrup was prepared and poured in the same way. The finished juice was transferred to the homogenizer. The juice that comes out, the juice comes to the volume of collection. The product is transmitted to the sterelling device. Since the juice is dry, including low in sugar, it is thickened in a steaming device. For this, a two-body vacuum-vaporization complex (VBK) was used. The juice is given to the first apparatus of the VBK, a vapor-liquid mixture is formed, the temperature of which increases until the product arrives at the separator. In the separator, steam separated by the vacuum effect in the system goes to the heating chamber of the second housing, while the condensed liquid is transferred inside the apparatus using a pump. Steam detached from the separator goes to the condenser. Before the product is poured, samples are taken from them and chemical analyzes are carried out, such as the degree of sweetness, pH levels,

composition and satiety levels. The finished drinks were deaerated in a vacuum apparatus at a temperature of 45-50 0C and a residual pressure of 10-17 KB. It was carried out at a temperature not higher than 45 °C and sent for packaging. Vegetable juices are packaged in glass jars and bottles. Bottles filled with juice are sealed using a sealing machine. It was poured into bottles under the Özdst 936:2004 standard, approved for use by the Ministry of health of the Republic of Uzbekistan. After packing, the filled containers were sent for sterilization. Sterilization is carried out in autoclaves. At the enterprise, vegetable juices are packaged in hot, burnt bottles at a temperature of 90-95 0C, stored at the same temperature for a sufficient time to ensure the loss of bacteria in the juice. The product is cooled as follows. After removing the cans (bottles) from the open apparatus, they are watered with water at a temperature of 65°c for 5 minutes, then blown with outside air for 5 minutes, then watered with cold water (about 20°C) for 15 minutes. Dried with secondary blowing with outside air for 5 minutes. Carrot juices are packaged in gost 5717-91 glass jars with a hot filling of 0.25 and 0.5 L, subject to the following conditions. Samples of packaged juices are taken and sent to the sanitary and epidemiological Center for bacteriological testing. Bottling is transferred to hot bottles at a temperature of 96-98 0C. The bottles should be closed immediately after the juice is placed in the bottle. It is necessary to ensure that the bottles pass through the screening device to select containers that are not hermetically sealed and have defects, and the sealed bottles must be stored together with the product before cooling the bottles to a temperature of 35-40 0C. From the date of manufacture, the shelf life in glass packaging at a temperature of 0 °c to 25 °C is indicated. Aseptic canned semi-finished products can be stored in a container obtained within 12 months from the date of production indicated on the label at a temperature of 0 °C to 25 °C.

Table 1.

Types of healing juice made from Carrot roots and their nutritional value

Options	Ingredients %						satiety of juice (in 100 ml of juice)
	Carrot juice	gingey syrup	Honey	Lemon acid	Apple syrup	sugar syrup	
Popular juices	90	5	3	0.07	0	2	10.3-12.5 grams of carbohydrates, 0.36 grams of protein, 12% dry matter, Vitamins s, a, B1, B2, PP and E are enriched with natural minerals.
Dietary juices	86	7	4	0.07	0	2	
Juices for young children	89.5	5	4	0	0.1	1.5	

Three different types of juice samples were prepared based on the recipe. Popular juices are mainly intended for older consumers, and were prepared by adding 900 liters of carrot juice, 5 liters of ginger syrup, 3 liters of honey syrup and 2 kilograms of sugar to the composition to prepare a thousand liters of product. 0.7 kg of citric acid was added to brighten the taste. Paraffin juices have a healing husk and are made with the addition of ginger syrup 7 %, honey 4 %, sugar 2% and the main ingredient carrot juice 86% from each ingredient. Juices for young children were prepared by adding 90% carrot juice, 0.1% malic acid, 5% ginger syrup, 4% Honey, 1.5% sugar syrup. The rules of consumption for young children are developed, which from 4 months of age are drunk 2 times a day from 1

teaspoon, increasing to 60 grams per 12-month-old child. The method of preparation is general for each species and differs in the quantitative size of the ingredients. (See Figure 3.4.1). Preservatives and other chemical additives were not used. (Table 1).

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