



## TECHNOLOGY FOR THE PREPARATION OF MEDICINAL AND IODINE-ENRICHED SEMI-FINISHED FRUIT AND VEGETABLE SAUCES.

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**Annotation:** *The article discusses the problem of consumption of fruits and vegetables and ways to increase them through the catering network by producing semi-finished products from fruit and vegetable sauces. The developed by technologies of semi-finished sauces are distinguished by high nutritional value, quality and medical properties.*

**Key words:** *medical, iodine-enriched, sauce, semi-finished, pumpkin, plum, walnut, nutritional value, pumpkin seeds, bark.*

The leadership of our independent republic has paid great attention to development and improvement in all spheres of life. Over the years of independence, the population level has increased, and people's nutrition has changed qualitatively. This is all thanks to the special attention of the country's leadership to the food and processing industries, sources of basic raw materials, and agriculture. In many villages and hamlets, seedlings in gardens have been completely renewed and special attention has been paid to vegetable growing. The harvest obtained from intensive gardens and vegetable growing is characterized by large volume and good quality. Due to the specific nature of gardening and vegetable growing, during ripening and harvesting, prices usually fall and sometimes the loss can be tracked, but after harvesting the price rises. Despite the huge amount of fruits and vegetables harvested, according to the WHO (World Health Organization) and the Ministry of Health (Ministry of Health), 2/3 of the population is undernourished with fruits and vegetables according to reasonable physiological standards. One of the ways to solve these problems is to process fruits and vegetables into various types of products and increase the share of the population's consumption of fruits and vegetables through the public catering network.

Vegetables and fruits also contain a large amount of vitamins, minerals and other biologically active compounds. Vitamins and minerals normalize metabolic processes in the human body. Organic acids included in vegetables and fruits take an active part in leaching harmful substances from the body and in neutralizing acidic compounds formed during metabolism. Organic acids have a beneficial effect on digestion, increasing the secretion of the gastric gland[1,2,3].

Indigestible carbohydrates present in vegetables and fruits, dietary fiber enhance gastric motility and intestinal peristalsis. The most important advantage of vegetables and fruits is their ability to intensify the processes of assimilation of nutrients. Pectins, together with fiber, contribute to the release of cholesterol from the body of heavy metals and radionuclides. Fiber in vegetables and fruits creates favorable conditions for the movement



of food, and also normalizes the activity of intestinal microflora and, to some extent, creates a feeling of fullness [4,5].

As an analysis of networks for the preparation and sale of sauces at catering establishments has shown, the range of vegetable and fruit sauces is very narrow and mainly tomato sauce is prepared. In our opinion, the limiting factor in the narrow range of sauces is, first of all, the labor intensity of preparation and the sale of sauces in small quantities in the form of additives. But this added small amount of sauce replenishes the food with various nutrients, enriches them with minerals and vitamins, covers some shortcomings of the cooks and improves organoleptic characteristics, stimulates digestion [6-30].

Another problem is the lack of various types of minerals and vitamins in food, which lead to the development of various diseases. For example, a lack of fluoride leads to disease of tooth enamel, a lack of iron leads to anemia, a lack of zinc leads to various male diseases, and the list goes on. For example, in the Fergana Valley there is an acute shortage of iodine. Goiter diseases can occur in people with iodine deficiency. Goiter does not cause pain, it interferes with the supply of oxygen to the brain and it is delayed from development. As you know, seafood is rich in iodine, and here in Uzbekistan you can really feel the lack of such products in people's diets.

From the above it follows that it is necessary to resolve these issues taking into account the chemical composition of plant materials growing in our republic. Taking this into account, we studied the chemical composition of walnut peels. This type of raw material is characterized by its availability, low cost and high iodine content. But before using this type of raw material, it is necessary to carry out special technological processing to remove foreign impurities and bitterness. At the Department of Food Technology, we have developed a special technology for processing walnut peels. After special processing of the walnut peels, they became edible without bitterness. The processed walnut shells were dried, crushed and powdered. The resulting powder was used as an additive to plum sauce, which contributed to the enrichment of iodine. The technological scheme for preparing iodine-enriched semi-finished plum sauce is shown in Fig. 1.

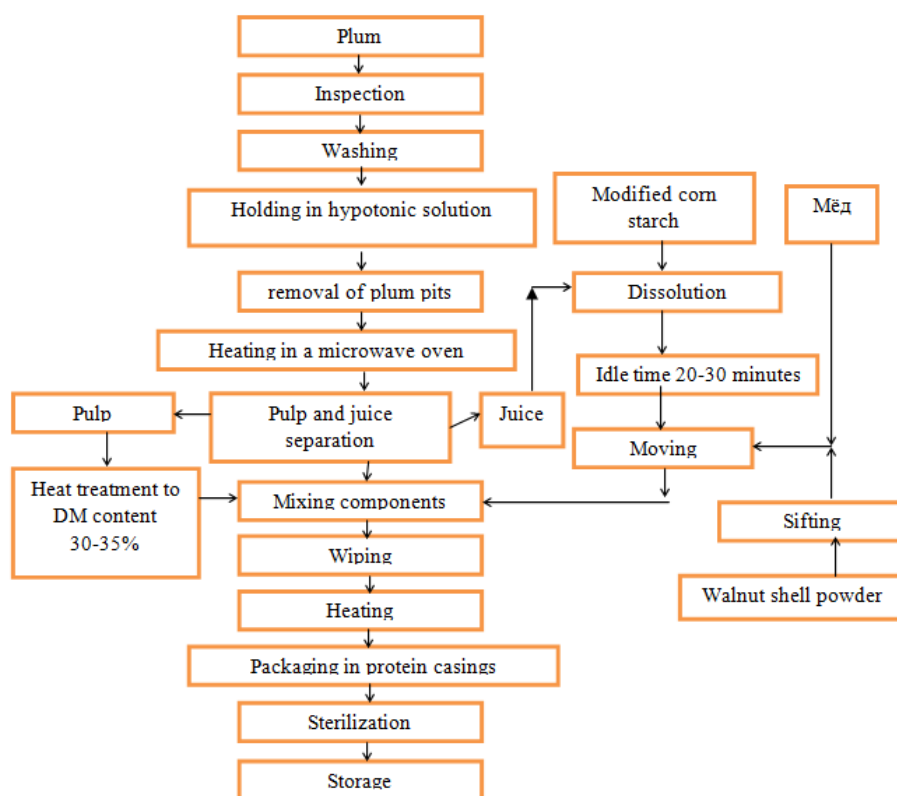


Fig. 1. Technological diagram preparation of iodine-enriched semi-finished plum sauce

We have also developed a technology for preparing semi-finished pumpkin sauce. Despite its high nutritional value, pumpkin is an affordable raw material for many segments of the population. Currently, pumpkin is used to prepare manti, puree and add it to the 1st and 2nd courses to increase its piquancy. The chemical composition of pumpkin is dry matter - 9.7%, proteins - 1%, carbohydrates - 6.5%, fiber - 1.2%. In terms of carotene content, it is 5 times higher than carrots.

To prepare pumpkin sauce, the pumpkin is peeled, washed, seeds removed, boiled, crushed and the juice and pulp are separated. The removed pumpkin seeds are cleaned, dried and pumpkin seed meal is obtained. We used chickpea flour as a thickener. To obtain chickpea flour, chickpeas were peeled, washed and dried in a microwave oven at a temperature of 60-65°C, then crushed, combined with meal obtained from pumpkin seeds, poured with the liquid part of the pumpkin, stood idle and added turmeric, concentrated syrup from sweet sorghum, stirred until completely dissolved and added pumpkin pulp, mixed thoroughly until smooth, rubbed, heated and packaged in protein casings, sterilized.

The use of chickpea flour in the recipe of semi-finished sauces helps to increase the nutritional value, because it is rich in protein and the introduction of pumpkin seed meal also increases the medicinal properties of the sauce. Pumpkin seeds are rich in  $\alpha$ -omega3 fatty acids and are anthelmintic. Vitamin E (tocopherol) is an antioxidant. The introduction of pumpkin seeds into the recipe helps to increase the fat content and this also stimulates the transition of carotene into the finished semi-finished product, because carotene are peace-soluble vitamins.

The resulting semi-finished sauces in catering establishments are diluted with water 1:3, 1:5, 1:7, mixed, given heat treatment, spices are added depending on the further use of the sauce and served.

The development of such industrial technologies for semi-finished vegetable and fruit sauces allows for the centralized production of semi-finished sauces, promotes mechanization of production, expands the range of sauces and comprehensively uses secondary raw materials generated in the production of semi-finished products.

In the public catering network, the use of such semi-finished products allows one to reduce labor intensity, energy costs and quickly prepare ready-to-eat sauces from these semi-finished products.

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