11. Development of special purpose fruit and berry marmalade

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Introduction. The negative impact of man-made environmental factors on the health of the population necessitates the production of high-quality food products that contain pectin. The property of pectins to form jelly in the presence of sugar and acid is widely used in food technology in the production of jelly products.

Materials and methods. The work uses standard methods of researching quality indicators of finished products. For a more complete study of the structural and mechanical properties, an organoleptic evaluation of the products by consistency and an evaluation of the nutritional value by the content of pectin substances was carried out.

Results. According to literary data, red currant berries are a medicinal product, since they contain tannins and coloring substances - 0.11-0.42%, nitrogenous substances, proteins - 0.20-1.5%, iron salts - 3-3.5 mg/100 g, iodine - 16-26 μg/100 g, vitamins: A (β-carotene) – 0.2-0.5 mg/100 g, H (biotin) – 2.5 μg/100 g, B9 (folic acid) - 3-5 μg/100 g. Ee berries have dietary properties due to the predominance of easily digestible glucose and fructose in their composition with almost no sucrose.

Red currant is valued for its antioxidant properties, which are due to its presence in the berries ascorbic acid, substances of P-active nature, pectins and are able to restrain free-radical oxidation in the human body, preventing the aging process. Red currant berries fully meet the requirements for the production of quality jelly products based on the local fruit and berry potential. Red currant is valued for its antioxidant properties, which are determined by the presence of ascorbic acid, substances of P-active nature, pectins in the berries and are able to restrain free-radical oxidation in the human body, preventing the aging process.

The value of pectins as biologically active substances is determined by their ability to form insoluble complexes with polyvalent metals (iron, cobalt, zinc, tin, chromium, strontium), radionuclides, and other toxic elements and remove them from the human body.

The high quality of red currant berries made it possible to propose methods of cooking fruit and berry shaped marmalade without the addition of structuring agents with reduced sugar content and its complete replacement with sugar substitutes (sorbitol and fructose) in various ratios, taking into account their degree of sweetness in relation to sucrose, while the amount of juice and puree was kept constant according to the traditional formulation of the product. On the basis of numerous experimental studies, including evaluation of organoleptic and structural-mechanical properties, a recipe for marmalade with a complete replacement of sugar with a ratio of sorbitol and fructose (1:1) was recommended, as well as a technology of marmalade with a reduced sugar content with the proportions of puree: sugar - 1 :0.7. The control sample was fruit and berry shaped marmalade made from red currant berries, cooked using sugar-based technology without the addition of pectin.

Conclusion. The obtained fruit and berry marmalade with the addition of red currant berries allows you to reduce the amount of sugar introduced into the recipe mixture as one of the components of making jelly, as well as to completely replace it with sugar substitutes without deteriorating the consistency of the product.