

**DEVELOPMENT OF THE TECHNOLOGY OF WILD AND CULTIVATED BLACKBERRY JUICES  
COMMON IN GEORGIA****Tolordava D.***Master of Food Technology Department of Food Technology,  
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Georgian technical university, Georgia*<https://doi.org/10.5281/zenodo.14499226>**Abstract**

Juices are made from cultivated and wild blackberries, Their physico-chemical indicators have been studied. Blackberry sauce is made from pressed blackberry using traditional Georgian spices. Biologically active substances, antioxidant activity, anthocyanins, pectin substances, titrated acidity, phenols, vitamin C are determined in the produced juices. The samples made by us were analyzed according to the standard. It was determined that the received products meet the requirements stipulated by the standard. Therefore, we can say that if blackberry cultivation increases in Georgia, making juice from it is more profitable than selling it raw, because the transportation, storage and sale of raw blackberries is less effective.

**Keywords:** blackberry, berry, technology, cultivated.

Current processes in the world, such as sharp population growth, global climate changes and others, have created additional challenges in terms of providing quality food to the population. One of the main and active directions of agricultural activity in Georgia is the cultivation of berry crops and the development of their production industry, because Georgia, as a part of the global economy, cannot remain outside the existing processes.

Taking into account the biological features of berry plants, it is necessary to develop the traditional priority for the country: cultivation and production of ecologically clean, standard raw materials and products of berry plants, processing.

One such plant among berries is blackberry, from the rose family - *Rubus fruticosus*. Blackberry is known as one of the best berries and due to its chemical composition, it occupies a prominent place in berries. It is rich in a number of biologically active substances

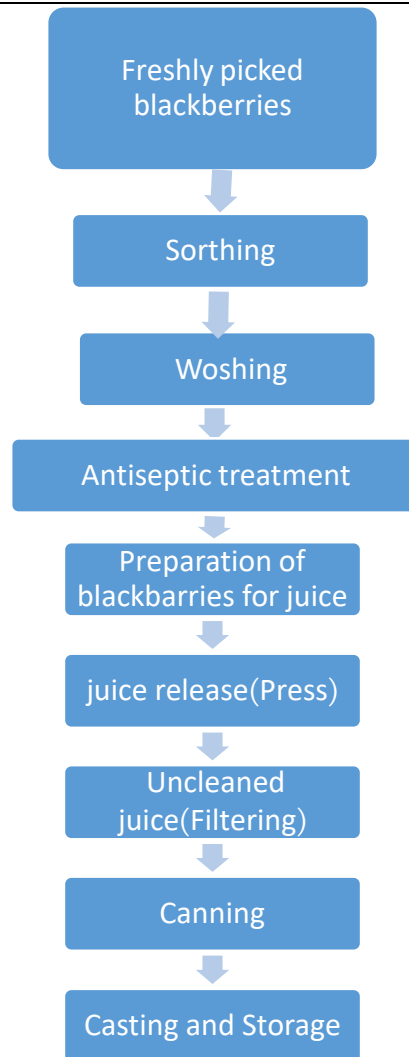
such as: minerals, vitamins and phenolic compounds, proteins and so on.

Due to the beneficial properties of blackberry, it plays a special role in folk traditional medicine. Its fruit, stem, leaves and roots are used for treatment.

Blackberries have a complex healing effect on the human body, contain a sufficient amount of vitamin C, beta-carotene and vitamin E, have strong antioxidant properties.

The content of dry matter in blackberry fruit ranges from 12-15%. Blackberry fruit contains more than 5% sugars: glucose, fructose, and is also rich in xylitol containing low-calorie sugar, which the body absorbs more slowly than ordinary sugar.

The main chemical composition of the mentioned object has been studied: extractive substances, pectin substances, anthocyanins, titration acidity, phenols, antioxidant activity.



*Technological scheme*

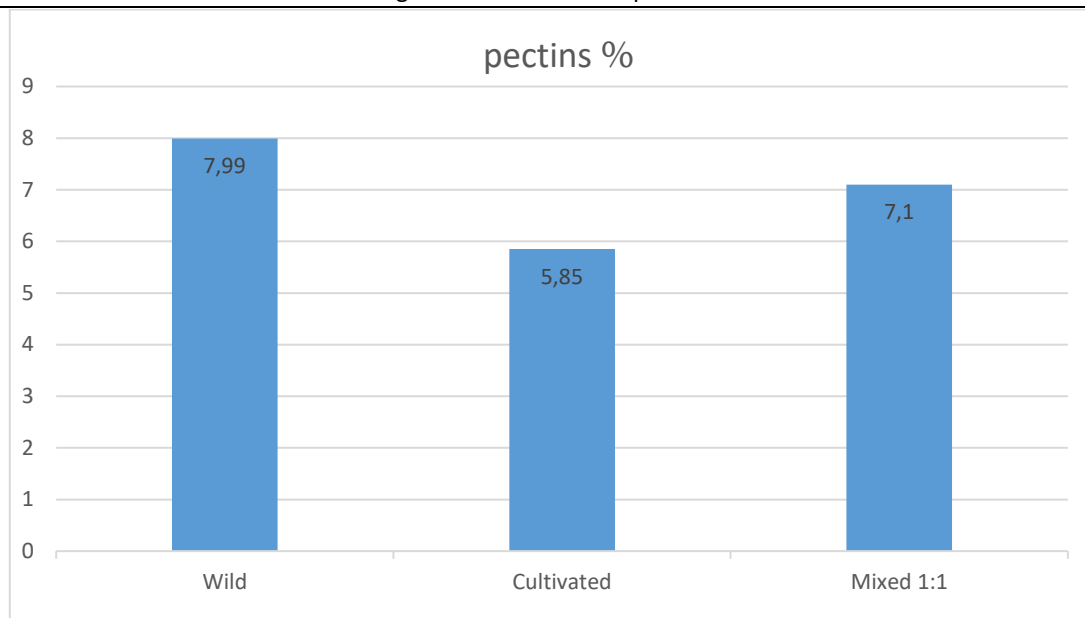
Natural pigments of plant origin, phenolic compounds, which the human body cannot produce, are characterized by a strong antioxidant effect, so it is necessary to use products that contain these compounds in significant quantities as food.

For the experiment, during the period of technical maturity, 5 kg of wild and 5 kg of cultivated blackberries were harvested. We selected the research raw materials, washed them, placed them on the grill and pressed them, took the juice. We got 2.375 ml of wild blackberry juice and there is more juice solution made from cultivated blackberries.

Because cultivated blackberries are large in volume and contain more juice, 2.625 ml from cultivated blackberry juice.

In research objects: wild, cultivated and mixed 1:1 juices, we determined antioxidant activity. Antioxidant activity is high in all three types of juice, which determines their useful properties, and their consumption has a positive effect on the prevention of various diseases.

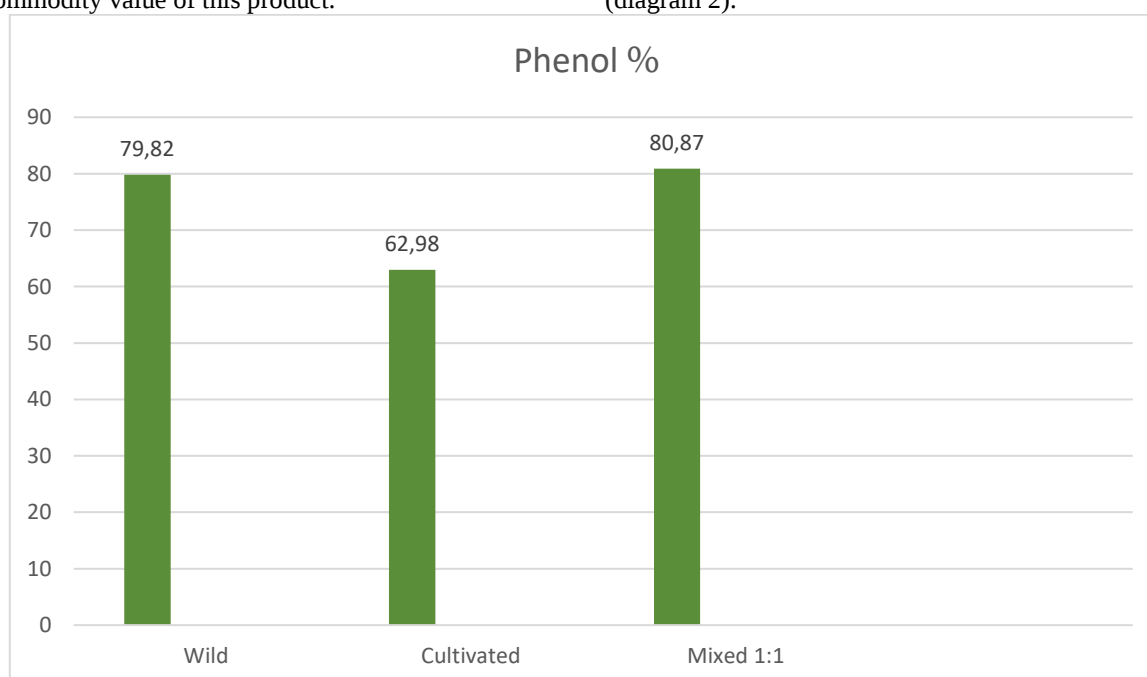
In the research samples, we determined the content of pectin substances. The obtained results are given in diagram 1.



*Diagram 1. Content of pectin substances in blackberry juices*

The experiment revealed that the amount of these valuable and important substances in blackberry juice is almost identical and quite high, which determines the commodity value of this product.

We determined the total phenolic compounds, the samples were measured at 650 nm on a spectrophotometer with respect to the control solution (diagram 2).



*Diagram 2. Phenol content in blackberry juices*

In all three samples, a high content of phenolic compounds was revealed, which indicates a fairly high level of beneficial properties of blackberries.

According to the experiment, the content of carotenoid in wild blackberries is 0.227 mg per 100 g, and in cultivated blackberries it is 0.206 mg.

It became clear that the content of pectin substances is quite high, which indicates the commodity value of this product.

The number of anthocyanins in the samples was determined by the spectrophotometric method. Studies have shown that the content of anthocyanins in wild blackberry juice was higher than in the rest, which is explained by the higher content of phenolic compounds (diagram3).

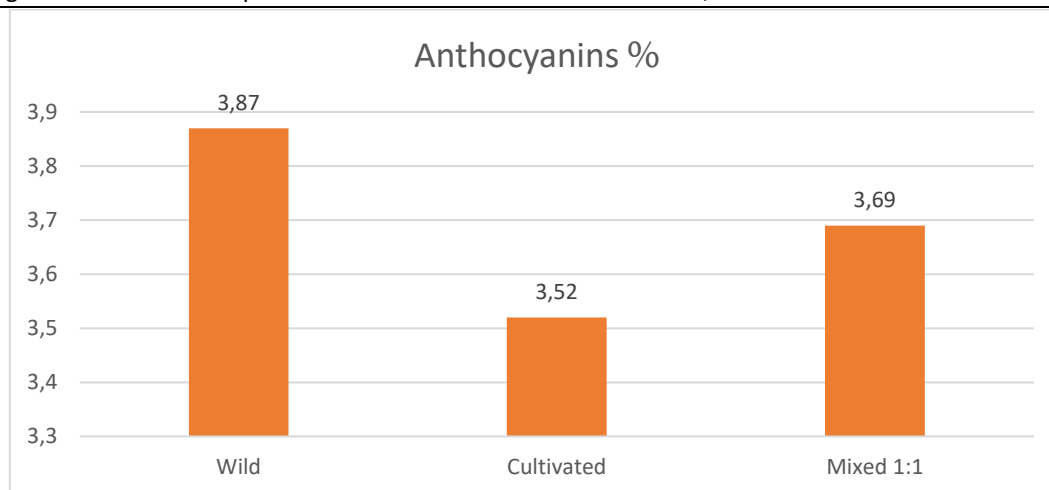


Diagram 3. Anthocyanin content in blackberry juices

Soluble dry matter, titration acidity was determined in the research objects. It was revealed that there were minor differences in the study samples (diagram 4).



Diagram 4. Dry matter content and titration acidity in blackberry juices

Color, smell, taste were organoleptically evaluated. Wild blackberries had a more aromatic smell and a darker color compared to cultivated ones.

For food technologists, it is necessary to process raw materials and create such a product that we get less waste as a result. In our case, we are left with processing waste or pressed blackberries, which is rich in a number of biological active substances. That's why we decided to use it as raw material and make a food product, blackberry sauce, with the addition of traditional Georgian spices.

Ingredients used: a certain amount of blackberry juice: salt, ground coriander, garlic, dry spices, pepper.

All analyzes stipulated by the standard norm were performed on the received product. It was determined that the product meets the requirements stipulated by the standard.

Therefore, we can say that if blackberry cultivation increases in Georgia, making juice from it will be more profitable than selling it raw, because the

transportation, storage and sale of raw blackberries is less effective.

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