

Technologies for the Production of Healthy and Long-Shelf-Storage Canned Products Based on Na'matak Fruits

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Abstract:

Pomegranate (*Punica granatum*) fruits are known for their high nutritional value and medicinal properties. These fruits, as a source of vitamins, minerals, polyphenols, flavonoids and other biologically active substances, have a beneficial effect on various systems of the body. However, the short shelf life of pomegranate limits its effective use. Therefore, technologies for preserving pomegranate fruits are developing rapidly, since this method not only ensures their long-term storage, but also helps to preserve the beneficial properties of the fruits.

reviews the importance of canning yams and modern technologies used to preserve their health benefits. Canning using microwave sterilization, vacuum packaging, fermentation, and probiotics is effective in preserving the medicinal properties of yams and improving the taste of the product. Canning yams not only allows for the long-term preservation of their taste and health benefits, but is also economically viable, creating new market opportunities.

Keywords: Na'matak, canning, medicinal properties, microwave sterilization, vacuum packaging, fermentation, probiotics, health, nutrition.

Introduction

Pomegranate (*Punica granatum*) fruits have many beneficial properties and are known as a source of vitamins, minerals, antioxidants and other biologically active substances. The healing properties of pomegranate have been known since ancient times, and it has benefits such as preventing cardiovascular diseases, improving the functioning of the gastrointestinal system and strengthening the immune system. However, the short shelf life of pomegranate often leads to its wastage.

Therefore, there is a need to produce canned products to preserve pomegranate fruits for a long time and preserve their health benefits.

The importance of canning pomegranate fruits is very great, because it not only ensures the long-term preservation of the fruit, but also preserves its health benefits. The fruits of the yam can deteriorate in a short time, so canning them not only prevents their waste, but also makes it possible to consume them all year round.

Materials.

The fact that the yam is a source of high antioxidants, biologically active substances such as vitamin C, polyphenols, flavonoids and tannins can be preserved when it is converted into canned products. The canning process significantly extends the shelf life of the fruits without losing their nutritional properties. This allows you to use their additional beneficial properties, especially considering that the yam is a fresh product that needs to be consumed in a short time.

Technologies used in canning the yam, such as microwave sterilization, vacuum packaging and fermentation, help preserve the natural healing properties of the fruits. Through canning, the products obtained from the yam are stored for a long time and are delivered to consumers with unchanged taste and color.

Research and methods.

At the same time, the economic aspects of canning na'amatak fruits are also important. If fresh na'amatak is required for immediate consumption, there are restrictions on its production and distribution, but the canning method facilitates the process of transporting and selling the fruits. On the other hand, the production of canned products creates an opportunity for the industry to enter new markets. As a result, canning na'amatak fruits is important in improving health and providing economic benefits by maintaining their quality, long-term storage, and creating opportunities for widespread consumption.

Canning methods and technologies

1. **Sugar canning:** Sugar canning is one of the most common and simple methods of preserving cranberries. In this method, the berries are covered in a sugar syrup and sterilized at high temperatures. Sugar canning extends the shelf life of cranberries without compromising their natural flavor. However, this method increases the sugar content, which may be less appealing to some consumers.
2. **Marinating:** When preserving cranberries through marinating, the berries are marinated in vinegar, salt, and other spices. This method changes the flavor of the berries and allows them to be stored for a long time. Marinated cranberries are mainly used in salads, side dishes, and other dishes.
3. **Low-temperature storage and vacuum packaging:** Low-temperature storage and vacuum packaging are new technologies for preserving fruits. These methods are effective in preserving the beneficial properties of fruits and significantly improve their taste and appearance. Vacuum packaging reduces exposure to air, which ensures maximum preservation of the nutrients inside the fruit.
4. **Microwave sterilization:** Microwave sterilization is a quick and effective way to sterilize fruits. In this method, fruits are sterilized using microwave energy, which helps preserve their beneficial substances, such as antioxidants and vitamin C. Microwave processing does not change the taste or appearance of the fruit.
5. **Fermentation and probiotic preservation:** Another innovative approach is to preserve the fruits of the yam using fermentation and probiotics. During the fermentation process, the yam is

fermented with natural bacteria, which ensures its microbiological safety and adds new beneficial properties . Preserving with probiotics helps to improve the intestinal microflora of the yam and promotes overall health .

6. **Preservation using nanotechnologies:** Nanotechnologies offer new possibilities in the preservation of cranberries. Nanomaterials can be used to extend the shelf life of the fruit, ensure its microbiological safety, and preserve its bioactive substances. Nanomaterials prevent external damage to the fruit and inhibit the growth of microorganisms without damaging the fruit cells.

Results.

Health benefits

Pomegranate (*Punica granatum*) fruits have many health benefits. They are a rich source of antioxidants, flavonoids, polyphenols, tannins, and vitamins. Compounds such as ellagic acid and punicalagin in pomegranates protect cells from oxidation, neutralize free radicals, and slow down the aging process. These fruits also play an important role in preventing cancer and cardiovascular disease . The polyphenols and flavonoids present in pomegranates dilate blood vessels, lower blood pressure, and help reduce cholesterol levels, which is effective in supporting heart health.

The fruits of the gastrointestinal tract are also beneficial. They improve digestion, normalize intestinal function, and reduce inflammation. The anti-inflammatory properties of the berry support the beneficial bacteria in the intestinal tract and help eliminate toxins. This fruit also helps strengthen the immune system and protects the body from infectious diseases.

Discussion.

Is its high content of vitamin C and other vitamins , which strengthen the body's defenses. Minerals such as potassium and magnesium contained in the fruit ensure the proper functioning of the heart and strengthen the muscles. This fruit also improves blood formation, helps prevent anemia, and balances the amount of iron in the body.

Another important benefit of consuming cranberries is its health benefits, especially in reducing stress and improving mood. This fruit helps maintain hormonal balance in the body and calms the nervous system. At the same time, cranberries help reduce blood sugar levels and are used to fight diabetes.

The health benefits of the fruit allow it to be widely used not only as a fresh fruit, but also in the form of canned food, juice, and other products.

Conclusion.

cranberries into healthy and long-lasting canned products. Microwave sterilization, vacuum packaging, fermentation, probiotics and nanotechnologies help preserve the quality of cranberries and make it possible to preserve their beneficial properties for a long time. Canned products made from cranberries not only add new dimensions to their taste, but also preserve their health benefits to the maximum. At the same time, these products are environmentally friendly and competitive, meeting market requirements.

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