Sherbet: A Traditional Beverage

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ABSTRACT

Traditional beverages are of great importance for societies as they reflect local flavors and cultural heritage. These drinks have been preserved and passed down from generation to generation and are still popular today, becoming an important part of local identity. The preparation and presentation of traditional beverages involve rituals that reinforce feelings of unity and solidarity between communities. They are at the center of social interactions, encouraging gathering and sharing. Sherbet, which has a special place among traditional beverages, has long been a preferred and popular drink due to its natural ingredients and health benefits.

Sherbet is prepared with various fruits, spices, or herbs, water, sugar, or honey. Traditionally, it is consumed as a cold, sweet drink to refresh and quench thirst during the hot summer months. Offering various health benefits, sherbet is a rich source of vitamin C and strengthens the immune system thanks to the natural fruit juices, plant extracts, or spices it contains. The antioxidant properties of sherbet come from its fruit, herbs, or spices, which can prevent cell damage. In addition, sherbets contribute to slowing down aging processes and reducing the risk of diseases such as cancer. The spices and herbs it contains can facilitate digestion and help relieve abdominal pain.

This chapter emphasizes the cultural significance of traditional beverages and the value of sherbet among traditional beverages by focusing on its health benefits. It should continue to contribute to the cultural heritage of societies by preserving the unique characteristics of traditional beverages.

Keywords: Sherbet; traditional beverages; health benefits; cultural heritage; rituals

I. INTRODUCTION

1. A traditional beverage: Sherbet

Sherbet is a common and significant beverage with a rich historical tradition dating back to the eleventh century in Anatolia. It has been a customary practice to serve sherbet to guests after important rituals and events, such as circumcision feasts, betrothals and deliveries. The primary ingredients of sherbet are sugar and water and it is prepared by combining sugar or honey, water, various fruits (i.e. tamarind, date, pomegranate, cranberry, red grape, rosehip, locust bean, etc.), flowers (i.e. rose petals, poppy, violet, etc.), herbs or plant extracts and spices (i.e. black cumin, cinnamon, ginger, cardamom, clove, etc.) [1-3].

Two prominent methods are commonly employed in traditional Turkish sherbet preparation. The first technique entails the extraction of fruit juice, which is then blended with precise quantities of sugar and spices. On the other hand, the second process involves boiling fruit pulp with sugar and other spices followed by cooling. Subsequently, the desired consistency of the sherbet is achieved by incorporating water into the mixture. Additionally, an alternative approach to sherbet production involves steeping the ingredients in hot water rather than subjecting them to boiling, followed by filtration [4].

Sherbet not only serves as an energizing and tasty beverage but also has gastrointestinal benefits. In addition, it is believed to possess healing properties for various diseases [1]. Grape sherbet, for instance, is

recognized for its anti-cancer properties. Mint sherbet has been used since ancient times to treat various ailments, particularly to support ocular and respiratory health. Tamarind sherbet, a staple in Ottoman cuisine, contains 41 different types of spices and is believed to regulate the digestive and intestinal systems [5]. Cinnamon sherbet offers antibacterial, skin-protective and gas-relieving effects [6]. Carob sherbet is known for its usefulness in treating asthma, expectorant symptoms and shortness of breath [7, 8].

There are various types of sherbets traditionally consumed. In this study, the bioactive components, health benefits and relevant researches regarding some commonly consumed sherbets are detailed.

2. Some Sherbet Varieties

2.1. Purple Basil (*Ocimum basilicum* L.) Sherbet

Ocimum basilicum L., sometimes known as purple basil, is a culinary and therapeutic herb. It includes essential oils (linalool, methyl eugenol, methyl chavicol, and methyl cinnamate from the main essential oil components), phenolic acids (rosmarinic acid, chicoric acid, gallic acid, caffeic acid, caftaric acid, chlorogenic acid, protocatechuic acid and 4-hydroxybenzoic acid, etc.), flavonoids (quercetin, luteolin, apigenin, kaempferol, etc.) and also anthocyanins (cyanidin 3-glucoside, cyanidin 3,5-diglucoside, peonidin 3,5-diglucoside, etc.), having high antioxidant effects [2, 9-12]. Additionally, anthocyanins provide anti-inflammatory, anti-cancer, and neuroprotective actions [13].

The antioxidant activity of purple basil may reduce the risk of diabetes and cancer while defending against heart disease. Purple basil has historically been used to treat kidney problems, warts, diarrhea, migraines and coughing. In addition to exhibiting a moderate to high natural preservation capacity, basil types also show antibacterial activity against a wide range of food-borne and human pathogenic microorganisms, suggesting a possible positive impact on human health [14, 15].

2.2. Melon Seed (*Cucumis melo* L.) Sherbet (Subye)

Subye is a traditional sherbet obtained from melon (*Cucumis melo* L.) seeds. To produce subye, dried melon seeds are initially rehydrated by soaking them in water until they reach the same moisture levels as fresh seeds. Next, the rehydrated seeds are minced and mixed with a specific amount of sugar to form a paste. This subye paste is then diluted with water and filtered to obtain the final beverage known as subye [16].

Depending on the variety and origin of the melon, the composition of the melon seeds differs. However, as a result of studies conducted on this subject, the contents of moisture, oil, protein, carbohydrate, fiber and ash have been found to vary between 4.90% and 7.78%, 25.00% and 35.36%, 14.91% and 29.90%, 5.85% and 22.94%, 19.00% and 23.30%, 2.4% and 4.20%, respectively [17].

[18] produced subye sherbet from melons of the Canpolat and Mimoza varieties. The results indicate that the seeds of different melon varieties exhibit variations in total phenolic content (TPC) and total antioxidant activity (TAC). Specifically, subye sherbets derived from Mimoza melon seeds showed higher TPC values, approximately 15% higher compared to Canpolat melon beverages, and TAC values ranging from 24% to 95% higher. Furthermore, the TPC value of subye sherbet was found to be higher than that of certain plant-based milks such as rice milk, hazelnut milk and coconut milk.

Additionally, melon seeds have been utilized for medicinal purposes dating back to the Ottoman era, despite being perceived as food waste. It is believed that melon seeds can be beneficial in managing acute or chronic eczema [19]. Subye has potential to regulate the digestive system, promote restful sleep and effectively address issues of diarrhea and constipation [8].

2.3. Liquorice (*Glycyrrhiza glabra* L.) Root Sherbet

In certain Mediterranean and Asian nations, including Turkey, Italy, Spain, China and Syria, the liquorice plant (*Glycyrrhiza glabra* L.) is grown and cultivated. Saponins, flavanones, flavonoids, amines, glucose, sucrose, amino acids, gums, essential oils and starch are all present in liquorice roots. The most important saponin is glycyrrhizic acid, which contains one molecule of glycyrrhetinic acid and two molecules of glucuronic acid and is up to 50 times sweeter than sucrose [20, 21]. Glisirrizin is a bioactive component whose medical value has been proven through pharmacological tests. It possesses anti-inflammatory, anti-ulcer, anti-allergic and anti-viral properties [22].

In the regions of Eastern and Southeastern Anatolia in Turkey, liquorice root extracts are commonly consumed as a summertime cold beverage known as "Liquorice Root Sherbet," which is often sold by street vendors. As noted by [23], the preparation of this sherbet involves shredding and extracting the roots with water.

In a conducted study [22], the effects of different temperature applications (25°C, 40°C and 75°C) during the extraction of liquorice roots on the microbial safety (total aerobic viable count, total aerobic mesophilic spores, yeast and mold, total coliform group bacteria) and bioactive components (TPC, total flavonoids and

glycyrrhizic acid) of the sherbet were investigated. The research findings indicate that temperature applications in the range of 40-75°C during the extraction process positively enhance the microbiological quality of the final sherbet product and significantly increase the transfer of bioactive components into the sherbet.

2.4. Cornelian Cherry (*Cornus mas* L.) Sherbet

The cornelian cherry (*Cornus mas* L.,) is a naturally occurring plant that has historically been used mostly in traditional medicine, especially in Europe and Asia. It is currently starting to gain prominence once more because it can be a great source of bioactive compounds with high antioxidant activity. The bioactive components found in fruits, such as phenolics, anthocyanins, flavonoids, carotenoids and vitamins, each play a different role in the antioxidant activity of specific fruits [24].

According to [25], cornelian cherries have positive effects on health, such as lowering LDL cholesterol and blood lipids and reducing the risk of cancer. Additionally, because they are a source of melatonin, they are known to promote quality sleep. Cornelian cherries also increase urinary acidity because of their benzoic acid content, which helps prevent infections and kidney stones. Due to their sour and tart taste, they are commonly used not only as a fruit but also in various culinary applications such as jams, marmalades, sherbets, syrups and as an ingredient in dishes like tarhana soup [26].

2.5. Rose (*Rosa damascena)* Sherbet

Traditionally, flowers play a significant role in the preparation of sherbets. Among them, roses have become particularly preferred in sherbet making due to their intense flavor and aroma [27].

Rose is a flower rich in essential oils, vitamins (A, B, E, K) and minerals (potassium and iron). It has been found to have anti-HIV, antibacterial, antioxidant, antitussive, hypnotic, antidiabetic, and relaxant effects [28].

To prepare rose sherbet, washed rose petals are soaked in boiling water for a day. Afterward, the infused water is mixed with a syrup made by boiling water and sugar after the mixture is cooled. During serving, the obtained syrup is diluted with water [29].

3. Innovative sherbets with enhanced functional properties

It is known that musk, amber, rose water, violet and/or fruits are added to various types of sherbet in such a way that their sensory properties are compatible with each other. Studies have shown that these ingredients not only improve sensory properties but also increase functional properties [30].

[2] conducted a comprehensive study to explore the enrichment of purple basil sherbet with propolis extract. The research focused on investigating the impact of various factors on the final product, including the levels of purple basil aerial parts (leaves, flowers and stems) (200-300 g/L), propolis extract (48-72 mg/100 mL), and infusion time (30-40 min), using a Box-Behnken design. The study assessed multiple parameters, including TPC, TAC, color parameters (L^*, a^*, b^*, C^*, $h°$), and sensory properties. Additionally, the antimicrobial activity of the sherbets was thoroughly evaluated. Remarkably, the results demonstrated that certain combinations of factors had significant effects on Gram-negative bacteria (*Escherichia coli* and *Salmonella enteritidis*) and biofilm produced by Gram-positive bacteria (LAB 20). The findings of this study are highly promising and offer an innovative approach to developing a novel purple basil sherbet with enhanced health-promoting properties.

Studies continue on functionally enhanced sherbets by enriching traditional sherbets with vegetable juices (carrot, red cabbage and cucumber) and using sugar substitutes (stevia or apple juice concentrate) [31].

In another study [32], it was aimed to produce a delicious, appetizing sherbet rich in bioactive components using water, cherry syrup, geranium (*Pelargonium graveolens* L.), lemongrass (*Lippia citriodora* L.), medicinal mint (*Mentha piperita* L.) and marjoram (*Origanum majorana* L.). In addition, the traditional infusion method and the ultrasonic extraction method were compared. As a result of the study, TPC and TAC values measured by the DPPH method were higher in the sherbet samples obtained by ultrasonic extraction at 80 °C than in the other samples. This shows that the extraction method preferred in sherbet production is as effective on the final product quality as the ingredients.

Instead of thermal processes such as pasteurization, research is also focusing on the use of high-pressure processing [33] to minimize quality loss during storage. Moreover, microencapsulation studies [34] have recently become intriguing topics for improving sherbet preservation.

II. CONCLUSION

Traditional beverages are an integral part of cultural heritage and reflect the identity of societies. Sherbets, throughout history, have had a unifying effect in various rituals and encouraged sharing. For centuries, sherbets have been consumed in a wide geographical area, providing a refreshing option to beat the heat during hot summer months and aiding digestion when consumed alongside meals. These traditional beverages are

known to be highly beneficial to health and have been preferred in the prevention and treatment of various diseases.

Sherbets are a rich source of nutrients, containing natural fruit juices, plant extracts, and spices. Especially due to their high content of vitamin C, antioxidants and other vitamins and minerals, they strengthen the immune system and protect the body against illnesses. Moreover, sherbets contain natural sugars instead of artificial sweeteners, making them a low-calorie beverage alternative. This characteristic helps prevent excessive calorie intake and contributes to weight management. The point emphasized in this chapter is that preserving traditional sherbets as part of our cultural heritage and increasing their functionality through new research will enable us to share this drink with future generations.

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