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Disha Bindra
Disha Bindra, G.B. Pant University of Agriculture & Technology, Pantnagar, Uttarakhand, India.

Correspondence
Disha Bindra
Disha Bindra, G.B. Pant University of Agriculture & Technology, Pantnagar, Uttarakhand, India.

Formulation, sensory evaluation and storage stability of watermelon rose sherbet

Disha Bindra

Abstract
Sherbets are enjoyed by all sections of society of all ages. Watermelon is a rich source of water, soluble fiber and mineral iron. It serves as a major source of iron in a vegetarian diet. Rose petals are used as a natural aromatic agent. Watermelon rose sherbet also lends a cool effect to the body if consumed in an adequate quantity especially in summer season. It can be consumed as a relishing drink at parties and on regular days. The present study was undertaken to prepare watermelon and rose water sherbet in different ratios and subjected to sensory evaluation was liked extremely by 70 percent of the panelists containing 20 percent of rose water. The Sherbet was found to be fit for consumption upto 180 days without any addition of artificial preservatives.

Keywords: Sensory evaluation, storage stability, watermelon rose sherbet

Introduction
Watermelon (*Citrullus lanatus* variety *lanatus*, family Cucurbitaceae) is a vine-like (scrambler and trailer) flowering plant originally from southern Africa. It is a large, sprawling annual plant with coarse, hairy pinnately-lobed leaves and white to yellow flowers. It is grown for its edible fruit, also known as a watermelon, which is a special kind of berry referred to by botanists as a pepo. The fruit has a smooth hard rind, usually green with dark green stripes or yellow spots, and a juicy, sweet interior flesh, usually deep red to pink, but sometimes orange, yellow, or white, with many seeds. Watermelons are tropical or subtropical plants and need temperatures higher than about 25 °C (77 °F) to thrive. On a garden scale, seeds are usually sown in pots under cover and transplanted into well-drained sandy loam with a pH of between 5.5 and 7 and medium nitrogen levels.

Rose Water
Rosa damascena mill L, commonly known as Damask rose (Kaul VK, Singh V, Singh B. Damask rose and marigold: prospective industrial crops. J Med Aromat Plant Sci. 2000; 22:313–318) is known as Gole Mohammadi in Iran (Loghmani-Khouzani H, Sabzi-Fini O, Safari J. Essential oil composition of Rosa damascena Mill cultivated in central Iran. Scientia Iranica. 2007; 14:316–319). It is one of the most important species of Rosaceae family. Rosaceae are well- known ornamental plants and have been referred to as the king of flowers (Nikbakht A, Kafi M, Mirmasoudi M, Babalar M. Micro propagation of Damask rose (Rosa damascena Mill.) cvs Azaran and Ghamsar. 2004 International J of Agriculture and Biology; 7(4):535–538).

Rose
Rose petals are added to various manufactured teas to enhance the aroma and taste of various teas.Rose tea can be prepared from fresh or dried petals. One cup of rose tea contains 50 to 60 times the amount of vitamin C as the same quantity of oranges. Following are some of the health benefits of rose tea.

1. Boosts immunity levels.
2. Strengthens the digestive system, fights gastrointestinal diseases and removes constipation.
3. Detoxifies the kidneys and urinary tract. It removes small stones clears obstruction of urine.

4. Fights sore throat, cold and flu and fights respiratory infections.
5. Counters anxiety, depression and calms the nervous system.
6. Fights tiredness and fatigue.

Materials & Methods

Watermelon and rose petals were purchased from local market, Pantnagar.

Preparation of Watermelon Rose Sherbet

Watermelons were peeled and the seeds were gently scraped with a spoon. Each half was placed on a cutting board and cut into 3cm thick slices using a food knife. The rose petals (5g i.e. a handful) were washed thoroughly and steeped in a pan and brought to a boil. Ice cubes were added to the boiling rose petals for about five minutes. 20 ml of rose water was taken and added to the blender. Thereafter the apples and the watermelon cubes were extracted for their juice by blending in a blender with sieves.

The juice was brought to a boil at 100 ℃ and filled in glass bottles upto the brim immediately followed by sealing of the glass bottles. The juice after reaching the room temperature was placed in a refrigerator at 5° C for three hours.

Sensory Characteristics

The sensory characteristics of juices were judged by the panel of fifteen semi-trained members from the department of Foods and Nutrition. The panelists were asked to evaluate the product for using Nine-point Hedonic Scale (Amerine *et al*., 1965) [2]. The Total Viable Count of all the formulated Sherbets were tested upon storage for 180 days.

Table 1: Sensory evaluation of Watermelon rose sherbet using Hedonic scale

Hedonic Scale	Watermelon Rose Sherbet				
	100:0 (%)	90:10 (%)	85:15(%)	80:20 (%)	75:25 (%)
Like extremely	25	20	15	70	0
Like very much	45	50	60	20	5
Like moderately	15	30	25	10	15
Like slightly	15				20
Neither like nor dislike					10
Disliked slightly					30
Disliked moderately					10
Disliked very much					0
Disliked extremely					10

Table 2: Changes in TVC of Watermelon rose sherbet upon storage

Days	Total Count in cfu/g				
	100:0	90:10	85:15	80:20	75:25
1	0	0	0	0	0
30	0	0	0	0	0
60	0	0	0	0	0
90	0	0	0	0	0
120	0	0	0	0	2×10^3
150	0	0	0	2×10^3	3×10^3
180	0	0	0	3×10^3	3×10^3

Results and Conclusions

Sensory evaluation using Nine Point Hedonic Scale revealed that 70 percent of panelists liked extremely the Sherbet incorporated with 20 percent of rose water (Table 1). The range of Aerobic Plate Count for *Bacillus cereus* found for juices immediately following production under good manufacturing conditions ranges from $< 10^2$ cfu/g or ml to a maximum of 10^4 cfu/g or ml is considered safe for consumption as recorded by Stannard, 1997 [4]. A s per the benchmark the sherbets prepared (of different ratios) is safe for consumption.

The healthy preparation can thus be produced at industrial level. It also is found to be fit for consumption till 180 days without the addition of any preservatives.

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