

# Sensory evaluation of cactus fruit jam

D.J. JOTANGIYA AND V.S. SAMANI

Cactus pears are actually large berries growing on the prickly pear cactus which is one reason for their high-fibre content – and brightly-coloured, antioxidant-rich juice. You can eat the fruit raw or cook it for jams, preserves, pies and other desserts. The acceptability of cactus's fruit jam prepared with the incorporation of different levels of sugar and to evaluate organoleptic characteristics of jam. The present study was undertaken to evaluate acceptability of cactus's fruit jam was undertaken two sensory tests. 1) Three variations were prepared with incorporation of different levels of sugar at 70, 80 and 90 per cent level and also with standard method of jam served as control. 2) One sample is prepared with standard method of making jam. Sample was served to 20 trained panel members for evaluation of sensory characteristics of the product for overall acceptability. 1) Despite of sweet taste and soft mouthfeel the result revealed that the score for all the parameters of sensory evaluation obtained by variations ranged from excellent (100) to good (60). There was no significant difference for scores of all parameters of all the variations. 2) Despite of sweet taste and soft mouth feel the result revealed that the score of sensory evaluation obtained by variations ranged from Like extremely (70%), like very much (20%), Neither like nor dislike (10%). It can be concluded that sugar can be added at different levels *i.e.* 70, 80 and 90 per cent in cactus fruit jam preparation successfully.

**Key Words :** Cactus fruit jam, Numerical score, Hedonic test, Overall acceptability

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## INTRODUCTION

The fruit of the prickly pear cactus, known by the name cactus pear and prickly pear, is oval with a reddish-purple colour. Also known as "tuna," the fruit ripens in late summer and early fall and has a granular consistency with a flavour reminiscent of watermelon. It's eaten raw or cooked and is used to make juice, jelly, candy and even flour. Add cactus fruit to your menu plan, and enjoy its nutritional benefits.

Cactus pears are actually large berries growing on the prickly pear cactus. They are filled with edible seeds

-which is one reason for their high-fibre content-and brightly-coloured, antioxidant-rich juice. You can eat the fruit raw or cook it for jams, preserves, pies and other desserts.

### Antioxidant power :

Because of their protective properties, antioxidants are linked to reductions in certain degenerative diseases. Cactus fruit is full of antioxidants. These powerful substances help protect your body against free radicals - unstable molecules that can damage cells. An article published in "Nutrients" in October 2013 noted studies on the cactus pear that revealed how its antioxidant activities may help prevent chronic diseases like diabetes.

### Increased fibre :

Dietary fibre is a complex carbohydrate found only in plant foods. Although your body can't digest fibre, it

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**Table A : Nutritional value of cactus fruit**

Sr. No.	Nutrients	Value	Sr. No.	Nutrients	Value
1.	Calories	42	12.	Vitamin A A	44 IU
2.	Carbohydrates	9.86 g	13.	Beta-Carotene	26 mcg
3.	Protein	0.75 g	14.	Calcium	58 mg
4.	Fat	0.53 g	15.	Iron	0.31 mg
5.	Fibre	3.7 g	16.	Phosphorus	25 mg
6.	Vitamin C	14.4 mg	17.	Potassium	227 mg
7.	Thiamine	0.014 mg	18.	Zinc	0.12 mg
8.	Riboflavin	0.062 mg	19.	Sodium	5 mg
9.	Niacin	0.474 mg	20.	Copper	0.082 mg
10.	Vitamin B-6	0.062 mg	21.	Selenium.	0.6 mcg
11.	Folate	6 mcg	22.	Magnesium	25 g

plays a crucial role in your health. Dietary fibre is linked to prevention of some types of cancer. It contributes to lower blood sugar levels and blood cholesterol levels and helps prevent constipation. One cactus fruit, just under 4 ounces, contains 3.7 g of fibre, which is approximately 15 per cent of the daily value set by the U.S. Food and Drug Administration, based on a 2,000-calorie-per-day diet.

#### **Mighty magnesium :**

Your body contains about 25 g of magnesium, with 50 per cent to 60 per cent residing in your bones and most of the rest in your soft tissues. Magnesium performs many crucial functions. It's required for proper bone development and energy production. It's also needed for protein production, muscle and nerve functions, stable blood sugar levels and blood pressure regulation. A 4-ounce cactus fruit contains approximately 88 milligrams of magnesium, or 22 per cent of the DV set by the FDA.

#### **Vital Vitamin C :**

Vitamin C, also called L-ascorbic acid, must be consumed through foods, food additives or supplements, since your body can't produce it. Yet, getting enough vitamin C is vital for good health, as it plays an important role in the development of collagen, an essential component of connective tissue necessary for healing. It contributes to proper protein metabolism and neurotransmitter functions. A 4-ounce cactus fruit contains approximately 14 milligrams of vitamin C, or 23 per cent of the DV set by the FDA.

#### **Medicinal value of cactus :**

The medicinal value of cactus is immense. Studies reveal that cactus contain anti-tumor, anti-ulcer, anti-

inflammatory and anti-rheumatic properties. In addition, experts opine that cactus has the capacity to prevent cancerous growth of cells. The prickly pear cactus for instance, has enjoyed enough significance with respect to its medicinal value.

#### **Others :**

14 per cent glucose in cactus fruit. (FAO, 1996). Its pH is 4.2 with 10–12 °Brix, which makes it tasty as natural dessert minimally processed product, frozen with sugar and also a proximal analysis determines its suitability for marmalades and jams as well as dressing products (Yanez *et al.*, 2004). Cactus fruits are considered to be rich source of betalain pigments and coloured cactus fruit concentrates are used in yoghurt and ice cream (Stintzing and Carle, 2006). The total pectin content of cactus pear ranged from 5.32 to 14.19 per cent,

## **METHODOLOGY**

Therefore, the present study was undertaken with the following objectives: to find out the acceptability of cactus's fruit jam prepared with the incorporation of different levels of sugar and to evaluate organoleptic characteristics of jam.

The ingredients and stranded method of jam were (1) Cactus fruit's pulp (100 g), (2) Citric acid (1 g), (3) Sugar (100 g). All the ingredients were slowly mixed and kept on heat till the jam was prepared.

The present study to evaluate acceptability of sample was undertaken two sensory tests.

#### **Numerical scoring test :**

The present study was undertaken to evaluate acceptability of cactus's fruit jam. Three variations were

prepared with incorporation of different levels of sugar at 70, 80 and 90 per cent level and also with standard method of jam served as control. All the three variations and the control were served to 20 trained panel members for evaluation of sensory characteristics of the product for appearance, texture, taste, flavour, mouth feel and overall acceptability. The jam was rated on 100 point numerical score (100 as excellent and 20 as poor).

**Hedonic scale :**

This test can also be used in research laboratories to ascertain the acceptability or otherwise of new products. The present study was undertaken to evaluate acceptability of cactus's fruit jam. One sample is prepared with standard method of making jam. Sample was served to 20 trained panel members for evaluation of sensory characteristics of the product for overall acceptability.

as well as relevant discussion have been summarized under following heads :

**Numerical scoring test :**

Despite of sweet taste and soft mouthfeel the result revealed that the score for all the parameters of sensory evaluation obtained by variations ranged from excellent (100) to good (60). There was no significant difference for scores of all parameters of all the variations.

**Hedonic scale :**

Despite of sweet taste and soft mouth feel and all

**Table 1 : Score card for overall acceptability of the food products**

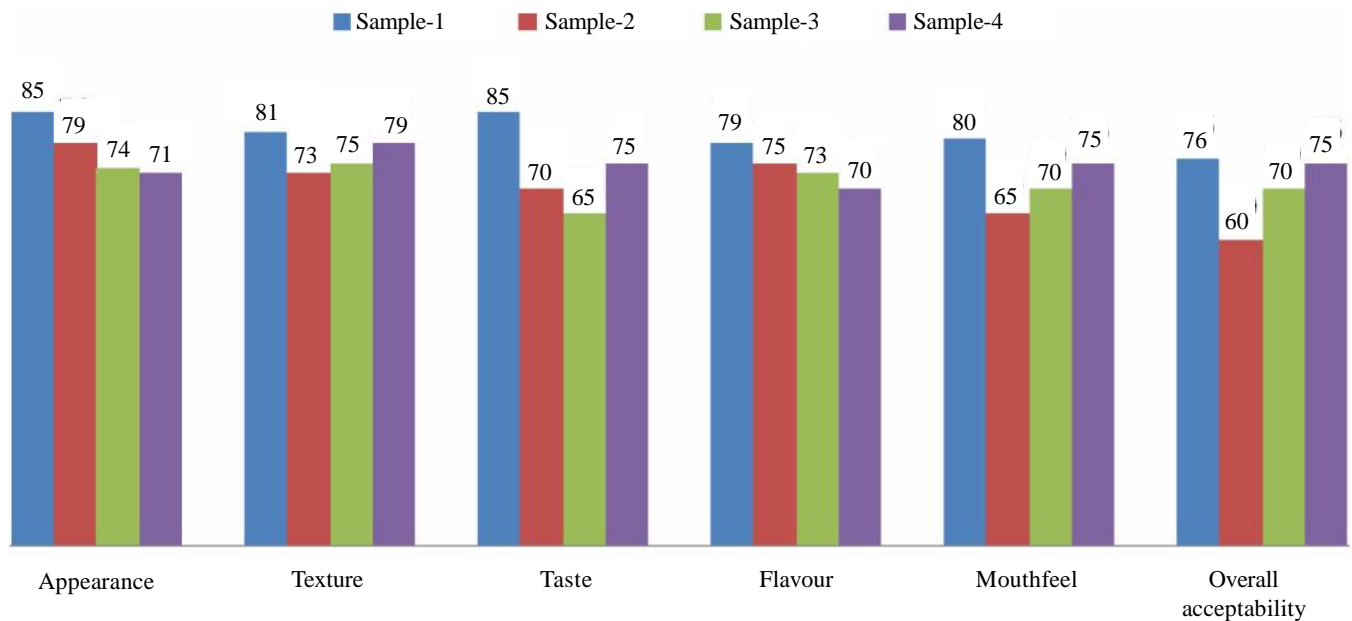
Rating	Numerical score
Excellent	80-100
Very good	61-80
Good	41-60
Fair	21-40
poor	01-20

**OBSERVATIONS AND ASSESSMENT**

The results obtained from the present investigation

**Table 2 : Score card of acceptability of cactus's fruit jam**

Sample	Appearance	Texture	Taste	Flavour	Mouthfeel	Overall acceptability
Sample-1	85	81	85	79	80	76
Sample-2	79	73	70	75	65	60
Sample-3	74	75	65	73	70	70
Sample-4	73	79	75	70	75	75



Sample 1-Control, Sample 2-Variation- 70 per cent of sugar level, Sample 3-Variation- 80 per cent of sugar level, Sample 4-variation- 90 per cent of sugar level

**Fig. 1 : Numerical test**

**Table 3 : Score card of Hedonic scale for acceptability of food product**

1.	Like extremely	6.	Dislike slightly
2.	Like very much	7.	Dislike moderately
3.	Like moderately	8.	Dislike very much
4.	Like slightly	9.	Dislike extremely
5.	Neither like nor dislike	10.	Comments

acceptability the result revealed of sensory evaluation obtained by variations ranged from like extremely to Dislike extremely and any comments for sample. The present study was under taken to evaluate acceptability of jam. The sample was prepared with sugar (100 g) and fruit pulp (100 g) and citric acid (1 g) all ingredients mixed well and heated till the jam was prepared. The hedonic scale is given Table 3.

Despite of sweet taste and soft mouth feel the result revealed that the score of sensory evaluation obtained by variations ranged from like extremely (70%), like very much (20%), neither like nor dislike (10%).

#### **Conclusion :**

All variations received high and almost equal scores

for all sensory properties. It can be concluded that sugar can be added at different levels *i.e.* 70, 80 and 90 per cent in cactus fruit jam preparation successfully (Fig.1).

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