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ORIGINAL PAPER



## Preparation of carrot jam

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### INTRODUCTION

Jam is prepared by boiling the fruit pulp with sufficient quantity of sugar with addition pectin to reasonable thick consistency. Jam should not contain less than 68.5% soluble solids. It can be prepared from one kind of fruit or from two or more kinds. Jam contains 0.5-0.7 per cent acid and invert sugar should not be less than 30 percent.

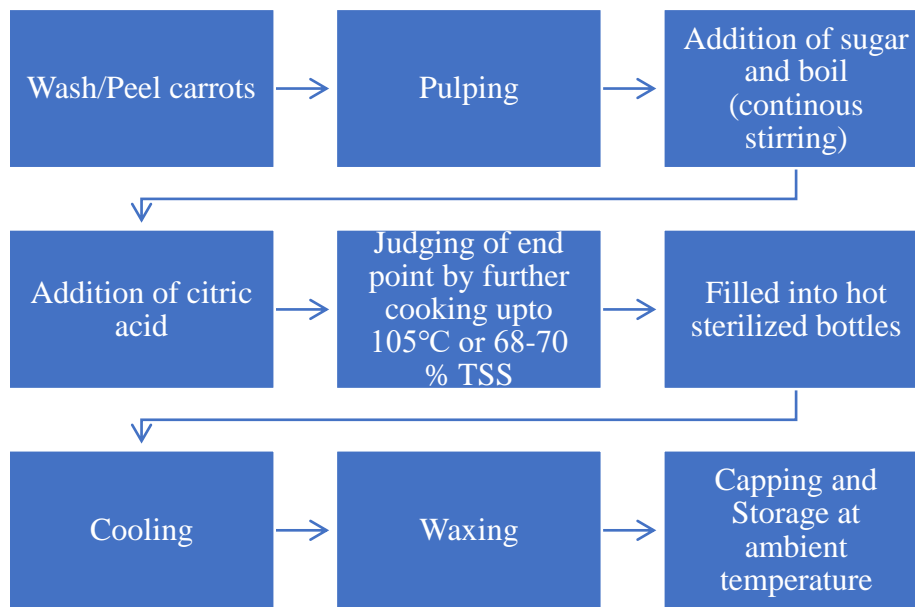
Carrots are commonly consumed either fresh or processed into juices, beverages, jams, infant meals, and fibre goods. They are also a good source of carotene. The outstanding health advantages of carotenes, such as their conversion to vitamin A in the body and their distinctive biological impacts as antioxidant activity, stimulation of the immune response, and lowering the risk of cancer, have motivated the current work to offer the consumer a delightful goods with the nutritional and health advantages of dates and carrots.

### PECTIN

Pectin substances present in the form of calcium pectate are responsible for the firmness of fruits. The setting of pectin is also dependent upon the pH and sugar concentration.

### INGREDIENTS

Ingredients	Quantity
Carrot	1 kg
Sugar	850gm
Lemon	2

**FLOWCHART****PROCEDURE**

1. Take carrots and wash them properly.
2. Peel the fruits and pulp them.
3. Add sugar to the mixture.
4. Cook the mixture and cook till the TSS reaches to 65-70°B with continuous stirring.
5. At the end of process, add citric acid.
6. Determine the end point using hand refractometer.
7. Hot fill into the bottle.
8. Label it and store under cool and dry conditions.



Fig1. Wash and peel the carrots



Fig2. Grate the carrots



Fig3. Add sugar



Fig4. Add lemon juice



Fig5. Cook the mixture



Fig6. Final product

**Table 2: Sensory evaluation by Hedonic Scale**

<b>Sensory Evaluation: 9 Point Hedonic Scale Card</b>						
<b>Product: Carrot jam</b>						
1: Dislike extremely 2: Dislike very much 3: Dislike moderately 4: Dislike slightly			5: Neither like nor dislike 6: Like slightly 7: Like moderately 8: Like very much 9: Like extremely			
Parameters	Panelist 1	Panelist 2	Panelist 3	Panelist 4	Total Score	Average Score
Appearance	6	6	7	6	25	6.25
Taste	7	7	7	7	28	7

Texture	6	6	6	6	24	6
Overall Acceptance	6	7	6	6	25	6.25

## PROBLEMS AND PRECAUTIONS

- 1. Crystallization** – due to addition of excess sugar honey like mass is formed. Jam should contain 30-50 % invert sugar.
- 2. Syneresis or weeping jam-** this is due to excess acid or pectin content. Avoid using of unripe fruits and add citric acid if needed.
- 3. Surface graining or shrinkage** – this occurs due to evaporation of moisture during storage of jam.
- 4. Microbial spoilage-** spoilage occurs due to imperfect seal, less sugar or paraffin seal is not tight. It can be prevented by hot sealing of filled jar and covering the surface with properly. Addition of 40ppm sulphur dioxide as KMS or 200 ppm sodium benzoate.

## SUMMARY

Carrot jam was overall good in taste and texture. Process was easy to make and can be stored for around 20-30 days in refrigerator. In particular, no problem occurred during jam preparation as regular monitoring was done.

## CONCLUSION

As carrot has lot of health benefits, along with taste it provides nutrition too. It can be easily made at home with some simple steps too for daily consumption. Problems during preparation of jam can occur frequently and needs to be monitored properly with attention. In Indian market, carrot jam is still not that popular, but it's increasing day by day and can be beneficial to entrepreneur's venture.