

# Fruit Preserves and Candied Fruits

# What are fruit preserves?

## Preserve

A mature fruit/vegetable or its pieces impregnated with heavy sugar syrup till it becomes tender and transparent is known as a preserve.

Apple, pear, mango, cherry, karonda, strawberry, pineapple, papaya, etc., can be used for making preserves.



In the home they can be prepared using 1 kg of fruit, 1 litre of water and 1 kg of sugar.

A little quantity of acid (citric or tartaric) is added during the preparation to prevent crystallization of the syrup.

### **General considerations**

Cooking of fruit in syrup is difficult because the syrup has to be maintained at a proper consistency so that it can permeate the whole fruit without causing it to shrink or toughen. Cooking directly in syrup causes shrinking of fruit and reduces absorption of sugar. Therefore, the fruit should be blanched first to make it soft enough to absorb water, before steeping in syrup. However, highly juicy fruits may be cooked directly.



**Fruits may be cooked in syrup by three processes:**

**(i) Rapid process**

**(i) Slow process**

**(i) Vacuum process**

## Rapid process:

- Fruits are cooked in low-sugar syrup.
- Boiling is continued with gentle heating until the syrup becomes sufficiently thick.
- Rapid boiling should, however, be avoided as it makes the fruit tough
- The final concentration of sugar should not be less than 68 per cent which corresponds to a boiling point of  $106^{\circ}\text{C}$ .
- This is a simple and cheap process but the flavour and colour of the product are lost considerably during boiling.

## Slow process :

- The fruit is blanched until it becomes tender.
- Sugar, equal to the weight of fruit, is then added to the fruit in alternate layers and the mixture allowed standing for 24 hours. During this period, the fruit gives out water and the sugar goes into solution, result in a syrup containing 37-38 per cent total soluble solids.
- Next day the syrup is boiled after removal of fruits to raise its strength to about 60 per cent total soluble solids. A small quantity of citric or tartaric acid (1 to 1.5 g per kg sugar) is also added to invert a portion of the cane sugar and thus prevent crystallization. The whole mass is then boiled for 4-5 minutes and kept for 24 hours.
- On the third day, the strength of syrup is raised to about 65 per cent, total soluble solids by boiling. The fruit is then left in the syrup for a day.
- Finally, the strength of the syrup is raised to 70 per cent total soluble solids and the fruits are left in it for a week. The preserve is now ready and is packed in containers. In practice, the number of steps may be varied.

## **Vacuum process :**

- The fruit is first softened by boiling and then placed in the syrup which should have 30-35 per cent total soluble solids.
- The fruit- syrup blend is then transferred to a vacuum pan and concentrated under reduced pressure to 70 per cent total soluble solids.
- Preserves made by this process retain the flavour and colour of the fruit better than by the other two methods.

In all these processes:

- The fruit is kept covered with syrup during cooking as well as afterwards otherwise it will dry up and the quality of the product would be affected.
- The product should be cooled quickly after the final boiling to prevent discolouration during storage.
- The fruits are drained free of syrup and filled in dry containers or glass jars.
- Freshly prepared boiling syrup containing 68 per cent total soluble solids is then poured into the jars/containers which are then sealed airtight.



## **Candied fruits/vegetables**

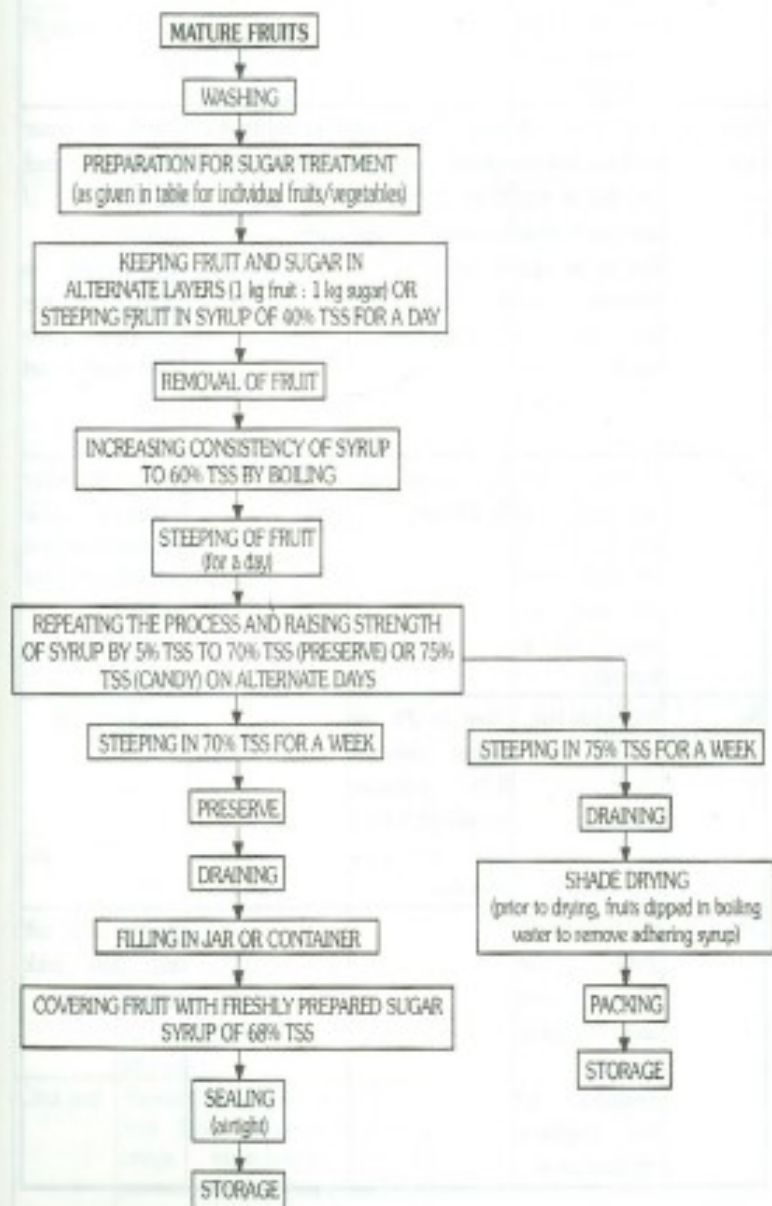
A fruit/vegetable impregnated with cane sugar or glucose syrup, and subsequently drained free of syrup and dried, is known as candied fruit/vegetable.

The most suitable fruits for candying are aonla, karonda, pineapple, cherry, papaya, apple, peach" and peels of orange, lemon, grapefruit and citron, ginger, etc. Pineapple cores, which are a waste product in the canning of pineapples, can be candied directly without any preliminary treatment. There is scope for developing this useful byproduct.

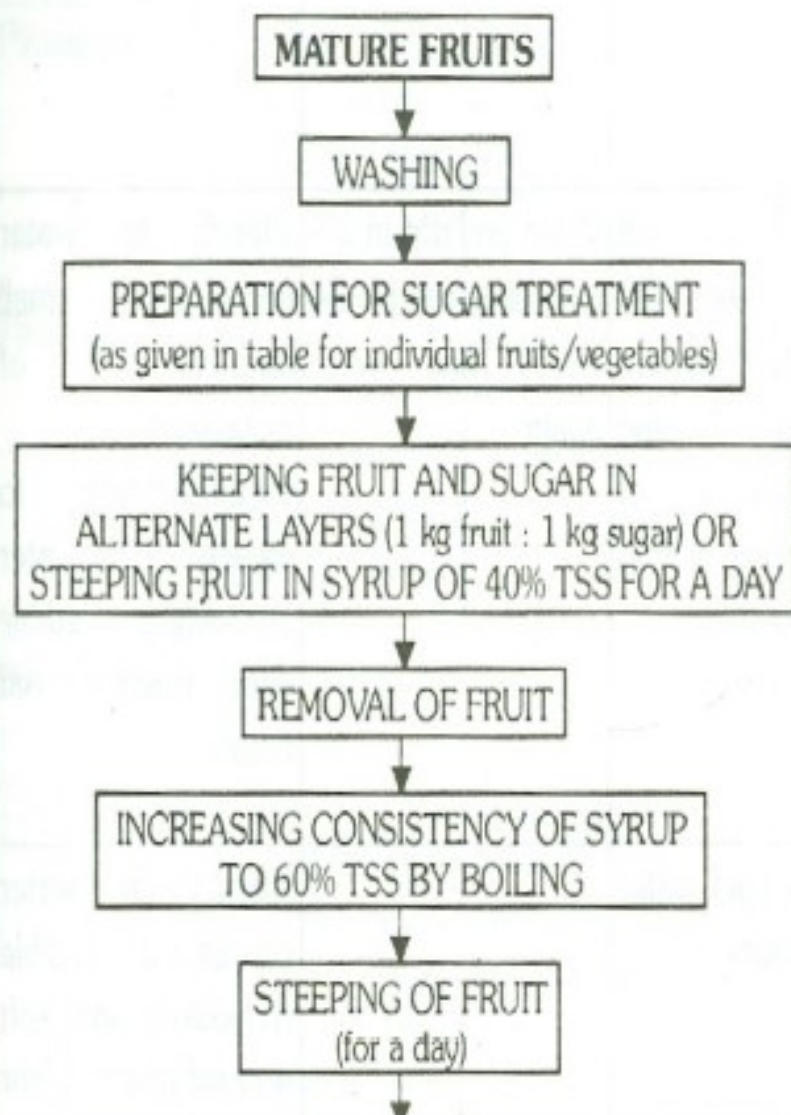
## **F.P.O. Specifications:**

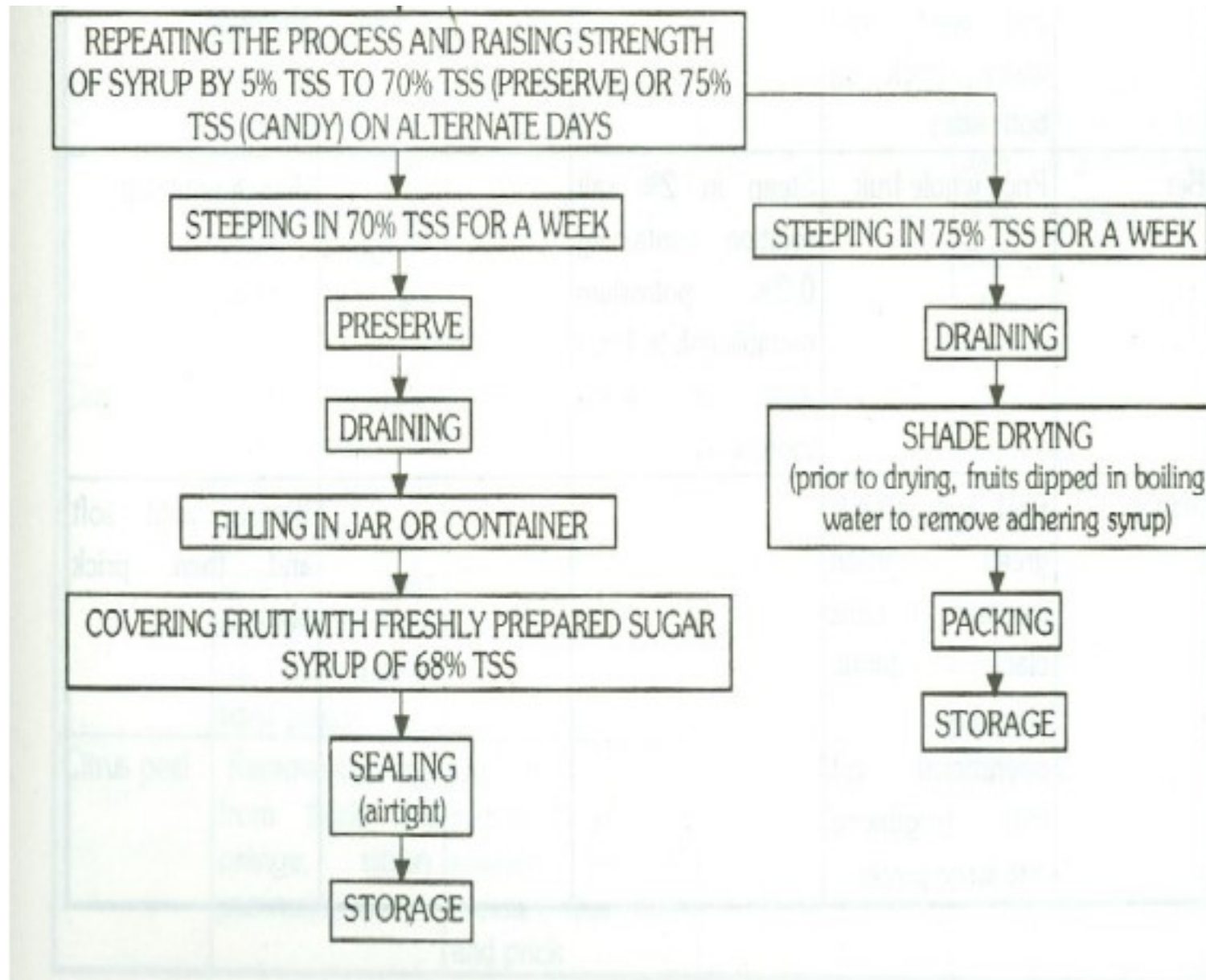
- The process for making candied fruit is 'practically similar to that for preserves.
- The only difference is that the fruit is impregnated with syrup having a higher percentage of sugar or glucose.
- A certain amount {25-30 percent} of invert sugar or glucose, viz. confectioners glucose (corn syrup, crystal syrup or commercial glucose), dextrose or invert sugar is substituted for cane sugar.
- The total sugar content of the impregnated fruit is kept at about 75 per cent to
- prevent fermentation.

PROCESSING FLOW-SHEET FOR MANUFACTURING OF PRESERVE  
AND CANDY



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## **Glazed fruits and vegetables**

Covering of candied fruits/vegetables with a thin transparent coating of sugar, which imparts them a glossy appearance, is known as glazing.



## The preparation of glazed fruits (Cruess):

Cane sugar and water (2: 1 by weight) are boiled in a steam pan at 113-114°C



the scum is removed as it comes up



syrup is cooled to 93°C and rubbed with a wooden ladle on the side of the pan when granulated sugar is obtained.



Dried candied fruits are passed through this granulated portion of the sugar solution, one by one, by means of a fork, and then placed on trays in a warm dry room.

They may also be dried in a drier at 49°C for 2-3 hours.



When they become crisp, they are packed in airtight containers for storage.

## Crystallized fruits/vegetables

- Candied fruits/vegetables when covered or coated with crystals of sugar, either by rolling in finely powdered sugar or by allowing sugar crystals to deposit on them from a dense syrup are called crystallized fruits.
- The candied fruits are placed on a wire mesh tray which is placed in a deep vessel.





## Preparation

- Cooled syrup (70 per cent total soluble solids) is gently poured over the fruit so as to cover it entirely.
- The whole mass is left undisturbed for 12 to 18 hours during which a thin coating of crystallized sugar is formed.
- The tray is then taken out carefully from the vessel and the surplus syrup drained off.
- The fruits are then placed in a single layer on wire mesh trays and dried at room temperature or at about  $49^{\circ}\text{C}$  in driers.

**Problems in preparation of preserves  
and  
candied fruits**

## **(i) Fermentation:**

### Reasons:

- It is due to low concentration of sugar used in the initial stages of preparation of preserves.
- Sometimes fermentation also occurs during storage due to low concentration of sugar and insufficient cooking.

### Prevention:

Boiling the product at suitable intervals, by adding the required quantity of sugar and by storage in a cool and dry place.

## (ii) Floating of fruits in jar :

### Reason:

It is mainly due to filling the preserve without cooling

### Prevention:

Can be avoided by cooling the preserve prior to filling.

### **(iii) Toughening of fruit skin or peel:**

#### **Reason:**

- It may be due to inadequate blanching or cooking of fruits.
- Toughness may develop when cooking is done in a large shallow pan with only a small quantity of syrup.

#### **Prevention:**

- Blanching till tender is necessary

## **(iv) Fruit shrinkage :**

### **Reason:**

Cooking of fruits in heavy syrup greatly reduces absorption of sugar and causes shrinkage.

### **Prevention:**

Fruits should be blanched first or cooked in low-sugar syrup.

## **(v) Stickiness:**

### **Reason:**

It may develop after drying or during storage due to insufficient consistency of the syrup, poor quality packing and damp storage conditions.

### **Prevention:**

Good quality packing and storage under dry conditions required.

**THANK YOU!**