

PRESERVE

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STEPS IN PREPERATION OF A PRESERVE

Preliminary Processing

Washing: The fruit should be washed thoroughly. If it has been sprayed with Bordeaux mixture or lead arsenate to check blight, it should be washed with dilute hydrochloric acid, especially if peels also are to be consumed.

Peeling: The preliminary processing varies with the kind of fruit used. For example, apples and pears are just peeled and punctured if they are to be kept whole; otherwise they are peeled, halved or quartered, cored and punctured. Mangoes are peeled, sliced and punctured. Peaches are destoned and lye peeled. Apricots, cherries and greengages are only destoned. Oranges, lemons, grapefruits and citrons are halved and depulped. Pumpkins (petha) are sliced, peeled, pricked and placed in dilute lime water for sometime. Strawberries and raspberries are not given any treatment.

PRICKING: Pricking is the first step in preparation of any preserve and it is done for rapid moisture loss during the preparation process. The pricking of a fruit is necessary but tedious and time consuming process for preparation of a preserve. In food industries, pricking is done with the help of an ordinary fork having four to seven spikes made up of brass. This process is highly inefficient. The machine pricking also has high capacity of pricking compared to hand operated fork pricking. The power operated pricking machine has been developed and tested for its applicability in making value added products from candy by single and double pricking. The storage behavior of whole pricked fruit candy is also assessed.

Procedure for Pricking

Hand Pricking: The process of pricking fruit in preparation of a preserve with manual labour is called hand pricking. Normally in Industries, the hand operated pricking fork having 7 brass spikes is used for hand pricking process. The diameter of spike is 1.5 mm.

Machine Pricking: The manual operated pricking machine comprises of; three separate dies with two cavities having eighteen needles. The diameters of needles are 1, 2 and 3 mm.

CURING: This process is done when fruit is de-pulped and from which the rags have been removed is cured by placing it in 5-10 percent common salt solution. To hasten the process a small quantity of glucose is sometimes added to the brine. When curing is complete which usually takes 5-7 weeks the peels become translucent. The peels are then sorted and placed in a freshly prepared 10-12 percent common salt solution containing 500-600 p.p.m. of sulphur dioxide. When required for candying they are rid of salt by repeated washing and soaking in warm water.

IMPORTANCE AND BENEFITS OF CURING IN PRESERVE PREPARATION: Fruits like amla, myrobalan and citrus peels are kept in a strong solution of common salt to remove their astringency. They are usually stored tightly packed in barrels to which brine containing 15 percent common salt and sulphurous acid equal to 2,000 p.p.m. of sulphur dioxide, are added to avoid fermentation and softening of the fruit. At the time of use, the stored fruit or peel is taken out from the barrel and washed thoroughly in running cold water to leach out as much of the brine as possible. The fruit or peel is then placed in a cooking vessel and boiled for about 15 minutes to remove traces of salt and to soften its texture. It is then soaked in fresh cold water for about 12 hours, the water being changed 4-5 times. This completes the leaching process and makes the fruit firm in texture.

Softening: The fruit is first cooked slightly in water to make it just soft for absorption of sugar. Cooking of fruit in syrup is a very difficult process, because the syrup has to be maintained at a proper degree of consistency so that it can permeate the entire body of the fruit without causing it to shrink or become tough.

If the fruit is cooked in a heavy syrup straightaway, its juice will be drawn out rapidly due to osmosis, with the result that it would shrink and very little sugar would be absorbed. The fruit should, therefore be boiled initially in water before putting it into syrup, or cooked in a syrup of low concentration. Very juicy fruits may, however, be put into even a thick syrup from the beginning because the excess of juice present in them will serve to dilute the syrup.

Cooking in Syrup

There are three ways of cooking a fruit in a syrup, namely,

(i) Open-kettle one-period process

(ii) Open-kettle-slow process

(iii) Vacuum cooking process

In all these processes care has to be taken to ensure that the fruit is kept covered with the syrup during cooking as well as afterwards; otherwise it will dry up and the quality of the product will be impaired.

Open-kettle One-period Process: To start with, the syrup in which the fruit is cooked should be of low sugar content. Boiling should be continued with gentle heating until the syrup thickens sufficiently. Rapid boiling will make the fruit tough, especially when heating is done in large shallow pans with only a small quantity of syrup. Soft fruits such as strawberries and raspberries which, unlike hard fruits (e.g., apples, pears, peaches, etc.) require little boiling, can, however, be safely cooked in heavy syrup. The final concentration of sugar should not be less than 68° Brix, which corresponds to a boiling point of 222.2°F. (at sea level). The main drawback of this simple and cheap process is that the flavor and colour of the product suffer considerably during boiling.

Open-kettle Slow Process: The fruit is cooked in water until it becomes tender. Sugar, equal to half the weight of fruit, is then put on the boiled pieces in alternate layers, and the mass allowed to stand for 24 hours in a vessel. The fruit gives out excess of water and the sugar goes into solution, giving a syrup of about 37-38°

Brix. More sugar is added to raise the strength of the syrup to about 60°Brix. A small quantity of citric or tartaric acid (1-2 ounce per 100lb. of sugar used at the start) is also added to invert a portion of the cane sugar. The whole mass is then boiled for 4-5 minutes and left for 24 hours. On the third day, the strength of the syrup is raised to about 68°Brix, and the mass boiled again for 4-5 minutes. The fruit is then left in the syrup for 3-4 days. Finally, the strength of the syrup is raised to 70° Brix and the product packed in containers.

Vacuum Cooking: Preserves made by cooking under vacuum keep their flavour and colour better than those made in the open kettles. In this process, the fruit is boiled to soften it before being placed in the syrup. To begin with, the syrup should be of 30-35° Brix. It is subsequently concentrated under vacuum (along with the fruit) to 70° Brix. Hard fruits like apples and pears require slow boiling to facilitate the penetration of sugar, while soft fruits can be boiled briskly.

Draining and Drying

After the above treatment has been completed satisfactorily, the fruit may be removed from the syrup. It is drained for half an hour and placed on the sorting tables to separate the unwanted pieces. The fruits or peels are next wiped with a wet sponge. Sometimes they are dipped for a moment in boiling water to remove the adhering syrup. This is followed by slow drying in shade, or for 8-10 hours in a drier at about 150°F. Citrus peels need drying for 10-12 hours.

Cooling and Packing

If the preserve is to be stored in bulk, it should be cooled immediately after final boiling to avoid discolouration of the product.

The fruit is drained from the syrup and put into dry containers. Freshly prepared boiling syrup of 68° Brix is then poured into the containers (A2.5 size cans) which are exhausted for 8-10 minutes at 212°F and there after sealed airtight.

If the preserve is packed scalding-hot in dry containers, subsequent sterilization may be omitted. In large-scale production, however, it is, desirable to sterilize the sealed containers to preclude any chance of spoilage. The cans (A2.5 size) may be sterilized for 25 minutes at 212°F and cooled immediately afterwards.

PREPARATION OF PRESERVE FROM VARIOUS FRUITS

Strawberry

Take firm ripe berries of good colour and flavour. Sort them carefully and remove the stems. Wash the berries to remove dirt. Next, put them along with an equal quantity of sugar and some water in a boiling pan. Warm the mixture to dissolve sugar, skimming off impurities in the process. Cook the syrup to a temperature of about 220°F. Then cool it to 200°F and put the berries in it. To prevent floating of the fruit, place a wire tray over it and then leave it for 24 hours. Thereafter boil the mass again to a temperature of 220°F. Repeat this once. The preserve is ready.

Cherry

Keep cherries in 8.0 percent common salt solution containing calcium bisulphite equal to 600 p.p.m. of sulphur dioxide, until their natural colour disappears. With this treatment, cherries can be kept in good condition for a year or even longer. When required for preserve making, they should be taken out of the brine solution and washed thoroughly.

Pit and blanch the cherries to make them soft. Next cover them in a vat with cold syrup of 36-37° Brix containing 0.02-0.05 percent. Erythrosine or Ponce au 3R dye or a mixture of both (to get the shade required). On the following day drain off the syrup and raise its strength by 5° Brix. Bring it to a boil and add the boiling hot syrup to the fruit. Allow the mass to stand for 24 hours. Repeat this until the Brix of the syrup reaches 60 degrees. At this stage add either citric acid, 1 oz. for every 50 pounds of the fruit, or invert sugar or corn syrup to the extent of 25 percent of the syrup and continue the process of progressively raising the Brix of the syrup till it reaches 75°. Keep the cherries in this syrup for a week before packing.

For glazing, boil the cherries with the syrup for a few minutes and when still hot drain off the syrup by spreading the fruit on wire trays.

Karonda (*Carrisa carandas*)

Wash the fruit and de-stone it. Next, blanch it in 2 percent alum solution containing a small quantity of sodium bisulphite. The original pink colour of the fruit would be bleached to white. The method of colouring and syruing is similar to that employed for cherries.

Apple

Although several varieties of apples are grown in India, only two kinds, the sweet and the sour, are important from the point of view of making preserves and candies.

Peel the apples thinly, but do not remove the stems and cores. Prick the apples with stainless needles or forks. Place the sweet variety in 2-3 percent common salt solution and the sour variety in plain water to prevent browning and also disintegration during blanching. Transfer them, next, to diluted lime water (2 parts of lime water and 1 part of water) and leave them for 24 hours.

Prepare 2-3 percent alum solution and boil it in a pan. Now place the apples in the boiling solution. Add a small quantity of sodium bisulphite to whiten the colour. Boil until they become soft. Next, place them in cold water discarding the blanching solution. Prepare fresh alum solution for every lot. They are now ready for sugar treatment.

Take sugar equal to half the weight of the prepared apples. Usually 37-38 pounds of sugar will be required for every 50 pounds of the unprocessed fruit. Place the sugar and apples in alternate layers in a vessel and leave the mass undisturbed for 24 hours. During this period, the fruit would give out sufficient water and the sugar would go into solution. Ordinarily, the syrup formed is of about 36-38° Brix. Next, boil the mass for a few minutes and raise the strength of the syrup to about 59-60° Brix by adding more sugar. Also add a small quantity of citric or tartaric acid or 25 percent by weight, of invert sugar or corn syrup. After boiling, let the apples remain in the syrup for another 24 hours. On the third day, raise the strength of the syrup to 70° Brix and let the product stand for a week. After this, the preserve is ready for canning.

If it is to be candied, the Brix of the syrup should be raised to 75 degrees and again kept for one week before canning.

Mango

Select large-sized slightly under ripe mangoes of sweet variety and wash them. Peel them with a sharp knife, taking care that no green patches of the skin are left over, for these would turn black during subsequent treatments and spoil thereby the appearance of the product. Now cut the mangoes lengthwise into large slices. Place the slices in boiling water and heat until they become tender. Then cool and prick them with stainless steel needles or forks. Subsequent syruping, processing and packing processes are similar to those suggested for apple candy and preserve.

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5) Try salting. It's an easy way to ferment, pickle, and store vegetables.

<http://www.homepreservingbible.com/2545-salting-easy-ferment-vegetable-pickle/>