



Rayat Shikshan Sanstha's

R.B. Narayanrao Borawake College, Shrirampur

Affiliated To Savitribai Phule Pune University - [Pu/An/As/02/(1960)] (Jr./Hsc/Id.No.J-12.14001)
NAAC Accredited 'A+' Grade College (CGPA-3.44) ISO 9001:2015 Certified



Department of Botany: Entrepreneurship Development

Processing and preservation of fresh fruits and vegetables

Objectives of Fruit processing

- To reduce wastage and losses .
- To handle glut.
- To utilize marketable surplus.
- To generate employment.
- To add variety to diet.
- To ensure nutritional security.
- To earn foreign exchange.
- To stabilize farm prices & income

1.Processing of Jam:

Jam is a product obtained by cooking fruit pulp with sugar and acid to desired consistency. Jam contains 0.5-0.6 per cent acidity and 68 per cent total solids. Apple, pear, tomato, sapota, apricot, loquat, peach, papaya, karonda, carrot, plum, straw berry, raspberry, mango, tomato, grape and muskmelon are used for preparation of jams. It can be prepared from one kind of fruit or two or more kind.

- i) Machines and equipments made of stainless steel can be used for fruits and vegetables processing and preservation
- ii) SS steam jacketed kettle for cooking and concentration

iii) Fruit Pulpers- Brushes and SS sieves of various sizes are provided which are used for complete extraction from fruits.

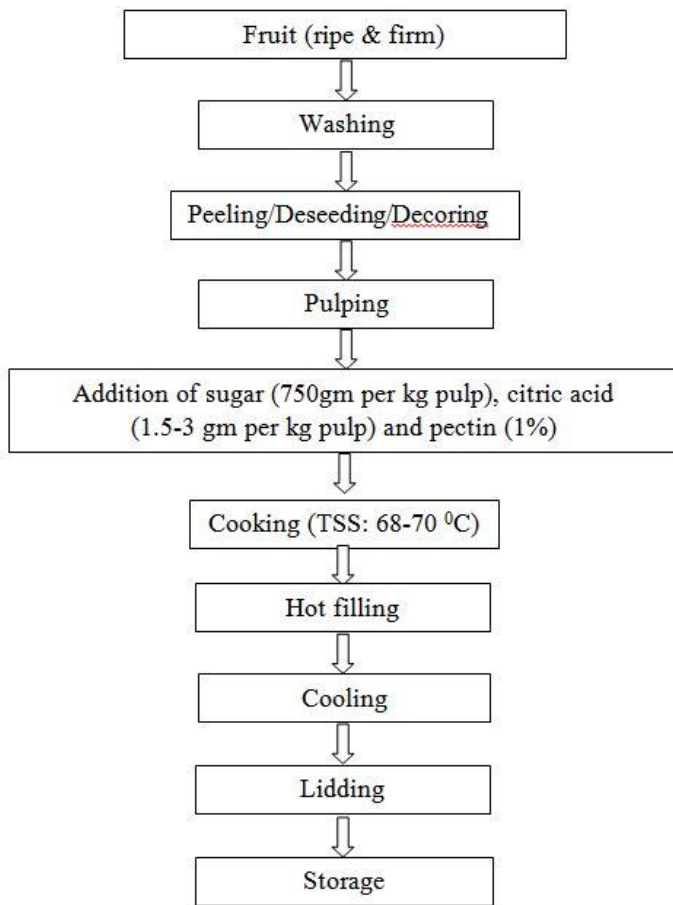


Fig. 9.3 Process flow chart for processing Jam

2.Processing of Jelly: Jelly is semi solid products obtained by boiling a clear, strained fruit juice with sugar and acid to a thick consistency, jelly total soluble solids not less than 65% and acidity 05-0.7 percent.

Qualities of Jelly

- i) Clear
- ii) Transparent
- iii) Sparkling
- iv) Attractive colour
- v) Keep its shape in which it is cut not breaking.

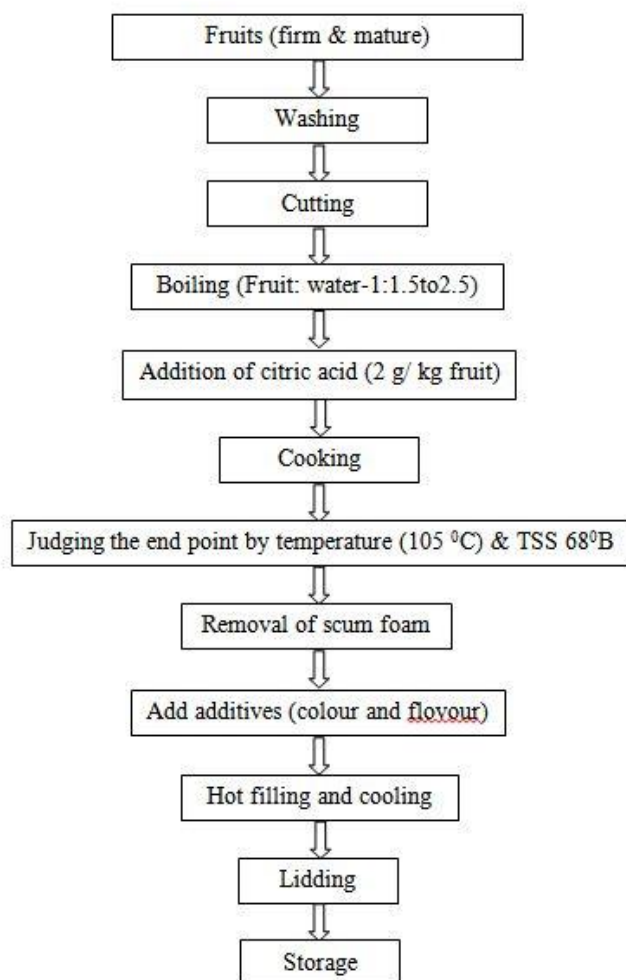


Fig. 9.4 Process flow chart for processing jelly

3. Preparation of Ketchup

- 2.5 kg tomatoes or approx. 5.4 lbs tomatoes.
- 3 to 4 grams garlic- 15 to 16 medium garlic cloves.
- 3 to 4 grams ginger- 3 pieces of about 3 inch ginger.
- 5-7 dry red chilies – deseeded and halved
- apple cider vinegar or white vinegar
- 1 tablespoon rock salt (edible and food grade)
- 6 to 7 tablespoon organic unrefined cane sugar or regular sugar
- teaspoon sodium benzoate dissolved in 1 teaspoon hot water

Preparation

- Rinse the tomatoes well in water.
 - Slice the top eye parts of the tomatoes. Roughly chop the tomatoes.
 - Discard spotted parts or peels.
 - Peel and rinse the garlic, ginger. Later roughly chop them.
 - Halve and deseed the dry red chilies.
 - Rinse the raisins and keep aside.
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Cooking Tomatoes

- In a huge pot or casserole or a 4 to 5 litre pressure cooker, take all the chopped tomatoes.
 - Add the ginger, garlic, red chilies, raisins, vinegar, salt and sugar.
 - Mix well and keep the pot or cooker on a low to medium flame on the stove top.
 - Keep on stirring at intervals.
 - When the tomatoes soften, switch off the fire. The softening takes about 25 to 27 minutes.
 - When the mixture is slightly hot or warm, blend the puree with an immersion blender or in a regular blender. If using a regular blender, then don't add too hot of the tomato mixture.
 - Make a smooth puree.
 - With a strainer which is not very fine, strain the puree very well directly into a pot or a large sauce pan.
 - Strain very well. Now you can sterilize the jar.
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Sterilizing Jar For Storing Tomato Sauce

- First rinse the jar. in a large sauce pan heat water till it reaches its boiling point – meaning it has begun to boil.
 - Immerse the jar and its lid in the hot water. Continue to boil the water along with jar for 8 to 10 minutes.
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- Remove the jar with the help of clean tongs and place the jar inverted on a thick towel kept on the kitchen tabletop. Let the jar dry naturally.
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Making Tomato Sauce

- Keep the pot or pan with the strained tomato pulp on the stove top,
 - On a low to medium flame, simmer the pulp till it starts thickening and reaches a ketchup like consistency. Takes about 35 to 40 minutes.
 - Heat 1 tsp of water in a small bowl. add $\frac{1}{4}$ teaspoon of sodium benzoate to the hot water.
 - Stir and dissolve the sodium benzoate. The preservative should be dissolved in the water.
 - Pour the sodium benzoate solution to the hot tomato ketchup. Mix and stir very well.
 - Pour the hot tomato sauce in the sterilized jar. Close tightly with the lid.
 - Let the sauce cool and be kept aside for some hours or a day. Then keep it in the refrigerator and use after 1 or 2 days.
 - Serve tomato sauce with any snack or appetizer.
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Fruit preservation activities at Botany Department
