

## **Quadrant II – Notes**

**Programme:** B. Sc. (Hons.) Agri.

**Subject:** Horticulture

**Course Code:** HORT- 366

**Course Title:** Post Harvest Management and value addition of Fruits and Vegetables

**Module Name:** Intermediate moisture food- Jam, jelly, marmalade, preserve, candy – Concepts and Standards

**Module No:** 11

**Name of the Presenter:** Gourish Karanjalker

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### **Notes :**

#### **Intermediate moisture food- Jam, jelly, marmalade, preserve, candy – Concepts and Standards**

- Intermediate moisture food
- Processed into Jam, jelly, marmalade, preserve, candy forms
- Source of nutrition
- Most like products
- Concentration of sugar facilitates preservation
- "Marmalade" is product made from citric fruits like oranges and lemons in which shredded peel is included as the suspended material
- Jam: prepared by boiling fruit pulp with sufficient sugar
- Jelly: prepared by boiling fruit clear juice with sufficient sugar and boiling to clear gel

- Marmalade: prepared from juice with shredded peel is included as the suspended material
- Preserve: prepared from mature fruit pieces cooked in syrup till tender and transparent
- Candy: prepared from fruit with sugar syrup

### **Preparation of Jam**

1. Select ripe fruits
2. Washing
3. Extract pulp
4. For every one kg of the pulp take 3/4 to 1 kg of sugar (depending upon the sweetness of fruit) and 10 gm of Citric acid.
5. Heat at 60 °C and strain it through muslin cloth
6. TSS 68.5%
7. Judge end point
8. Fill in sterilized bottles
9. Store

**Final product: 45 per cent of fruits and 68.5% soluble solids**

### **Preparation of jelly**

1. Select ripe fruits
2. Washing
3. Extract pulp strain using muslin cloth
4. Juice tested for pectin content (Jel meter, or by Alcohol Test)
6. To every 1 kg of extract add 3/4 kg of sugar.
7. The mixture is boiled

8. Sheeting Test" (i.e. if hold in the spoon starts dropping in flakes and if dropped in a glass having some water, the mass settles down into firm position and does not dissolve in water).

9. Sealed the bottles air tight.

11. Label and store

**Final product: 45 per cent of juice and 65% soluble solids**

**Preparation of marmalade**

1. Select fully ripened fruits
2. Wash
3. Peels are cut into shreds, 3/4" to 1" long a :1:1 about 1/32" to 1/20" thick
4. Processing of peels a. Boiling the shredded peels for 10-15 minutes in several changes of water. Incidentally, the bitter principles of the peels are also removed in the process. b. Boiling the peels in 0.25 per cent solution of Sodium carbonate or 0.1% Ammonia solution. c. Heating the peels in an autoclave at 240° to 250° F. After softening the shredded peel, they should be kept covered with water for use later on.
5. Cut the fruits into slices and add 2-3 times water and boil for 45-60 minutes to liberate the pectin
6. Select fully ripened fruits
7. Wash
8. Peels are cut into shreds, 3/4" to 1" long a :1:1 about 1/32" to 1/20" thick
9. Processing of peels a. Boiling the shredded peels for 10-15 minutes in several changes of water. Incidentally, the bitter principles of the peels are also removed in the process. b. Boiling the peels in 0.25 per cent

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10. Cut the fruits into slices and add 2-3 times water and boil for 45-60 minutes to liberate the pectin
11. Add shreds when the final product is hot at the rate of about 30% of the original extract.
12. Pour the product into previously sterilized glass bottles.
13. Allow the bottles to cool and cover the surface of product by pouring melted paraffin wax.
14. Fix the cap, label the bottles and stored them in cool dry place

**Final product: 5 per cent of shreds, 65 % TSS**

#### **Preparation of preserve**

1. Select ripe fruits cut the into uniform slices 5-8 cm long
2. Sufficient boiling water to cover them and cook gently until they become just soft
3. Prepare the sugar syrup by dissolving sugar in water in 3:2 proportions, heat to boil and filter through muslin cloth.
4. Add the pieces to the boiling syrup and continue heating.
5. Add one teaspoonful (5-6g) of citric acid for every kg of slices; continue heating till temperature syrup becomes
6. Boil again and fill into clean dry containers and store

**Final product: 55 per cent of fruits and 68 % soluble solids**

## **Preparation of candy**

1. Selection of fruits: Fruits should be ripen
2. Wash the fruits carefully
3. boiling in water for 2-3 minutes.
4. Sulphur treatments: sulphur fume (2g sulphur/kg of fruit) for 2 hours.
5. Dipping the fruits in sugar syrups: dipped in 40% sugar syrup (1% citric acid) for 24 hrs. ii) For next 24 hrs, fruits are dipped in sugar syrup of 50% concentration (1% citric acid) iii) For next 24 hours fruits are kept in 60% sugar syrups (1% citric acid) iv) Finally, the fruits are kept in 70% sugar syrup for 7-8 days.
6. Dried in sunlight for about 2-3 days
7. The dried candy is stored in plastic bags carefully
8. Plastic bags are then stored in cool, dry place.

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