

Preparation of Apple Jam and Their Cost Analysis

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Introduction

The apple (*Malus domestica*), which is four in terms of global fruits production behind the banana, orange, and grape, is the highest significant fruit grown in temperate regions economically. A sort of fruit preservation is apple jam. Compared to fruits or apple juice, it provides a prolonged expiration life. The word "jam" is British in origin. Its consistency ranges from being silky to being thick. If ingredients are included, the fragrance can range from naturally apple-flavored to peppery. It is typically brownish or golden in hue. When making jams, mashed apples are cooked with sugars and acid until they have a viscous consistency (Adegbanke *et al.*, 2022). By simmering chopped apples combined syrup and water, apple jams is a gelled food product. It is necessary to eradicate all potential dietary hygiene issues before producing this type of ready-to-eat food, especially is often not refrigerated. Jam is made by cooking apple pulp with enough sugar until it is viscous and solid adequate to retain the apple filaments in place. Jam manufacturing has been embraced as a strategy to make fruits accessible during the off-season. Apple is a good provider of vitamins, potassium, and fiber, and it provides many health advantages (Adegbanke *et al.*, 2022).

Ingredients-

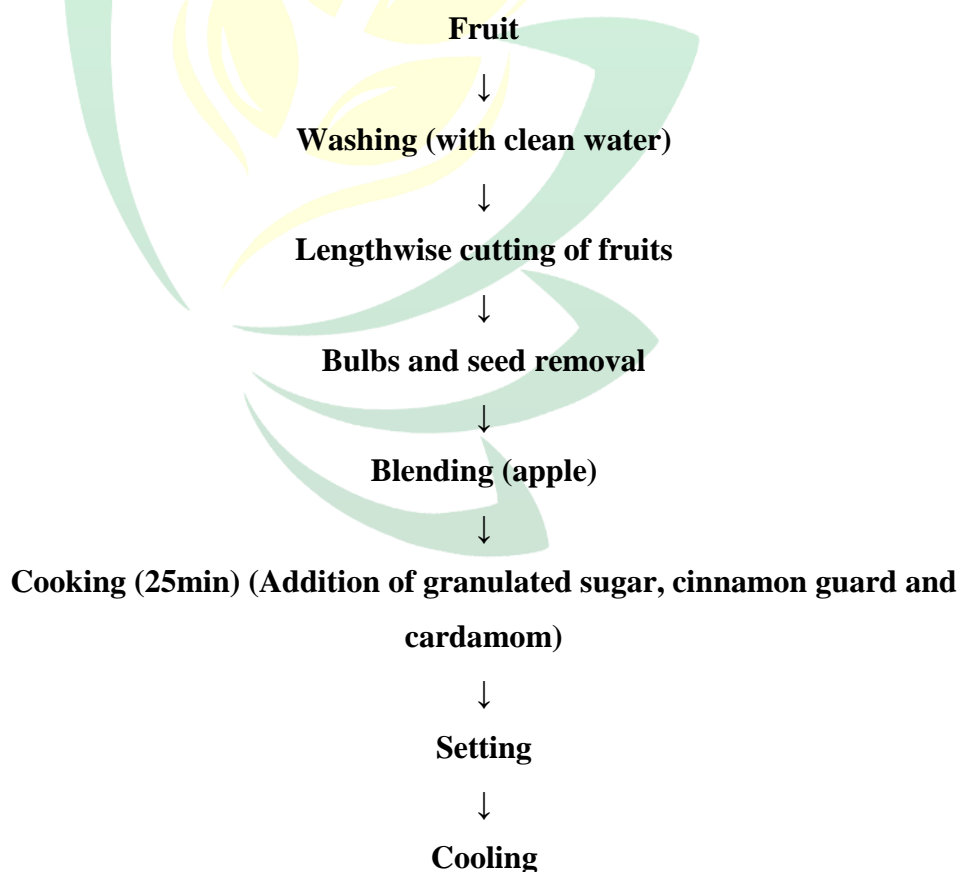
- Peeled, cored, and thoroughly sliced 8 to 10 servings of firm, crunchy apples
- Juice of two teaspoons of citrus
- Cinnamon ground
- 4 quarts of sugar crystals
- 3 pieces of cardamom

Procedure for Apple jams preparation-

1. Apple peeling and chopping Chop and rinse your apples. To get rid of the apple stems, slice the fruit.

2. To ensure that the apple chunks are not bigger than 1/4", properly slice the fruit. In a substantial 4-cup measured cup, add all the apples.
3. To reach the 4-cup mark, fill the gauging cup with chilly water and pouring it among the apples. In a huge cooking saucepan, combine the water and apples.
4. Add the remaining components and stir. Add 2 tbsp of citrus juice and 1 tsp of granulated cinnamon to the apples. Ensure certain the apples are thoroughly mixed with these.
5. Jam is boiled while sugars are added. Heat the fruit mix to a vigorous rolling boils on a medium-high setting. Completely incorporate the sugar into the jams and re-boil it. Allow the jam to boiling for an entire minute, stirring regularly.
6. Take away the jams jar. After removing the pot from the heat, delicately remove individual container out of the liquid using a preserving tool. Make sure there is no draft there so the temperature stays the same. Examine the lids after 12 hours of letting the jars settle.

Flow Chart for Preparation of Apple Jam



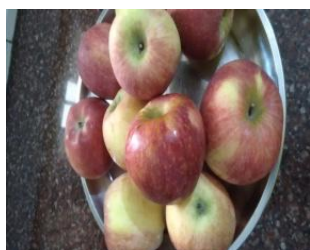
↓
Packing (jam bottle)↓
Label and store (28-32°C)Fig-1 Take 1 kg
Apples

Fig-2 Peeled off

Fig-3 Blended the peeled
applesFig-4 boils the peeled
Apples

Fig-5 Add sugar in it

Fig-6 Add cinnamon and
cardamom

Fig-7 Add of lime juice



Fig-8 Filled in jar

Sensory Evolution

Sensory evolution had been evaluated from 6 panelists from the students of Horticulture department, School of Agriculture, Lovely Professional University, and Punjab. The prepared apple jam qualities were rated on 7-point of hedonic scales. Based on that scale for a group of qualities, including overall acceptability, color, flavor, texture, appearance, consistency and taste, was performed to gauge how much the sample was liked.

Panelist Sensory Score-

Panelists	Color	Appearance	Texture	Consistency	Taste	Flavor	Overall Acceptability
Ajay	7	8	9	7	9	7	Good
Ankit	8	8	8	8	8	6	Good
Komal Sharma	8	9	8	7	8	8	Good
Pankaj	7	7	9	9	9	8	Good
Rupesh	9	9	7	9	8	7	Good
Gulbadhan Kaur	8	8	9	8	9	8	Good

Cost Analysis

The cost analysis includes the cost benefit ratio of product. Cost benefit ratio will determine by the formula because it is a useful indicator of the commercial viability of products preparation.

Net Profit = Gross income – Total input cost

Ingredients	Quantity/Number	Rate (Rs.)	Amount (Rs.)
Apple	1 kg	120/kg	120/-
Sugar	500 g	50/kg	25/-
Cinnamon	2	10/pack	10/-
Cardamom	3	10/pack	5/-
Citrus	1	5/lemon	5/-

Total variable cost = 165/-

Fixed (light and other charges) = 30/-

Total input cost = Variable cost- Fixed cost

$$= 165 + 30 = \mathbf{Rs.195}$$

Input cost for apple jam preparation is Rs. 195.

Average market price for apple jam is Rs. 300 for 1kg.

Net profit = Gross income – Total input cost

$$= 300 - 195 = \mathbf{Rs. 105.}$$

Parameters-

TSS -The product TSS was measured by using the Digital refractometer and the TSS for jam was 69.3 °Brix.



pH- pH of apple jam was measured by the help of pH meter and the product pH is

**Acidity**

The product acidity was measured by titrating the sample against 0.1N NaOH. Take 5g sample from the product and volume made up to 100ml by using distilled water. Filter the sample by using muslin cloth. Take 5g aliquot from it. 2 drops of phenolphthalein indicator is added in it and titrated against 0.1N NaOH up to its color become pink and noted the reading.



References

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