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ORIGINAL PAPER

Preparation of mixed fruit jam using seasonal fruits

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INTRODUCTION

Fruits are among the perishable commodities that are crucial components of human diets. They have a great nutritional content and contribute significantly to human well-being, and they are both cheaper and superior sources of protective foods. They are naturally low in fat, salt, calories, and cholesterol, as well as a good source of dietary fiber, vitamin C, folate (folic acid), potassium, phytonutrients, and various anti-oxidants such as phenols, flavonoids, and anthocyanins. These chemicals protect the body from oxidative stress and degenerative diseases by strengthening the immune system.

Perishable fruits are accessible as a seasonal surplus in different places at different times of the year, creating a glut in the market, but they become scarce during off-seasons. If they are available in fresh or preserved form throughout the year for human consumption, post-harvest losses can be reduced, and people will have access to a wider range of wholesome, nutritious, and acceptable foods. Fruit jams are crucial in everyone's diet since they supply rapid energy spikes with only half the calories. The presence of fibre and fructose content helps to manage blood sugar levels by slowing digestion and increasing appetite. A good jam does have a soft even consistency with no discernible chunks of fruit, a bright colour, an excellent fruit flavour, and a semi-jellied texture that is simple to spread without free liquid.

Jam is a semi-solid food that is made by heating fruit pulp with sugar, citric acid, and pectin. Jam is a high-moisture food that is made by heating sugar, fruit pulp, pectin, acid, and other ingredients to a proper consistency. TSS should be at least 65% and pulp should be at least 45% in jam. Jams are classified into two types: those made from single fruit pulp and those made by combining the pulp of two or more fruits.

1) Papayas are sweet, flavorful tropical fruit, it is an excellent source of Vitamin - C, A, B, E and K, rich in carotenoids, protein, folate, fiber, and minerals like Magnesium, Potassium, Copper, and Pantothenic Acid. It also rich in pectin content
2) Guava is a tropical fruit it is a good source of Vitamin-C, A and folate, protein, fiber and minerals like sodium, potassium. Ripe fruits have more pectin content in the peel of fruits.
3) Apple is rich in dietary fiber and vitamin-A, C and minerals like calcium, iron, sodium and potassium. And it also contains pectin.
4) Banana contains high amount of potassium, Magnesium, manganese, proteins, carbohydrates and naturally occurring sugars, vitamin-B6 and C.
5) Pomegranates contains high amount of calcium and iron, potassium, magnesium, zinc and vitamin-C.
6) Pineapple contains large amounts of vitamin-C and B6, manganese, potassium, iron magnesium, copper, thiamin, folate, riboflavin and niacin
7) As it is not possible to preserve fresh fruits for longer period of time, these fresh fruits are made into juices, jams, jelly, canned pineapple, apple slices, peaches and pears. Dried and dehydrated papaya slices, apple slices, freeze dried sapota, dried mango slices and dried guava slices. In this preservatives like jams and jellies sugars stops the growth of microorganisms and prevent spoilage. Sugar also holds moisture due to which shelf life of the products is increased.
8) In the jam preparation pectin acts as a gelling agent which is responsible for gel formation in the jam making. Pectin acts as a Stabilizing agent, which helps in thickening and improves the textural characteristics of the jam, jelly, confectionery, beverages and bakery products.
9) In the jam preparation Citric acid is added to maintain accurate balance. We can also use lime and lemon juice by replacing the citric acid. These limes and lemons they have greater amount of citric acid.

MATERIALS USED

Ripe papaya, apple, banana, pineapple, ripe guava fruits, sugar, citric acid (Lemon juice), pectin, churner, paraffin wax.

S.no.	Materials	Quantity
1	Apple	200gm
2	Pineapple	200gm
3	Guava	150gm
4	Banana	2pcs
5	Papaya	150gm
6	Pomegranate	150
7	Sugar	300gm
8	Food Colour	pinch

PRINCIPLE

Jam is made by boiling the fruit pulp with enough sugar and pectin to get an acceptable thick consistency. Jam should include at least 68.5% soluble solids. Jams are made from apple, papaya, banana, guava, pineapple, and ripe guava, sapota, mango, peaches and pears. It can be made with just one type of fruit or with two or more. Commercial jams, such as tutti-frutti, can be made from fruit scraping and pulp sticking to fruit cores, which are abundant in canning facilities. Jam contains 0.5-0.6% acid, and the invert sugar content should not exceed 40%.

STEP WISE PROCEDURE OF JAM PREPARATION

Take the fruits and wash them thoroughly.

⇩

Peeling, coring, cutting and trimming.

⇩

Cut into small uniform piece

⇩

Now put the fruits into a mixer jar to obtain the pulp.

⇩

Boil the fruit pulp for 10minutes.

⇩

To the pulp add weighed amount of sugar (For 1 Kg of pulp, 500gm of sugar is required).

⇩

Cook till the TSS reaches to 65-70°B with continuous stirring.

⇩

At the end of process, add citric acid.

⇩

When the puree gets thicken add a pinch of food colour.

⇩

Determine the end point by using sheet method.

⇩

When it still Hot fill into the bottle.

⇩

Store under cool and dry conditions.

JAM PREPARATION

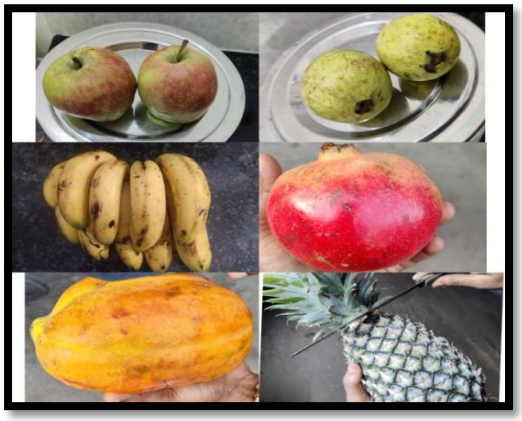

Plate no.1: Selected Fruits

Plate no.2: Fruits are peeled and cut into pieces

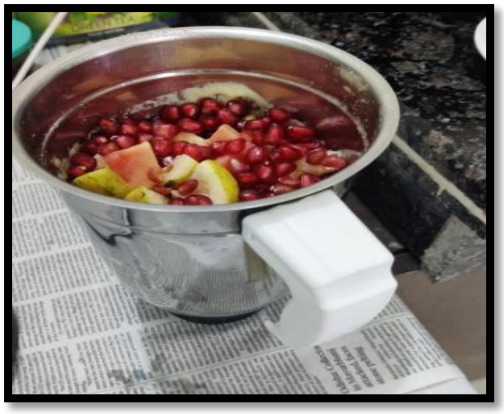

Plate no.3: Fruits added to the blender

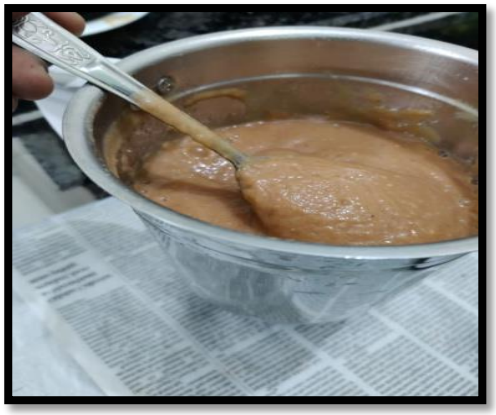

Plate no.4: Puree of fruit

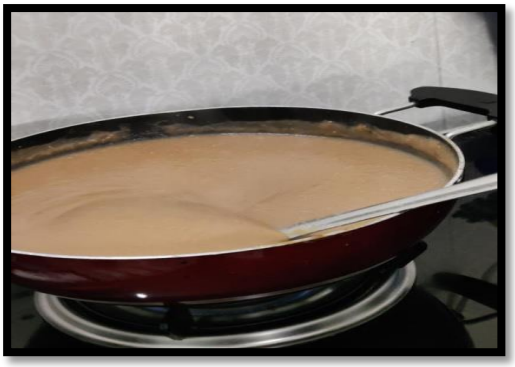

Plate no.5: Boil the fruit puree

Plate no.6: Adding of sugar to the Puree

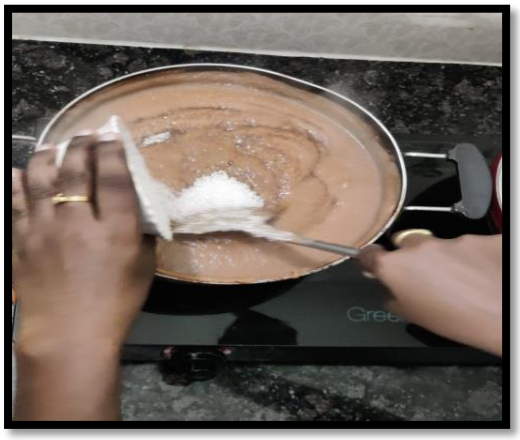

Plate no.7: Stir it continuously

Plate no. 8: Lemon Juice is added

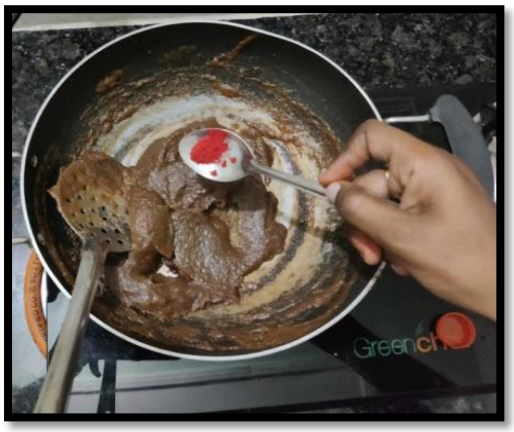

Plate no.9: Add a pinch of food colour

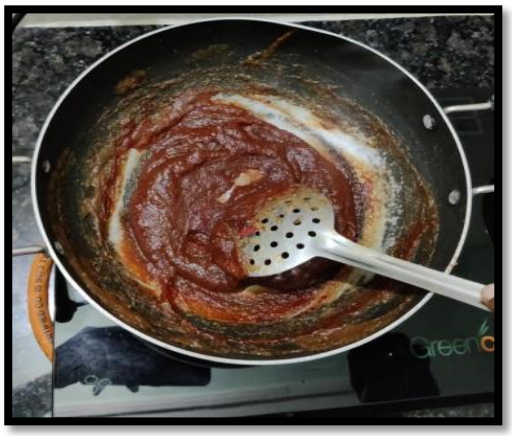

Plate no.10: Mix it well

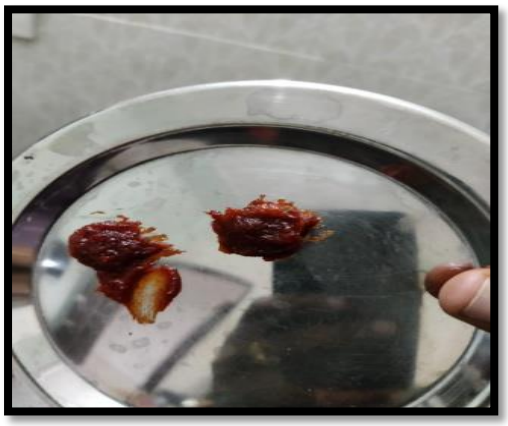

Plate no.11: Sheet test

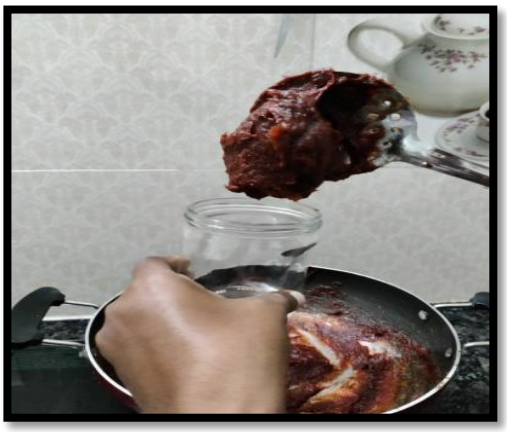

Plate no. 12: Cool it and store it in airtight glass jar.

PROBLEMS AND PRECAUTIONS

PROBLEM	CAUSE	PREVENTION
Formation of sugar crystals	Undissolved sugar sticking to sides of kettle	Cook at a rapid boil
Too soft	Overcooking of fruits to exact juice	Avoid over cooking as it lowers the pectin content in jam

SENSORY ANALYSIS

Sensory Evaluation: 9 Point Hedonic Scale Card

Product name: Mixed Fruit Jam

1: Dislike extremely, 2: Dislike very much, 3: Dislike moderately, 4: Dislike slightly, 5: Neither like nor dislike, 6: Like slightly, 7: Like moderately , 8: Like very much, 9: Like extremely

Parameters	Panelist 1	Panelist 2	Panelist 3	Panelist 4	Total Score	Average Score
Appearance	**9**	**9**	**9**	**8**	**35**	**8.75**
Taste	**9**	**9**	**9**	**9**	**36**	**9.00**
Texture	**9**	**9**	**8**	**8**	**34**	**8.50**
Overall Acceptance	**9**	**9**	**9**	**8**	**35**	**8.75**

CONCLUSION

The appearance of jam was red in colour and the taste is sweet and pulpy in nature. The texture of the jam was soft. By adding pectin and citric acid the fruit flavour was enhanced so the overall acceptance was very good.