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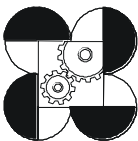
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CALAMANSI PROCESSING



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‘Our Business is Industry...’

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CALAMANSI PROCESSING

INTRODUCTION

Calamansi is a widely grown citrus in the country. It is primarily used for its juice, the rest of its parts such as seeds, pulp and peel are discarded as waste materials. Studies on how to convert these wastes into consumable items have, however, been made.

From the seeds, a jelly spread can be prepared. The essential oil that can be extracted by hydrosteam distillation from its rind can be used as flavoring agent in candies, jellies and marshmallows.

The juice can be processed into nectar, a natural fruit juice to replace the synthetic juice drinks. The nectar has a shelf-life of six months.

Processing of these products will not only solve the reduction of the citrus growers' income by as much as 22% to 44% per *kaing* of 44.25 kg during peak season due to rotting and insufficiency of transport and marketing facilities, but will greatly maximize citrus utilization.

CALAMANSI JUICE DRINK CONCENTRATE

Materials Needed

- 1 kg calamansi
- refined white sugar
- water

Utensils Needed

- | | |
|--------------------------|---------------------------|
| stainless steel strainer | thermometer (dial type) |
| stainless steel bowls | stainless steel casserole |
| stainless steel knives | measuring cups |
| plastic chopping board | LPG with stove |
| cheesecloth | stainless steel ladle |

Packaging Material

- sterilized bottles/jars

Procedure

1. Slice calamansi at its topmost part. Avoid injuring the seeds to prevent bitter taste of the product.
2. Squeeze. Strain juice using cheesecloth.
3. Measure/weigh the juice. Heat calamansi juice for 1 minute at 70°-80°C. Set aside.
4. Prepare syrup, 1 part sugar in ½ part water by weight (for every part of the calamansi extract). Boil syrup (108°C or 226°F). Strain syrup.
5. Cool syrup to 80°C then add calamansi juice. Mix.
6. Pour the mixture in sterilized bottles. Seal thoroughly.
7. Process in boiling water for 5 minutes at 70°-80°C.
8. After processing, cool at room temperature. Label and store.

CALAMANSI NIP

Procedure

1. Use freshly harvested mature calamansi.
2. Wash and drain.

3. Cut across the upper portion to avoid cutting the seeds.
4. Squeeze out the juice by hand or use a fruit juice squeezer.
5. Strain.
6. For every part of the juice, add 1 and $\frac{3}{4}$ parts sugar by weight (60°Bx).
7. Stir to dissolve the sugar.
8. Allow to stand undisturbed for three (3) days, preferably in a refrigerator.
9. When the fruit pulp and other fruit sediments have floated and the clear calamansi juice has settled, this clear solution is called the calamansi nip.
10. Siphon the nip into a dry sterile, narrow mouth glass bottle with a stopper or cap.
11. Fill containers and seal completely.
12. Refrigerate at 50°F or below.

CALAMANSI JELLY

Materials Needed

calamansi seeds
 water
 refined sugar
 calamansi juice

Utensils Needed

stainless knife	cheesecloth
chopping board	basin/mixing bowl
colander	measuring cups/spoons
stainless casserole	stove
saucepan	ladle
	thermometer

Packaging Material

bottles with new caps

Procedure

1. Mix 1 part of calamansi seeds to 3 parts of water.
2. Drain the mixture into cheesecloth allowing the juice to pass completely.
3. Wash the seeds again with one part water. Drain the juice completely. Mix it to the first effluent.
4. Add sugar and calamansi juice (1 part pectin extract: $\frac{3}{4}$ part sugar and $\frac{1}{10}$ part calamansi juice by weight).
5. Boil to jelling point (108° - 110° C).
6. Remove foams and bubbles. Do not stir.
7. After cooking, pour hot into sterilized bottles.
8. Remove all bubbles at the top.
9. Seal.

CALAMANSI FLAVORED JELLIES (Candies)

Materials Needed

10	tbsp	starch
1 $\frac{1}{4}$	cup	water
1 $\frac{1}{2}$	cup	sugar
$\frac{1}{4}$	cup	glucose
4	tbsp	calamansi juice
$\frac{1}{8}$	tsp	citric acid
$\frac{1}{4}$	tsp	food color
$\frac{1}{4}$	tsp	calamansi oil

Utensils Needed

heavy saucepan	trays
stove	knife
ladle	spatula
measuring spoons	refractometer
measuring cups	plastic bag

Procedure

1. Mix 10 tbsp cornstarch $1\frac{1}{4}$ cups and water. Stir to dissolve.

2. Place the mixture in a heavy saucepan and bring to a boil with continuous mixing.
3. Boil for 2 minutes.
4. Then add 1½ cups sugar and ¼ cup glucose. Stir to dissolve sugar and glucose.
5. Continue boiling until the solution reaches a soluble solid of 78–80%. This can be determined with a refractometer.
6. Add food color if desired and calamansi juice with citric acid.
7. After boiling, add ¼ tsp calamansi oil.
8. Pour the mixture into trays. Stand for 2 to 3 hours to solidify into a gel.
9. Cut into desired sizes and shape with a spatula. (If no spatula is available, use knife.)
10. Roll in granulated sugar, strain to remove excess sugar.
11. Pack in plastic bag.

CALAMANSI FLAVORED MARSHMALLOWS

Materials Needed

3	tbsp	gelatin
¼	cup	cold water
½	cup	warm water
1½	cup	sugar
¼	cup	light syrup
1	tbsp	gum arabic
¼	tsp	calamansi oil
		food color

Utensils Needed

measuring cups	ladle
measuring spoons	beater
mixing bowl	trays
saucepan	fine-mesh strainer

Packaging Material

PP/PE bags

Procedure

1. Soak gelatin in cold water for about 10 to 15 minutes. Add food color if desired.
2. Place warm water in a saucepan and add the sugar previously mixed with gum arabic. Heat and stir until the sugar is dissolved. Do not boil.
3. Add the soaked gelatin and stir until it is dissolved.
4. Add the corn syrup and heat the batch until stiff and fluffy. Add calamansi oil.
5. Place the mixture in a plastic bag which has an open end at the side. Squeeze the bag to release a circular form marshmallow passing through the open end. Cut into desired sizes. This can also be done in a marshmallow molder.
6. Cast the marshmallows into starch (containing not more than 8% moisture and previously heated to 32° - 35°C (90° - 95°F)).
7. Place trays containing the starch and marshmallows (previously starch-casted) under room temperature for 10 to 20 hours.
8. After a slight crust has formed on the marshmallows, remove from the starch. If to be packed plain, dust with a combination of dry powdered sugar and dry starch. Let remain covered with the starch-sugar mixture for several hours before packing.
9. Pack in plastic bag.

CALAMANSI FLAVORED LOLLIPOPS

Materials Needed

2 cup sugar
½ cup glucose

½ cup	water
¼ tsp	salt
4 tsp	calamansi juice
¼ tsp	calamansi oil
	food color

Utensils Needed

heavy saucepan	candy thermometer
measuring cups	trays
measuring spoons	molder
ladle	lollipop sticks

Procedure

1. Apply oil to molders.
2. Combine sugar, glucose, water and salt. Place over medium heat, stirring constantly until sugar dissolves and mixture comes to boil.
3. Reduce heat and cook at a steady, fairly low boil without stirring until it reaches the hard crack stage 154.4°C (310°F).
4. Remove from heat and add food color, calamansi juice and lastly the calamansi oil.
5. Pour into molders. As soon as candy is set, twist a lollipop stick into each candy. Loosen lollipop from molder.
6. Pack individually.

CALAMANSI PRESERVE

Procedure

1. Select big, green calamansi fruits.
2. Cut slits in the lower ends of the fruits to remove seeds and juice.
3. Soak the peel in water overnight.
4. The next day, boil the peel with enough water. Remove from fire when the natural green color of the fruit has set.
5. Soak the peel again in water for three days, changing the water regularly.

6. Boil the peel in water three or four times.
7. Drain off the water.
8. Cook the peel in syrup (two parts sugar and one part water by weight) for 15 minutes. Soak overnight.
9. Boil it in the same syrup until it begins to thicken. Drain syrup.
10. Pack peel in jars and pour strained syrup.
11. Remove bubbles. Half-seal and sterilize jars for 25 minutes in boiling water. Seal tightly.

PECTIN FROM CITRUS AND FRUIT WASTES

Procedure

1. Collect the spent-peels (oil-extracted), pulp and seed of calamansi. Heat for a few minutes, then wash.
2. To extract the pectin, treat the fresh samples (pulp, seed and peels) with hydrochloric acid at a ratio of 1:2; and 1:4; for dried samples, at 60°C and 100°C, for about 30 to 60 minutes. pH should be at 1.2 – 3.0.
3. Immediately after extraction, cool the pectin extract and strain to remove waste or residue from the liquid.
4. Filter pectin liquor and precipitate with 95% ethanol (2 vols. alc. mixed with 1 vol. pectin liquor).
5. Stir the mixture, set aside overnight to allow colloidal particles to form into flocs or jellies.
6. Filter, press and add recovered ethanol. Repeat process until complete precipitation is reached.
7. Transfer pressed pectin (now pectin paste) to a tared container and air-dry (or under vacuum) for several hours until completely dried.
8. Grind to pass a 60-mesh screen. The powdered pectin is produced.