

# **PRE-FEASIBILITY REPORT FOR THE PRODUCTION OF GUAVA NECTAR**

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## **1. Introduction of Technology/Process/Product**

### **i. Name of Technology/Process/Product:**

Production of Guava Nectar

### **ii. Summary:**

The beverage industry including the fruit juice industry is considered to be one of the largest industrial sector in Pakistan. Common people especially young generation is inclined to have ready to consume drinks and nectars. Nectars are relatively new fruit products in which whole fruit is made into beverage, with addition of sugar water and acid. It varies from fruit juice because of the presence of added water and suspended solids, but resembles with it in flavour.

As the nectars are prepared from the whole fruit, so there are some advantages in the utilization of the peel in the product. The peel adds essential oils present in it to the pulp. It imparts aroma and flavour stability in the product during storage. Inclusion of the peel also increases nutritive value of the nectar as it is rich in many nutrients. Keeping in view the popularity of nectars. Food Technology Center of PCSIR Laboratories Complex, Peshawar has developed a processes for the production of guava nectar. The primary objective of this study is to preserve the perishable guava fruits in a stable form that can be stored and supplied to local and distant markets during all month of the year. The product is delicious and refreshing. All the vitamins, minerals and aroma are fully preserved in the nectar.

### **iii. Project brief (*Local/International Perspective*)**

Guava is a tropical fruit with appealing taste and aroma, abundantly produced in Pakistan. It is comparatively inexpensive, nutritious and rich source of ascorbic acid. 100 g of edible portion of guava provides 229mg vitamin C. In Peak harvest

season, there is plenty of guava fruit in the market which sells at low price and most of the fruit is wasted due to the short shelf life of the fruit . Attempts have been made to utilize the surplus fruit for the preparation of guava nectar. The product is delicious and refreshing having all the taste and aroma of fresh guava fruit.

## **2. Main Parameters of Technology/Process/Product**

### **Main Feature:**

- Full of fresh fruit nutrients
- Natural flavour
- No artificial colour
- Refreshing
- Instant source of energy
- Good taste
- Rich in vitamin C

### **Input (*Raw materials with specifications*)**

- Ripe guava fruit
- Sugar
- Citric Acid
- Stabilizer
- Preservative
- Water

### **Output (Products, by-products with specification)**

- Guava Nectar
  - Brix 12.5° - 13 °
  - Acidity 0.15 %,
  - pH 3.4 – 4
- Seeds (waste)

### **Application/Uses**

- Ready to drink beverage which may taken for refreshment , supply instant energy , vitamins and minerals. Quench the thirst

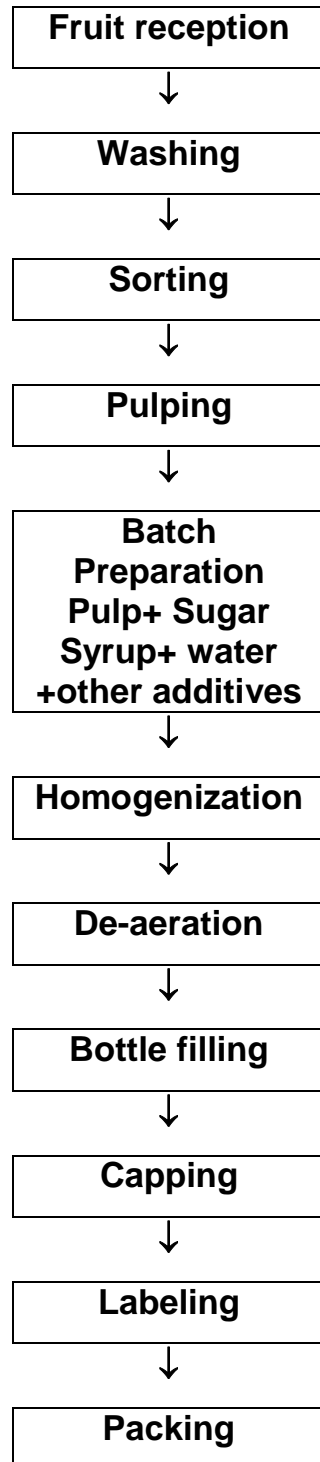
**Trail Results:** Satisfactory

### **Technical data**

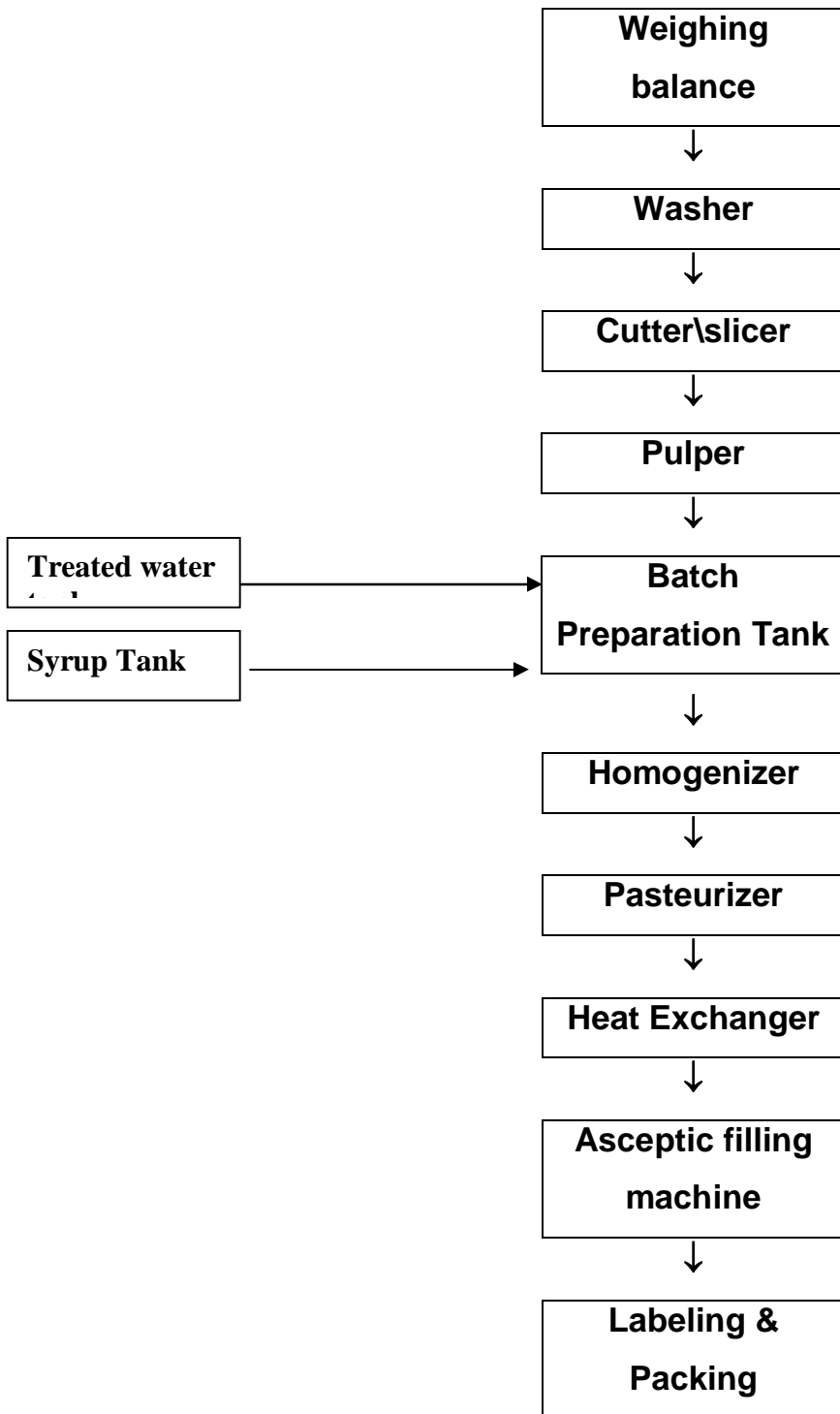
- Proposed capacity: 1333 trays / batch (35991 Tetra Pack)
- Production time per batch: 8 hr
- Packing size: 250 ml each
- Price per pack Rs.7.59
- Market price Rs.20.00

**Production process/Flow diagram**

**Flow sheet for Production of Guava Nectar**



## Equipment layout diagram



### Machinery required with specification

S. No	Items	Specification	Qty
1	Weighing balance	500 Kg	One
2	Washer	100 Kg/hr.	One
3	Sorting Table	Stainless Steel	One
4	Cutter and Slicer	25 Kg / hr.	Four
5	Pulper	100 Kg/hr.	One
6	Batch Preparation Tank with Agitator with scale moderator	4000 liters	Two
7	Homogenizer	7 bar air compressor	One
8	Paseurizer(Double Jacketed)	2500 Liters	One
9	Heat Exchanger	-	One
10	Tetra Pack Filling Machine	6000 Packs (250 ml capacity)/hr	One
11	Shrink wrapping / Tray Making Machine	400 Trays/hr.	One
12	Syrup Preparation Tank	4000 liters	Three
13	Syrup Storage Tank	4000 liters	Three
14	Filtration / Filter Press	-	One
15	Water Treatment Plant	1000 liters/hr.	One
16	Sugar Hopper	500 Kg	One
17	Conveyor	-	One
18	Generator	300 KAB	One
19	Cold Storage facility	2000 Sq. feet	One
20	Fork Lifter	2.5 Tons	One
21	Straw applicator	6000/hr.	One
22	Boiler	1.5 Tons	One

### Standard specifications & test methods

Standard specifications	Test methods
Total Soluble Solids	AOAC 2000
pH	AOAC 2000
Acidity	AOAC 2000
Preservative	AOAC 2000
Microbiological analysis of the product	Manual of Food & Agriculture Organization of the United Nation 1992

### Quality control equipment with specifications

S. No	Items	Specification	Quantity
1	Digital Balance	0.1 mg-200mg	One
2	Digital Refractometer	0-80°	One
3	pH meter	0-14	One
4	Titration Equipment	0.1 – 50 ml	Two
5	Incubator	30-80° C	One
6	Autoclave	110-121 ° C	One
7	Colony Counter	-	One
8	Cooled Incubator	- 10 - 50° C	One
9	Refrigerator	-	One

**Environmental Impact:**

Friendly

**Availability of technical support:**

Available

**Available of Brochures/Pamphlets:**

Brochure will be prepared

**Status of registration/Patent/Trade Mark:**

Not Patented

### 3. Estimation of Fixed Capital Investment (PKR)

#### Fixed Capital Investment

Land 04 Kanal ( @ 3.0 million / Kanal)	12.0 million
Building (covered area 10000 Sq.feet)	24.0 million
Furniture & Fixture(Office /Factory)	1.5 million
Plant & Machinery	50.0 million
Technology Transfer fee	1.0 million
<b>Total project cost</b>	<b>58.5 million</b>
<b>Add: working capital (Annexure-II)</b>	<b>7.55 million</b>
<b>Total project cost</b>	<b>96.05 million</b>

#### 4. Marketing Aspects:

<b>Total industry and annual growth</b>	Data not available
<b>Current demand</b>	Data not available
<b>Local production facilities</b>	Data not available
<b>Imports</b>	Data not available
<b>Major users</b>	Food Industries

#### Marketing strategy

- **Hold regional exhibition & seminars**

Presented as exhibit in different exhibitions held at various cities of Pakistan.  
Displayed at various chambers of commerce.

- **Publicity through electronic & print media** Nil

#### 5. Detail of Cost:

<b>Direct Production Cost per unit</b>	Rs.0.118 million
<b>Raw materials cost per Unit</b>	Rs.0.107 million
<b>Direct wages cost per unit (Annexure-I)</b>	Rs.0.006 million
<b>Production overhead cost per unit</b>	-
<b>Admin. &amp; Selling Expenses, Salaries &amp; benefits per month</b>	Rs. 0.15 million
<b>Utilities charges per month</b>	Rs.0.125 million
<b>Communication expanses per month</b>	-
<b>Other expanses per month</b>	-
<b>Publicity, advertisement expenses per month</b>	-

**Annexure-I****Operating Cost/Labour Cost/batch**

<b>S. #</b>	<b>Description</b>	<b>Employees required</b>	<b>Charges per batch</b>	<b>Wages per month</b>
1	Factory Manager	One	Rs.1200	Rs.30000
2	Processing / Production Supervisor	One	Rs.600	Rs.15000
3	Electrician	One	Rs.280	Rs.7000
4	Chemist	One	Rs.320	Rs.8000
5	Skilled workers	Two	Rs.560	Rs.14000
6	Unskilled workers	Four	Rs.960	Rs.24000
7	Selling & Distribution In-charge	One	Rs.480	Rs.12000
8	Accountant/Cashier	One	Rs.400	Rs.10000
9	Storekeeper-cum-Purchase Officer	One	Rs.400	Rs.10000
10	Armed Guard/Security Guard	Two	Rs.520	Rs.13000
11	Driver	One	Rs.280	Rs.7000
	<b>Total</b>	Sixteen	Rs 6000	Rs.150000

**Annexure-II****Working Capital**

<b>S. #</b>	<b>Description</b>	<b>Cost (Rs. in million)</b>
1	First 02 months salaries of the staff	0.3
2	First 02 months Utilities	0.25
3	Raw material cost for 02 months	5.0
4	Cash in hand(permanent portion of working capital in the form of cash)	2.0
	Total working capital	7.55

**Annexure-III****Product Cost**

<b>S. #</b>	<b>Description</b>	<b>Cost</b>
1	Raw material	Rs.107000/batch
2	Operating cost (Labour)	Rs.6000/batch
3	Utilities	Rs.5000/batch
4	Depreciation charges	Rs.30000/batch
5	Packing material	Rs.125000/batch
	Total Cost	Rs.273000/batch

Cost per pack                      Rs.7.59  
Market price per pack              Rs.20.00