FLAVOURED COCONUT JUICE

PROJECT PROFILE FOR SETTING UP A PILOT PLANT

Coconut milk is an oil-protein – water emulsion extracted from fresh grated coconut kernel. Coconut milk is obtained by manual or mechanical extraction of comminuted coconut meat, with or without water. Coconut milk is healthy, vegan alternative to dairy milk. Coconut milk does not contain lactose and is lower in carbohydrates than dairy milk, which can be consumed by people who are lactose-intolerant or just don't enjoy the taste of dairy milk.

Although regular canned coconut milk is higher in calories and fat than whole dairy milk, the plant-based saturated fat in coconut milk may provide health benefits not found in the animal-based saturated fat in dairy milk. The composition of coconut milk depends on the amount of water used for the extraction, affecting significantly moisture and fat content. Freshly extracted coconut milk has a pH of 6. Coconut milk is rich in proteins such as albumin, globulin, prolamin and glutein.

Coconut milk also has several nutritional advantages and serves as a superior source of several essential nutrients. Coconut milk serves as a much richer source of niacin, also called vitamin B-3, than regular milk. Dairy milk contains lactose, a type of sugar that is difficult for many people to digest. Niacin along with other B-complex vitamins helps in metabolizing the nutrients in food. It is also a rich source of Iron and Copper. Furthermore, coconut milk is lower in sugar than dairy milk, which is beneficial to limit carbohydrates in diet.

Coconut milk has tremendous importance especially in Ayurvedic traditional medicinal purposes. It is generally used to maintain the electrolyte balance and to rule out dehydration losses. Also, it is used for treatment of ulcers in the mouth. Some recent studies have suggested that coconut milk has anti-microbial properties in the gastrointestinal tract, hyperlipidemic balancing qualities and useful for topical applications. In addition, the coconut milk contains lauric acid as saturated fat which has medicinal utilities in the cardiovascular system. Coconut milk also possesses lauric acid in appreciable quantity. It is a saturated fatty acid which elevates high density lipoprotein cholesterol levels in blood. It has been proven through research that the coconut oil is much better in comparison to saturated fats due to the health risks imposed by the

latter. Coconut milk is rich in medium chain fatty acids. Medium chain fatty acids do not increase the cholesterol level in the blood and yet helps in body weight maintenance.

COMPOSITION OF COCONUT MILK

Parameters	**Percentage**
Total Soluble Solids(% m/m) Min-Max	12.7 - 25.3
Total Fat (% m/m) Min	10.0
Non-fat-solids(%m/m) Min	2.7
Moisture (%m/m) Max	87.3
Carbohydrates (%)	4.53
Protein (%)	1.88
Minerals (%)	0.52
pH	5.9

RAW MATERIAL REQUIREMENT AND COST OF RAW MATERIAL

Raw material required for the production of 4000 litres is calculated to around 2500kg of coconut. The cost of raw material is assumed to be Rs.20/kg. So the monthly requirement of raw material will be 37,500 kg and the cost is estimated to be Rs.75, 000/- at 60% capacity utilization

PROCESS

Milk is extracted from freshly grated coconut of 9-10 months old. Extracted milk is clarified to remove suspended solids which are present in the milk. Coconut milk is then mixed with coconut water and diluted by adding purified drinking water until it is appropriate for flavoured coconut milk production. It is then mixed with 10-12% sugar, 2% stabilizers, emulsifiers and flavours. The flavoured coconut milk is then UHT sterilized at 138-140°C for about 15 seconds, which is then packed in sterilized PP bottles.

Why UHT?

With pasteurization, coconut milk is heated to 80-85°C with a holding time of 10 minutes before it is cooled. Along with correct cooling, and chilled distribution, pasteurized milk has a shelf life of five to 15 days. In UHT treatment, milk is exposed to brief, intense heating to temperatures in the range of 138-140°C for about 15 seconds. Most importantly, UHT treatment is a continuous process which takes place in a closed system that prevents the product from being contaminated by airborne micro-organisms. The UHT coconut milk passes through heating and cooling stages in quick succession, then is immediately put into a sterile packing material. This

process avoids any re-infection. The end result is a product that lasts up to six months without refrigeration or preservatives.

BY PRODUCTS

The major by products from this Industry will be shell, defatted DC and pairing.

PRODUCT SPECIFICATION OF FLAVORED COCONUT MILK

Sl. No	Parameters	Flavored coconut milk
1	Total soluble solids (%)	20-22
2	Total Fat (%)	0.92
3	Carbohydrates (%)	17.33
4	Protein (%)	1.42
5	Minerals (%)	0.40

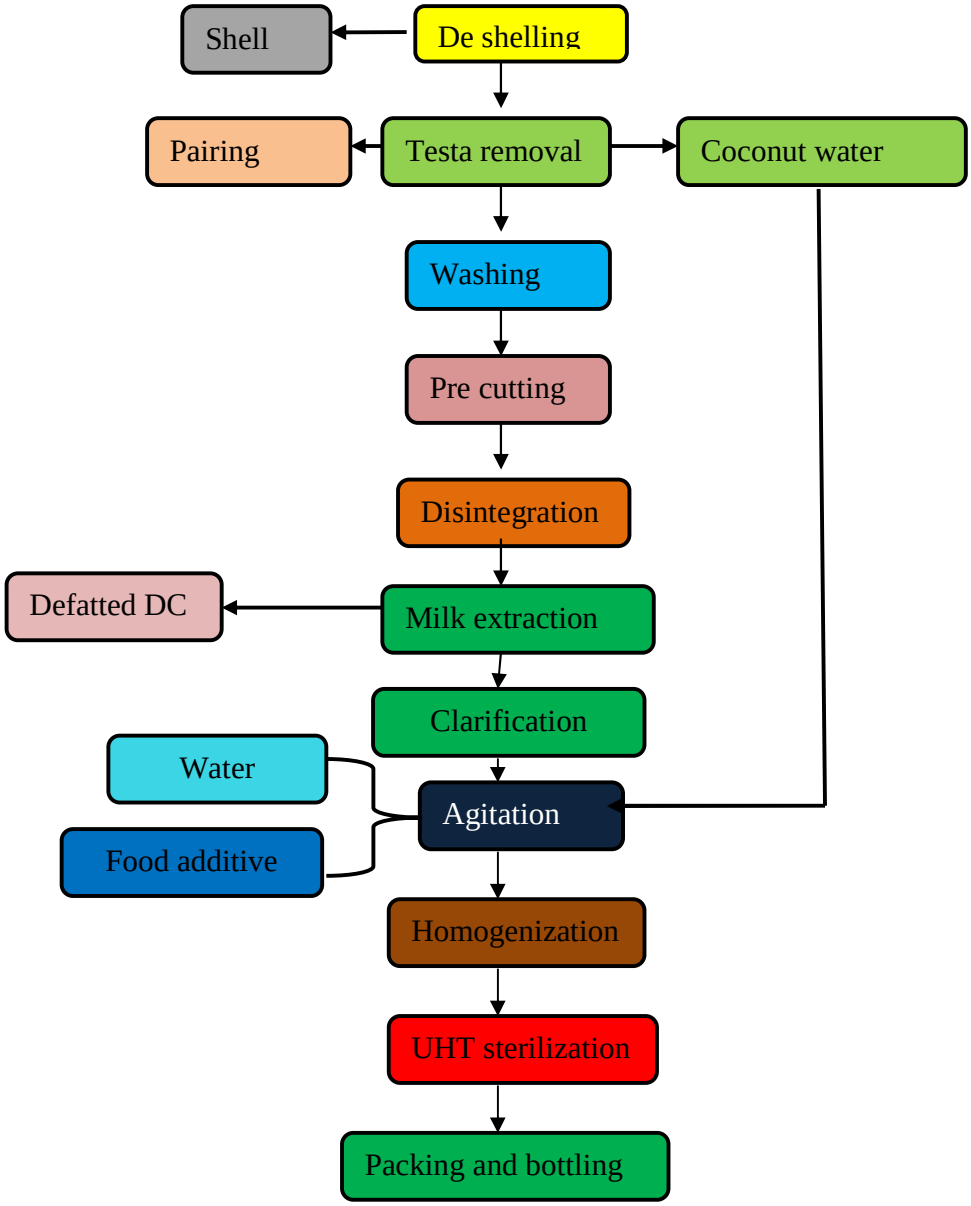
PRODUCT YIELD

5,000 coconuts will give **4,000 litres** of flavoured coconut milk**.**

THE PROJECT

The project envisages the establishment of pilot plant of flavored coconut juice with a capacity of 4000litres/shift.

PROCESS FLOW CHART



Flow chart 1: Processing of flavoured coconut milk

Unhusked coconut

Dehusking

Deshelling

Pairing

Water+
Coconut
water +
additives

Washing

Disintegration

Milk extraction

Mixing

Homogenizer

UHT sterilizer

Filling and bottling

PROJECT COST

Sl. No	Particulars	Amount (in Lakhs)
1	Land (50 cents)	-----
2	Building 4000 sq.ft (@ Rs.1000/- per sq.ft)	40.00
3	Other civil works	8.00
4	Plant & Machinery	131.5
5	Electrification	3.00
6	R.O plant	5.00
7	Effluent treatment plant	10.00
8	Preoperative Expenses	6.50
9	Working capital(margin)	19.00
	Total	**223**

LAND AND BUILDING

Sl. No	Parameters	Square feet
1	Processing area	1200
2	R.M store	500
3	Finished good store	600
4	Office room	600
5	Lab	500
6	Workers room	400
7	Reception	200
	Total	**4000**

Plant and Machinery

No.	Item	Qty	Unit Cost (Rs. In lakhs)	Amount (in Lakhs)
1	Desheller	3	1.5	4.50
2	Pairing unit	3	1.75	5.25
3	Washing	1	3	3.00
4	Precutter	1	2	2.00
5	Disintegrator	1	3	3.00
6	screw press	1	3	3.00
7	Clarifier	1	10	10.0
8	Filter	1	3	3.00
9	Homogenizer	1	5	5.00
10	UHT	1	50	50.00
11	Packaging unit	1	20	20.00
12	Pipelines	1	2	2.00
13	Diesel generator	1	5	5.00
14	CIP Unit	1	5	5.00
15	Laboratory equipments	1	1	1.00
16	Plant IT system & networking	1	3	3.00
17	Installation Charges & Labor	1	5	5.00
18	Miscellaneous	1		1.75
	Total			**131.50**

MACHINERY SUPPLIERS LIST

Details in Annexure 1

Project at a glance

Sl.No.	Item	At 80% capacity utilization
1	Sales Realization	Rs.1056.00 lakhs
2	Net Profit after tax	Rs.79.08lakhs
3	Long Term Debt	Rs.53.52 lakhs
4	Net Profit after tax on Sales	7.49%
5	Debt Equity Ratio	4.67
6	Debt Service Coverage Ratio(DSCR)	2.82
7	Pay Back Period	4 years 5 Months
8	Internal Rate of Return (IRR)	19%
9	Break Even Point(Sales)	49.57%

FLAVOURED COCONUT MILK PRODUCED BY CDB ISTITUTE OF TECHNOLOGY, SOUTH VAZHAKULAM, ALUVA

Figure 1: Flavoured coconut milk from CIT

Coconut milk manufactured in India

Figure 2 : Tajr Pvt Ltd, Mumbai

Figure 3: Dabur, UP

Figure 4: Holista Transworld Ltd, Chennai

Figure 5: Dinesh Foods, Kannur

Figure 6: Dinesh Foods, Kannur

Figure 7: Sakthi Coir Products, Pollachi

INTERNATIONAL PRODUCTS

Figure 8: Coconut products manufactured in China

Figure 9: Coconut products manufactured in China

Figure 10: So Delicious,US

Figure 11: So Delicious,US

Figure 12: Kara, Singapore

Figure 13: Silk, Colorado, US

Figure 14: Coco joy,Australia

Figure 15: Koko, UK

Figure 16: Thai Kitchen, California

Figure 17 : Aroy-D, TOSCA, UK