

Crunchy Coconut Chips

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Of the more than 1500 species in the Palm family of plants (Palmaceae), coconut palm is the best known. Coconut meat is the rich white lining that is contained within the shell of a coconut. Coconut meat can be juicy and tender, or slightly thick and crunchy, to tough and fibrous depending on how long the kernel has been stored.

Coconut Chips

Coconut chips, as any other chips, is a ready to eat snack food. Dehydrated mature coconut kernel slicers dipped in osmotic medium like sugar syrup is called coconut chips. The major characteristics of coconut chips are : it is a ready to eat snack, not fried in oil, no preservatives are used and no loss of flavor or nutrient in the kernel.

Raw Material

Coconut of the age 8-10 month old with reasonable water inside is selected for the production of coconut chips. The cost of raw material is assumed to be Rs.20/kg. In order to produce 1 kg of coconut chips 4.2 kg of dehusked coconut is required.

Processing Method

Dehusking : Dehusking is done to remove the husk par of the coconut

Deshelling : It is done without breaking the kernel.

Paring: It is done to remove the brown skin of the kernel with the help of a machine or manually. Care should be taken to remove the testa alone without affecting the kernel.

Blanching: Pared coconuts are dipped in boiling water mixed with 0.05% Potassium Meta bisulphate for 15 minutes in a blanching machine.



Draining: It can be done with the help of vibratory screener. This will remove the excess water present in the blanched coconuts.

Slicing: It is done to reduce the size of coconut kernel into very thin slices. It can be done with the help of a slicer/peeler.

Osmotic dehydration: The coconut chips are then immersed in sugar solution of 50° brix for 1 hour. Essence of flavours can be added at this time. A little salt is also added to the sugar solution. Agitation of the sugar solution is required during osmotic dehydration.

Drain: Coconut chips are then spread over moisture absorbing paper to remove the excess water.

Drying: Drained coconut chips are then dried at a temperature of 70-80°C for 4-5 hours. In order to avoid sticking on the pan, turn the coconut chips after one hour of drying. For toasting purpose increase

the temperature upto 90°C and dry until chips get toasted flavour. The product will be golden brown in color after toasting.

Cooling: Dried coconut chips are allowed to cool to room temperature.

Packing: Since the coconut chips are hygroscopic in nature, packing in metallised polyfilm or aluminium foil laminated with LDPC film is preferable to maintain the color and flavor of coconut chips upto six months period without affecting nutritional and biochemical changes. In order to avoid breakage of chips during transportation, nitrogen flushing is usually done in pouches.

Different types of chips can be prepared by adding different types of essences and masalas to increase the varieties.

By products

The major by products are husk, shell and vinegar.

Processing Method

Flow Chart

Dehusking

Deshelling

Paring

Blanching

Draining

Slicing

Soaking in osmotic medium (For 1 hour)

Drying (For 5 hours)

Cooling

Packing

Coconut Chips manufactured outside India



Capital investment for the project		
No	Item	Amount (Rs. in Lakhs)
1	Land (10 cents)	Leased
2	Building (1000 sq.ft @ Rs.1000/- per sq.ft)	10
2	Other civil works (internal roads, compound wall, water tanks)	2
3	Machinery and Equipment	9.40
4	Electrification	1
5	Preliminary & Pre-op Expenses	0.75
6	Working Capital margin	2.60
	Total	25.75

Project at a glance	
Particular	At 80% capacity utilization
Sales Realisation	Rs. 156 lakhs
Long Term Debt	Rs. 6.18 lakhs
Profit Margin (Net Profit after tax on Sales)	Rs. 6.76 lakhs
Debt Service Coverage Ratio(DSCR)	3.20
Pay Back Period	3 years 11 months
Internal Rate of Return (IRR)	22%
Break Even Point (sales)	48.28 %

Income-expenditure details/ 20g. pouch	
Particular	Rs.
Operating expenses	7.81
Administrative expenses	0.53
Sales & distribution expenses	3.25
Total cost of good sold	11.58
Selling Price	13
Margin	1.42

Plant and Machinery			
Item	Qty (Nos)	Unit Cost (Rs. in lakhs)	Amount (in Lakhs)
De husker	2	0.7	1.40
Deshelling	2	0.6	1.20
Paring unit	1	0.55	0.55
Blanching vessel	1	0.5	0.50
Slicer	1	0.5	0.50
Mixing vessel	1	0.75	0.75
Hot air oven	1	3	3.00
Packing equipment	1	1.5	1.50
Total			9.40

Draft plan to set up a plant for coconut chips

Basic assumptions:

1. Capacity of plant = 100 kg of chips per shift
2. Purchase price of dehusked coconut = Rs. 20/kg
3. Selling price of coconut chips = Rs. 13/ 20g pouch
4. Dehusked coconut required to produce 1 kg of chips = 4.2 kg ■

- Courtesy CIT, Vazhakulam, Kerala

Manufacturers of Coconut Chips		
Sl. No	Supplier address	Contact details
1	Chinnuse Products, Muttithadi P.O, Thrissur	0480-2755931
2	Kodungallore Coconut Producer Company, Sachidanandan, S/o. Krishnankutty, Kattil house, P.O Perinjalam - 680686.	Mob : 9645799279, E-Mail : kocoproduct@gmail.com
3	Phalada Agro Research Foundation, Survey No: 92/5, Segehalli Cross Road, Magadi Road, Kannalli, Bengaluru, Karnataka 560091	Phone: 080 2853 6762
4	Shobha Engineering Company, DP 20/A, Perigandoor (P.O), Athani, Thrissur, Kerala - 680581	suryashobha10@gmail.com, Phone: 0487-2208153, 2200675, Mobile: 09447668543, 09809404000