

AMLA PROCESSING

1) INTRODUCTION

Phyllanthus emblica, also known as emblic or emblic myrobalan or myrobalan, Indian gooseberry is well known over the world for its delicious fruits having rich medicinal properties and values. Amla fruits are a very rich source of vitamin C having an ascorbic acid content varying from 0.9% to 1.3%, the second highest among all the fruits cultivated.

2) PRODUCTS AND ITS APPLICATION:

Amla consumed as such in large quantities. The major quantity of Amala is used making chayavanprash, ayurvedic medicines, cosmetic products and other value added products like preserve, juice, ready-to-serve drink, sherbet, jam, fruit bar, dehydrated amla whole or powder, mouth freshners, etc. Chayavanprash is generally considered as health tonic in all respects whereas ayurvedic products like TRIFALA is used for constipation and cosmetic products like hair oils or creams are useful for keeping hair and skin healthy respectively. The food products as enlisted are considered healthy and source of vitamin C.

Plant Capacity & Product Mix:

The proposed project is of processing amla at the rate of 2.5 tons/hr to produce 1 ton/hr pulp in its season, say 130 days (4 months) which can be sale directly those who are making amla pulp based products and the promoter can also store and then processed the same pulp in other value added amla products like amla drink in remaining 170 days of the year.

3) DESIRED QUALIFICATION FOR PROMOTER:

The promoter must be well versed with processes for value added amla products, amla growing regions, seasons, etc. as well able to markets the same in India and abroad. Also, able to produce the end products of desired end use application.

4) MARKET POTENTIAL AND MARKETING ISSUES, IF ANY:

Amla extract (ingredients) are useful in various food and beverage applications such as nutritional bars, cereals, jams, powder drink mixes, yogurts and dietary supplements. The potential for amla extract as a food ingredient is increasing substantially, owing to the growing global nutraceuticals and functional food market. Amla extract also provides broad spectrum skin protection against heavy metals due to its anti-oxidant properties. Thus, the market for amla extract is expected to grow at a healthy CAGR throughout the next decade.

India exports a significant amount of amla and amla extracts to countries like the U.S., Japan, Nepal, Bangladesh, Malaysia, Germany and the Netherlands. Various herbal medicine manufacturing companies are using amla extracts to provide novel dietary supplements in herbal tea and powders forms. Effective production, processing and marketing of amla extracts is expected to boost the market size during the next decade. The major players are: Biomax, Taiyo international (Sun Amla), Arjuna Natural Extracts Ltd., Nutra Genesis and Archer chem.; etc.

5) RAW MATERIAL REQUIREMENTS:

India produces about 15 Lakh tons of Amla in 1 Lakh hectare. The leading amla producing states are: Uttar Pradesh, Madhya Pradesh, Tamil Nadu and Gujarat, other states also growing amla are: Andhra Pradesh, Chhattisgarh, Jharkhand and Haryana. The key Amla growing belts in leading states are as under:

States	Districts
Uttar Pradesh	Pratapgarh, Rai Bareli, Varanasi, Jaunpur, Sultanpur, Fatehpur, Kanpur, Agra and Mathura
Madhya Pradesh	Dewas, Hoshangabad, Shivani, Rewa, Satna, Tikamgarh, Betual, Chindwara, Shivapurkala, Panna, etc.
Tamil Nadu:	Tirunelveli, Thoothukudi, Sivagangai, Coimbatore, Salem & Dindugal
Gujarat:	Kheda, Anand, Sabarkantha, Banaskantha, Mehsana, Ahmedabad, etc.

There are three main varieties of amla viz., Banarasi, Francis (Hathijhool) and Chakaiya. Other varieties identified and released for commercial cultivation during the recent years are: Kanchan (NA4), NA6 and NA7. Besides above varieties, Anand 1, Anand 2 and Anand 3 have been selected as promising strains at the Gujarat Agricultural University

Amla yields approx. 40% juice having 10° brix for making any further value added product. One has to calculate the requirements of raw materials accordingly depending on quantity of end product to be manufactured. The peak season for amla is from October to January. Here, it is proposed to produce 2.5 tons/hr fresh amla to produce 1 ton/hr pulp at every hour as peak season is just four months. One can keep in cold storage after January for other 2-3 months.

6) MANUFACTURING PROCESS:

Sound mature amla fruits are wash thoroughly under turbulent washing to remove dirt, dust and adhered unwanted material. Thus cleaned and washed amla are subject to cutting in a specialized machine, followed by pulping with filtration, standardizing and pasteurizing for storage or otherwise can be used for making other value added food products either by boiling the pulp or sometime direct cooking of amla fruits (no pulping) for making products like amla preserve, candy, pickle or mouth freshener. The pulp or extract can be used in making chayavanprash, juices, ready-to-serve beverages, fruit bar, amla sauce, cosmetic products, etc.

7) MANPOWER REQUIREMENT:

Manpower Total Requirements	
Technical Staff	7
Adm. Staff	8
Marketing Staff	6
Labour	49
Total	70

8) IMPLEMENTATION SCHEDULE:

Project Stages	MONTHS									
	1	2	3	4	5	6	7	8	9	10
Purchase of Land	Yellow	Yellow	Yellow							
Completion of Building	Green	Green	Green	Green	Green	Green				
Ordering of Machinery	Grey	Grey								
Delivery of Machinery			Orange	Orange	Orange	Orange				
Term/Wkg Loan Sanction		Blue	Blue	Blue						
Installation of Machinery					Green	Green				
Commissioning of Plant						Red				
RM/Inputs Procurement						Yellow				
Manpower Appointments						Blue				

Commercial Production									
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9) COST OF PROJECT:

COST OF PROJECT

No.	Costing Heads	Qty.	Rate/Unit	Rs. Lakh
1	Land in Sq. M. + Expenses	2,000.00	1,000.00	20.00
2	Building	1,000.00	9,000.00	90.00
3	Plant & Machinery			110.00
4	Other Capital Investment			25.00
5	Contingency			10.00
	Total Cost of Project			255.00

10) MEANS OF FINANCE:

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Means Heads	Rs. Lakhs
Promoters Capital	63.75
Term Loan	132.00
MFPI Subsidy	50.00
Unsecured Deposits	9.25
Total Means of Finance	255.00

11) WORKING CAPITAL CALCULATION:

Working Capital Calculation

Particulars	Total Amount	Stock Period Days	Value of Stock Period	Promoter Margin	Promoter Share	Bank Borrowing
Raw Material	1,950.00	15	97.50	0.50	48.75	48.75
Packing Material	978.00	30	97.80	0.40	39.12	58.68
Work in Process	3,471.31	3	34.71	0.40	13.89	20.83
FP Stock	3,640.00	15	182.00	0.40	72.80	109.20
Bills Receivable	3,640.00	15	182.00	0.40	72.80	109.20
Working Expense	12.00	30	1.20	1.00	1.20	0.00
Total:	13,691.31			0.00	248.56	346.66

12) LIST OF MACHINERY REQUIRED:

No	Equipment	Qty.
1	Fruit & Vegetable Washer: 5 ton/hr	1
2	Amla Shredding Machine	2
3	Amla Juicer	2
4	Standardization Tanks 500 lit each	2
5	Pasteurizer	1
6	Holding Tank	2
7	Steam Jacketed Kettles: 500 lit	2
8	Canning Machinery	1

13) PROFITABILITY CALCULATIONS:

Sr. No.	Particulars	Year 1	Year 2	Year 3	Year 4	Year 5
A	Gross Sales	2548	2912	3276	3276	3276
	Less:					
1	Raw Materials	1365	1560	1755	1755	1755
2	Packing Material	684.6	782.4	880.2	880.2	880.2
3	Fuel	63	72	81	81	81
4	Power	35.28	40.32	45.36	45.36	45.36
5	Manpower	83.7096	94.4416	105.1736	105.1736	105.1736
6	Depreciation	26.25	30	33.75	33.75	33.75
7	Sundry Expenses	35	40	45	45	45
8	Interest on Term Loan	11.088	12.672	14.256	14.256	14.256
9	Interest on WC Loan	36.575	41.8	47.025	47.025	47.025
9	Repairs & Maintenance	17.5	20	22.5	22.5	22.5
10	Marketing Expenses	80.5	92	103.5	103.5	103.5
B	Production Cost	2438.5026	2785.6336	3132.7646	3132.7646	3132.7646
C	Gross Profit (A-B):	109.4974	126.3664	143.2354	143.2354	143.2354
	Taxes @ 30%	32.84922	37.90992	42.97062	42.97062	42.97062
	Net Profit	76.64818	88.45648	100.26478	100.26478	100.26478

14) BREAKEVEN ANALYSIS:

Break Even Point: $\frac{\text{Annual Fixed Cost} \times 100}{\text{Annual Fixed Cost} + \text{Profit}} = 61.03$

15) CRITICAL FACTORS FOR THE PROJECT:

- 1) Amla season is very limited from October to February. So, one has to process maximum quantity of during this season and make amla pulp available for the rest of months to produce value added products.
- 2) The plant must be in proximity to amla growing area as well accessible through rail and road.
- 3) Processing of amla needs specific skill, specifically to manufacture value added products. The separation of seeds and standardization of amla pulp avoiding bitter taste which may develop if proper pretreatment are not given before pulping.
- 4) The plant needs to be versatile to process other fruits of that area where it is established.
- 5) Amla based product-mix must be wider to make plant viable and feasible