

SPICE OIL

QUALITY AND STANDARDS : BIS standards
PRODUCTION CAPACITY : 7.5 MT oil/annum
PREPARED BY :

1.0 PRODUCT AND ITS APPLICATIONS

Ginger oil is used largely as a flavouring agent in various alcoholic and non-alcoholic beverages. It is also used in confectionery, bakery, perfumery. It is occasionally mixed with ginger oleoresin to restore an ideal balance between aroma and pungency. Pepper oil is valued for its aroma in perfumery industry. It is used mainly in high-grade perfumes and toiletries. It is also used in food stuffs which require a high pepper aroma, often in conjunction with pepper spice or pepper oleoresin. Cardamom oil is used both in food and perfumery industry. Its main use is in canned soups and meats. It is also used as a component of buns spice flavouring, as flavour component in many sauces and condiments and in certain liquors and bitters. In the perfumery industry, cardamom oil is gaining increasing acceptance especially in perfumes and scents. It is also used in pharmaceutical industry.



2.0 MARKET POTENTIAL

Spice oils are being increasingly made use of in processed foods, beverages, perfumery, pharmaceuticals, etc. Spice oils offer a convenient way of standardising the quality and strength of flavour either as such or in blended form. They require less storage space and there is no danger of spoilage or loss of strength when properly packed and stored. There is a vast demand for spice oils in national and international markets. The price of oil is related to the international price of the raw materials, which is especially true of cardamom oil. This trend is not so much evident in case of pepper oil and ginger oil, primarily because these are obtained in the process for production of oleoresins and hence often quoted at price below their actual production cost. A major proportion of India's cardamom oil is consumed domestically and exports are presently confined to Western Europe, Scandinavia and North America. The consumption of this oil is increasing.

India's share in the exports of ginger oil has been increasing. The main markets are United States, EEC and Japan for which China is the main supplier. A moderate increase in demand in line with a generally rising trend in the soft drinks and confectionery industry is expected.

Overall demand for pepper oil is showing a moderate increase. Its use in the perfumery sector, however, is comparatively stastic, the expansion in demand taking place mainly in the soft drinks and processed food sector.

3.0 BASIS AND PRESUMPTIONS

- a) The unit proposes to work at least 300 days per annum on single shift basis.
- b) The unit can achieve its full capacity utilization during the 3rd year of operation.
- c) The wages for skilled workers is taken as per prevailing rates in this type of industry.
- d) Interest rate for total capital investment is calculated @ 12% per annum.
- e) The entrepreneur is expected to raise 20-25% of the capital as margin money.
- f) The unit proposes to construct own building as per F.P.O. specifications.
- g) Costs of machinery and equipment are based on average prices enquired from machinery manufacturers.

4.0 IMPLEMENTATION SCHEDULE

Project implementation will take a period of 8 months. Break-up of the activities and relative time for each activity is shown below:

■ Scheme preparation and approval	:	01 month
■ SSI provisional registration	:	1-2 months
■ Sanction of financial supports etc.	:	2-5 months
■ Installation of machinery and power connection	:	6-8 months
■ Trial run and production	:	01 month

5.0 TECHNICAL ASPECTS

5.1 Location

Availability of the raw material is the main consideration in selecting the location of the unit. The other factors are nearness to market, availability of cheap labour and infrastructural facilities.

5.2 Availability of Raw Material

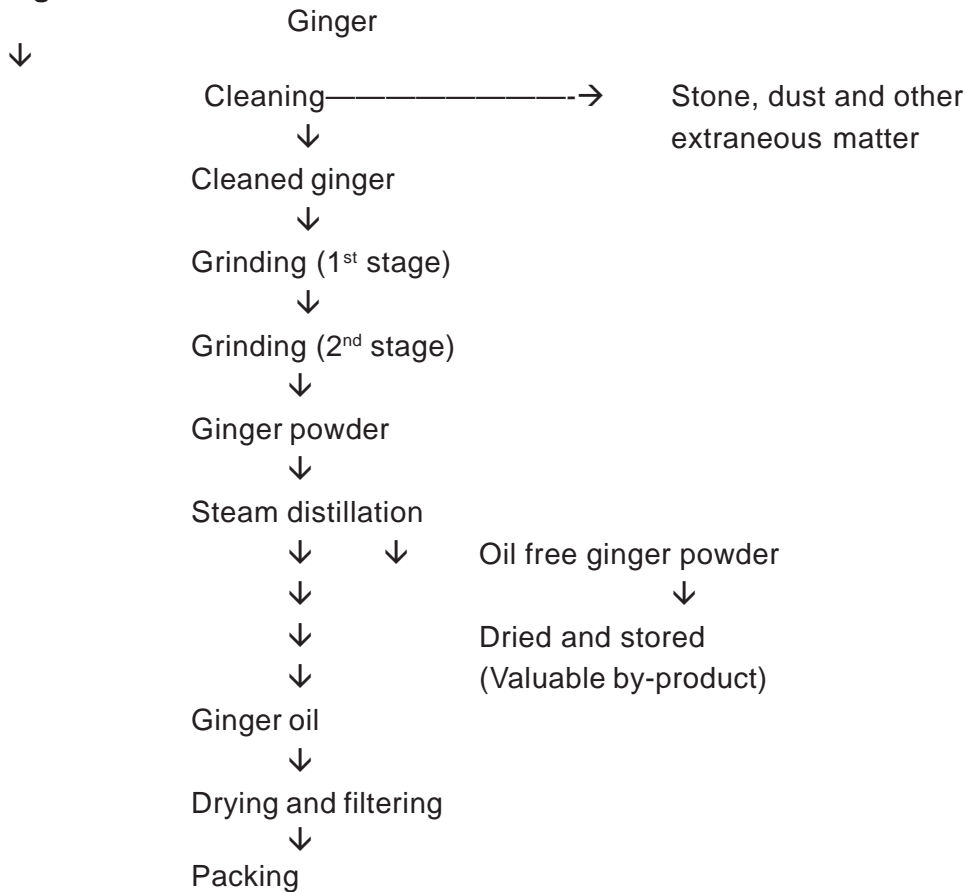
India has the highest area under cultivation of pepper with about 1.7 lakh hectares, which is nearly 50% of total area in the world. It produces about 50,000 tonnes of pepper. Most of the area under pepper in India is confined to Kerala. Kerala is the leading state for cardamon production and contributes about 70% of the total production. It is also the main producer of ginger oil. However, oil produced from fresh ginger in the north eastern India has a higher market value due to presence of various aroma chemicals.

5.3 Process of Manufacture

The various steps in the manufacture of spice oils are as follows:

5.3.1 Pepper oil:

5.3.3 Ginger Oil



The technology for processing of spices into spice oils is available from Regional Research Laboratory, Thiruvananthapuram or CFTRI, Mysore

5.4 Quality Control and Standards : As per BIS standards

6.0 POLLUTION CONTROL

There is no major pollution problem associated with this industry except for disposal of waste which should be managed appropriately. The entrepreneurs are advised to take “No Objection Certificate” from the State Pollution Control Board.

7.0 ENERGY CONSERVATION

The fuel for the steam generation in the boiler is coal or LDO depending upon the type of boiler. Proper care should be taken while utilising the fuel for the steam production. There should be no leakage of steam in the pipe lines and adequate insulation should be provided.

8.0 PRODUCTION CAPACITY

Quantity	:	2100 MT ginger or 7.5 MT oil
Value	:	Rs. 217 lakh
Installed capacity	:	10 MT ginger/day
Working days	:	300/annum
Optimum capacity utilization	:	70%
Manpower	:	30

Utilities

Motive Power	:	80 kW
Water	:	5 kL/day
Coal/LD oil	:	250 kg/60 L/day

9.0 FINANCIAL ASPECTS

9.1 Fixed Capital

9.1.1 Land & Building

		Amount (Rs. lakh)
Land 600 sq.mtr	:	0.90
Built up Area 150 sq. mtr.	:	5.50
		<hr/>
Total cost of Land and Building	:	5.40

9.1.2 Machinery and Equipment

Description		Amount (Rs. lakh)
Destoner, Air classifier, Weighing balance, Hammer mill, Plate mill, Steam distillation still (stainless steel), oil-water separator, Condenser, Boiler, Vibratory sieve with motor, Storage bins with lid (5 Nos.), Trolley (2 Nos.), Oil Storage tank (3 Nos.), SS buckets, handling vessels for raw material handling, fruit mill, hydraulic press.	:	8.00
Erection & electrification @10% cost of machinery & equipment	:	0.80
Office furniture & fixtures	:	1.20
Total	:	<hr/> 10.00

9.1.3 Pre-operative Expenses

Consultancy fee, project report, deposits with electricity department etc.	:	1.60
--	---	------

9.1.4 Total Fixed Capital : 17.00
(9.1.1+9.1.2+9.1.3)

9.2 Recurring expenses per annum

9.2.1 Personnel

Designation	No.	Salary Per month	Amount (Rs.lakh)
Factory Manager	1	12000	1.44
Supervisory staff	5	6000	3.60
Office assistants	2	5000	1.20
Skilled workers	6	2500	1.80
Unskilled workers	16	1500	2.88
			10.92
Perquisites @15%			01.64
Total :	30		12.56

9.2.3 Raw Material including packaging materials

Particulars	Qty.(MT)	Rate	Amount (Rs. lakh)
Fresh Ginger	2100 MT	5000	105.00
Packaging aluminum jars			42.00
Consumables			03.00
Total:			150.00

9.2.3 Utilities

	Amount (Rs. lakh)
Power	4.40
Water	0.02
Coal	1.22
Total:	4.64

9.2.4 Other Contingent Expenses

	Amount (Rs. lakh)
Repairs and maintenance@10%	1.45
Others	1.20
Insurance	0.15
Total:	2.80

9.2.5 Total Recurring Expenditure (9.2.1+9.2.2+9.2.3+9.2.4)	Amount (Rs. lakh) 169.00
9.3 Working Capital Recurring Expenditure for 3 months	42.25
9.4 Total Capital Investment	Amount (Rs. lakh)
Fixed capital (Refer 9.1.4)	17.00
Working capital (Refer 9.3)	42.25
Total:	<hr/> 59.25

10.0 FINANCIAL ANALYSIS

10.1 Cost of Production (per annum)	Amount (Rs. lakh)		
Recurring expenses (Refer 9.2.5)			169.00
Depreciation on building @5%			0.45
Depreciation on machinery @10%			0.90
Depreciation on furniture @20%			0.24
Interest on Capital Investment @12%			7.11
Total:			<hr/> 177.70
10.2 Sale Proceeds (Turnover) per year			
Item	Qty. (MT)	Rate per MT	Amount (Rs.lakh)
Ginger oil packed in 20 kg aluminum cans	7.5	2900/kg	217.50
10.3 Net Profit per year			
= Sales – Cost of production			
= 217.50 – 177.70			
= Rs. 39.80 lakh			
10.4 Net Profit Ratio			
= $\frac{\text{Net profit} \times 100}{\text{Sales}}$			
= $\frac{39.8 \times 100}{217.5}$			
= 18.3%			

10.5 Rate of Return on Investment

$$= \frac{\text{Net profit} \times 100}{\text{Capital Investment}}$$

$$= \frac{39.8 \times 100}{59.25}$$

$$= 67\%$$

10.6 Annual Fixed Cost

Amount (Rs. Lakh)

All depreciation	1.59
Interest	7.11
40% of salary, wages, utility, contingency	7.60
Insurance	0.16
Total:	16.45

10.7 Break even Point

$$= \frac{\text{Annual Fixed Cost} \times 100}{\text{Annual Fixed Cost} + \text{Profit}}$$

$$= \frac{16.45 \times 100}{16.45 + 39.80}$$

$$= \frac{1645}{56.25}$$

$$= 29\%$$

11.0 ADDRESSES OF MACHINERY AND EQUIPMENT SUPPLIERS

Jyothi Industries
31, Pampa Mahakavi Road
Bangalore – 560 004

M.V. Industries Pvt. Ltd.
Sudha Park, Raja S.C. Mullick Road
P.O. Bademasur
Kolkata – 700 086

Vijaya Industrial and Engineering Works
45/4, Dr. Rajkumar Road
7th Cross, 6th Block
Rajajinagar
Bangalore – 560 010

12.0 ANY OTHER SPECIAL FEATURES

The finished products must conform to internationally accepted quality specifications. Spent meal, particularly of pepper and ginger, is rich in pungent principles, fixed oils and resinous matter. This is potential raw material for spice oleoresin and spice powder industry. The same equipment and machinery can be used for production of oil from several other spices.