

Spice Oleoresins.

Extraction of Oleoresin from Black Pepper, Paprika and Cardamom.



Oleoresin of Spices



Introduction

Spice oleoresins represent the complete flavor profile of the spice. It contains the volatile as well as nonvolatile constituents of spices. Oleoresins can be defined as the true essence of the spices and can replace whole/ground spices without impairing any flavor and aroma characteristic. Oleoresins are obtained from spices by extraction with a non-aqueous solvent followed by removal of the solvent by evaporation. Spice oleoresins guarantee superior quality of flavor and aroma. They are complete and balanced, consistent and standardized.



Spice Oleoresins can be used to advantage wherever spices are used, except in those applications where the appearance/ filler aspect of spice is important. Usage of spice oleoresins leads to standardization in taste and consistency in flavor. Oleoresins find application in Beverages, Meat Canning, Confectionery, Sauces and Pharmaceuticals. They are also used as a base for a number of seasonings.



Black Pepper Oleoresin

Black Pepper Oleoresin is a natural food additive obtained by solvent extraction of the berries of Piper nigrum L. It contains 40-41% Piperine and 20-21% volatile oil. It is a free-flowing, olive-green liquid at ambient temperatures, and has a characteristic aroma of pepper with a pungent taste. It is used in flavoring meat products and as a preservative.



Black pepper oleoresin is widely used in food industry as a coloring and flavoring agent. The oleoresins represent complete spice flavor whereas essential oils only the aroma. Black Pepper oleoresin is widely used in traditional medicinal systems including Ayurveda, Siddha and Unani systems. It is used for manufacturing medicines, curing illnesses and diseases such as heart disease, indigestion, constipation, insomnia, joint pains, liver problems, etc.



Paprika Oleoresin

Paprika, a red spice, imparts flavor and Colour to food. Paprika, the ground, dried fruit of *Capsicum annum*, has been used as a Colour and/or spice for centuries as the raw ground powder in foods such as chili, chorizo, and goulash. Paprika Colour compounds can also be solvent extracted to produce paprika oleoresin, a purified form of the coloring compounds.



Paprika is used to color meat products, confectionery, vegetable oils, snacks, surimi, seasonings, soups, sauces, salad dressings, marinades, processed cheese, bakery products, fruit preparations, convenient foods and canned goods. Its use as both a color and a spice overlap frequency.

Paprika oleoresin (also known as paprika extract) is an oil soluble extract from the fruits of *Capsicum Annum* Linn or *Capsicum Frutescens* (Indian red chillies), and is primarily used as a coloring and/or flavoring in food products. It is composed of capsaicin, the main flavoring compound giving pungency in higher concentrations, and capsanthin and capsorubin, the main coloring compounds (among other carotenoids).



Cardamom Oleoresin

Cardamom oleoresin is extracted by steam distillation from the seeds of the fruit gathered just before they are ripe. The dark brown oleoresin is a yellow liquid with a sweet-spicy, warming fragrance. It is nontoxic in nature and is widely used as a Food contaminant. Cardamom oleoresin is listed in the British Herbal Pharmacopoeia as a 'specific' for flatulence and dyspepsia.



Cardamom is broadly used as domestic spice. This oleoresin is widely used as fragrance component in the preparation of various dishes and sweeteners. It is an important flavor compound of curry and spice products. Cardamom Oleoresin is extensively used in the treatment of anorexia, colic, cramp, flatulence, dyspepsia, heartburn, vomiting, indigestion, griping pains and halitosis.

It is also used in the treatment of fever, pulmonary diseases and digestive problems. Oleoresins of Cardamom are also employed as carminatives, stomachic and laxative preparations. It acts as diuretic, cephalic, stimulant, anti- septic and anti- spasmodic. It also fights against mental fatigue and nerve strains.

Market Outlook

India dominates the global market for spice oleoresin, which is in big demand from processed food and fragrance industries that now mostly prefer natural coloring and flavoring agents to artificial ones as consumers become increasingly health conscious.

India controls 60% of the 13,500-tonne global spice oleoresins market even as China has emerged as a strong contender in paprika oleoresin, the most in-demand spice oil.



The market for oleoresins in India is expected to incline from INR ~ crore during FY'2017 to INR ~ crore during FY'2022, at a CAGR of ~% during the same period. The continuous use of spice extracts across food and beverages industry are anticipated to raise the sales of oleoresins in the market. Asia Pacific is projected to drive the growth of the market owing to the development of food processing industry in the developing nations including India, China and Indonesia. R&D initiatives to introduce new varieties and better quality of oleoresins for aromatherapy applications are anticipated to augment the market growth during the outlook period.

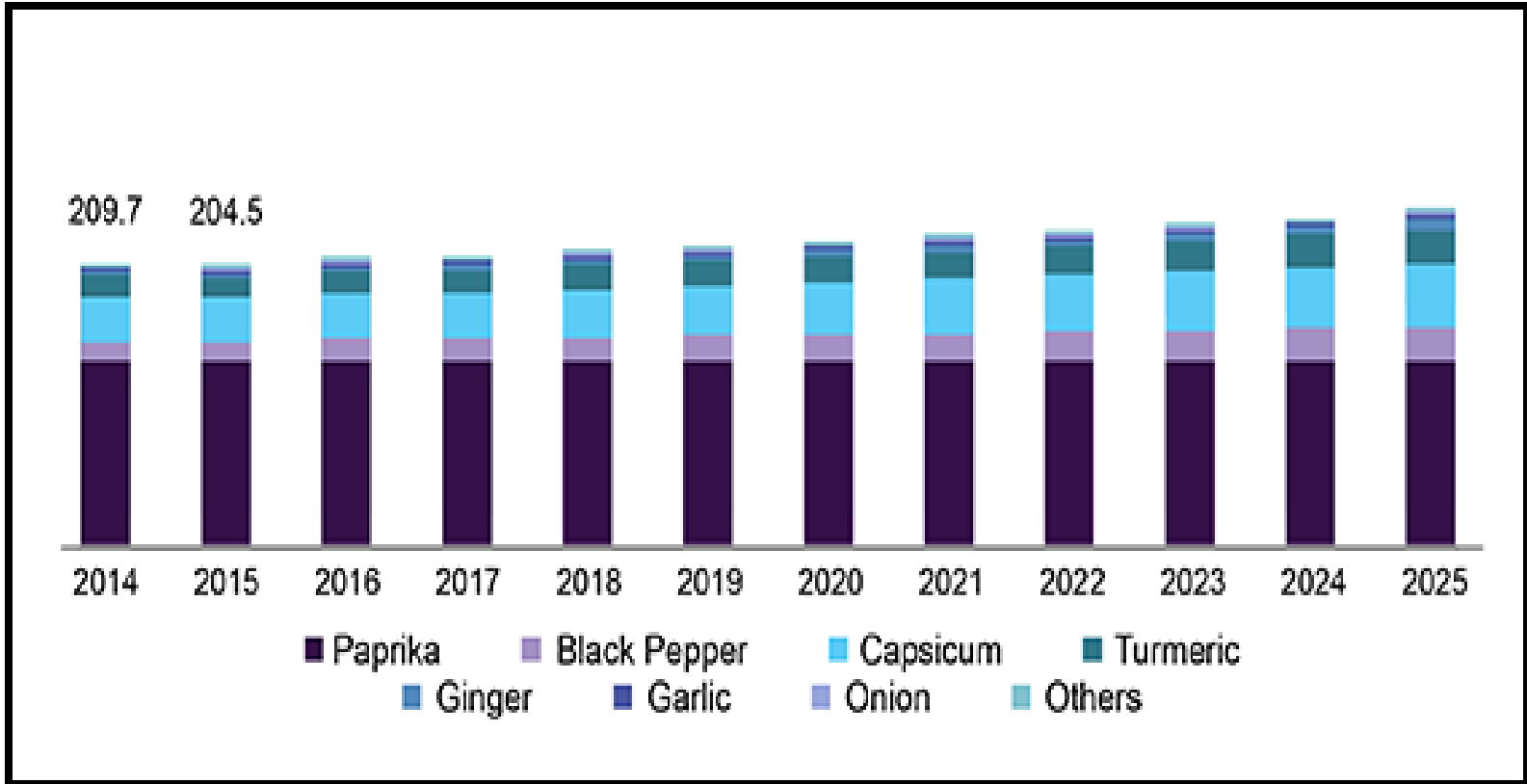


Global Oleoresin Market

The global oleoresin market size was estimated at USD 1.44 billion in 2018 and is expected to register a CAGR of 4.7% over the forecast period. Rising consumption of processed meat, confectionary, and baked food products is likely to boost the demand for oleoresin as a food flavoring agent. Demand for food additives and increasing number of multi-cuisine restaurants across the globe will also boost product consumption over the forecast timeframe.



U.S. Oleoresin Market Size, by Product, 2014-2025 (USD Million)



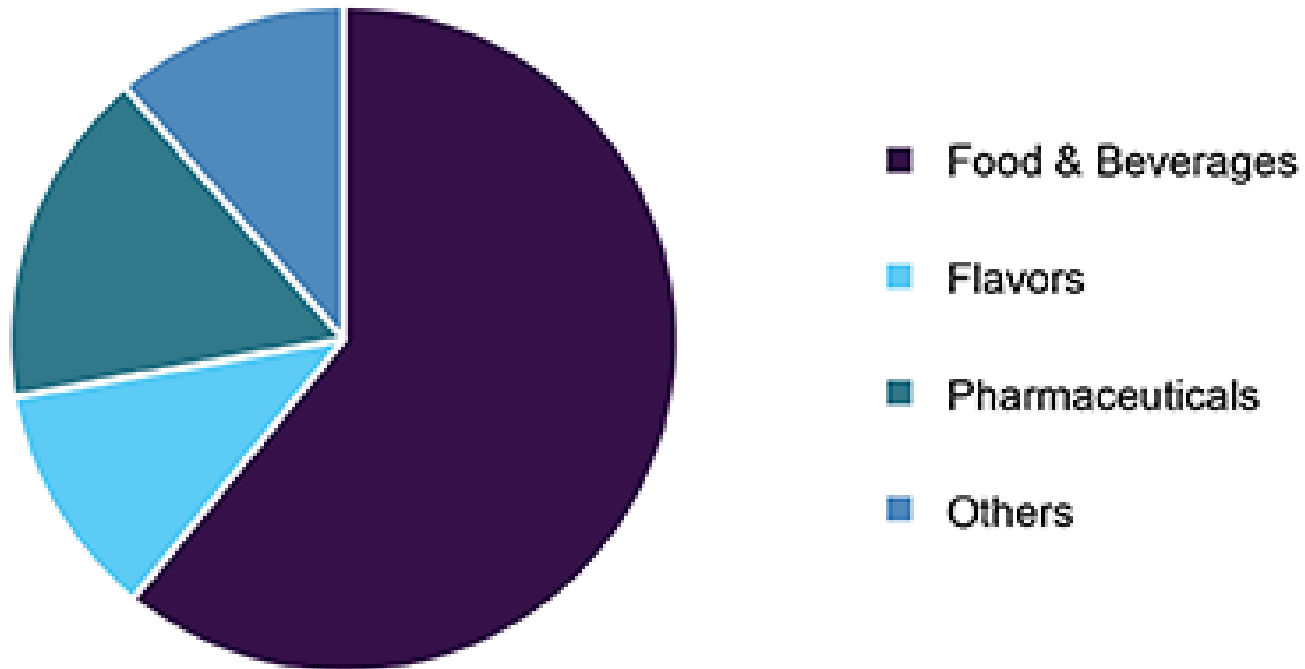
Oleoresins are not as commonly used as other ingredients though they play a vital role in the creation of many different products in the flavor and fragrance industry. Oleoresins are popular in the beverages industry since they can be a great base flavor or part of a complex flavor profile. These can also be used to add natural color to beverages, further increasing their usability in this industry. Growing beverage industry directly drives the market growth for oleoresins. The wide varieties of oleoresins give them numerous possibilities to formulate new or improved natural foods and flavorings.



In the coming years, oleoresins are expected to substitute ground spices without compromising on aroma, flavor, or texture. Similar properties as spices, convenient storage, and transport are few of the drivers boosting the growth of the oleoresins market. Furthermore, oleoresins can be more heat stable than raw spices and have a longer shelf life, owing to the lower moisture content. The demand for oleoresins is increasing worldwide, owing to their microbial advantages, uniformity in flavor and pungency, ease of storage, and transport.



Global Oleoresin Market Share, by Application, 2018 (%)



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Oleoresin Company (India), Silverline Chemicals Ltd (India), Jean Gazignaire SA (France), Qingdao Ruibang Biotechnology Co., Ltd (China), Agnes Herbs (India), Shijiazhuang City Bio Technology co., ltd (China), Adani Pharmachem Private Limited (India), Kancor Ingredients Limited (India), Ozone Naturals (India), and Plant Lipids (India) are some of the key players in the global oleoresins market.

The **Black Pepper Oleoresin** is obtained from properly ripened seeds of black pepper. Dried peppercorns are completely processed with the blackened external covering. The extraction is performed by percolating with variety of solvents, primarily hexane, which are removed prior to use. Black pepper oleoresins have heavier flavor and is far more popular than other varieties. Black pepper oleoresin represents the total pungency and flavour constituents of pepper obtained by the extraction of ground pepper using solvents like ethanol, acetone, ethylene dichloride, ethyl acetate etc.

The global market for Black Pepper Oleoresin is expected to grow at a CAGR of roughly 4.9% over the next five years, will reach 120 million US\$ in 2024, from 88 million US\$ in 2019.

Black pepper oleoresin offers considerable advantages over whole or ground spices in that they are uniform in composition as well as strength. Contaminants like mould and fungus are absent in the oleoresin and hence can be directly added to any food material after adjusting the flavour concentration. The extractives are usually made available in both oil soluble and water dispersible forms and also in dry forms of the extractives.

Black pepper oleoresin market is segmented on the basis of application which includes cosmetics & personal care, pharmaceuticals, culinary, and others.



Amongst these applications, the culinary application is anticipated to occupy the maximum market share by the end of 2027 whereas the pharmaceuticals and cosmetics applications are anticipated to flourish with a healthy CAGR owing to its manifold utilizations gradually receiving the attention of consumers for instance the ability of black pepper oleoresin to act as a stimulant to appetite as well as an aid in the relief of nausea, dysentery, dyspepsia, as a central nervous system depressant and suppresses fever and pain, Used as a pain reliever in arthritis, and the like.

Some of the major key who are driving the black pepper oleoresin market globally are Ungerer & Company, Fourstar Naturals Pvt. Ltd, Ozone Naturals, Aromaaz International, Plant Lipids, Akay, Synthite, AVT Natural Products Ltd, Indo World, Paprika Oleo's, Paras Perfumers, Ambe Group, Asian Oleoresin company, Cymbio Pharma Pvt Ltd and Bioprex Labs.

Global Paprika Oleoresin market is segmented on the basis of application, sales channels and region. On the basis of application the global paprika oleoresin market can be segmented into, food and beverages industry, cosmetic industry and pharmaceutical industry. The food and beverages segment is further sub-segmented into bakery and confectionary, sauces and seasoning, dairy industry, desserts and ice cream, meat products, convenience foods, juices and others. While the cosmetic industry is further sub segmented into, skin care products, hair care products and others.



The food and beverages industry is the largest industry for paprika oleoresin due to increasing application of paprika oleoresin as a coloring agent in various foods. Food and beverage industries commonly use the oil soluble form of paprika oleoresin for coloring. On the basis of sales channels the global paprika oleoresin market is segmented into, direct sales and indirect sales segment. The indirect sales segment is further sub segmented into, wholesaler, trader and retailer.

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North America, Latin America, Europe, Asia Pacific and Middle East and Africa. Europe and North America are expected to account for the maximum revenue share in the paprika oleoresin market attributed to increasing production of paprika oleoresin the regions. Owing to growing consumers demand for clean label natural paprika oleoresin the food products manufacturers are bringing transparency in the origin of their food products offerings. This clean label trend is also followed in cosmetic industry wherein the consumers seek cosmetics with minimal side effects.



The global **Cardamom Oleoresin** market can be segmented on the basis of nature into organic and conventional. The organic segment is expected to expand with a significant rate as demand for organic products among the consumers is increasing.

On the basis of application, the global Cardamom Oleoresin market can be segmented into food & beverages, personal care & perfumery, and pharmaceuticals. In the food & beverage segment, the Cardamom Oleoresin is used as a fragrance component and a flavoring agent in many curry and spice products and for beverages such as coffee and tea.



Due to its warming fragrance, cardamom oleoresin is used as a fragrance agent into personal care products and oil based perfumes, with uses in toiletries, cosmetics. The Cardamom oleoresin has many pharmaceutical applications in the treatment of digestive disorders, dyspepsia, nausea, heartburn, etc. It is also used as a fragrance and flavoring agent of medicines, liquors, massage oils and others.

Consumer demand for natural and herbal products continues to rise, and the desire for cardamom oleoresin is growing as a result. As a natural and effective flavour enhancer, cardamom oleoresin has so many different applications. Europe is currently the largest consumer of cardamom oleoresin, followed closely by North American and Asia Pacific. The majority of cardamom is produced in India. However, China, Sri Lanka, and the United States are expected to accelerate their own participation in the trade of cardamom oleoresin.

Some of the prominent manufacturers of Cardamom Oleoresin globally are Lionel Hitchen USA, Ltd., Venkatramna Industries, Plant Lipids (P) Limited, Rafbrix Private Limited, A. G. Industries, Synthite Industries Ltd., Kancor Ingredients Limited, Botanic Health Care Pvt. Ltd., Universal Oleoresins, Manohar Botanical Extracts Pvt. Ltd., IndoVedic Nutrients Pvt. Ltd, and AOS Products Private Limited.



Machinery Photographs



Chromatograph Columns



Condensers



Vacuum Shelf Drier



Nutsche Filter

Project at a Glance

| COST OF PROJECT | | | | MEANS OF FINANCE | | | |
|---------------------------------|--------------|---------------|---------------|-----------------------------|--------------|---------------|---------------|
| Particulars | Existin g | Propose d | Total | Particulars | Existin g | Propos ed | Total |
| Land & Site Development Exp. | 0.00 | 41.00 | 41.00 | Capital | 0.00 | 105.87 | 105.87 |
| Buildings | 0.00 | 66.60 | 66.60 | Share Premium | 0.00 | 0.00 | 0.00 |
| Plant & Machineries | 0.00 | 234.30 | 234.30 | Other Type Share Capital | 0.00 | 0.00 | 0.00 |
| Motor Vehicles | 0.00 | 6.00 | 6.00 | Reserves & Surplus | 0.00 | 0.00 | 0.00 |
| Office Automation Equipments | 0.00 | 17.00 | 17.00 | Cash Subsidy | 0.00 | 0.00 | 0.00 |
| Technical Knowhow Fees & Exp. | 0.00 | 10.00 | 10.00 | Internal Cash | 0.00 | 0.00 | 0.00 |
| Franchise & Other Deposits | 0.00 | 0.00 | 0.00 | Accruals | 0.00 | 0.00 | 0.00 |
| Preliminary & Pre-operative Exp | 0.00 | 2.00 | 2.00 | Long/Medium Term Borrowings | 0.00 | 317.62 | 317.62 |
| Provision for Contingencies | 0.00 | 22.50 | 22.50 | Debentures / Bonds | 0.00 | 0.00 | 0.00 |
| Margin Money - Working Capital | 0.00 | 24.09 | 24.09 | Unsecured Loans/Deposits | 0.00 | 0.00 | 0.00 |
| TOTAL | 0.00 | 423.50 | 423.50 | TOTAL | 0.00 | 423.50 | 423.50 |



Project at a Glance

| Year | Annualised | | Book Value | Debt | Dividend | Retained Earnings | | Payout | Probable Market Price | P/E Ratio | Yield Price/Book Value |
|------|------------|-------|------------|-------|----------|-------------------|-----------|--------|-----------------------|-----------|------------------------|
| | EPS | CEPS | | | | Per Share | Per Share | | | | |
| | ` | ` | ` | ` | ` | % | ` | % | ` | s | % |
| 1-2 | 5.06 | 9.64 | 15.06 | 24.00 | 0.00 | 100.00 | 5.06 | 0.00 | 5.06 | 1.00 | 0.00 |
| 2-3 | 7.72 | 11.67 | 22.78 | 18.00 | 0.00 | 100.00 | 7.72 | 0.00 | 7.72 | 1.00 | 0.00 |
| 3-4 | 10.37 | 13.78 | 33.15 | 12.00 | 0.00 | 100.00 | 10.37 | 0.00 | 10.37 | 1.00 | 0.00 |
| 4-5 | 12.95 | 15.90 | 46.10 | 6.00 | 0.00 | 100.00 | 12.95 | 0.00 | 12.95 | 1.00 | 0.00 |
| 5-6 | 15.44 | 17.98 | 61.54 | 0.00 | 0.00 | 100.00 | 15.44 | 0.00 | 15.44 | 1.00 | 0.00 |



Project at a Glance

| Year | D. S. C. R. | | | Debt / - Deposits Debt | Equity as- Equity | Total Net Worth | Return on Net Worth | Profitability Ratio | | | | | Assets Turnover Ratio | Current Ratio |
|---------|-------------------|------------|---------|------------------------|-------------------|-----------------|---------------------|---------------------|--------|--------|------------------|-----------|-----------------------|---------------|
| | Individual | Cumulative | Overall | | | | | GPM | PBT | PAT | Net Contribution | P/V Ratio | | |
| Initial | (Number of times) | | | (Number of times) | | % | % | % | % | % | | % | | |
| 1-2 | 1.39 | 1.39 | | 3.00 | 3.00 | | | 13.91% | 7.31% | 5.61% | 335.93 | 35.21% | 1.84 | 0.99 |
| 2-3 | 1.66 | 1.52 | | 0.79 | 0.79 | 1.33 | | 16.11% | 10.81% | 7.34% | 385.63 | 34.64% | 2.01 | 1.31 |
| 3-4 | 1.99 | 1.66 | 1.99 | 0.36 | 0.36 | 0.78 | | 17.58% | 13.27% | 8.63% | 440.57 | 34.63% | 2.05 | 1.67 |
| 4-5 | 2.38 | 1.82 | | 0.13 | 0.13 | 0.47 | | 18.56% | 15.01% | 9.58% | 495.51 | 34.62% | 2.01 | 2.07 |
| 5-6 | 2.86 | 1.99 | | 0.00 | 0.00 | 0.28 | | 19.20% | 16.24% | 10.28% | 550.45 | 34.62% | 1.91 | 3.37 |



Project at a Glance

BEP

| | |
|---|------------------|
| BEP - Maximum Utilisation Year | 5 |
| Cash BEP (% of Installed Capacity) | 47.99% |
| Total BEP (% of Installed Capacity) | 52.88% |
| IRR, PAYBACK and FACR | |
| Internal Rate of Return .. (In %age) | 26.47% |
| Payback Period of the Project is (In Years) | 2 Years 3 Months |
| Fixed Assets Coverage Ratio (No. of times) | 7.133 |

Major Queries/Questions Answered in the Report?

1. What is Spice Oleoresins industry ?
2. How has the Spice Oleoresins industry performed so far and how will it perform in the coming years ?
3. What is the Project Feasibility of Spice Oleoresins Extraction Plant ?
4. What are the requirements of Working Capital for setting up Spice Oleoresins Extraction plant ?

- 5. What is the structure of the Spice Oleoresins Extraction Business and who are the key/major players ?**
- 6. What is the total project cost for setting up Spice Oleoresins Extraction Business?**
- 7. What are the operating costs for setting up Spice Oleoresins Extraction plant ?**
- 8. What are the machinery and equipment requirements for setting up Spice Oleoresins Extraction plant ?**

9. Who are the Suppliers and Manufacturers of Plant & Machinery for setting up Spice Oleoresins Extraction plant ?

10. What are the requirements of raw material for setting up Spice Oleoresins Extraction plant ?

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12. What is the Spice Oleoresins Extraction Process?



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Tags

#Oleoresin_of_Spices, #Spice_Oleoresins, #Oleoresins,
#Oleoresin_Extraction_Plant, Spice Oils/Oleoresins, #Spice_Oleoresins_Extract,
Manufacturing of Oleoresin, Spice Oleoresins & Oils, Essential Oils and Oleoresins
Pdf, Oleoresins Extraction, #Essential_Oil_Extraction_Plant, Oleoresin Extraction
Plant Project Report, Oleoresin Extraction Process Pdf,
#Black_Pepper_Oleoresin_Extraction_Process, Preparation of Black Pepper
Oleoresin, Black Pepper Oleoresin, Extraction of Spices,
#Extraction_of_Oleoresin_from_Piper_Nigrum, Spice Oleoresins Extracted,
#Black_Pepper_Oleoresin_Industry, Paprika Oleoresin Extraction Process, Paprika
Oleoresin, Spice Paprika Oleoresin Extraction, Paprika (Capsicum Annuum)
Oleoresin Extraction, Capsicum Oleoresin Extracts, Manufacturing of Oleoresin,
Paprika Oleoresin Extraction Business, Paprika Oleoresin in Food Products,
Paprika Oleoresin Manufacture, Spice Oleoresins for Food Colouring, Capsicum
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Oleoresin of Spices

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