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## **Cultivation**

# and Processing

(Celery, Cinnamon, Coriander, Cloves, Fennel Seed, Garlic, Ginger, Lemon Balm, Mustard, Onion, Parsley, Savory, Sorrel, Tamarind, Turmeric, Sesame, Sassafras, Rosemary, Poppy Seed, Paprika, Oregano, Lemongrass)



#### Introduction

A spice is a seed, fruit, root, bark, or other plant substance primarily used for flavoring, coloring or preserving food. Spices are distinguished from herbs, which are the leaves, flowers, or stems from plants used for flavoring or as a garnish. Sometimes, spices may be ground into a powder for convenience. Many spices have antimicrobial properties. This may explain why spices are more commonly used in warmer climates, which have more infectious diseases, and why the use of spices is prominent in meat, which is particularly susceptible to spoiling. Spices are sometimes used in medicine, religious rituals, cosmetics or perfume production, or as a vegetable.



A condiment is a spice, sauce, or, preparation that is added to food to impart a particular flavor, to enhance its flavor, or in some cultures, to complement the dish. The term originally described pickled or preserved foods, but has shifted meaning over time.

Many condiments are available packaged in singleserving packets, like mustard or ketchup, particularly when supplied with take-out or fast-food meals.



They are usually applied by the diner, but are sometimes added prior to serving; for example, in a sandwich made with ketchup, mustard or mayonnaise. Some condiments are used during cooking to add flavor or texture to the food; barbecue sauce, compound butter, teriyaki sauce, soy sauce, and marmite are examples.



Some of the fundamentals of the book are definition of spices and condiments nomenclature or classification of spices and condiments, Indian central spices and cashew nut committee, origin, properties and uses of spices, forms, functions and applications of spices, trends in the world of spices, yield and nutrient uptake by some spice crops grown in sodic soil, tissue culture and in vitro conservation of spices, in vitro responses of piper species on activated charcoal supplemented media, soil agro climatic planning for sustainable spices production, potentials of biotechnology in the improvement of spice crops, medicinal applications of spices and herbs, medicinal properties and uses of seed spices, effect of soil solarization on chillies, spice oil and oleoresin from fresh/dry spices etc.





#### **Market Outlook**

#### **Indian Export of Spices**

Year	Qty (Tonnes)	%Change	Value (\$	%Change
		(QTY)	Millilon)	(Value)
2010-11	688394	14	1734	38
2011-12	858200	25	2726	57
2012-13	932592	9	2786	2
2013-14	896565	-4	2497	-10
2014-15	923271	3	2429	3
2015-16 (Apr	490832		1470	
to Oct'15)				

(npcs)

Total spices export from India stood at 226,225 tonnes valued at US\$ 621.78 in April-June 2016, registering a year-on-year growth of 3 per cent.

The global market for spices has witnessed continued demand during the last few years and is estimated to reach 83,468 kilo tons by 2022, at a CAGR of 2.84% from 2016 to 2022.



Increase in versatile demand across various food and beverage segments particularly for convenience foods and beverages are likely to drive the global spices market during forecast period 2016 to 2022. The global market for condiments is expected to cross

USD 37.6 billion by 2022 at a CAGR of 4.7%.



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- Indian Names
- Description and Distribution
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- After-care Mulching
- Manuring and Fertilization
- Maturation and Flowering
- Fruit Development



Harvesting of Fruits Yield of Fruit Post-Harvest Technology Drying of Fruit **Processing Technology and Procucts** Manufacturing Essential Oil Native vs Modern Distillation of Oil Yield of Oil Quality of Star-anise Oil Quality Grading of Star-anise Oil Leaf Oil



- Fatty Oil
- Star-anise as Flavourant
- In Medicine
- Star-anise Oil
- B. Japanese star-Anise
- Description and Distribution
- Area, Production and Exports
- Crop Management
- Post-Harvest Technology
- Processing Technology



## **38. BALM OR LEMON BALM**

- Indian Names
- Description and Distribution
- Crop Management
- Soil and Climate
- Propagation
- Cultural Practices
- Harvesting
- Yield
- Post-Harvest Technology
- Processing Technology
- Manufacturing Essential Oil



- Physico-chemical Properties of Oil
- As Food Flavourant
- In Medicine
- Basil or Sweet Basil (Tulsi)
- Indian Names
- Description and Distribution
- Major Types of Basil
- American Basil
- Area, Production and Exports
- Crop Management
- Varieties
- Soil and Climate





- Breeding
- Propagation
- Plant Protection
- Harvesting
- Yield
- Post-Harvest Technology
- Packaging and Storage
- Composition
- Processed Products
- Distillation of Oil
- As Food Flavourant
- In Perfumery and Cosmetics
- In Medicine



- As Insecticide, Insect-Repellent and Bactericidal
- Use of Basil Seeds
- Bay or Laurel Leaves
- Indian Names
- Description and Distribution
- Post-Harvest Technology
- Drying
- Composition
- Processing Technology
- Essential Oil Recovery
- Physico-chemical Properties of Volatile Oil
- Bay Leaves for Flavouring
- Fat from Bay or Laurel Berries
- Laurel Wood Utilization



# **39. CURRY LEAF**

- Indian Names
- Description and Distribution
- Area, Production
- Crop Management
- Curry Leaf Cultivation in Homesteads of South Kerala
- Raising Nursery
- Manuring
- Harvesting
- Weeding
- Prophylactic Measures for Plant Protection
- Cost of Cultivation



- Cultivars and their Sensitivity to Winter Temperature
- Plant Protection
- Termites
- Post-Harvest Technology
- Packing and Storage
- Composition
- Processed Products
- Volatile Oil
- Dehydrated Curry Leaves
- As Food Flavourant
- In Indigenous Medicine
- In Perfume and Cosmetics
- Fruits
- Wood

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- Hyssop
- Description and Distribution
- Area, Production and Exports
- Crop Management
- Soil and Climate
- Planting and Cultivation
- Harvesting
- Yield
- Post-Harvest Technology
- Composition
- Processing Technology
- Distillation of Essential Oil
- Yield of Essential Oil



- Physico-chemical Properties of Volatile Oil
- As Condiment
- In Medicine
- Volatile Oil Uses
- Marjoram
- Indian Names
- Description and Distribution
- Crop Management
- Soil and Climate
- Propagation
- Influence of Growth Regulators on Growth, Herbage and Essential Oil Yields
- Harvesting
- Flowering



- Post-Harvest Technology
- Drying, Packing and Storage
- Composition
- Processed Products
- Volatile Oil
- As Food Flavourant
- In Perfumery and Cosmetics
- In Medicine



### **40. PEPPERMINT**

Indian Names **Description and Distribution Crop Management Processed Procuts** Volatile Oil In Medicine/Pharmaceuticals Waste Utilization Spearmint Indian Names **Description and Distribution Crop Management** Important Steps in its Successful Cultivation in India

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- Composition
- Processed Procucts
- Volatile Oil
- Origanum
- Indian Names
- Description and Distribution
- Crop Management
- Soil and Climate
- Propagation
- Sowing
- After-care
- Harvesting
- Post-Harvest Technology
- Drying



- Composition
- Processed Products
- Volatile Oil
- As Food Flavourant
- In Medicine
- Other Uses
- Parsley
- Indian Names
- Description and Distribution
- Area, Production and Trade
- Crop Management
- Climate and Soil
- Direct Sowing/Sowing in Nursery Beds
- Transplanting of Seedlings



- Manuring/Fertilizers
- Harvesting
- Yield
- Post-Harvest Technology
- Composition
- Processed Products
- Dehydrated Parsley
- Volatile Oil
- Fatty Oil
- As Food Flavourant
- In Medicine



# 41. ROSEMARY

- Indian Names
- Description and Distribution
- Crop Management
- Climate and Soil
- Propagation
- Planting
- Harvesting
- Yield
- Post-Harvest Technology
- Drying and Packing
- Composition
- Processed Products





- Volatile Oil
- As Food Flavourant
- In Perfumery and Cosmetics
- In Medicine
- Sage
- Indian Name
- Description and Distribution
- Major Types of Sage in World Trade
- Different Forms of Sage
- Crop Management
- Climate and Soil
- Propagation
- Planting



- Harvesting
- Yield
- Post-Harvest Technology
- Drying
- Composition
- Marketing/Trading
- How to Handle and Store
- Processed Products
- Volatile Oil
- As Food Flavourant
- In Medicine
- Use in Perfumery
- As Anti-oxidant
- Use of Residue
- Uses of Seeds





- Clary Sage (Salvia sclarea Linn.) or Garden Sage
- Introduction
- Savory
- Indian Names
- Description and Distribution
- Area, Production and Exports
- Crop Management
- Soil and Climate
- Propagation
- Seed Rate, Method of Sowing and Weeding
- Harvesting
- Yield
- Post-Harvest Technology



- Processing Technology
- Essential Oil of Savory
- Composition of Dried Herb
- Composition of Fresh Herb
- Volatile Oil
- Tarragou
- Indian Names
- Description and Distribution
- Crop Management
- Soil and Climate
- Propagation
- Planting Season
- Harvesting



- Post-Harvest Technology
- Composition
- Processing Technology
- Essential Oil
- Physico-chemical Properties of Oil
- Precautions in the Storage of Oil
- As Food Flavourant
- In Medicine
- In Perfumery
- Thyme
- Indian Names
- Description and Distribution
- Major Types of Thyme



- Crop Management
- Climate and Soil
- Propagation
- Post-Harvest Technology
- Commercial Quality
- Composition
- Handling and Storage of Thyme
- Processed Products
- Thyme Extractives-Volatile Oil and Oleoresin
- Thymol
- As Food Flavourant
- In Medicine





### 42. ASAFOETIDA OR ASAFETIDA

- Indian Names
- Description and Distribution
- Types or Varieties of Asafoetida Imported into India
- Method of Collection of Gum-resin
- Crop Management
- Varieties of Asafoetida
- Types/Varieties of Asafoetida of Commerce
- Quality Evaluation
- Composition
- Processed Products
- Oil of Asafoetida



- Oil of Galabanum
- Compounded Asafoetida Powder and Tablets : A Simple CFTRI Process
- As Food Flavourant
- In Medicine
- Calamus or Sweet Flag
- Indian Names
- Description and Distribution
- Crop Management
- Climate and Soil Requirements
- Preparation of Land
- Planting Method
- Planting Time
- Irrigation



- Weeding
- Manuring
- Harvesting
- Yield
- Plant Protection
- Post-Harvest Technology
- Preparation for the Market
- Adulteration
- Composition
- Processed Products
- Volatile Oil
- In Medicine
- In Perfumery
- As an Insecticide
- In Foods Beverages and Liquors





## 43. GALANGAL

- Description and Distribution
- Economic Importance
- Crop Management
- Varieties/Races of Galangal
- Planting
- Plant Protection
- Application of Manures/Fertilizers
- Harvesting
- Yield
- Post-Harvest Technology
- Composition
- Volatile Oil
- Oleoresin Content



- Galangal Rhizomes
- Galangal Oil
- Galangal Oleoresin
- Horse-Radish
- Description and Distribution
- Crop Management
- Post-Harvest Processing Technology
- Volatile Oil
- Composition of Horse-radish
- Adulteration
- As Condiment
- Horse-Radish Cream, Sauce or Relish



- In Medicine
- Long Pepper or Pipli
- Indian Names
- Description and Distribution
- Crop Management
- Soil and Climate
- Propagation
- Manuring
- Harvesting
- Yield
- Plant Protection
- Post-Harvest Technology





- Drying and Packaging.
- Composition
- Processed Products
- Volatile Oil
- As Food Flavourant
- In Medicine



## 44. SAFFRON

- Indian Names
- Description and Distribution
- Crop Management
- Soil
- Climate
- Land Preparation and Planting
- Manures and Fertilizers
- Irrigation
- Interculture
- Crop Rotation
- Effect of Plant Density on Flower, Yield and Corm Production





- Variation in Floral Characteristics of Saffron in different Kashmir Locations
- Harvesting or Picking of Flowers and obtaining Saffron
- Yield
- Cost of Cultivation of Saffron
- Economic Viability of Saffron Cultivation
- Pests and Diseases
- Recent Studies on Crop Management of Saffron in Iran
- Effect of Fertilizers (NPK)
- Post-Harvest Technology
- Sun-Drying of Saffron in Kashmir
- Effect of Different Processing (Different Drying and Dehydration Techniques)





- Composition
- Adulteration
- Packaging and Storage
- Marketing
- Processed Products
- As Flavourant and Colourant for Foods
- Medicinal Properties



### **45. VANILLA**

- Indian Names
- Description and Distribution
- Commercial Forms of Vanilla
- General Characteristics of Vanilla Forms
- Qualitative Classification of Vanilla Pods
- Crop Management
- Climate
- Soil
- Preparation of Land
- Providing Supports (Posts) for Vines
- Planting
- Manuring



- After-care
- Flowering and Natural Pollination
- Hand-pollination
- Pod Development
- Vanilla Production Plan by Tissue-Culture Technique
- Vegetative Propagation of Vanilla
- Yield
- Plant Protection
- Diseases
- Post-Harvest Technology
- Curing
- Vanilla Bean Packing and Storage
- Composition



- Adulteration/Substitution
- Processed Products
- Vanilla Extracts/Essences
- Vanilla Sugar
- Vanilla Oleoresin
- Vanilla powder, Vanilla absolute and Vanilla Tincture
- As Food Flavourant and in Perfumery
- Vanillin

## 46. Machinery & Equipments



#### Tags

How to Process Spice, Ground and Processed Spices, Spice Processing Plant, Spice Processing Machine, Spice Processing, Spices Small Scale Industry, Spice Manufacturing Plant, Spices Business Plan, Spice Machinery Plant, How to Start Home Based Spice Business in India, How to Start Spices Business, Starting Spice Business, Start Spice Business in India, Spices Business Plan in India, Masala Business Plan, Masala Business Profitable, How to Start Spices Processing Business, Spices Processing Plant, Small-Scale Spice Processing, Cultivation of Spices in India, Spice Growing, Spices Farming, Profitable Spices to Grow, Growing Spices, How to Grow Spices, Spice Cultivation, Spices and Condiments, Cultivation of Spices, Cultivation of Spice Crops, Spices Grown in India, Condiments & Spices, Spices and Condiments Cultivation, Spices and Condiments Processing, Condiment Processing Business, Condiments Industry, Tissue Culture and In Vitro Conservation of Spices, In Vitro Propagation of Black Pepper, Water Management of Spice Crops, Spices in Ayurveda, Medicinal Applications of Spices and Herbs, Bulbous Spices, Dehydration of Onion, Tissue Culture of Garlic, Garlic Cultivation, Commercial Forms of Dehydrated Garlic, Garlic Powder, Garlic Salt, Oil of Garlic, Garlic Oleoresin, Tissue Culture of Celery Seed, Celery Cultivation, Tissue Culture of Coriander, Coriander Cultivation, Coriander Herb Oil, Coriander Oleoresin, Aromatic Tree Spices, Acidulant Tree Spices, Harvesting of Fruits, Balm or Lemon Balm, Curry Leaf Cultivation, Curry Leaf, Vanilla Production Plan By Tissue-Culture Technique, Processed Products, Spice Blends,



#### Tags

Seasonings and Condiments, Tissue Culture of Spices, Conservation of Spices, Production of Secondary Metabolites, Soil-Agro Climatic Planning for Sustainable Spices Production, Microrhizome Production in Turmeric, Enhancement of Genetic Variability in Chilli, Indian Spice Extraction Technology, Spice Oil and Oleoresin From Fresh/Dry Spices, Preparation of Bulbs, Preparation of Onion Seed, Preparation of Onion Powder, Preparation of Onion Salt, Onion Cultivation, Garlic, Crop Management, Curing, Packaging and Storage, Oil of Garlic, Garlic Oleoresin, Garlic Oil as an Adhesive, Garlic In Medicine, Processed Products from Celery Leaves/Stalks, Celery Seed Oil, Celery Seed Oleoresin, Fennel Seed, Grading Process of Cloves, Packing of Cloves, Packaging of Clove Oil, Packaging of Clove Oleoresin, Clove-Bud Oil, Clove-Stem Oil, Clove-Leaf Oil, Pimenta Berry Oil Manufacturing Process, Manufacturing Process of Pimento Oleoresin Oil, Manufacturing Alcoholic Beverages, Dehydrated Curry Leaves, Vanilla Oleoresin, Vanilla Powder, Vanilla Absolute and Vanilla Tincture, Npcs, Niir, Process Technology Books, Business Consultancy, Business Consultant, Project Identification and Selection, Preparation of Project Profiles, Startup, Business Guidance, Business Guidance to Clients, Startup Project, Startup Ideas, Project for Startups, Startup Project Plan, Business Start-Up, Business Plan for Startup Business, Great Opportunity for Startup, Small Start-Up Business Project, Best Small and Cottage Scale Industries, Startup India, Stand Up India, Small Scale Industries, New Small Scale Ideas for Spice Processing, Galangal Processing Business Ideas You Can Start on Your Own,



#### Tags

Small Scale Saffron Processing, Guide to Starting and Operating Small Business, Business Ideas for Condiments Processing, How to Start Vanilla Powder Manufacturing Business, Starting Clove Oil Production, Start Your Own Pimenta Berry Oil Production Business, Condiments Processing Business Plan, Business Plan for Coriander Herb Oil Production, Small Scale Industries in India, Asafoetida Processing Based Small Business Ideas in India, Small Scale Industry You Can Start on Your Own, Business Plan for Small Scale Industries, Set Up Spice Processing, Profitable Small Scale Manufacturing, How to Start Small Business in India, Free Manufacturing Business Plans, Small and Medium Scale Manufacturing, Profitable Small Business Industries Ideas, Business Ideas for Startup



Niir Project Consultancy Services (NPCS) can provide Process Technology Book on

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(Celery, Cinnamon, Coriander, Cloves, Fennel Seed, Garlic, Ginger, Lemon Balm, Mustard, Onion, Parsley, Savory, Sorrel, Tamarind, Turmeric, Sesame, Sassafras, Rosemary, Poppy Seed, Paprika, Oregano, Lemongrass)

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- Detailed Project Reports/Pre-feasibility Reports
- Business Plan
- Industry Trends
- Market Research Reports
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- Databases on CD-ROM
- Laboratory Testing Services
- Turnkey Project Consultancy/Solutions
- Entrepreneur India (An Industrial Monthly Journal)



#### How are we different ?

- We have two decades long experience in project consultancy and market research field
- We empower our customers with the prerequisite know-how to take sound business decisions
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- We use authentic & reliable sources to ensure business precision



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- Alcoholic And Non Alcoholic Beverages, Drinks
- O Adhesives, Industrial Adhesive, Sealants, Glues, Gum & Resin
- Activated Carbon & Activated Charcoal
- Aluminium And Aluminium Extrusion Profiles & Sections,
- Bio-fertilizers And Biotechnology
- Breakfast Snacks And Cereal Food
- Bicycle Tyres & Tubes, Bicycle Parts, Bicycle Assembling



- Bamboo And Cane Based Projects
- Building Materials And Construction Projects
- Biodegradable & Bioplastic Based Projects
- Chemicals (Organic And Inorganic)
- Confectionery, Bakery/Baking And Other Food

- Cereal Processing
- Coconut And Coconut Based Products
- Cold Storage For Fruits & Vegetables
- Coal & Coal Byproduct



- Copper & Copper Based Projects
- Dairy/Milk Processing
- O Disinfectants, Pesticides, Insecticides, Mosquito Repellents,

- Electrical, Electronic And Computer based Projects
- Essential Oils, Oils & Fats And Allied
- Engineering Goods
- Fibre Glass & Float Glass
- Fast Moving Consumer Goods
- Food, Bakery, Agro Processing



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- Organic Farming, Neem Products Etc.



- Paints, Pigments, Varnish & Lacquer
- Paper And Paper Board, Paper Recycling Projects
- Printing Inks
- Packaging Based Projects
- Perfumes, Cosmetics And Flavours
- Power Generation Based Projects & Renewable Energy Based Projects
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- Soaps And Detergents
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- Spices And Snacks Food
- Steel & Steel Products
- Textile Auxiliary And Chemicals



- Township & Residential Complex
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- Wood & Wood Products
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