

The Complete Book on Spices & Condiments (with Cultivation, Processing & Uses) 2nd Revised Edition

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The term spices and condiments applies to such natural plant or vegetable products and mixtures thereof, used in whole or ground form, mainly for imparting flavor, aroma and piquancy to foods and also for seasoning of foods beverages like soups. Usually spices are an ingredient used to season a dish in the meal during its preparation and condiments are for using at the table to enhance the dish as each individual's tastes prefer. The great mystery and beauty of spices is their use, blending and ability to change and enhance the character of food. Spices and condiments have a special significance in various ways in human life because of its specific flavours, taste, and aroma. Spices and condiments play an important role in the national economies of several spice producing, importing and exporting countries. India is one of the major spice producing and exporting countries. Most of the spices and herbs have active principles in them and development of these through pharmacological and preclinical and clinical screening would mean expansion of considerable opportunities for successful commercialization of the product. Spices can be used to create these health promoting products. The active components in the spices phthalides, polyacetylenes, phenolic acids, flavanoids, coumarines, triterpenoids, serols and monoterpenes are powerful tools for promoting physical and emotional wellness.

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.

The present book contains cultivation, processing and uses of various spices and condiments, along with photographs of machinery/equipments with addresses of their manufacturers. The book is an invaluable resource for new entrepreneurs, agriculturists, agriculture universities and technocrats.

1. DEFINITION OF SPICES AND CONDIMENTS

Nomenclature or Classification of Spices and Condiments

Brief History of Spices

First International Search for Indian Spices
Role of the ICAR in Spice Development in India
Spices Enquiry Committee
Indian Central Spices and Cashewnut Committee
Review of Researches on Cashewnut and 14 Spices
Setting-Up of the Central Plantation Crops Research Institute (CPCRI), Kasaragod
All-India Co-Ordinated Spices and Cashewnut Improvement Project (AICSCIP), Segregated to -
All-India Co-Ordinated Improvement Project for Spices (AICIPS)
Main Attainments of the Project (AICSCIP)
Segregation of AICSCIP into 2 Projects on Cashew and Spices
National Research Centre for Spices (NRCS, ICAR 1986)
The Indian Institute of Spices Research (1995), Calicut
Krishi Vigyan Kendra
Other Organizations Involved in Spices Development.
Division of Plant Introduction (IARI) and National Bureau of Plant Genetic Resources
Role of Department of Agriculture and Co-Operation, Ministry of Agriculture, Government of
India
Directorate of Arecanut and Spices Development
Spices Development Council, Department of Agriculture and Co-operation
Agmark Laboratories and Directorate of Marketing and Inspection (DMI)
Role of the Cftri and other CSIR National Laboratories in the Technological Spice Development
Programmes
Spices Export Promotion Council, Cochin
Cardamom Board
Functions of the Cardamom Board
Spices Board, Govt of India
Spices Cess Act
Indian Cardamom Research Institute
International Spices Development Activities
International Pepper Community (IPC), Jakarta, Indonesia
International Working Group on Spices (IWGS)
Development of International ISO Standards for Spices and Condiments and their Processed
Products as well as their Methods of Test (ISO : TC 34/SC 7)
World Trade Organization (WTO)
Recommended Action Plans
Importance of Individual Spice Requirements
Trends in Individual World Markets
Forms of Spices and Spice Products Traded
Concluding Remarks : The Challenges for the Indian Spice Industry
Productivity Challenge
Quality Challenge
Value-Addition Challenge
Equity Challenge

2. ORGIN, PROPERTIES AND USES OF SPICES

Ajowan
Ajowan Contains Calcium and Iron
Allspice
Anise/Aniseed
Annatto
Asafoetida/Asafetida
Basil
Bay/Laurel Leaf
Other • Bay Leaves

Indian Bay Leaf
West Indian Bay Leaf
Indonesian Bay Leaf
Boldo Leaves
Caper
Caraway
Cardamom/Cardamon
Celery
Chervil
Chile Peppers
Chives
Cinnamon
Cloves
Coriander
Cumin and Black Cumin
Dill and Dillweed
Epazote
Fagara/Szechwan Pepper
Fennel Seed
Fenugreek
Galangal/Galangale/Galingale
Garlic
Ginger
Juniper
Kaffir Lime (Leaf, Fruit)
Kari Leaf
Lemon Balm
Lemon Verbena
Lemongrass
Lovage
Mace
Marjoram
Mints: Spearmint and Peppermint
Mustard
Myrtle
Nigella
Nutmeg
Onion
Oregano
Paprika
Parsley
Peppers: Black, White, Green, Long/Pippali, CUBEB
Poppy Seed
Rosemary
Saffron
Sage
Sassafras
Savory
Screw-Pine Leaf/Pandanus Leaf
Sesame
Sorrel
Star Anise
Sumac

Tamarind
Tarragon
Thyme
Turmeric/Tumeric
Wasabi
Zeodary

3. FORMS, FUNCTIONS AND APPLICATIONS OF SPICES

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Spice Forms and Composition
Fresh whole Spices
Dried Spices
Spice Extractives
Essential (Volatile) Oils
Oleoresins (Non-Volatiles and Volatiles)
Other Extractives
The Functions of Spices
Primary function of Spices
Flavor, Aroma and Texture
Coloring Properties
Secondary Functions of Spices
Spices as Preservatives
Emerging Secondary Function of Spices
Spices as Medicines
Spice Preparation
Global Equipment used in Spice Preparation
Spice Applications
Marinades, rubs and Glazes
Spice Blends, Seasonings and Condiments
Spice Quality and Specifications
International Standards and Specifications
Maintaining Spice Quality
Fumigation
Controlled Atmosphere Storage
Sterilization

4. TRENDS IN THE WORLD OF SPICES

Trends in foods and spices
Understanding and Effectively Meeting the Growing Demand for Authenticity
Authentic Ethnic Ingredients
Spices and Flavorings of Popular Authentic Ethnic Cuisines
Authentic Ethnic Flavorings
Authentic Preparation and Cooking Techniques
Presentation Styles
Fusion and Regional American Flavorings
Fusion Flavors
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Effect of Fertilizer
Nutrient Concentration and Uptake
Amelioration of Sodic Soil

6. TISSUE CULTURE AND IN VITRO CONSERVATION OF SPICES

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Cardamom

Clonal Multiplication

Regeneration of Plantlets from Callus

Inflorescence Culture

Black Pepper

Clonal Multiplication

Callus Cultures and Regeneration of Plantlets

Micropropagation of related species of Piper

Ginger

Clonal Multiplication

Regeneration of Plantlets from Callus

In Vitro Selection

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Micropropagation

Plant Regeneration from Callus

Vanilla

Micropropagation

Saffron

Micropropagation

Tree spices

Micropropagation

In Vitro Proliferation of Mace and Synthesis of Flavour Components in Culture

Seed and herbal spices

Production of secondary metabolites

Synseed technology

In vitro Conservation of Spices Germplasm

Protoplast Isolation and Culture

Genetic Transformation

Isolation of DNA and Studies on Biochemical/molecular Markers

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7. IN VITRO PROPAGATION OF BLACK PEPPER (PIPER NIGRUM L.)

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8. IN VITRO RESPONSES OF PIPER SPECIES ON ACTIVATED CHARCOAL SUPPLEMENTED MEDIA

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9. TISSUE CULTURE STUDIES ON TREE SPICES

Introduction

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11. SOIL-AGRO CLIMATIC PLANNING FOR SUSTAINABLE SPICES PRODUCTION

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Delineations of Agro Eco Region (AER) and Agro Eco Sub Regions (AESR)

Characteristics of Spice Growing Soils in Different Agro Eco Sub Regions

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12. WATER MANAGEMENT OF SPICE CROPS

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How to Irrigate and Manage the Water

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Genetic Manipulation by Gene Technology

Agrobacterium Mediated Gene Transfer

Gene Transfer by Electroporation

Gene Transfer by Micro projectile Bombardment

Gene Marker and Genome Analysis Techniques

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Arbitrary/semiarbitrary Primer Based PCR Techniques

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15. MEDICINAL APPLICATIONS OF SPICES AND HERBS

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18. IN VITRO MICRORHIZOME PRODUCTION IN FOUR CULTIVARS OF TURMERIC (CURCUMA LONGA L.) AS REGULATED BY DIFFERENT FACTORS

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19. ENHANCEMENT OF GENETIC VARIABILITY IN CHILLI (CAPSICUM ANNUUM L.)

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20. BREEDING OF INDIAN PAPRIKA FOR HIGH-VALUE ADDITIONS • ÆORGANIC COLOUR • AND ÆOLEORESIN •

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21. USE OF COIR COMPOST AS A COMPONENT OF NURSERY MIXTURE FOR SPICES

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Experiment -I Effect of Terra Care as Substitute for Soil/Sand/ EYM in Conventional Potting

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22. EFFECT OF SOIL SOLARIZATION ON CHILLIES (CAPSICUM ANNUUM L.)

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23. SUPERCRITICAL FLUID EXTRACTION OF SPICES

24. INDIAN SPICE EXTRACTION TECHNOLOGY

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Quality Parameters of a Good Variety

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Interculture and Weeding

Roguing

Manuring

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Seed Production

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Marketing

Preparation for Market

Grading

Composition

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Packaging

Post-harvest Handling

Marketing Within the Country

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Garlic Residue with Antibacterial Properties
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Garlic Use for Cancer
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Comparative Antimicrobial Activity of Seed Spice Essential Oils

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Caraway

Black Caraway

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Intercropping

Interculture

Irrigation

Harvesting and Threshing

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Post - Harvest Technology
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Coriander Oleoresin
Coriander Dal-an Improved CFTRI Process
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A. Aromatic Tree Spices
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Cassia and Cinnamon

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Propagation of Cassia
Air Layering in Cassia
II. Tejpat or Tamal Patra or Indian Cassia Lignea
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Brief Description of Commercial Types and Classification or Grades of Cassia

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Commercial Grades of Cassia in World Market

Physico-Chemical/Specification of Cassia Types

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Manuring and Top-dressing with Fertilizers

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Residue (case) as Cattle Feed

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Other Uses
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Area, Production and Trade
Crop Management
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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
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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
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Yield
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Drying
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Marketing/Trading
How to Handle and Store
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Volatile Oil
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In Medicine
Use in Perfumery
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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
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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
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Commercial Quality
Composition
Handling and Storage of Thyme
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Thyme Extractives-Volatile Oil and Oleoresin
Thymol
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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
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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
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Soil and Climate
Propagation
Manuring

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Yield
Plant Protection
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Composition
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44. SAFFRON
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Description and Distribution
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Manures and Fertilizers
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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
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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
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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
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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

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