## **Herbs Cultivation & Their Utilization**

Author:- NIIR Board Format: paperback Code: NI55 Pages: 522 Price: Rs.800US\$ 100 Publisher: NIIR PROJECT CONSULTANCY SERVICES Usually ships within 5 days

India is one of the leading Herbs producer and exporter in the world. Several meticulous researches were conducted and experimented with herbs. They arrived at more precise conclusions about the usefulness of diverse plants and herbs that are utilized in different fields like medicine, cosmetics, perfumes and so on. The Ayurveda healing is completely based on herbs, which have definite medicinal importance or significance. In the primeval times, the Indian sagacious held the view that ayurveda herbs are the only resolution to treat numeral health related problems and diseases. Herbal products are replacing the synthetics products because of its harsh nature. Herbal products are in huge demand in the developed world for health care for the reason that they are efficient, safe and have lesser side effects. Growing herbs is easy to do, and people continue to turn their love for gardening into successful businesses growing and selling fresh cut herbs, herb plants, and other herb related products. The book makes an attempt to provide information on cultivation and utilization of herbs. The book also contains the described process of the cultivation of medicinal herbs, spices etc with photograph and diagrams. This book also describes about the role of perfumery, analysis of essential oils and flavors, recent development of some natural products and more. This book covers the comprehensive information on herbs cultivation & their utilization. We hope that this book will be very helpful for new Entrepreneurs, Herb Growers, professionals & research Institutions.

1. MEDICINAL PLANTS-PRIORITIES IN INDIAN MEDICINES Medicinal Plants Based Drug Industry Medicinal Plants Based Drug Industries in Indian systems of Medicine Plant Parts Extract and Galenicals **Essential Oils from Plants Phytopharmaceuticals** India's Strength in Medicinal Plant Wealth Priorities in Research on Medicinal Plants & Diverse Studies Antiprotozoal Drugs from Plants Antiulcer Drugs from Plants Antirheumatic Plant Antidiabetic Plants Antiasthmatic Plants Antiviral Plants Hepatoprotective Plants Fertility Control by Plants

Anti-Cancer Drugs from Plants Plant for Urinary Stones Plants as sedatives/tranguillizers Plant Laxatives Pitfalls in Plant-Drug Research and Implications Herbal Drug/Intellectual Property Rights (IPR) Herbal Drug Trade Herbal Medicines-Medicinal Marvel or Money Spring Malarkey Sociopolitical, Economical & Ethical Issues in Medicinal Plants Research Herbal Drug Development Standardization of Herbal Drugs 2. MEDICINAL PLANTS IN ORAL HEALTH CARE IN INDIA INTRODUCTION Use of Medicinal Plants for Dental Care Plants Useful as Chewing Stick **3. CHAMOMILE CULTIVATION** INTRODUCTION Description of the Plant Genetics CULTIVATION Soil and Climate Propagation/Nursery Transplantation, Irrigation and Weeding **Cropping Sequence** Pests and Diseases Manures and Fertilizers Harvesting Collection of Seeds Yield Drying and Storage Distilation Yield and Characteristics of the Oil Uses Specification of the Drug 4. KALMEGH. ANDROGRAPHIS PANICULATA CULTIVATION INTRODUCTION Description of the Plant **Genetic Improvement CULTIVATION** Climate Soil Propagation Transplanting Manure and Fertilizer Irrigation Interculture Harvesting **Diseases and Pests** Hemical Constituents Uses 5. CORIANDER CULTIVATION INTRODUCTION Description of the Plant

**CULTIVATION** Soil and Climate Propagation Irrigation Harvesting Pests and Diseases Distillation Yield **Chemical Constituents** Uses 6. BHUMYAMALAKI PHYLLANTHUS AMARUS CULTIVATION INTRODUCTION Description of the Plant **CULTIVATION** Soil and Climate Propagation Transplanting Weed Control Fertilizers and Manures Irrigation Harvesting Cultivar Chemestry Extraction **Traditional Medicinal Uses** Pharmacology/Clinical Trials Drug Preparations from P. Amarus Available in Markets 7. QUINGHAOSU ARTAMISLA ANNUA CULTIVATION Introduction Description of the Plant Soil and Climate Propagation Weed Control Fertilizers and Manures Harvesting Chemestry and Uses Distillation 8. ERGOT CULTIVATION INTRODUCTION History The Ergot Fungus Cultivation **Ergot Alkaloids** Uses 9. BELLADONNA CULTIVATION INTRODUCTION Description of the Plant Distribution **CULTIVATION** Soil and Climate Raising of Nursery **Fertilizer** Application Irrigation

Interculture Harvesting and Drying **Disease and Pests Chemical Constituents** Uses 10. SOUTH AMERICAN MARIGOLD (TAGETES MINUTA) INTRODUCTION Botanical Description of the Plant **Genetic Improvement** Agrotechnology Soil and Climate Propagation Weed Control Fertilizers and Manures Intercropping Irrigation Harvesting **Crop Rotations** Diseases Uses Distillation Chemistry **Distillation Unit Design Available** 11. EUCALYPTUS CITRIODORA CULTIVATION INTRODUCTION Description of the Plant **CULTIVATION** Soil and Climate Preparation of Land Propagation Nursery Transplanting Weeding Manures and Fertilizers Harvesting Pest and Diseases Distillation Yield **Chemical Constituents** Use **12. ROSEMARY CULTIVATION** Introduction Description of the Plant **CULTIVATION** Soil and Climate Propagation Transplanting, Interculture and Fertilizer Application 105 Irrigation Harvesting Pests and Diseases and their control Distillation Oil content and Yield **Chemical Constituents** 

Uses **13. DUBOISIA CULTIVATION** INTRODUCTION Botany Soil and Climate Cultivation Preparation of Land Raising the Nursery Transplanting Irrigation **Fertilizers Application** Pests and Diseases Harvesting Yield Active Constituents and Uses 14. MANDOOKPARNI-GUTUKOLA CENTELLA ASIATICA **CULTIVATION** INTRODUCTION **Botanical Description CULTIVATION** Land Preparation Varieties Planting Fertilizer Irrigation Weed Control Harvesting Post Harvest Processing Yield Chemistry Uses 15. SAPOGENIN BEARING SPECIES OF YAMS AND THEIR **CULTIVATION** INTRODUCTION Botany Soil and Climate Propagation Propagation by Seeds Propagation by stem cutting Propagation from tuber pieces Field Preparation and Planting **Provision of Support** Interculture **Fertiliser Application** Irrigation Pests and Diseases Harvesting **Chemistry & Uses 16. PERIWINKLE CULTIVATION** INTRODUCTION Description of the Plant Soil and Climate Propagation

Manure and Fertilizers Weeding Irrigation Harvesting Yield Pests and Diseases Active Constituents and Uses 17. SENNA (CASSIA ANGUSTIFOLIA) CULTIVATION **INTRODUCTION** Description of the Plant Improved Varities Soil Climate Land Preparation Sowing Manuring and Fertilization Irrigation Weeding and Interculture Operations Harvesting Yield Pest and Diseases Active Constituent and Uses **Extraction of Sennosides** 18. Cultivation of Lentinus Edodes-An Important Medicinal Mushroom Cultivation Materials and Substrates Diseases, Pests and Control 19. CULTIVATION OF KAEMPFERIA GALANGA L. INTRODUCTION Botany **Crop Improvement Crop Management** Extraction of Essential Oil **Physico-Chemical Properties of Oil** Utilisation 20. CULTIVATION OF SWEET MARJORAM INTRODUCTION Floristics and Crop Improvement Floristics Ex. Dittany Studies on Floral Biology Flowering Anthesis and Pollen Studies **Crop Improvement** Evaluation of Germplasm **Crop Production and Management** Soil and Climate Propagation Nursery Raising Vegetatove Propagation Studies on Nurtient and Spacing Use of Growth Regulators Crop Rotation/Sequencing and intercrops

Irrigation and Interculture **Insect Pests and Diseases** Harvesting Production of Essential Oil and Yield Chemestry of Oil Influence of Harvesting stage on the odour values of essential oil Production of Essential Oil Yield 21 CULTIVATION OF MATRICARIA CHAMOMILLA INTRODUCTION Uses Soil and Climate Requirements Cultivation **Botanical Characters** Propagation Crop Growth Irrigation Manures and Fertilizers Weed Control Harvesting Fresh Flower and Oil Yield Seed Collection and Storage **Drying Fresh Flowers** Distillation Effect of Growth Regulators **Diseases and Pests Chemical Composition** Chamomilla Waste Ray and Disc Florets Roots of Matricaria Chamomilla **Analytical Methods** 22 CULTIVATION OF SPICES INTRODUCTION **Black Pepper** Climate Soil Vareties Production of Rooted Cutting **Cultural Practices** Standards Planting **Under Planting** Soil Fertility and Nutrient Management Irrigation Inter-and Mixed-Cropping **Bush Pepper** Diseases Pests Harvesting Cardamom Varieties Propagation Nursery **Mainfield Planting** 

Diseases Pests Cloves Climate and Soil Varieties **Planting Material** Planting Manuring Diseases Pests Nutmeg **Cultural Practices** Manuring Diseases Pests Clinnamon **Cultural Practices** Manuring and Processing Diseases Pests Ginger Varities **Cultural Practices** Diseases Pests Turmeric Varities **Cultural Practices** Diseases Pests 23 PLANTAGO OVATA FORSK. CULTIVATION Cultivation Plant Morphology **Chromosome Complement Breeding System** Diseases Processing Chemical Constituents and Characteristics of the Seed Utility Toxicity Improvement Wild Allies 24 PYRETHRUM CULTIVATION INTRODUCTION Description of the Plant **CULTIVATION** Soil and Climate Preparation of Field Raising of Nursery **Fertilizer** Application Interculture Irrigarion Harvesting and Drying

Yield Uses **25 FRENCH BASIL CULTIVATION** INTRODUCTION European Type **Reunion Type** Methyl Cinnamate Type **Eugenol Type** Botany Soil and Climate **Field Preparation** Propagation Raising of Nursery Planting Irrigation **Fertilizer** Application Interculture Harvesting and Yield Distillation **Diseases and Pests** Active Constituents and Uses **26 PALMAROLSA CULTIVATION** INTRODUCTION **Botany** Soil and Climatic Conditions Propagation Transplantation of Seedingd By Slips Irrigation Weeding **Fertilizers** Harvesting Distillation Oil Content and Yield Chemical Constitutents and Uses **27 JAVA CITRONELLA CULTIVATION** INTRODUCTION Botany Soil and Climate Preparation of Land Propagation **Fertiliser** Application Interculture Irrigation Harvesting Distillation Oil Content and Oil Yield **Diseases and Pests Chemical Constituents and Uses 29 PATCHOULI CULTIVATION** INTRODUCTION Botany Soil and Climate

Cultivation Preparation Raising the Nursery Transplanting Irrigation **Fertiliser** Application Interculture Pests and Diseases Root-Knot Leaf Blight Harvesting Drying Distillation Oil Content and Oil Yield Storage **Chemical Constituents** Uses **29 CULTIVATION OF DAVANA** INTRODUCTION Description Description of the Plant Soil and Climate Nursery Transplanting, Irrigation and Weeding Manures and Fertilizers Harvesting Pests and Diseases Distillation 281 Oil Content and Yield Chemical Constituents and Uses 30 CULTIVATION AND UTILIZATION OF AMMI MAJUS Description fo the Plant Harvesting Yield Pests and Diseases Extraction of Xanthotoxin **Essential Oil** Uses **31 ROSE CULTIVATION** INTRODUCTION Description **CULTIVATION** Climate Soil Propagation Transplanting Subtropical Region **Temperate Region** Fertilizer Application Subtropical Region **Temperate Region** Irrigation Pruning

Interculture Harvesting **Diseases and Pests** Distillation Chemistry of the Oil Uses **32 CULTIVATION OF GERANIUM** INTRODUCTION Description of the Plant Soil and Climate Propagation Transplanting, Irrigation and Weeding Manures and Fertilizers Intercropping Harvesting Pests and Diseases Distillation Oil Content and Yield Chemical Constituents and Uses **33 CULTIVATION OF MUSKDANA** Description of the Plant Cytology Climate Soil Seed Sowing **Fertilizers** Irrigation Weeding Harvesting Pests and Diseases Leaf Hooper (Amrasca biguttula) Leaf Roller (Sylepta derogata Feb.) Spotted Ball Worm (Erias fobia Stoll/Erias vittella (F) Thrips Uses **Distillation & Separation of Aromatic Principales** Properties of Essential Oil 34 CULTIVATION OF POGOSTEMON PATCHOULI FOR ITS OIL Botany Soil and Climate CULTIVATION Preparation of Land Propagation and Transplanting Irrigation **Fertilizers Application** Harvesting Drying Distillation Oil Yield Physicochemical Properties of the Oil **Physiological Studies Diseases and Pests** 

Uses Adulterants 35 CULTIVATION OF PODOPHYLLUM HEXANDRUM INTRODUCTION **Distribution and Habitat** Parts Used **Therapeutic Uses Botanicial Description** Seed Germination and Development of Seedlings Germination is Epigaeous Cultivation **Recommended Cultural Practices** Climate Soil Propagation Manures and Fertilizers Irrigation Interculture Harvesting and Processing **Expected Yield** Chemical Constituents and Demand in the World Market 332 **Future Strategies 36 CULTIVATION OF HYOSCYAMUS** Distribution Botany Cytology and Genetics Soil and Climate Cultivation Propagation Transplanting Irrigation Fertilizer Application Harvesting, Drying and Storage **Physiological Studies Tissuecultures Studies** Constituents **Diseases and Pests** Uses Adulterants 37 CULTIVATION LIQUORICE (GLYCYRRHIZA GLABRA L.) Soil and Climate Requirements Preparation of Land Propagation Harvesting Regenearation Interplantation Yield In Vitro Multiplication **Diseases and Pests** Flowering and Seed Setting **Cytogenetical Studies Quality and Specification Substitutes** 

Important Chemical Constituents of Liquorice Processing 38 CULTIVATION OF BRAHMI BACOPA MONNIERI INTRODUCTION Plant Description **CULTIVATION** Soil and Climate Land Preparation Varieties Transplanting Fertilizer Irrigation Weed Control Pest Harvesting Post Harvest Technology Yield Chemistry Uses **39 LAVENDER CULTIVATION** INTRODUCTION Botany Soil and Climate Propagation Propagation by Seeds **Propagation Through Vegetative Means** Transplantation **Fertilizers Application** Weeding Regeneration Harvesting Distillation Oil Content and Oil Yield **Chemical Constituents** Uses 40 ASHWAGANDHA (WITHANIA SOMNIFERA) **CULTIVATION** INTRODUCTION Description of the Plant Cultivars **CULTIVATION** Soil and Climate Land Preparation Seed Rate and Sowing Thinning and weeding Irrigation **Crop Protection** Harvesting Post Harvest Technology Yield Chemistry Uses **41 LEMONGRASS CULTIVATION** 

Method of Lemongrass Cultivation Preparation of Land Need of Manure Seeds for Sowing Lemongrass or Planting Material Time of Sowing Method of Sowing Need of Irrigation Need of Roeing and Weeding Reaping of Crop **Oil Extraction from Leaves** Various Species/Kinds of Lemongrass Profits from Lemongrass Cultivation Where to Contact for Selling of Lemongrass Oil 42 Menthol Mint Cultivation **Present Situation** Various Species of Menthol Mint: Preparation of Field for sowing Mentha Method of Sowing Mentha Irrigation Manure and Fertilizer Control Method of Cropping Cutting of Crops Main Insects Causing Damage to Mentha Crop Production of Oil from Mentha Leaves Future of Mentha Oil Present Market Situation of Mentha Industry and its future Possibilities The Supplirs of Mentha Seeds Machinery/Equipment for mentha 43 PRODUCTION OF OIL FROM CITRONELLA GRASS Agriculture Technique for Cultivation of Citronella Preparation of Land Planting Material/Seeds for Citronella Cultivation Method of Sowing Main Species of Citronella Need of Water for Citronella Crop Main Diseases & Insects in Citronella Crop **Reaping of Crops Distillation of Leaves** Profit Obtained from Citronella Crop **Obtainging Planting Material** Palmrose or Rosegrass 44 A ROLE OF PERFUMER IN INDUSTRY 45 ADVANCES IN THE ANALYSIS OF ESSENTIAL OILS AND FLAVOURS Gas Liquid Chromatography Capillary and Chiral Gas Chromatography Preparative Gas Chromatography Column Chromatography Thin Layer Chromatography Supercritical Fluid Extraction (SFE)/Fractionation /SFF)/Chromatography (SFC)

Techniques Ancillary to Gas Chromatography Identification Techniques **Retention Indices** Mass Spectrometry **Multidimensional GC-MS HRGC-FTIR** High Pressure Liquid Chromatography **Chemical Transformation** Techniques Ancillary to Liquid Chromatography Ultra Violet and Infra Red Spectroscopy Nuclear Magnetic Resonance Detection of Synthetics in Natural Oils by Isotopes Analysis Isotope Analysis by MS Isotope Analysis by NMR Intelligent Sensor Technology **46 UTILIZATION OF LIGNO-CELLULOSIC** WASTE OF ESSENTIAL OIL INDUSTRY Cymbopogon Marc Mentha Marc Utilisation of Woody Stems of Eucalyptus Citriodora **47 RECENT DEVELOPMENTS OF SOME** NATURAL PRODUCTS Monoterpene Iridoids Valtrats Saponins Sataver Centella Asiatica Horse Chestnut Sterols Sitosterol (Beta-Sitosterols) Guggul Cardenolides Asclepias Curassavica Pueraria Tuberosa ALDALOIDS FLAVONOIDS Aristolochia Indica Silybum Marianum Gingko Biliba Adhatoda Vasica **MISCELLANEOUS** Allium Cepa (Onion) **ADAPTOGENS** Ginseng Withania Somnifera (Ashwagandha) Titnospora Cordifolia (Guduchi Giloe) ANTICANCER DRUGS Vinca Alkaloids Podophyllotoxin **Maytansinoids** Ellipticine Gossypol Taxol Camptothecins

**Bryostanins** Acetogenins ANTI-AIDS AGENTS Castanospermine Hypericin **Cornosolic Acid** Forskolin Artemisinin (Quinghaosu) **Echinacea Species 48 PRODUCTION OF SECONDARY METABOLITIES IN** PLANT TISSUE CULTURE **Biotransformation or Precursor Feeding** Immobilization of Plant Cells Elicitation Induction of Hairy Roots Using Agrobacterium Rhizogenes Use of Tools of Molecular Biology **Concluding Remarks** 

## About NIIR

**NIIR PROJECT CONSULTANCY SERVICES (NPCS)** is a reliable name in the industrial world for offering integrated technical consultancy services. NPCS is manned by engineers, planners, specialists, financial experts, economic analysts and design specialists with extensive experience in the related industries.

Our various services are: Detailed Project Report, Business Plan for Manufacturing Plant, Startup Ideas, Business Ideas for Entrepreneurs, Start up Business Opportunities, entrepreneurship projects, Successful Business Plan, Industry Trends, Market Research, Manufacturing Process, Machinery, Raw Materials, project report, Cost and Revenue, Pre-feasibility study for Profitable Manufacturing Business, Project Identification, Project Feasibility and Market Study, Identification of Profitable Industrial Project Opportunities, Business Opportunities, Investment Opportunities for Most Profitable Business in India, Manufacturing Business Ideas, Preparation of Project Profile, Pre-Investment and Pre-Feasibility Study, Market Research Study, Preparation of Techno-Economic Feasibility Report, Identification and Section of Plant, Process, Equipment, General Guidance, Startup Help, Technical and Commercial Counseling for setting up new industrial project and Most Profitable Small Scale Business.

NPCS also publishes varies process technology, technical, reference, self employment and startup books, directory, business and industry database, bankable detailed project report, market research report on various industries, small scale industry and profit making business. Besides being used by manufacturers, industrialists and entrepreneurs, our publications are also used by professionals including project engineers, information services bureau, consultants and project consultancy firms as one of the input in their research.

Our Detailed Project report aims at providing all the critical data required by any entrepreneur vying to venture into Project. While expanding a current business or while venturing into new business, entrepreneurs are often faced with the dilemma of zeroing in on a suitable product/line.

NIIR PROJECT CONSULTANCY SERVICES, 106-E, Kamla Nagar, New Delhi-110007, India. Email: <a href="mailto:npcs.india@gmail.com">npcs.india@gmail.com</a> Website: <a href="mailto:NIIR.org">NIIR.org</a>

Fri, 09 May 2025 11:15:02 +0000