## The Complete Book on Ginger Cultivation and Manufacture of Value Added Ginger Products (Ginger Storage, Ginger Oil, Ginger Powder, Ginger Paste, Ginger Beer, Instant Ginger Powder Drink and Dry Ginger from Green Ginger)

Author: - NPCS Board of Consultants &

Engineers

Format: paperback

Code: NI308 Pages: 352

Price: Rs.1575US\$ 150

Publisher: NIIR PROJECT CONSULTANCY

**SERVICES** 

Usually ships within 5 days

Ginger is the common name for Zingiber officinale, which was originally cultivated in China and now equally spread around the world. Ginger is a herb but is often known as a spice, with a strong distinct flavor that can increase the production of saliva. The part that is used as spice on the plant itself is the rhizomes or ginger root. This ginger root is traditionally used with sweet foods in Western cuisine being included in popular recipes such as ginger ale, gingerbread, ginger biscuits and ginger cake. It is also used in many countries as a medicinal ingredient which many believe in. Historically, ginger has a long tradition of being very effective in alleviating symptoms of gastrointestinal distress. In herbal medicine, ginger is regarded as an excellent carminative and intestinal spasmolytic. Modern scientific research has revealed that ginger possesses numerous therapeutic properties including antioxidant effects, an ability to inhibit the formation of inflammatory compounds, and direct anti-inflammatory effects.

India is the leading producer of ginger oil and dominates the ginger oil market with almost half shares out of total market. China is also known for ginger production and trade of ginger oil. Asia Pacific mainly exports ginger oil to North America and European markets.

Increasing number of health conscious consumers, and their demands for natural oils and extracts based products is the major factor driving growth for essential oils and in turn ginger oil market. Ginger is majorly used in spices and thus ginger oils and oleoresins are preferred to prepared dried spices as flavoring in food industry, because they are more stable, contamination free, cleaner and can be easily standardized by blending. Thus the growth of food industry and spices demand are another factors driving growth of ginger oil market. The growth of natural personal care products industry is another growth driver for ginger oil market.

The major content of the book are Ginger Cultivation, Farm and Forestry Production for Ginger, Diseases & Pest Management in Ginger, Medicinal Values of Ginger, Active Ingredients of Ginger, Pharmacological Activity of Ginger, Ginger Storage, Ginger Processing, Ginger Oleoresin, Ginger Oil, Ginger Beer, Ginger Powder, Ginger Paste, Instant Ginger Powder Drink, Ginger Candy, Dry Ginger from Green Ginger, Extraction of Ginger Oleoresin from Ginger-Root Using Co2, Production of Ginger Rhizome by Shoot-Tip Culture, Extraction of Essential Oils from Ginger Rhizome Using Steam Distillation Method, Packaging and Labelling BIS Specifications,

Good Manufacturing Practices, Sample Plant Layouts, Photoraphs of Machinery with Suppliers Contact Details.

This book will be a mile stone for its readers who are new to this sector, will also find useful for professionals, entrepreneurs, those studying and researching in this important area.

## 1. INTRODUCTION

History and Origin of Ginger

Processing of Ginger

Peeling

Drying

Storage

**Bleached Ginger** 

Transplanting Technology for Reduction of Seed

Cost

Technology

Manuring

Irrigation

Inter Cultivation

Inter Cropping and Crop Rotation

**Uses of Ginger** 

Best Ways to Use Ginger

**Bioactive Components of Ginger** 

Metabolism of Ginger

**Properties** 

Applications of Ginger

Ginger Health Benefits

- 1. Stroke and Heart Disease
- 2. Indigestion and Nausea
- 3. Malabsorption
- 4. Compromised Immunity and Respiratory

**Function** 

5. Bacterial Infections

**Healing Properties** 

Cosmetic Uses of Ginger

Nutritional Value of Ginger

Nutrient Profile for Ginger

2. GINGER CULTIVATION

Climate and Soil

Soil for Ginger Farming

Varieties

Planting Season

Preparation of Land

Manures and Fertilisers

Mulching

**Crop Nutrition** 

Nitrogen

Potassium

**Phosphorus** 

Calcium

Earthing up

**Growth Regulators** 

Harvesting and Curing Production Technology Seed Size Seed Rate Seed Treatment Planting

Spacing

Depth of Planting

**Crop Rotation** 

Storage of Seed Rhizomes

Alternate Method of Ginger Production

3. FARM AND FORESTRY PRODUCTION FOR

**GINGER** 

**Uses and Products** 

**Botanical Description** 

**Brief Botanical Description** 

Distribution

**Environmental Preferences and Tolerances** 

Climate

Soils

Growth and Development

Agroforestry and Environmental Services

Propagation and Planting

Cultivation

Special Horticultural Techniques

Advantages and Disadvantages of Growing in

**Polycultures** 

Pests and Diseases

Susceptibility to Pests/Pathogens

Preventing and Treating Problem Pests and

Diseases

Disadvantages of this Crop

Potential for Invasiveness

**Commercial Production** 

Postharvest Handling and Processing

4. DISEASES & PEST MANAGEMENT IN GINGER

Diseases

1. Soft Rot or Paheli: Pythium Aphanidrematum

Management

2. Dry Rot: Fusarium and Pratylenchus Complex

Management

3. Leaf Spot/Blight: Phyllostricta Zingiberi

Management

4. Bacteri al Wi I t or Prem Rog: Ral stoni a

Solanacearum

Integrated Pest and Disease Management for

Ginger

5. MEDICINAL VALUES OF GINGER

Active Compounds in Ginger

Anti-Inflammatory & Anti-Oxidant

Nausea

Digestion

Cholesterol

Cancer

Anti-Bacterial

Migraines

**Drug Interactions** 

Malabsorption

**Bacterial Diarrhea** 

Anticarcinogenic Activities of Ginger

Therapeutic Health Benefits of Ginger

Ginger as Growth Promoter

Osteoarthritis

Use of Ginger as a Traditional Medicine

Role of Ginger and Its Constituents in Prevention

and Treatment of Gastrointestinal Cancer

**Gastric Cancer** 

**Pancreatic Cancer** 

**Liver Cancer** 

Colorectal Cancer

Cholangiocarcinoma

Clinical Studies of Ginger against GI Cancer

Ayurveda Health Benefits of Ginger

Trikatu for Weak Digestion

Dry Ginger is Hot and Warms the Lungs and

**Dries Cold Phlegm** 

Fresh Ginger Warms the Stomach and Promotes

Digestion and Absorption

Fresh Ginger to Disperse Cold, and to Treat

Colds and Coughs

Ginger Root Contraindicated in Pitta Elevation

Ginger Root in Ayurvedic Churnas

6. ACTIVE INGREDIENTS OF GINGER

Introduction

Chemical Structure of Active Constituents

Mechanism of Action of Ginger in Diseases

Management

7. PHARMACOLOGICAL ACTIVITY OF GINGER

Introduction

Pharmacology

**Antiemetic Effects** 

**Anti-Inflammatory Effects** 

**Antioxidant Effects** 

Cardiovascular Effects

**Gastrointestinal Effects** 

Antitussive Effects

Immunomodulatory Effects

Lipid Effects

Weight Loss Effects

Antiarthritic Effect

**Antimicrobial Activities** 

Radio Protective Activity

Antigenotoxic Activity

Mutagenicity

8. GINGER STORAGE

Types of Ginger

Composition of Ginger

**Ginger Storage Process** 

Controlled Temperature and Humidity Storage

9. GINGER PROCESSING

Introduction

Forms of Ginger

**Processing Dried Ginger** 

Making Dried Ginger

**Quality Assurance of Dried Ginger** 

Grading

Grinding

Packaging

Storage

Ginger Oil Distillation

Advantages of Ginger Dehydration

- 1. Enhance Ginger's Value
- 2. More Cost-Effective
- 3. Wide Application

Hot-Air Circulation Drying Technology

**Process Flow Sheet** 

10. GINGER OLEORESIN

Uses

11. GINGER OIL

Introduction

Solubility

**Chemical Composition** 

**Uses and Application** 

Packing and Marking

Manufacturing Process

Preparation of Raw Material

Cleaning

Milling

Soaking

Loading or Charging

Bleaching of Ginger

Practice of Distillation

Steam Distillation

**End of Distillation** 

Treatment of the Volatile Oil

Treatment of the Distillation Water

Manufacturing Process Flow Diagram

Rectification of Essential Oils

Problems Relating to Steam Distillation

**Environment Pollution and Effluent Treatment** 

12. GINGER BEER

Ginger Beer

**Root Beer** 

Ancient Root Beer Heritage

**Best Ginger Beers** 

13. GINGER POWDER

Introduction

**Properties** 

Uses of Ginger Powder

Manufacturing Process of Ginger Powder

**Process Flow Sheet** 

14. GINGER PASTE

Properties of Ginger Paste

Uses of Ginger Paste

Chemical & Physical Specification of Ginger

Manufacturing Process

Process Flow Diagram

15. INSTANT GINGER POWDER DRINK

Introduction

Etymology

Chemistry

Uses

Culinary Use

Ginger Acts as a Useful Food Preservative

Regional Use

**Properties** 

- 1. Citric Acid
- 2. Measurement
- 3. Sodium Benzoate

Manufacturing Process

16. GINGER CANDY 201

Ginger Candy

Flow Chart of Technology/Process

17. DRY GINGER FROM GREEN GINGER

Introduction

History

**Uses and Application** 

Composition of Dry Ginger

Manufacturing Process

**Process of Manufacture** 

Ginger not Divested of Cork

Ginger Clivested of Cork

Grinding

**Progress Flow Sheet** 

18. EXTRACTION OF GINGER OLEORESIN

FROM GINGER-ROOT USING CO2

**Environmental Significance** 

**Equipment Descriptions** 

**Necessary Information and Simulation Hints** 

19. PRODUCTION OF GINGER RHIZOME BY

SHOOT-TIP CULTURE

Introduction

Field Study

Effect of Tissue Cultured Rhizomes of Ginger

20. EXTRACTION OF ESSENTIAL OILS FROM

GINGER RHIZOME USING STEAM

**DISTILLATION METHOD** 

Overview of Ginger

Physical Properties of Ginger

Usage of Ginger

Usual Methods of Obtaining Ginger Essential Oil

Steam Distillation

**Problem Statement** 

Separation Processes

- (i) Absorption
- (ii) Distillation
- (iii) Liquid-Liquid Extraction
- (iv) Leaching
- (v) Membrane Processing
- (vi) Crystallization
- (vii) Adsorption
- (viii) Ion Exchange
- Purification
- Concentration
- Fractionation

Extraction

Distillation

21. PACKAGING AND LABELLING

Functions of Packaging

22. BIS SPECIFICATIONS

23. GOOD MANUFACTURING PRACTICES

- 1. Storage of Raw Materials
- 2. Tempering/Thawing of Frozen Materials
- 3. Processing

Post-Processing Handling

- i) Facility Design
- ii) Sanitation
- iii) Employees

Material Handling

- 4. Storage of Finished Product
- 5. Loading and Shipping

Management of Hygiene Aspects

**Environmental Monitoring** 

**Temperature Monitoring** 

**Design and Facilities** 

- i) Principles and Concepts of GMP
- ii) Establishment: Design and Facilities

Location

Equipment

Premises and Rooms

Equipment – Design

Equipment

**Facilities** 

**Control of Operations** 

- i) Control of Food Hazards
- ii) Key Aspects of Hygiene Control Systems
- iii) Incoming Raw Material Requirements
- iv) Packaging
- v) Water
- vi) Management and Supervision
- vii) Documentation and Records
- viii) Recall Procedures

Establishment: Maintenance and Sanitation

- i) Maintenance and Cleaning
- ii) Cleaning Procedures and Methods

- iii) Pest Control Systems
- iv) Waste Management
- v) Monitoring Effectiveness
- vi) Establishment : Personal Hygiene
- vii) Transportation
- viii) Product I nf ormati on and Consumer

**Awareness** 

ix) Training

24. SAMPLE PLANT LAYOUTS

Agro Processing Workflow

25. PHOTOGRAPHS OF MACHINERY WITH

SUPPLIERS CONTACT DETAILS

Ginger Paste Making Machine

Ginger Slicer Machine

Ginger Washing and Peeling Machine

Paste Filling Machine

Steam Jacketted Vesssel

Ribbon Blendor

Pulverizer

**Bucket Elevator** 

Powder Dryer Machine

Boiler

Oil Storage Tank

Pneumatic Conveying System

Material Handling Conveyors

Air Compressor

R.O. Plant

**Distillation Units** 

Fruit Pulper

Liquid Filling Machine

**Drum Type Blancher** 

Fruit Mill

Spray Machine

Weighing Machine

Packaging Machine

Ginger Oil Extraction Machine

Ginger Slicer

Pollution Control Equipment

Reverse Osmosis System

Pump

Hammer Mill

Redler Conveyors

Oil Filter Machine

**Blending Tanks** 

Sealing Machine

Carton Packaging Machine

Pouch Packaging Machine

## **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, Start-up 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>

Sat, 23 Aug 2025 04:35:39 +0000