

The Complete Technology Book on Processing, Dehydration, Canning, Preservation of Fruits & Vegetables (3rd Revised Edition)

Author: NIIR Board of Consultants & Engineers

Format: Paperback

ISBN: 9789381039694

Code: NI65

Pages: 576

Price: Rs. 1,875.00 **US\$** 150.00

Publisher: NIIR PROJECT CONSULTANCY SERVICES

Usually ships within **5** days

Fruits and vegetables are important sources of vitamins, minerals and dietary fibre. The consumption of fruits and vegetables has increased significantly as consumers have become more health-conscious. Whilst most fruit and vegetables should be eaten fresh, processed fruit and vegetables can be acceptable alternatives. Fruit and vegetables have many similarities with respect to their compositions, methods of cultivation and harvesting, storage properties and processing. Processing (canning, Dehydration & Preservation) increases the shelf life of fruits and vegetables.

Fruits and vegetables are processed into a variety of products such as juices and concentrates, pulp, canned and dehydrated products, jams and jellies, pickles and chutneys etc. The extent of processing of fruits and vegetables varies from one country to another. The technology for preservation also varies with type of products and targeted market. Owing to the perishable nature of the fresh produce, international trade in vegetables is mostly confined to the processed forms.

India is the second largest producer of fruits & vegetables in the world with an annual production of million tonnes. It accounts for about 15 per cent of the world's production of vegetables. Due to the short shelf life of these crops, as much as 30-35% of fruits and vegetables perish during harvest, storage, grading, transport, packaging and distribution. Hence, there is a need for processing technology of fruits and vegetables to cater the domestic demand.

The major contents of the book are procedures for fruit and vegetable preservation, chemical preservation of foods, food preservation by fermentation, preservation by drying, canning fruits, syrups and brines for canning, fruit beverages, fermented beverages, jams, jellies and marmalades, tomato products, chutneys, sauces and pickles, vegetables preparation for processing, vegetable juices, sauces and soups, vegetable dehydration, freezing of vegetables etc. The book also contains photographs of Production Line & Machinery.

It will be a standard reference book for professionals, entrepreneurs, food technologists, those studying and researching in this important area and others interested in the field of fruits and vegetables processing.

Contents

1. General Properties of Fruits And Vegetables; Chemical Composition

And Nutritional Aspects; Structural Features
 General Properties
 Chemical Composition
 Activities Of Living Systems
 Stability Of Nutrients
 Structural Features
 2.General Procedures for Fruit and Vegetable Preservation
 Fresh Storage
 Harvest maturity
 Harvest method
 Handling systems
 Pre-cooling
 Chemicals
 Coatings
 Controlled environment transport
 Preservation By Reduction of Water
 Content : Drying / Dehydration And Concentration
 Preservation By Drying / Dehydration
 Heat And Mass Transfer
 Drying Techniques
 Fruit And Vegetable Natural Drying - Sun
 And Solar Drying
 Use Of Preservatives
 Osmotic Dehydration
 Sun Drying
 Shade Drying
 Identification of Suitable Designs of Solar
 Dryers for Different Applications
 Construction of Solar Dryers
 Construction Methods And Materials
 Technical Criteria
 Socio-economic Criteria
 Summary
 Sun / Solar Drying Tray
 Dryers
 Preservation By Concentration
 Aspects of Preservation by Concentration
 Reduced Weight and Volume by Concentration
 Changes From Concentration
 Chemical Preservation
 Lactic Acid
 Acetic Acid
 Other acidulants
 Commonly Used Lipophilic Acid Food Preservatives
 Gaseous Chemical Food Preservatives
 chlorine
 General Rules For Chemical Preservation
 Factors which Determine/Influence
 The Action of Chemical Food Preservatives
 Factors Related To Micro-organisms
 Miscellaneous Factors
 Preservation of vegetables by acidification
 Natural Acidification

Factors influencing the texture of fermented vegetables
Preservation With Sugar
Heat Preservation / Heat Processing
Determining Heat Treatment / Thermal Processing Steps
Sequence of operations employed in
heat preservation of foods (fruit and vegetables, etc.)
Technological Principles of Pasteurization
Thermopenetration
Food Irradiation
3. Chemical Preservation of Foods
What Are Food Additives?
Importance of Chemical Additives
Legitimate Uses In Food Processing
Undesirable Uses of Additives
Safety of Food Additive
Functional Chemical Additive Applications
Historical Significance
Additives Permitted and Prohibited In the United States
Chemical Preservatives
Microbial Antagonists
Other Chemical Additives
Artificial flavoring
Artificial Coloring
Other Agents
Buffers and Neutralizing Agents
Preservatives (sequestrants)
Nutrients
Stabilizers
Chemical Additives And The Future
4. Food Preservation By Canning
Temperature Vs Pressure
Spoilage of Food Caused By Microorganisms
Heat Resistance of Microorganisms Important in Canning
Factors Influencing the Heat Resistance of Spores
Categories of Foods for Canning
Important Food Groups
Microorganisms Associated With The Food Groups
Influence of Food Ingredients on Heat Resistance of Spores
Heat Resistance of Enzymes in Food
Heat penetration into food containers and contents
Conduction Heating Foods
Measuring the Heat Penetration into Canned Foods
General Method For Calculating The Process Time for Canned Foods
Inoculated Pack Studies
Adequacy of Heat Processes
Spoilage of Canned Foods
Microbial Spoilage
Storage Of Canned Foods
External Corrosion of Cans
Coding the Pack
Influence of Canning on the Quality of Food
Color
Flavor and Texture

Protein
Fat and Oil
Carbohydrates
Vitamins
Misconceptions Relating to Canned Foods
5. Food Preservation by Fermentation
Life with Microorganisms
Fermentation of Carbohydrates
Order of Fermentation
Types of Fermentations of Sugar
Fermentation Controls
Wine
Preservation
Sterilization Filtration
Beer
Cold Pasteurization
Vinegar Fermentation
Principles of Vinegar Fermentation
Vinegar Making
Preparation of Yeast Starter
Alcoholic Fermentation
Acetic Fermentation
Cheese
Kinds of Cheese
Cottage Cheese
Swiss Cheese
Blue Cheeses
Camembert
Hazard Analysis in Cheeses
Mycotoxins and Cheese
6. Food Preservation by Drying
Drying-a Natural Process
Dehydration-artificial Drying
Dehydration Vs. Sun Drying
Why Dried Foods ?
Dehydration Permits Food Preservation
Humidity-water Vapor Content of Air
Adiabatic Driers
Heat Transfer Through A Solid Surface
Criteria of Success In Dehydrated Foods
Freeze-dehydration (Freeze Drying)
Triple Point of Water
Temperature Changes in Meat Freeze-dehydration
Influence of Dehydration on Nutritive Value of Food
Influence of Drying on Microorganisms
Influence of Drying on Enzyme Activity
Influence of Drying on Pigments In Foods
Dehydration of Fruits
Dehydration of Vegetables
Dehydration of Animal Products
Dehydration of Fish
Dehydration of Milk
Dehydration of Eggs

Packaging of Dehydrated Foods
Influence of Drying on Food Acceptance
Trends in Drying Foods
Vegetables
Fruit
Meat, Fish and Eggs
Milk
Coffee and Tea
Grain Drying
7. Canning Fruits
Apple
Apricot
Banana
Black Berries
Cherries
Fig
Grape
Grape Fruit
Greengage
Guava
Jack-fruit
Litchi
Loquat
Mango
Orange
Papaya
Peach
Pear
Pineapple
Plum
Berry Fruits
8. Syrups And Brines For Canning
Sugar Syrups
Preparation
Testing Syrup Strength
Temperature Corrections
Syrup Calculations
Brines
9. Fruit Beverages
Squashes And Cordials
Orange Squash
Grape Fruit Squash
Lemon Squash
Lime Squash
Lime Juice Cordial
Citrus Fruit Barley Waters
Jack Fruit Nectar
Jaman Squash or Syrup
Mango Squash
Passion Fruit Squash
Peach Squash
Phalsa Squash
Pineapple Squash

Plum Squash
Water Melon Squash
Other Fruit Squashes
Juices
Syrups
Carbonated Beverages
Fruit Juice Concentrates
Tamarind Juice Concentrate
10. Fermented Beverages
Grape Wine
Fermentation
Packing
Champagne
Port
Muscat
Tokay
Sherry
Cider
Perry
Orange Wine
Berry Wines
11. Jams, Jellies And Marmalades
Jams
Fresh Fruits
Frozen Fruits
Fruits Preserved by Heat Treatment
Sulphitation For Storing
Preparing The Fruit For Jam-making
Addition of Sugar
Addition of Acid, Colour and Flavour
Boiling Under Vacuum
Storage
Controlled Manufacture
Soluble Solids
Refractometer Method
Total Soluble Solids
Invert Sugar
Sulphur Dioxide
Acidity
Regulating pH of The Material
Insoluble Solids
Estimation of Pectin
Jellies
Fruits For Jelly
Selection of Fruits
Preparation of Fruits
Extraction of Pectin
Straining And Clarification
Fibril Theory
Spencer's Theory
Olsen's Theory
Hinton's Theory
Test

Controlling The ph of Jellies
Some Typical Jams And Jellies

Marmalades

Jelly Marmalades

Jam Marmalade

12. Tomato Products

Tomato Juice

Tomato Puree

Tomato Paste

Tomato Cocktail

Tomato Ketchup

Chilli Sauce

Tomato Sauce

Tomato Soup

Microbiology

13.Chutneys, Sauces And Pickles

Chutneys

Cooking Process

Bottling

Equipment

Recipes

Apple Chutney

Apricot Chutney

Bamboo Chutney

Mango Chutney

Sliced Mango Chutney

Peach Chutney

Plum Chutney

Tomato Chutney

Thin Sauces

Soya Sauce

Worcestershire Sauce

Mushroom Ketchup (Sauce)

Walnut Ketchup (Sauce)

Thick Sauces

Soups And Soup Mixes

Pickles

Pickling Process

Fermentation In Brine

Various Pickles

Oil Pickles

14. Vegetables Preparation For Processing

Basic Steps In Preprocessing

Preprocessing Of Tomatoes

Blanching

Irradiation of Vegetables

Removing Potatoes from Storage to Processing

Peeling

15.Vegetable Juices, Sauces, And Soups

Vegetable Juices

General Preparation Procedure

Rhubarb Juices And Beverages

Juices From Sauerkraut and other Fermented Vegetables

Low- Acid Vegetable Juices
Tomato Juice Blends
Concentrated Tomato Juice
Composition, Color, and texture of Tomato Juice Products
Vegetable Sauces
Dried Sauce Mixes
Vegetables In Soups
Canned Soups Containing Vegetable Pulps, Emulsions, and Powders
Dry Soup Mixtures
16. Vegetable Dehydration
General Considerations
Unit Loading
Heat Damage
Enzyme Inactivation
Sulfuring
Rehydration
Selection of a Drying Method
Costs of Dehydration
Supplying Heat to Driers
Solar Drying
Types of Driers
Tunnel Driers
Continuous Conveyor Driers
Pneumatic Conveying Driers
Belt-trough Driers
Bin Driers
Spray Driers
Drum Driers
Freeze Driers
Freeze-drying Process
Properties Of Freeze-dried Foods
Packaging and Storage of Dehydrated
Vegetables
Quality Control
Asparagus
Beets
Cabbage
Carrots
Celery
Corn
Garlic
Green Beans
Horseradish
Mushrooms
Onions
Parsley
Peas
Peppers
Pumpkin and Squash
Sweet Potatoes
Tomatoes
17. Freezing of Vegetables
Suitability of Vegetables For Freezing

Overview of Freeze Preservation Procedures
Harvesting
Processing Operations Before Freezing
Freezing Methods
Packaging
Stability and Quality of Frozen Vegetables
Handling, Storage, and Distribution of Frozen Foods
Asparagus
Beans, Green
Beans, Lima
Carrots
Cauliflower
Celery
Corn
Mushrooms
Okra
Onions
Peas, Green
Peppers, Bell
Pimientos
Potatoes
Storage Before Processing
Peeling, Trimming, and Cutting
Blanching
Frying
Freezing and Packaging
Other Products
Squash
Tomatoes
Vegetables-in-sauce
Vegetable Mixtures

18. Production Line & Machinery Photographs

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 various 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.

NIIR PROJECT CONSULTANCY SERVICES , 106-E, Kamla Nagar, New Delhi-110007, India. **Email:** npcs.india@gmail.com **Website:** NIIR.org

Tue, 19 Mar 2019 07:36:17 +0530