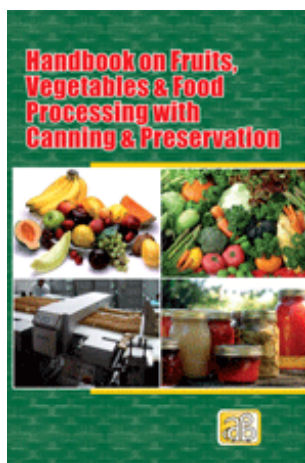


Handbook on Fruits, Vegetables & Food Processing with Canning & Preservation (3rd Edition)



Author: NPCS Board

Format: Paperback

ISBN: 9788178330839

Code: NI19

Pages: 688

Price: Rs. 1,475.00 **US\$** 150.00

Publisher: Asia Pacific Business Press Inc.

Usually ships within **5** days

Natural foods such as fruits and vegetables are among the most important foods of mankind as they are not only nutritive but are also indispensable for the maintenance of the health. India is the second largest producer of fruits and vegetables in the world. Fertile soils, a dry climate, clean water and abundant sunlight help the hard working farmers to produce a bountiful harvest. Although there are many similarities between fruits and vegetables, there is one important difference that affects the way that these two types of crop are processed like fruits are more acidic than vegetables. Food processing is the set of methods and techniques used to transform raw ingredients into food or to transform food into other forms for consumption. Food processing typically takes clean, harvested crops or butchered animal products and uses these to produce attractive, marketable and often long shelf-life food products. Canning is a method of preserving food in which the food is processed and sealed in an airtight container. Food preservation is the process of treating and handling food to stop or greatly slow down spoilage (loss of quality, edibility or nutritive value) caused or accelerated by micro organisms. One of the oldest methods of food preservation is by drying, which reduces water activity sufficiently to prevent or delay bacterial growth. Drying also reduces weight, making food more portable. Freezing is also one of the most commonly used processes commercially and domestically for preserving a very wide range of food including prepared food stuffs which would not have required freezing in their unprepared state. Fruits and vegetable processing in India is almost equally divided between the organized and unorganized sector, with the organized sector holding 48% of the share. The present book covers the processing techniques of various types of fruits, vegetables and other food products. This book also contains photographs of equipments and machineries used in fruits, vegetables and food processing along with canning and preservation. This book is an invaluable resource for new entrepreneurs, food technologists, industrialists etc.

Contents

1. Characteristics of the Food Industry

Components of the Food Industry
Allied Industries
Interrelated Operations

2. Food Quality Assurance

The Need

A Role for Government

Microbiological Standards

A Role for Industry

Design of Company QA Program

Objectives

Raw Material Quality Assurance

In-process Quality Assurance

Finished Product Quality Assurance

3. Quality Factors in Foods

Appearance Factors

Color and Gloss

Consistency

Textural Factors

Measuring Texture

Texture Changes

Flavor Factors

Additional Quality Factors

Quality Standards

Planned Quality Control

4. Preserve, Candied and Crystallized Fruits and Vegetables

Preserve

General considerations

Candied Fruits/Vegetables

Process

Glazed Fruits/Vegetables

Crystallized Fruits/Vegetables

Problems in Preparation of Preserves and Candied Fruits

5. Food Preservation by Fermentation

Life with Microorganisms

Fermentation of Carbohydrates

Industrially Important Organisms in Food Preservation

Order of Fermentation

Types of Fermentations of Sugar

Fermentation Controls

Wine

Preservation

Sterilization Filtration

Beer

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

6. Chemical Preservation of Foods

What Are Food Additives?
Importance of Chemical Additives
Legitimate Uses in Food Processing
Undesirable Uses of Additives
Safety of a Food Additives
Functional Chemical Additive Applications
Specific Uses of Chemical Additives
Additives Permitted and Prohibited in the United States
Chemical Preservatives
Microbial Antagonists
Sorbic Acid
Antibiotics
Quality Improving Agents
Other Chemical Additives
Artificial Flavoring
Artificial Coloring

7. Cold Preservation and Processing

Distinction Between Refrigeration and Freezing
Refrigeration and Cool Storage
Requirements of Refrigerated Storage
Controlled low Temperature
Air Circulation and Humidity
Modification of Gas Atmospheres
Changes in Food During Refrigerated Storage
Freezing and Frozen Storage
Initial Freezing Point
Freezing Curve
Changes During Freezing
Choice of Final Temperature
Food Composition
Noncompositional Influences
Freezing Methods
Air Freezing
Packaging Considerations
Some Additional Developments

8. Heat Preservation and Processing

Sterilization
Commercially Sterile
Pasteurization
Blanching
Selecting Heat Treatments
Heat Resistance of Microorganisms
Thermal Death Curves
Margin of Safety
Heat Transfer

Conduction and Convection Heating
Cold Point in Food Masses
Determining Process Time and Process Lethality
Protective Effects of Food Constituents
Different Temperature-Time Combinations
Heating Before or After Packaging

9. Food Pickling and Curing

Pickled Fruits and Vegetables
Use of Salt Stock
Sour Pickles, Sweet Pickles, Processed Dill Pickles
Sauerkraut
Olives
Fermented And Pickled Products
Deterioration
Nutritional Value
Bloater Damage Control
Controlled Fermentations in Commercial Brining Tanks
Brine Recovery
Defect Reduction
The Principles of Fish Salting
The Influence of the Composition of Salt
Commercial Methods of Salting Fish
Brine-salting
Dry-salting
Comparative Efficiency of Brine-salting and Dry-salting
Some-curing Processes
Cold-smoking (Heavy Salt Cure)
Smoked Salmon
Hard-smoked Salmon
Meat Curing and Smoking
Pickled Meats
Salt
Sugar and Corn Syrup Solids
Nitrite and/or Nitrate
Nitrosamines
Phosphates
Sodium Erythorbate
Cured Meat Color
Role of Nitrite and/or Nitrate in Meat Color
Sausages and Table-ready Meats
Dry Sausage Manufacture
Processing
Fermentation

10. 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
RH-The drying Medium

Types of Driers
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
Dehydration of Fruits
Dehydration of Vegetables
Dehydration of Animal Products
Dehydration of Fish
Dehydration of Milk
Dehydration of Eggs
Packaging of Dehydrated Foods

11. Food Preservation by Canning 1

Temperature vs. Pressure
Heat Resistance of Microorganisms Important in Canning
Factors Influencing the Heat Resistance of Spores
Heat Resistance of Enzymes in Food
Heat Penetration into Food Containers and Content
Storage of Canned Foods
External Corrosion of Cans
Coding the Pack
Influence of Canning on the Quality of Food
Color
Flavour and Texture
Protein
Improvements in Canning Technology
Retort Pouches
Testing a Good Seal
Hazard Analysis

12. Pickles

Preservation with Salt
Preservation with Vinegar
Preservation with Oil
Preservation with Mixture of Salt, Oil, Spices and Vinegar
Problems in pickle making

13. Chutneys and Sauces/Ketchups

Chutneys
Recipes for chutneys
Sweet mango chutney
Apple chutney
Plum chutney
Wood apple chutney
Apricot chutney
Papaya chutney
Tomato chutney
Aonla chutney
Sauces (Ketchups)

Recipes for sauces (ketchups)

Tomato sauce

Apple sauce

Plum sauce

Papaya sauce

Mushroom sauce

Aonla sauce

Problem in the preparation of sauces/ketchups

14. Mushroom Processing

Dehydration

Preparation of ketchup

Preservation with salt and acetic acid

Pickling

Canning

Mushroom poisoning

15. Tomato Processing

16. Jam, Jelly and Marmalade

Jam

Problems in jam production

Jelly

Important considerations in jelly making

Pectin

Acid

Sugar

Judging of end-point

Marmalade

After pectin extraction

17. Freezing of Fruits and Vegetables

Preparation of fruits/vegetables for freezing

Methods of freezing

Sharp freezing (Slow freezing)

Quick freezing

By direct immersion

Advantages

Disadvantages

By indirect contact with refrigerant

By air blast

Cryogenic freezing

Dhydro-freezing

Freeze-drying

Changes during freezing and storage for frozen products

Freezing process for fruits and vegetables

18. Vinegar

Types of vinegar

Steps involved in vinegar production

Outline Scheme of Vinegar Production

Preparation of vinegar

Slow process

Orleans slow process
Quick process (Generator or German process)
Precautions
Problems in vinegar production

19. Drying and Dehydration of Fruits and Vegetables

Advantages of dehydration over sun-drying
Spoilage of dried products
Reconstitution test for dried/dehydrated products
Reconstitution test

20. The Canning Process

Cans
Types of Cans
Square and Pullman Base
Pear Shaped
Round Sanitary
Drawn Aluminum
Oblong
Can Materials
Retorts
Nonagitating Retorts
Continuous Agitating Retorts
Hydrostatic Retorts
Establishment of Retort Schedule
Pasteurized Canned Products
Closing
Pasteurizing Cook
Cooling
Storage and Shelf Life
Aseptic Canning

21. Food Freezing

Development of a Frozen Food Industry
The Freezing Point of Foods
Percentage Water Frozen vs. Temperature of Food and Its Quality
Size of Ice Crystals Formed
Volume Changes During Freezing
Refrigeration Requirements in Freezing Foods
Freezing in Air
Freezing by Indirect Contact with Refrigerants
Direct Immersion Freezing
Packaging Requirements for Frozen Foods
Influence of Freezing on Microorganisms
Influence of Freezing on Proteins
Influence of Freezing on Enzymes
Influence of Freezing on Fats
Influence of Freezing on Vitamins
Freezing of Bakery Products
Packaging
Storage Life of Frozen Bread
Cookies and Cakes

- Frozen Dairy Foods
- The Ice Cream Industry
- Basic Ingredients
- Manufacture of Ice Cream
- The Mix
- Pasteurization
- Homogenization
- Cooling
- Freezing
- Hardening
- Hazard Analysis
- Hazard Categories

22. Cookie and Cracker Production Technology

- Ingredients Handling
- Mixing
- Dough Relaxation and Fermentation
- Dough Machining and Forming
- Dough Relaxing
- Cutting Stage
- Scrap Return
- Salter or Sugar Sprinkling
- Rotary Molding
- Extruder-Dough Formers
- Wire Cut
- Rout Press
- The Fruit Bar Coextruder
- Baking
- Direct-Fired Ovens, Gas Fired
- Convection (Indirect) Ovens
- Post Conditioning
- Secondary Processes
- Icings
- Enrobing
- Sandwiched Cookies and Crackers
- Biscuit Packaging

23. Snack Foods

- Introduction
- Popcorn
- Four Types of Popcorn
- Mechanism of Popping
- Quality factors
- Processing
- Formulated Puffed Snacks
- Ingredients
- Other Grain Products
- Expandable Ingredients
- Frying Fats
- Antioxidants
- Sweeteners
- Other Ingredients
- Extruders and Extruding

Types of Extruders
Snacks that Are Cooked and Formed
Drying

24. Breakfast Cereals

Introduction
Present Status
Processing of Hot-serve Cereals
Wheat Cereals
Corn Cereals
Oat Cereals
Processing Ready-to-Eat Breakfast Cereals
Flakes
General Considerations
Corn Flakes
Wheat flakes
Bran Flakes
Shreds
Shredded Wheat Biscuits
Puffed Cereals
General Considerations
Oven-puffed Rice
Puffing by Extrusion
Sugar-coated Products
Ovens

25. Canned Meat Formulations

Corned Beef Hash
Federal Meat Inspection Regulations
Preparation
Meat
Potatoes
Onions
Canning
Beef Stew
Federal Meat Inspection Regulations
Preparation
Meat
Potatoes
Carrots
Onions
Preparation
Canning
Chili Con Carne
Federal Meat Inspection Regulations
Preparation
Canning
Vienna Sausages
Federal Meat Inspection Regulations
Preparation
Canning
Meat Balls with Gravy
Federal Meat Inspection Regulations

Preparation
Canning
Sliced Dried Beef
Federal Meat Inspection Regulations
Preparation
Drying and Smoking
Canning
Luncheon Meat
Federal Meat Inspection Regulations
Preparation
Canning
Processing
Sterile
Pasteurized
Potted Meat
Federal Meat Inspection Regulations
Preparation
Canning
Canned Hams-Pasteurized and Sterile
Federal Meat Inspection Regulations
Preparation
Smoking
Canning
Filling and Pressing
Closing
Processing
Pasteurized
Sterile
Plastic Packaged Hams
Preparation
Packaging
Processing

26. Cured or Smoked Meats

Hams
Classification of Ham
Internal Temperature
Added Substance
Presence of Bone
Commercial Ham Manufacture
Curing
Smoking/Cooking
Cooked Ham
Baked Ham
Preparation
Country Ham
Preparation
Westphalian Ham
Preparation
Scotch Ham
Prosciutti Ham
Preparation
Honey Cured Hams

Preparation
Bacon
Canadian Bacon
Wiltshire Bacon
Beef Bacon
Jowl Bacon
Fat Backs and Heavy Bellies
Smoked Pork Loin
Picnic
Shoulder Butt
Corned Beef
Smoked Fresh Meat
Dried Beef
Procedure
Smoked and Cured Lamb
Smoked Tongue
Pickled Pigs Feet

27. Sausage Formulations

Ground Sausages
Instructions
Instructions
Instructions
Instructions
Instructions
Instructions
Semidry or Summer Sausages
Instructions
Instructions
Instructions
Instructions
Dry Sausages
Instructions
Instructions
Instructions
Emulsion-Type Sausages
Instructions
Instructions
Instructions
Instructions
Instructions
Instructions
Instructions
Instructions
Liver Sausage and Braunschweiger
Instructions
Instructions
Instructions
Speciality Items
Instructions
Instructions
Instructions
Instructions

Instructions
Instructions
Instructions
Instructions
Mortadella
Instructions
Linguica (Portuguese Sausage)
Instructions
Instructions

28. Processing of Rice

Introduction
Quality of Rice
Milling of Rice
Small-scale Milling
Modern Conventional Milling
Abrasive Milling of Rice
Lye-peeling
Extractive Milling
Rice Flour
Further Processing of Rice
Boiling and Steaming
Parboiling
Quick-cooking Rice
Shelf-stable Cooked Rice
Rice Cakes
Rice Milk

29. Creaming, Emulsions, and Emulsifiers

Emulsifier and Emulsions
Classification
Hydrophilic-Lipophilic Balance (HLB)
Oil-in-Water Emulsions
Type of Emulsifier used in Cookies and Crackers
Phosphatides and Lecithin
Synthetic Emulsifiers
Function of Emulsifiers in Cookies and Crackers
Eggs
Emulsifier
Mixing Operation in Cookie and Cracker Doughs
Mixing Operation
Creaming Method
Two-stage Method
Three-stage Method
Baking Cookies and Crackers
Emulsion Stability
Viscosity
To Lower Viscosity
To Increase Viscosity
Elevated Temperature
Inversion Phase
Phase Equilibria
Batter Aeration

30. Principles of Food Packaging

Introduction

Functions of Food Packaging

Requirements For Effective Food Packaging

Types of Containers

Primary, Secondary, and Tertiary

Form-Fill-Seal Packaging

Hermetic Closure

Food-Packaging Materials and Forms

Metal

Metal Cans

Can Construction

Can Corrosion

Can Sizing

Glass

Glass Containers

Paper, Paperboard, and Fiberboard

Plastics

Laminates

Retortable Pouches and Trays

Edible Films

Wood and Cloth Materials

Package Testing

High Barrier Plastic Bottles

Aseptic Packaging in Composite Cartons

Military Food Packaging

Directory Section

Suppliers of the Plant and Machinery

Addresses of Packaging Machinery

Suppliers of Raw Material Suppliers

Machinery & Equipments (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

Fri, 24 Nov 2017 07:55:34 +0530