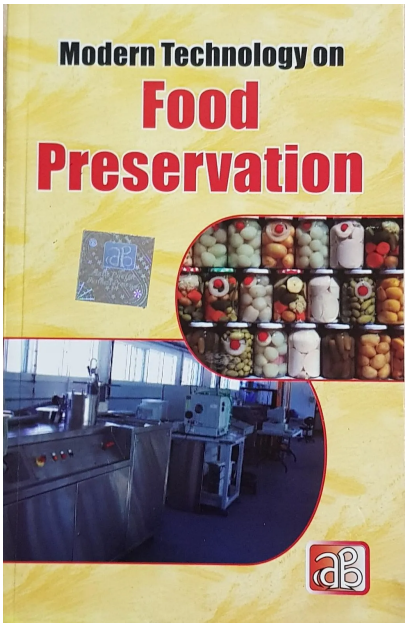
Entrepreneur India

106-E, Kamla Nagar, New Delhi-110007, India.
Tel: 91-11-23843955, +91 9097075054
Mobile: +91-9097075054
Email: npcs.ei@gmail.com, info@entrepreneurindia.co
Website: www.entrepreneurIndia.co



Modern Technology on Food Preservation (2nd Edition)

Code	NI88
Format	paperback
Indian Price	₹1275
US Price	$125
Pages	528
ISBN	9788178330716

Publisher	Asia Pacific Business Press Inc.

Description

Food Preservation has become an integral part of the food processing industry. There are various methods of food preservation; drying, canning, freezing, food processing etc. Food processing is one the method of food preservation which is the set of methods and techniques used to transform raw ingredients into food or to transform food into other forms for consumption by humans or animals either in the home or by the food processing industry. Canning is one of the various methods of food preservation in which the food is processed and then sealed in an airtight container. This process prevents microorganisms from entering and proliferating inside. Dehydration is the process of removing water or moisture from a food product. Food dehydration is safe because water is removed from the food. 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. Benefits of food processing include toxin removal, preservation, easing marketing and distribution tasks, and increasing food consistency. In addition, it increases seasonal availability of many foods, enables transportation of delicate perishable foods across long distances and makes many kinds of foods safe to eat by deactivating spoilage and pathogenic micro organisms. Nanotechnology exhibits great potential for the food industry. New methods for processing nanostructures are being developed having novel properties that were not previously possible. As such, due to the recent up gradation of preservation techniques, the preservation industry is also growing almost at the same rate as the food industry which is about 10 to 12% per year. The purpose of this book is to present the elements of the technology of food preservation. It deals with the products prepared from various fruits and vegetables commercially. Relevant information on enzymes, colours, additives, flavours, adulteration, etc., has been given. This book also contains photographs of equipments and machineries used in food preservation. This book will be very useful for new entrepreneurs, food technologists, industrialists, libraries etc.

Content

1. Introduction of Food Technology
Source of Man's Food
Impact of Science and Technology

2. Acceptable Food to Eat
Nature's Seal of Quality

Food Flavors
Food Colors
Our Senses Can Fail Us
Excessive Heating Impairs Foods,
Moderate Heating May Improve Foods
Food Spoilage
Must Deter Natural Processes
Safe Food for Man
Food Poisoning
Food Intoxications
Food Infections
Sanitation and Health

3. The Refrigerated Storage of Perishable Commodities
Temperature of Objects
Temperature Measurements
Metabolism a Function of Temperature
Energy Deficit of Ice
Creating Energy Deficits Mechanically
Keeping Fresh Foods Edible
Animals Foods
Plant Food
Temperature of Cold Storage Rooms
Humidity of Storage Chamber
Heat Evolved by Living Tissues
Specific Heat of Foods
Calculation of Refrigeration Load
Cold Injury of Fruits and Vegetables
Ammonia Injury to Refrigerated Fruits and Vegetables
Waxing Foods to Prevent Shrinkage
Effect of Cold Storage on Quality
Preserving Foods in a Micro-Environment
Packaging Materials Tests Which May Be Performed
Formed Container Tests
Disorders of Stored Foods

4. Principles of Food freezing
Development of a Frozen Food Industry
The Freezing Point of Foods
Per Cent Water Frozen vs. Temperature of Food

and Its Quality
Size of Ice Crystals Formed
Volume Changes During Freezing
Refrigeration Requirements in Freezing Foods
Establishing the Refrigeration Requirements to Freeze Food
Freezing in Air
Freezing by Indirect Contact with Refrigerants
Direct Immersion Freezing
Freezerburn
Packaging requirements for Frozen Foods
Influence of Freezing on Micro-organisms
Influence of Freezing on Proteins
Influence of Freezing on Enzymes
Influence of Freezing on Fats
Influence of Freezing on Vitamins
Influence of Freezing on Parasites
Thawing Damage to Frozen Foods

5. Principles of 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
Air-The Drying Medium
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 Micro-organisms
Influence of Drying on Enzyme Activity
Influence of Drying on Pigments in Foods
Dehydration of Fruits
Dehydration of Vegetables
Dehydration of Meat
Dehydration of Fish

Dehydration of Milk
Dehydration of Eggs
Packing of Dehydrated Foods
Influence of Drying on Food Acceptance

6. Principles of Food Preservation by Canning
The Art of "Appertizing"
Temperature vs. Pressure of Boiling Water
Spoilage of Food Caused by Micro-organisms
Evolution of Containers for Canning
Important Food Groups
Micro-organisms Associated with the Food Groups
Sources of Spoilage Organisms
Heat Resistance of Micro-organisms
Important in Canning
Factors Influencing the Heat Resistance of Spores
Influence of Food Ingredients on Heat Resistance
of Spores
Heat Resistance of Enzymes in Food
Heat Penetration into Food Containers and Contents
General Method for Calculating the Process Time
for Canned Foods
Inoculated Pack Studies
Adequacy of Heat Processes
Spoilage of Canned Foods
Microbial Spoilage
Failure of Glass Containers
Surface Markings on Broken Glass
Vacuum-pressure Relations in Canning Process
Storage of Canned Foods
External Corrosion of Cans
Coding the Pack
Influence of Canning on the Quality of Food
Colour
Flavor and Texture
Protein
Fat and Oil
Carbohydrates
Vitamins
Misconceptions Relating to Canned Foods
Improvements in Canning Technology

7. Principles of Food Preservation by Fermentation and Pickling
Life with Micro-organisms
Fermentation of Carbohydrates
Industrially Important Organisms in Food Preservation
Order of Fermentation
Types of Fermentations of Sugar
Fermentation Controls
Sources of Salt
Wine and Beer
Salted-Fermented Foods
Deterioration of Fermented and Pickled Products
Nutritional Value of Pickled Products
Future Trends

8. Preservation of Food as Sugar Concentrates
Concentrated but moist
High solids high acid foods
Jelly
Jam
Fruit Butter
Marmalade
Pectin and gel formation
Invert Sugar
Jelly Making
Other Fruit Preserves
Candied and GlacÃ©d Fruits
Maraschino Cherries
Sweetened Condensed Milk
Future Trends

9. Preservation of Foods with Chemical additives
Introduction
Definition of Chemical Additive
Importance of Chemical Additives
Legitimate Uses in Food Processing
Undesirable Uses of Additives
Safety of a Food Additive
Functional Chemical Additive Applications

Historical Significance
Specific Uses of Chemical Additives
Additives Permitted and Prohibited in the United States
Chemical and Use
Food Regulation and Compliance
Miller Pesticide Amendment of 1954
1958 Food Additives Amendment
1960 Color Additives Amendment
Chemical Preservatives
Preservatives (Antimycotics)
Specified Uses and Amounts
Preservatives (general)
Specified Use
Microbial Antagonists
Antibiotics
Quality Improving Agents
Other Chemical Additives
Artificial Flavoring
Artificial Coloring
Other Agents
Chemical Additives and the Future

10. Preservation of Food with Ionizing Radiations
A Place for Radiation Stablized Foods
Discovery of Radioactivity
Alpha, Beta and Gamma Radiations
Dosimetry
Dose Distribution
Induced Radio-Activity in Treated Food
Mode of Action of Ionizing Radiations
Radiation Effects on Micro-organisms
Radiation Effects on Proteins
Radiation Effects on Enzyme Systems
Effects of Radiation on Amino Acids
Effects of Radiation on Vitamins
Radiation Effects on Carbohydrates
Radiation Effects on Lipids
Radiation Effect on Pigments
Radiation Effect on Parasites and Insects
Packaging of Radiation Stabilized Foods

General Methods for establishing Radiation Stabilization Process for Foods
The Food Product-Micro-organism Destruction
Dose Requirements for the Radiation Sterilization of Foods
Technological aspects of the Radiation Pasteurization of Foods
Radiation Resistant Organisms
Factors Influencing the Survival of Micro-organisms from a Radiation Process
The Influence of the Type of Radiation on the Inactivation of Micro-organisms
The Influence of Dose Rate on the Inactivation of Micro-organisms
The Influence of Environmental Conditions on the Survival of Micro-organisms from a Radiation Process
Combination Processes
Conditions after Irradiation Affecting Survival and Recovery of Micro-Organisms
The Food Product-Enzyme Destruction
Process for Radiation Sprout Inhibited White Potatoes
Process for Insect De-infestation of White Flour by Irradiation
The Process for Food Stabilization
Process-Heat Inactivation of Enzymes plus Radiation Destruction of Micro-organisms
Process and Product Specifications
Process for Radiation-Pasteurized Plant Tissues (Fruits)
Process for Radiation-Pasteurized Animal Flesh (Sliced Bacon)
Process for Radiation-Sterilized Meat (Chicken), Fish and Vegetables
Non-Heat Method for Controlling Enzymes in Meat
Design of Radiation Processing Food Plants
Wholesomeness of Radiation Stabilized Foods
Some Public Health aspects of the Microbiology of Irradiated Foods
Acceptability of Radiation Stabilized Foods
Quality Control with Radiation Stabilized Foods

Ionizing Radiations as a Unit Operation in the Food Industry

11. Preservation of Semi-moist Foods
Introduction
Canned white bread
Storage stability
Sponge and Dough
Filling and Proofing
Processing
Finished Product
Fungistatic and fungicidal agents
Sorbic acid
Polyethylene
Semi-moist Pet Foods
Process for Semi-moist Pet Foods
Marbled, Textured Product
Water Activity
Production of Semi-moist Products Growing
Semi-moist Human Foods
Coarse Ground Beef and Beef Cubes
Other Products being developed

12. Principles and Preservation of Bakery Products
Introduction
Principles of Baking
Dough
Influence of Flour Proteins
Flour Improvers
Other Components of Flour
Yeast Raised Dough Products
Heat Generated During Mixing Doughs
Heat of Hydration
Cooling Requirements
Continuous Bread Making Process
Typical Formulations for Yeast Raised Bakery Products
Baking Schedules
Baking Reactions
Chemically Leavened Bakery Products

Leavening Acids
Baking Powders
Elements of Cookie Technology
Cookie Flour
Sugar
Shortening
Eggs
Ammonia
Water
Baking Acids
Soda
Miscellaneous Ingredients
Mixing and Baking
Quality Cookie Chart
Elements of Cake Technology
General Rules for Formulating Cakes
Cake Formulations
Principles of Processing Cakes
Baking
Refrigerated Doughs
Preservation of Bakery Products
Fresh Bakery Products
Freezing of Bakery Products
Packaging
Storage Life of Frozen Bread
Cookies and Cakes
Nutrient Losses in Bakery Products
Packaged Fresh Bread
Packaged Fresh Cookies, Crackers, Bakery Goods,
Cake Mixes
The Future

13. Storage Stability of Preserved Foods
Introduction
Relationships of Product Qualities and Storage conditions
Objective Tests of Quality of Stored Foods
Objective Odor Measurements
Mechanical Texturemeter
Long-term Storage of Preserved Foods
Temperature of Storage

Nutrients
Containers for Long-Term Storage
Storage Costs
Storage Stability of Selected Frozen Foods
Result
The Future
14. Food Preservation Using Ozone
Introduction
Physicochemical Properties of Ozone
Use of Ozone in Storage and Packing Facilities
Extension of Storage Life with Ozone
Ozonation to Sanitize packing Line Process Water
The Commercial Production of Ozone
Importance of Ozone in Fishing Industry
Future Perspectives
15. Food Preservation by Smoking Process
Introduction
Types of Smoking
The Difference between Curing and Smoking
Meat Curing and Smoking
Types of Smokers

16. Thermal Food Preservation
Introduction
Effect of Preservation Temperatures
Effect of Processing on Nutrients in Foods
Thermal Preservation Methods

17. Machinery & Equipments (Photographs)
Directory Section

About Niir

NIIR Project Consultancy Services (NPCS) is a reliable name in the industrial world for offering integrated technical consultancy services. Its various services are: Pre-feasibility study, New Project Identification, Project Feasibility and Market Study, Identification of Profitable Industrial Project Opportunities, Preparation of Project Profiles and Pre-Investment and Pre-Feasibility Studies, Market Surveys and Studies, Preparation of Techno-Economic Feasibility Reports, Identification and Selection of Plant and Machinery, Manufacturing Process and/or Equipment required, General

Guidance, Technical and Commercial Counseling for setting up new industrial projects and industry. NPCS also publishes various technology books, directories, databases, detailed project reports, market survey reports on various industries and profit making business. Besides being used by manufacturers, industrialists, and entrepreneurs, our publications are also used by Indian and overseas professionals including project engineers, information services bureaus, consultants and consultancy firms as one of the inputs in their research.