The Complete Book on Meat Processing and Preservation with Packaging Technology

Author: NIIR Board of Consultants & Engineers
Format: Paperback
ISBN: 9788178330310
Code: NI162
Pages: 540
Price: Rs. 1,275.00 **US$** 33.95
Publisher: Asia Pacific Business Press Inc.
Usually ships within **5** days

Meat was originally processed to preserve it, but since the various procedures cause so many changes in texture and flavour it is also a means of adding variety to the diet. Processing also provides scope to mix the less desirable parts of the carcass with lean meat and in addition is a means of extending meat supplies by including other foodstuffs such as cereal in the product. Food preservation is a method of maintaining foods at a desired level of properties or nature for their maximum benefits. Preservation usually involves preventing the growth of bacteria, yeasts, fungi, and other micro organisms (although some methods work by introducing bacteria, or fungi to the food), as well as retarding the oxidation of fats which cause rancidity. Today, meat is processed with salt, colour fixing ingredients, and seasonings in order to impart desired palatability traits to intact and comminuted meat products. Products intermediate to these categories are sectioned, or chunked and formed meats. There are various methods for the preservation of meat; curing, dry curing, smoking, canning, freezing dehydration, fat extraction (wet or steam rendering), etc. Meat curing agents include sodium chloride, nitrite, ascorbate or erythorbate and possibly sodium phosphate, sucrose, dextrose, or corn syrup and seasonings. The salt content of processed meats varies 1 to 12%, according to the type of product. Many intact and comminuted, cured meat products are smoked to impart a desirable smoked flavour and colour. The smoking process many also include a drying or cooking cycle, depending on the product. Canned meats may be processed to be commercially sterile or semi preserved. The objective of commercial sterilization is to destroy all harmful bacteria or bacteria that may cause spoilage of the product under normal unrefrigerated storage. However, the process does not kill the spores of all heat resistant bacteria. Frozen meat can be kept at low temperatures for many months. Freezing and subsequent thawing produce changes in the structure of meat that affect its physical properties. If meat is frozen very rapidly at low temperatures, the ice crystals are small and form within the fibers. The drip loss upon thawing is generally greater in slow frozen than in quick frozen meat. Freeze drying meat extends shelf life and reduces weight. The meat is readily defrosted by immersing in water before cooking. Under optimum processing and storage conditions, reconstituted meats have acceptable flavour, colour, texture and nutrient retention.
The meat packing industry handles the slaughtering, processing, packaging, and distribution of animals such as cattle, pigs, sheep and other livestock. The basic purpose of packaging is to protect meat and meat products from undesirable impacts on quality including microbiological and physio chemical alterations. Packaging protects foodstuffs during processing, storage and distribution from contamination by dirt (by contact with surfaces and hands), microorganisms (bacteria, moulds, and yeasts), parasites (mainly insects), toxic substances (chemicals), influences affecting colour, smell and taste (off odour, light, oxygen), loss or uptake of moisture. 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.
Some of the fundamentals of the book are meat product, simultaneous flavouring and tenderizing, synthetic flavouring, preservation: moisture retention and surface protection, antimicrobial treatment, antioxidant

application to freeze dried meats, packaging and handling for storage and transportation, continuous steam cooking of ground meat, activators of natural proteolytic enzymes, isotonic enzyme solution with specific activity, inactivation of enzymes with high pressure, etc.
The origin of meat processing is lost in antiquity but probably began when primitive humans first learned that salt is an effective preservative and that cooking prolongs the keeping quality of fresh meat. This book includes the processing of fresh meats, the different curing agents, method of curing, smoking and manufacturing of various meat products such as sausages, canned meat, cured and smoked meats etc. The book is very useful for entrepreneurs, technocrats and those who want to venture in to this field.

Contents

Inactivation of Enzymes with High Pressure
Carbon Dioxide or Oxygen Atmosphere
Enzyme, Chelating Agent, and Starch
Tragacanth Addition
Meat Pieces with Tenderized Core
Aging at Elevated and Controlled Temperatures
Variable Dew Point Control
Vacuum Packaged Cuts
Diathermal Heating
Controlled Atmosphere
Electron Beam Generator Radiation
Forced Dry Air Circulation
Treatment with Additives
Sodium Chloride and Pyrophosphate Synergism
Increased Injection Level of Sodium
Chloride and Phosphate
Marination and Refrigeration
Sodium Bicarbonate and Vinegar
Treatment with High-Pressure Gaseous Atmosphere
Oxygen
Carbon Dioxide
Solution Applicaion Devices
Automatic Spraying Apparatus
Jet Injection Apparatus
Mechanical Tenderizing
Composite Steaks by Mechanical Method
Composite Steaks by Cryogenic Method
Compressed Cuts Mechanically Tenderized
Action of Supersonic Energy
Isometric Tensioning
Method for Tenderness Measurement
Tenderness Measuring Apparatus
3. FLAVOUR AND TENDRENES
Simultaneous Flavouring and Tenderzing
Action of Molds and Bacteria
Action of Thamnidium elegans
Pre-Rigor Mortis Injection of Aspergillus niger Mycelium
Acid Activation of Thamnidium elegans
Anta-Mortem injection or Thamnidium and Aspergillus
Thamnidium and Antibiotic Synergism
Action of Pseudomonas and Achromobacter
Combined Action of Flavouring and
Tenderizing Agents
Monosodium Glutamate Eliminates Mutton Flavour
Application of Dry Tenderizer and Flavouring Materials
Inhibition of Warmed-Over Flavour
4. FLAVOURING
Meat Hyorolystates and Extracts
Acid Hydrolysis of Water-Insoluble Meat Residue
Fractionation of the Flavour Precursor
Hydrolysis of Meat
Bone Hydrolysates and Extracts
Continuous Counterflow Hydrolysis

Continuous Hydrolysis
Protein Hydrolysate
Synthetic Flavouring
Cysteine and Glyceraldehyde Base
Cysteine and Ribose
Derivatives of Mercapto-Acetaldehyde
a- Ketobutyrate, Inosinate, and Glutamate Base
Nitrite and Amino Acids
Cysteine, Sugar, Inosinate, and Protein Hydrolysate Base
Cysteine, Thiamine and Proteinaceous Substance Base
Ribose, Glycerol, Proline, Cysteine, and Methionine
Amino-Carbonyl Complexes from Protein Hydrolysates
Heat-Treated Slurried Meat and Ascorbic Acid
5. COLOUR
Ante-Mortem Treatment
Adrenalin and Ascorbic Acid
Treatment with Gaseous Atmosphere
Carbon Monoxide
Oxygen Under Pressure
Ammonia
Hemoglobin Base Colouring Compositions
Stable Compositions in Liquid and Paste Form
Compositions in Dry Powder Form
Chemical Treatment
Certified Monoazo Red Dyes
Ascorbate, Phosphate, and Citrate
Ascorbate, Gelatin, and Monosodium Glutamate
Imidazole
Metal Ions Ashed from Biological Tissues
Beta-Carotene
Nicotinic Acid Spray
Mechanical Treatment
Removal of Residual Blood
Protection of Bone Colour of Primal Cuts
6. INTEGRAL TEXTURE
Natural Exudate as Binder
Surface Treatment to Release Exudate
Mechanical Pricking to Release Exudate and
Freezing to Integrate
Compression to Release Exudate
Cryogenic Method
Enzyme Sodium Chloride Binding Action
Salt-Soluble Proteins
Scoring to Release Exudate
Polyphosphate as Bonding Agent
Polyphosphate Injection
Repeated Slow Freezing and Thawing
Bindingd Agents
Wheat Gluten
Gums
Binding Matrix
7. PRESERVATION : MOISTURE RETENTION AND
SURFACE PROTECTION

Long Chain Hydrocarbon Coating
Fatty Alcohol or Fatty Acid Protective Film
Preliminary Ice Coating
Intermediate Glycerol Layer
Intermediate Water Layer
Lactic Acid-Fatty Acid Triglycerides
Water-in-Oil Emulsion Containing Gum
Mixture of Mono- and Diglycerides in Oil
Acetylated Monoglycerides
Plastic Coating
Ethylcellulose Plasticized with Mineral Oil
Ethylcellulose Plasticized with Edible Oil
Plasticized Cellulose Propionate Containing Glycol
Amorphous Polypropylene
Chemical and other Treatments
Sodium Chloride and Phosphate Solution
Injection of Water and Citric Acid
Hydrated Sodium Tripolyphosphate
Coating Powder Containing Syrup and Starch
8. ANTIMICROBIAL TREATMENT
Antibiotics
Ante-Mortem Injection
Ante-Mortem or Post-Mortem Injection
Combined with Air-Tight Packaging
Treated Absorbent Material
Coated or Impregnated Packaging Material
Addition of Nystatin or Myprozine
Various anTimicrobal and AnTimacrobial Agents
Plant Extracts
Spore Germination with Gibberellin
Sterilization with Nitric Oxide Atmosphere
Ethylene and/or Propylene Oxide to Destroy Trichinae
Increased Acidity to Destroy Foot-and-Mouth Virus
High Pressure Carbon Dioxide or Oxygen Atmosphere
Thermal Decontamination and
Oxygen Impermeable Packaging
Chlorine-Containing Aqueous Spray Solution
Microbial Spolage Indicator
Design and Compositions
9. IONIZING RADIATION
High Pressure Oxygen Atmosphere to Improve Colour
Combusted Fuel Gas Atmosphere to Improve Flavour
Ante-Mortem Adrenalin Injection to
Retard Enzymatic Deterioration
Antibiotic and Sorbic acid Treatment
Saline Medium to Elminate off-Flavours
Sodium Chloride and NitrIte ir Nitrate as
BacterIal Spore Sensitizers
Sterilization with Carbon Dioxide under Pressure
Sodium Chloride Treatment Prior to Blanching
Irradiation Apparatus
Design of a Resonant Transformer Type Cathode Ray
Irradiator

10. OTHER METHODS OF PRESERVATION
Dehydration Methods
Solvent Dehydration
Drying Without Case Hardening
Preservation of Flavor
Antioxidant Application to Freeze-Dried Meats
Deodorization of Raw Meat
11. PACKAGING AND HANDLING FOR STORAGE AND TRANSPORTATION
Various Methods of Packaging
Vacuum Packaging and Storage Below 5Â°C
Hot Carcass Processing and Impermeable Packaging
Vacuum Packaging and Hot Water Spraying
Processing of Partially Cooled Carcass
Controlled Atmosphere Environment
Cryogenic Oxygen-Nitrogen Atmosphere
Carbon Dioxide-Oxygen-Nitrogen Atmosphere
12. COOKING METHODS
Brolling in Oxtgen-free atmosphere with Intense Infrared Heat
Continuous Steam Cooking of Ground Meat
Controlled Electrical Cooking
High Pressure Roasting in Air Medium
Cooking Between Compressed Plates
Roasting in Suspended State
Directory Section
1. MEAT PRODUCT
Curing
Comminution
Smoking
Canning
Freezing
Dehydration
By-Products
2. TENDERNESS
Feed Additivies
Balanced Electrolyte Composition
Ante-Mortem Enzyme and other Treatments
Stabilized, Purified Enzyme Preparation
Enzyme and Antibiotic Synergism
Controlled Enzyme Distribution
Uniform Enzyme Distribution
Treated and Standardized Enzyme Solution
Activators of Natural Proteolytic Enzymes
Collagen Diminution Agents
Reversibly Inactivated Enzymes
Pre-Rigor Mortis Enzyme Treatment
Enzyme and Antibiotic Synergism
Tenderization of Connective Tissue
Cold Water Buffered Enzyme Solution
Isotonic Enzyme Solution with Specific Activity
Buffered Enzyme Combined with Gelatin
Pre-Rigor Mortis Injection

Water Injection
Water and Gas Injection
Water and Cellulose Gum Injection
Whole Blood or Whole Milk Injection
Post-Rigor Mortis Enzyme Treatment
Tenderizer Composition
Aerosol Tenderizing Compositions
Enzyme with Higher Sodium Phosphates
Enzyme with Basic Pyrophosphate Salts
Balanced Activity of Papain and Bromelin
Enzyme with Nonlinear Phosphates in Saline
Enyme and Fat Combination
Gas as Tenderizer Carrier
Inactivation of Enzymes with High Pressure
Carbon Dioxide or Oxygen Atmosphere
Enzyme, Chelating Agent, and Starch
Tragacanth Addition
Meat Pieces with Tenderized Core
Aging at Elevated and Controlled Temperatures
Variable Dew Point Control
Vacuum Packaged Cuts
Diathermal Heating
Controlled Atmosphere
Electron Beam Generator Radiation
Forced Dry Air Circulation
Treatment with Additives
Sodium Chloride and Pyrophosphate Synergism
Increased Injection Level of Sodium
Chloride and Phosphate
Marination and Refrigeration
Sodium Bicarbonate and Vinegar
Treatment with High-Pressure Gaseous Atmosphere
Oxygen
Carbon Dioxide
Solution Applicaion Devices
Automatic Spraying Apparatus
Jet Injection Apparatus
Mechanical Tenderizing
Composite Steaks by Mechanical Method
Composite Steaks by Cryogenic Method
Compressed Cuts Mechanically Tenderized
Action of Supersonic Energy
Isometric Tensioning
Method for Tenderness Measurement
Tenderness Measuring Apparatus
3. FLAVOUR AND TENDRENES
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Action of Molds and Bacteria
Action of Thamnidium elegans
Pre-Rigor Mortis Injection of Aspergillus niger Mycelium
Acid Activation of Thamnidium elegans
Anta-Mortem injection or Thamnidium and Aspergillus
Thamnidium and Antibiotic Synergism

Action of Pseudomonas and Achromobacter
Combined Action of Flavouring and
Tenderizing Agents
Monosodium Glutamate Eliminates Mutton Flavour
Application of Dry Tenderizer and Flavouring Materials
Inhibition of Warmed-Over Flavour
4. FLAVOURING
Meat Hyorolystates and Extracts
Acid Hydrolysis of Water-Insoluble Meat Residue
Fractionation of the Flavour Precursor
Hydrolysis of Meat
Bone Hydrolysates and Extracts
Continuous Counterflow Hydrolysis
Continuous Hydrolysis
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Cysteine and Ribose
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Nitrite and Amino Acids
Cysteine, Sugar, Inosinate, and Protein Hydrolysate Base
Cysteine, Thiamine and Proteinaceous Substance Base
Ribose, Glycerol, Proline, Cysteine, and Methionine
Amino-Carbonyl Complexes from Protein Hydrolysates
Heat-Treated Slurried Meat and Ascorbic Acid
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Ante-Mortem Treatment
Adrenalin and Ascorbic Acid
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Carbon Monoxide
Oxygen Under Pressure
Ammonia
Hemoglobin Base Colouring Compositions
Stable Compositions in Liquid and Paste Form
Compositions in Dry Powder Form
Chemical Treatment
Certified Monoazo Red Dyes
Ascorbate, Phosphate, and Citrate
Ascorbate, Gelatin, and Monosodium Glutamate
Imidazole
Metal Ions Ashed from Biological Tissues
Beta-Carotene
Nicotinic Acid Spray
Mechanical Treatment
Removal of Residual Blood
Protection of Bone Colour of Primal Cuts
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Natural Exudate as Binder
Surface Treatment to Release Exudate
Mechanical Pricking to Release Exudate and
Freezing to Integrate
Compression to Release Exudate

Cryogenic Method
Enzyme Sodium Chloride Binding Action
Salt-Soluble Proteins
Scoring to Release Exudate
Polyphosphate as Bonding Agent
Polyphosphate Injection
Repeated Slow Freezing and Thawing
Bindingd Agents
Wheat Gluten
Gums
Binding Matrix
7. PRESERVATION : MOISTURE RETENTION AND SURFACE PROTECTION
Long Chain Hydrocarbon Coating
Fatty Alcohol or Fatty Acid Protective Film
Preliminary Ice Coating
Intermediate Glycerol Layer
Intermediate Water Layer
Lactic Acid-Fatty Acid Triglycerides
Water-in-Oil Emulsion Containing Gum
Mixture of Mono- and Diglycerides in Oil
Acetylated Monoglycerides
Plastic Coating
Ethylcellulose Plasticized with Mineral Oil
Ethylcellulose Plasticized with Edible Oil
Plasticized Cellulose Propionate Containing Glycol
Amorphous Polypropylene
Chemical and other Treatments
Sodium Chloride and Phosphate Solution
Injection of Water and Citric Acid
Hydrated Sodium Tripolyphosphate
Coating Powder Containing Syrup and Starch
8. ANTIMICROBIAL TREATMENT
Antibiotics
Ante-Mortem Injection
Ante-Mortem or Post-Mortem Injection
Combined with Air-Tight Packaging
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Addition of Nystatin or Myprozine
Various anTimicrobal and AnTimacrobial Agents
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High Pressure Carbon Dioxide or Oxygen Atmosphere
Thermal Decontamination and
Oxygen Impermeable Packaging
Chlorine-Containing Aqueous Spray Solution
Microbial Spolage Indicator
Design and Compositions
9. IONIZING RADIATION

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Wed, 13 Mar 2024 12:44:28 +0530