Tomato is one of the most popular fruit in the world. The products of tomato like paste, juice, ketchup, etc. are widely used in kitchens all around the world. Tomatoes and tomato-based foods are considered healthy for the reason that they are low in calories, but possess a remarkable combination of antioxidant micronutrients.

Tomato industry has been growing significantly over the past several decades. Changing life style and taste of consumers in different countries will motivate the growth of the tomato products market. The industries can retain maximum market share by differentiating their products in the market, by coming up with innovative products and by focusing on different packaged tomato products.

India is one of the largest consumers of tomatoes, as well as the second largest tomato producing country in the world followed by China. Although raw tomato consumption is the mainstream means of consumption in today's India, the market for processed tomato is expected to expand in the near future considering the remarkable economic growth and dietary culture changes. Tomatoes are widely grown commodity with 136 mt production in the world. There is a big market for tomato products. The market scenario has revealed a positive indication for the specially packed tomato products in local as well as outside market. It is estimated that the total production of processed fruit & vegetable in India is about 15.0 lakh tonne.

The major content of the book are varieties of tomato, select the best seeds and seedlings, growing preparation, canning of tomatoes, how to store & preserve tomatoes, basis for successful cultivation of tomato, crop husbandry, tomato pruning, dehydration/drying of tomatoes, canning of tomatoes, preserving by heating, tomato pulp, tomato paste, tomato ketchup, tomato juice, tomato powder, hazard analysis and critical control points, FPO and Agmark, products packaging, marketing.

The purpose of this book is to present the elements of the technology of tomato preservation. The book explains raw material requirement, manufacturing process with flow diagrams of various tomato products with addresses of plant & machinery suppliers with their photographs. It deals with the products prepared from tomato commercially. 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 tomato products manufacturing.
Contents

1. INTRODUCTION
   Varieties of Tomato
   Other Tomato Varieties
   Major Tomato Growing Belts in India
   Botanical Description of Tomato Plant
   Uses of Tomatoes
   Health Benefits
   Home Remedy of Solanum Lycopersicum (Tomato)
   Medicinal Uses of Tomato (Solanum Lycopersicum)
   Benefits of Tomato
   Lower Cholesterol
   Reduce Heart Disease
   Lower Blood Pressure
   Regulates Blood Sugar
   Counteract Acidosis
   Reduce Migraines
   Boost Immunity
   Natural Sunscreen
   Strengthen Bones
   Treatment of Vasodilation
   Lead Toxicity
   Eye Disorder
   Combating Stroke
   Mood
   Wound Repair
   Diabetes

2. BASIS FOR SUCCESSFUL CULTIVATION OF TOMATO
   Climate and Soil
   Temperature and Light
   Climate Zones for Tomato Varieties
   Zone A
   Zone B
   Zone C
   Soil
   Water and Humidity
   Choice of Varieties
   Growing Preparation
   Site Selection
   Land Preparation
   Purchasing Tomato Seedlings
   Seedlings
   Nursery Management
   Crop Spacing and Arrangement
   Transplanting

3. CROP HUSBANDRY
   Bulky Organic Manures
   Farmyard Manure
   Sheep and Goat Manure
Poultry Manure
Concentrated Organic Manures
Oil Cakes
Major Sources of Manures
Advantages of Organic Manures
Fertilizers
Nitrogen
Phosphorus
Potassium
Calcium
Minor Elements
Watering/Irrigation
1. Surface Irrigation
2. Sprinkler Irrigation
3. Drip Irrigation
Pruning
Pruning to Shape
Nipping
Heading
Trimming Leaves
Weed Control
Crop Rotation
Protected Cultivation
Greenhouses
Climate Control
Water Supply and Crop Husbandry
Types and Constructions
Financial Turnover
Organic Farming
Soil Fertility
Crop Rotation
Sanitation Practices

4. TOMATO PRUNING
Pruning Unstaked Plants
Pruning Tops of Plants
Pruning Roots
Identify Tomato Suckers
Support Systems
Staking and Spacing Options: Cages, Fences, or Stakes
Basic Reasons for Pruning
Types of Pruning Cuts
Types of Training Systems
Pruning and Fruit Quality
Fruit Size
Hollowness
Earliness and Harvest Period
Types of Pruning Maintenance

5. DEHYDRATION/DRYING OF TOMATOES
Preparation
Drying Methods
1. Sun Drying
2. Oven Drying
3. Dehydrator Drying
Packaging and Storage
Health Benefits of Sun Dried Tomatoes
Description of the Tomato Drying System

6. CANNING OF TOMATOES
  Preparing Equipment
  Preparing Tomatoes
  Packing the Jars
  Adding Acid
  Adding Salt
  Closing the Jars
  Processing
  Step-By-Step Canning
  Boiling Water Method
  Step-By-Step Canning
  Pressure Canner Method
  Cooling the Jars
  Testing the Seal
  Storing
  Before Using

7. PRESERVING BY HEATING
  Introduction
  Advantages
  Disadvantages
  Packing
  Tins
  Glass
  Types of Heating
  Pasteurization
  Sterilization in a Bath of Boiling Water
  Sterilization with a Pressure Cooker or Autoclave
  Tins
  Glass Jars
  Storage and Consumption

8. TOMATO PULP
  Introduction
  Manufacturing Process of Tomato Pulp
  Sorting
  Washing and Trimming
  Crushing
  Pulping
  Hot Process
  Process Flow Diagram

9. TOMATO PASTE
  Introduction
  Raw Material Requirements
  Manufacturing Process of Tomato Paste
  Process Flow Diagram
10. TOMATO KETCHUP
Introduction
Uses of Tomato Ketchup
Ingredients Required
Process Description
Process Flow Diagram

11. TOMATO JUICE
Introduction
Manufacturing Process of Tomato Juice
Washing and Trimming
Crushing
Hot Pulping
Extraction of Juice
Deaeration
Acidification
Common Salt and Sugar
Packing
Homogenization
Thermal Processing of Tomato Juice
In-Can Processing
Bulk Processing
Process Flow Diagram

12. TOMATO POWDER
Introduction
Uses & Applications
Procedure for Making Tomato Powder
Primary Method
Secondary Method
Process Flow Diagram

13. HAZARD ANALYSIS AND CRITICAL CONTROL POINTS
Terms Used in HACCP
Developing a HACCP Plan
1. Assemble the HACCP Team
2. Describe the Food and its Distribution
3. Describe the Intended Use and Consumers of the Food
4. Develop a Flow Diagram which Describes the Process
5. Verify the Flow Diagram
Principles of HACCP
1. Conduct a Hazard Analysis
2. Determine Critical Control Points (CCPs)
3. Establish Critical Limits
4. Establish Monitoring Procedures
5. Establish Corrective Actions
6. Establish Verification Procedures
7. Establish Record-keeping and Documentation Procedures
Prerequisite Programs

14. FPO AND AGMARK
Goals of Ministry of Food Processing Industries (MOFPI)
Roles of MOFPI
Policy Support
Developmental
Promotional
Regulatory
Organization Chart of Ministry of Food Processing Industries
FPO Registration is Available for Following Products
Requirement For FPO Application Proceedings
AGMARK
Salient Features of AGMARK Products
AGMARK Products are Manufactured After
Grading and Marking of Vegetable Oils Under AGMARK
Agmark Registration is available for following Products
Requirement of Agmark Application Proceedings

15. PRODUCTS PACKAGING
Introduction
Definition of Food Packaging
Functions of Packaging Material
Packaging Materials for Tomato and its Products
Packaging of Tomato
Flexible Packaging
Forms of Flexible Packaging
Manufacturing Techniques
Plastics in Food Packaging
Use of Plastics in Food Packaging
Types of Plastics Used in Food Packaging
Types of Plastic Used in Packaging
Polyethylene
Polypropylene (PP)
Polyethylene Terephthalate (PET or PETE)
Polyethylene Naphthalene Dicarboxylate (PEN)
Flexographic Printing
Digital Printing
Printing and Labelling of Rigid Plastic Containers
In-mould Labelling
Labelling
Dry Offset Printing
Silk Screen Printing
Heat Transfer Printing
Glass and Glass Container Manufacture
Melting
Container Forming
Design Parameters of Glass Containers
Surface Treatments
Hot End Treatment
Cold End Treatment
Low-Cost Production Tooling
Container Inspection and Quality
Conclusion
Precautions during Packing

16. MARKETING
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.


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.

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