Manufacture of Pan Masala, Tobacco and Tobacco Products

Tobacco comes from a leafy plant that tends to grow in warm tropical areas. It is famously grown all over the Caribbean, where the warm, sunny conditions make for a perfect growing climate. Tobacco is usually smoked as a nicotinic stimulant and is mostly processed, rolled and dried before being smoked. Different geographies produce different types of the plant. The taste and flavor of the leaves are the characteristic trademarks of different types. The process of curing also determines the type of tobacco.

Tobacco products include cigarettes, cigars, loose pipe tobacco, chewing tobacco, and snuff. These products contain the dried, processed leaves of the tobacco plant nicotiana rustica or nicotiana tabacum. All tobacco contains nicotine, an addictive drug. Today’s tobacco also contains thousands of other chemicals designed to make the products more user-friendly and addictive.

Nicotine is a nitrogen-based compound which dissolves in organic compounds. Tobacco leaves contain plenty of nicotine which evaporates on burning. This nitrogen-based compound is addictive in low amounts and toxic in high doses. Nicotine Sulfate is a potent pesticide, known for its high toxicity.

A large proportion of Indian economy is agro based in which Tobacco is one of the principal cash crops. The tobacco production and its allied products’ sales in the country have played a prominent role in the development of nation’s economy. India is the largest tobacco market in the world in terms of tobacco consumption. The smokeless tobacco has historically been served as a tradition in India for many decades.

Tobacco Waste or dust is generated at various stages of post-harvest processing of tobacco and also while
manufacturing various tobacco products mainly during manufacture of tobacco products like cigarette and Bidi. The types of wastes generated during pre and post-harvest practice of tobacco include suckers, stems, mid ribs, leaf waste and dust.

The main contents of the book are Tobacco Cultivation, Tobacco Diseases and Pests, Organic Tobacco Production, Chewing Tobacco, Cigarettes, Bidi, Cigars, Readymade Khaini, Chewing Tobacco (Khaini), Zarda, Gutka, Katha, Mouth Fresheners, Pan Chutney, Pan Masala, Kimam, Tobacco of Various Grade, Sweet Supari, Nicotine Sulphate, USP Nicotine, Nicotine Tartarate, Nicotine Polacrilex Resin, Smokeless Tobacco (SLT), Hookah, Tobacco Products Manufacturing Processes, E-Liquid (Main Chemicals, Compounds, Components), Additives in Tobacco Products, Additives Products, Packaging & Labeling (Design Trends & Technologies), Plastics in Food Packaging, Packaging Laws and Regulations and Photographs of Machinery with Supplier’s Contact Details.

This book will be a milestone for its readers who are new to this sector, will also find useful for professionals, entrepreneurs, those studying and researching in this important area.

Contents

1. INTRODUCTION
   History of Tobacco
   Varieties of Tobacco
   Origin and Distribution
   Area and Production
   Types of Tobacco
   Climate and Soil
   Tobacco Growing
   Nursery Management
   Tillage
   Topping
   Desuckering or Suckering
   Ecological Requirement for Tobacco Cultivation
   (A) Climatic Requirement for Tobacco Cultivation
   (B) Soil Requirement for Tobacco Cultivation
   Harvesting of Tobacco
   Favoring Leaf Growth
   After the Harvest
   Curing Tobacco Leaves
   Air-cured Tobacco Leaves
   Flue-cured Tobacco Leaves
   Sun-cured Tobacco Leaves
   Fermenting (A.K.A. Sweating) Tobacco Leaves
   Stacking
   Kiln Fermenting
   Methods of Harvesting
   Priming
   Stalk Cut Method
Harvesting Method of Tobacco Based on Different Types
Plant Protection
1. Pests
   Tobacco Leaf-Eating Caterpillar Control
2. Stem Borers Control
3. Aphids Control

2. TOBACCO CULTIVATION
   Soils
   Climate
   Preparing the Seedbeds
   Sowing the Seeds
   Crop Cultivation
   Transplanting
   Fertilize
   Irrigate
   Topping and Suckering
   Worms and Suckers
   Tobacco Growing
   Varieties of Tobacco Growing in Different States
   FCV Tobacco (A.P.)
   HDBRG Tobacco
   Burley Tobacco
   Natu Tobacco
   Lanka Tobacco
   Bidi Tobacco
   Chewing and Hookah Types of Tobacco
   Wrapper, Filler, Jati & Motihari Tobacco in North Bengal
   Types of Soil Required for Tobacco Cultivation
   Northern Black Soils (NBS)
   Central Black Soils (CBS)
   Southern Black Soils (SBS)
   Southern Light Soils (SLS)
   (vii)
   Northern Light Soils (NLS)
   Karnataka
   Karnataka Light Soils (KLS)

Ecological Requirement for Tobacco Cultivation
(A) Climatic Requirement for Tobacco Cultivation
(B) Soil Requirement for Tobacco Cultivation

Factors Affecting Tobacco Growth
Temperature
Rain
Evaporation
Humidity
Sunshine
Wind
Types of Tobacco
Beedi Tobacco
FCV Tobacco
Burley Tobacco
Hookah Tobacco
Natu Tobacco
Cigar Tobacco
Forms of Tobacco
(1) Flue-cured
(2) Fire-cured
(3) Maryland Air-cured
(4) Dark Air-cured
(5) Cigar Types: Filler, Binder and Wrapper
(6) Perique
Process of Tobacco
The Harvest
The Corojo Harvest
The Criollo Harvest
Air-Drying
The First Fermentation
DE-Ribbing and Sorting
The Second Fermentation
Storage
The Preparation of the Tobacco
(viii)
Alternative Uses of Tobacco
Integrated Barn
Banana Fibre Extractor
Palmyrah Fibre Seperator

3. TOBACCO DISEASES AND PESTS
Bacterial Diseases
Fungal Diseases
Nematodes, Parasitic
Viral and Phytoplasma Diseases
Miscellaneous Diseases and Disorders
Granville Wilt (Ralstonia Solanacearum)
Symptoms
Cause
Management
Symptoms
Cause
Comments
Management
Blue Mold (Peronospora Tabacina)
List of Symptoms/Signs
Symptoms
Leaves
Stems
Cause
Comments
Management
1. Resistant Cultivars
2. Cultural Methods
   (a) Chemical Control
   (b) Induced Resistance
3. Collar Rot (Sclerotinia Sclerotiorum)
   Symptoms
   Factors that Affect the Development of Collar Rot
   Cause and Disease Development
   Management
   Fungicides
   (ix)
   Control Recommendation
   Cultural Practices
Frogeye Leaf Spot (Cercospora Nicotianae)
   Cause
   Comments
   Symptoms
   Favorable Conditions
   Disease Cycle
   Management
   Chemical Methods
Loopers (Cabbage Looper, Alfalfa Looper)
Trichoplusia ni Autographa Californica
   Symptoms
   Cause
   Comments
   Management

4. ORGANIC TOBACCO PRODUCTION
   Introduction
   Tobacco Culture
   Transplant Production
   Pests and Diseases in Seedling Beds
   Field Growing
   Harvesting
   Curing

5. CHEWING TOBACCO
   Chewing Tobacco and Other Forms of Smokeless
   Tobacco

6. CIGARETTES
   Raw Materials
   Main Steps in the Manufacturing Process of
   Cigarettes
   Growing and Harvesting
   Curing the Leaf
   First Processing
   Preparation of Basic Blends and Making of
   Cigarettes
   (x)
   Adding of Humectants, Flavors and Flavourings
   Packaging
7. BIDI
   Birth of Bidi and the Industry
   The Bidi Industry
   Flavored and Herbal Bidis
   Growth of the Tobacco Industry in India
   Characteristics of the Bidi Industry
   Women, Families, and the Bidi Industry
   Tendu Leaves Drying in Sun for Beedi Cigarettes
   Major Features of the Beedi Industry
   Process of Work in Bidi Manufactory
   Role of Women in the Bidi Industry
   Methods of Production
   Production Process: A Detailed Description
   Interesting Bidi Facts
   Marketing Channels of Cigarettes and Bidi

8. CIGARS
   Lighting
   Flavour
   Smoke
   Raw Materials
   The Manufacturing Process
   Cultivation of Tobacco
   Curing
   Fermenting
   Stripping
   Hand Rolling
   Machine Rolling
   The Production of Cigars
   The Escaparate
   Color Determination and Attachment of Cigar Bands

9. READYMADE KHAINI
   Introduction
   Uses & Application
   (xi)
   Manufacturing Process
   Chemical Composition of the Fermented Chewing Tabacco
   Process Flow Diagram

10. CHEWING TOBACCO (KHAINI)
    Introduction
    Uses & Application
    Process of Manufacture
    Curing
    Chemical Composition of the for Mented Chewing Tabacco
    Fermentation
    Flow Sheet Diagram for Chewing Tobacco
11. ZARDA
Introduction
Chemical Composition of Smokeless Tobacco
Different Formulation of Zarda
Baba Zarda
Tulsi Zarda
Gopal Zarda
Bhola Zarda
Perfume & Tobacco Formulation for Zarda
Essence of Tobacco
Formula – A
Perfume formulation for No. 300 Type Zarda
Formula – B
No. 300 Types Zarda
Manufacturing Process of Zarda
Basic Raw Materials Required
Formulation
Process
Quality Control
Process Flow Diagram

12. GUTKA
Introduction
Preparation of Panmasala Tobacco (Gutka)
Formulation for Pan Masala Tobacco Gutka
Formulation of Spices
Formulation of Perfumes
Process Flow Diagram

13. KATHA
Introduction
Uses
Process of Manufacture
Process Flow Sheet for Katha & Cutch

14. MOUTH FRESHENERS
Properties
Uses and Applications
Manufacturing Process
Sweet Scented Supari
Process
Scented Sweet Chikni Supari
Process
Process Description
Formulation of Scented Supari
For Scented Coloured Supari
Process Flow Diagram

15. PAN CHUTNEY
Introduction
Formulations of Pan Chutney
Ingredients
Manufacturing Process
Preparation of Pan Chutney
Process Flow Diagram

16. PAN MASALA
Introduction
Uses & Applications
Manufacturing Process
Process Details
Making of Lime and Katha Solution
Katha Solution
Formulation for Pan Masala Tobacco Gutka
Flow Diagram

17. KIMAM TOBACCO OF VARIOUS GRADE
Introduction
Preparation of Kimam
Composition of Raw Material

18. SWEET SUPARI
Introduction
Uses and Applications
Manufacturing Process
Formulation of Scented Supari
Process Flow Diagram

19. NICOTINE SULPHATE
Manufacturing Process
Flow Diagram
Material Balance of Nicotine Sulphate

20. USP NICOTINE
Introduction
Manufacturing Process
Flow Diagram of the Product USP Nicotine
Mass Balance for USP Nicotine

21. NICOTINE TARTARATE
Manufacturing Process
Flow diagram of the product Nicotine Tartarate
Material Balance of Nicotine Tartarate

22. NICOTINE POLACRILEX RESIN
Introduction
Pharmacology
Pharmacokinetics
Manufacturing Process
Flow Diagram of the Product Nicotine Polacrilex Resin
Material Balance of Nicotine Polacrilex Resin
23. SMOKELESS TOBACCO (SLT)
The Smokeless Industry
Chemical Composition of Smokeless Tobacco
Nicotine Content in Smokeless Tobacco
Carcinogenic Compounds in Smokeless Tobacco
(a) Volatile N-nitrosamines
(b) PAHs
(c) Other Carcinogenic Compounds and Constituents
Types of Smokeless Tobacco
Snuff
Snus
Dissolvable Tobacco
Pattiwala
Gutka
Dry Snuff (Tapkeer)
Uses of Smokeless Tobacco
(a) Betel Quid with Tobacco
(b) Chimó
(c) Creamy snuff
(d) Dry Snuff
(e) Gudhaku
(f) Gul
(g) Gutka
(h) Iq’mik
(i) Khaini
(j) Khiwam
(k) Loose-leaf
(l) Maras
(m) Mawa
(n) Mishri
(o) Moist Snuff
(p) Naswar
(q) Plug Chewing Tobacco
(r) Red Tooth Powder
(s) Shammah
(xv)
(t) Snuff
(u) Tobacco Chewing Gum
(v) Tobacco Tablets
(w) Toombak
(x) Tuibur
(y) Twist/Roll Chewing Tobacco
(z) Zarda
Nasal Use
(a) Dry Snuff
(b) Liquid Snuff

24. HOOKAH
How Hookah Tobacco is Manufactured
Which Hookah Coals are Best for Pipes?
How to Set up a Hookah
Hookahs are Built by Combining Multiple Parts

Components
The Bowl
Windscreen (Optional)
Hose
Body and Gaskets
Purge Valve (Optional)
Plate
Grommets
Operation

What is a Water Bong? How does a Water Bong Work?
What’s a Smoking Pipe? How does a Pipe Work?

How to Use a Hookah Shisha Pipe
Preparing Your Pipe
Preparing the Molasses
Lighting the Charcoal
Final Preparation
Further Tips
Foil and Air Holes (xvi)

Heat Transfer to Your Pipe
Storing Your Shisha Molasses
Charcoal
Dehydration

Hookah Flavors of All Time
1. Al Fakher Mint
2. Tangiers Noir Cane Mint
3. Starbuzz Blue Mist
4. Nakhla Double Apple
5. Al Fakher Double Apple
6. Starbuzz Pirates Cave
7. Social Smoke Absolute Zero
8. Fumari White Gummi Bear

25. TOBACCO PRODUCTS MANUFACTURING PROCESSES
Primary Tobacco Processing
Expanded Tobacco Process
Flavor Making
Reconstituted Tobacco Manufacturing

26. E-LIQUID (MAIN CHEMICALS, COMPOUNDS, COMPONENTS)
Main Components
Propylene Glycol (PG) Vegetable Glycerine (VG)
Polyethylene Glycol (PEG)
Propylene Glycol is Vegetable Glycerin also known as Glycerol - is
Pharmaceutical Grade Glycerine is Named Glycerine, USP
Composition
Main Components
Main Chemicals, Compounds, Components
Propylene (PG)
Vegetable Glycerin (VG)
Nicotine
Chemistry’s Role
(xvii)

27. ADDITIVES IN TOBACCO PRODUCTS
Reasons for Adding Additives to Cigarettes
GRAS and FEMA Approval of Tobacco Additives
Carob Bean Extract
Function of the Additive
Amount of Carob Bean Extract Added to Cigarettes
Pyrolysis and Reaction Products in Cigarette Smoke
Cellulose Fibre
Function of the Additive
Amount of Cellulose Fibre
Guar Gum
Function of the Additive
Amount of Guar Gum Added to Cigarettes
Pyrolysis and Reaction Products in Cigarette Smoke
Liquorice
Function of the Additive
Amount of Liquorice Added to Cigarettes
Pyrolysis and Reaction Products in Cigarette Smoke
Menthol
Function of the Additive
Amount of Menthol Added to Cigarettes
Prune Juice Concentrate
Function of the Additive
Pyrolysis and Reaction Products in Cigarette Smoke
Vanillin
Function of the Additive
Amount of Vanillin Added to Cigarettes

28. GLOSSARY OF TERMS FOR TOBACCO AND TOBACCO PRODUCTS
1. Scope
2. Terms
(xviii)

29. PACKAGING & LABELING (Design Trends & Technologies)
Reclosability
Spout & Fitments
Flexible Packaging Shapes
Retort - Shelf Stable
Stick-Packs
Food Supply and the Protective Role of Packaging
The Value of Packaging to Society
Definitions and Basic Functions of Packaging
Packaging Strategy
Packaging Design and Development
The Packaging Design and Development Framework
Product Needs
Distribution Needs and Wants of Packaging
Packaging Materials, Machinery and Production Processes

30. PLASTICS IN FOOD PACKAGING
Introduction
Use of Plastics in Food Packaging
Types of Plastics Used in Food Packaging
Manufacture of Plastics Packaging
Plastic Film and Sheet for Packaging
Pack Types Based on Use of Plastic Films, Laminates etc.
The Standards of Weights & Measures Act (SWMA)
Standard Units (Section 4)

31. PACKAGING LAWS AND REGULATIONS
Declaration on Packaged Commodities for Interstate Trade or Commerce
Further Requirements Include Standard Packages
Maximum Permissible Error
Label Declarations
(xix)
General Provisions Relating to Declaration of Quantity
Symbols for Unit
General Guidelines on Giving Declarations
Violation of Law
The Prevention of Food Adulteration Act
Food and Adulteration
Packaging and Storage Requirements
Other Packaging Requirements under PFA

32. PHOTOGRAPHS OF MACHINERY WITH SUPPLIER’S CONTACT DETAILS
Dynamics 2500 Filter Assembler
Supari Chips & Ruff Cutting Machine
Automatic Supari Cutting Machine
Supari Chips Cutting Machine Auto Press
Supari Fadcha Machine
Automatic (Heavy Hopper Type) Bulk Supari Multiple Cutting Machine
Automatic (Hoper Type) Circle, Routh Mamri Supari Cutting Machine
3” Tobacco Cutting Machine
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.


NIPCS 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.

Our Detailed Project report aims at providing all the critical data required by any entrepreneur vying to venture into Project. While expanding a current business or while venturing into new business, entrepreneurs are often faced with the dilemma of zeroing in on a suitable product/line.