## Manufacture of Pan Masala, Tobacco and Tobacco Products. 2nd Revised Edition

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Format: paperback

Code: NI317 Pages: 448

Price: Rs.2225US\$ 200

Publisher: NIIR PROJECT CONSULTANCY

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Usually ships within 5 days

Manufacture of
Pan Masala, Tobacco and Tobacco Products
(Tobacco Cultivation, Chewing Tobacco, Cigarettes, Bidi, Cigars, Khaini, Zarda, Katha, Mouth
Freshener, Pan Chatni, Kimam, Sweet Supari, Nicotine Sulphate, USP Nicotine, Nicotine
Tartarate, Nicotine, Polacrilex Resin)

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 Beedi. 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, BIS Specifications, 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 is one-stop guide to one of the fastest growing sector of the Pan Masala, Tobacco and Tobacco Products, where opportunities abound for manufacturers, retailers, and entrepreneurs. This is the only complete handbook on Pan Masala, Tobacco and Tobacco Products. It serves up a feast of how-to information, from concept to purchasing equipment.

## 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

Primina

Stalk Cut Method

Harvesting Method of Tobacco Based on Different

**Types** 

Plant Protection

1. Pests

Tobacco Leaf-Eating Caterpillar

Controls

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)

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

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

Comments

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** 

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 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** 

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. BIS SPECIFICATIONS

13. KATHA

Introduction

Uses

Process of Manufacture

Process Flow Sheet for Katha & Cutch

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**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** 

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Introduction

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Ingredients

Manufacturing Process

Preparation of Pan Chutney

**Process Flow Diagram** 

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Introduction

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Manufacturing Process

**Process Details** 

Making of Lime and Katha Solution

Katha Solution

Formulation for Pan Masala Tobacco Gutka

Flow Diagram

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Introduction

Preparation of Kimam

Composition of Raw Material

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Introduction

Uses and Applications

Manufacturing Process

Formulation of Scented Supari

**Process Flow Diagram** 

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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
- (I) Maras
- (m) Mawa
- (n) Mishri
- (o) Moist Snuff
- (p) Naswar
- (q) Plug Chewing Tobacco
- (r) Red Tooth Powder
- (s) Shammah
- (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

Hookahs Today

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

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

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**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

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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

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**TOBACCO PRODUCTS** 

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2. Terms

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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

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Types of Plastics Used in Food Packaging

Manufacture of Plastics Packaging

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Pack Types Based on Use of Plastic Films,

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The Standards of Weights & Measures Act (SWMA)

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Interstate Trade or Commerce

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Label Declarations

General Provisions Relating to Declaration of

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The Prevention of Food Adulteration Act

Food and Adulteration

Packaging and Storage Requirements

Other Packaging Requirements under PFA

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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

4.5" Tobacco Cutting Machine

6" Double Tobacco Cutting Machine

9" Double Tobacco Cutting Machine

6 Inch Tobacco Cutting Machine

Protos-M8

Tobacco Recycler

Filter Khani Packing Machine

Filter Snus Tobacco Portion Making Machine

Shisha Tobacco Packing Machine

Automatic Hukkah Pouch Packing Machine

Automatic Cigarette Filling Machine (Ryo-Mini-III)

Full-Automatic Drawing Cigarette Paper Machine

High Speed Gutkha Packing Machine

Tobacco Packing Machine
Supari Cutter
Supari Grader
Supari Polisher
Dynamics 2500 Cigarette Making Machine
Cigarette Making Machine
Mark-9/Max-S Cigarette Maker
Mark8/Max3 Cigarette Maker
Cigarette Making Machine
Semi-Automatic Agro Waste Briquette Making
Machine
Khaini Packing Machine
Khaini Tobacco Packing Machine
Coating Pan Machine

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Sat, 17 May 2025 07:16:10 +0000