

# **Formulation and Process of Resins, Oleoresin, Oils, Rosin & Derivatives, Gums, Adhesive, Katha, Chemical With Other Natural Products (Forest Based)**

**(Gum Ghati, Guar Gum, Gum Arabic, Gum Karaya, Gum Tragacanth, Locust Bean Gum, Tamarind Gum, Rosin and Rosin Derivatives, Turpentine and its Derivatives, Tall Oil and its Derivatives, Tall Oil Products in Surface Coating, Himalayan Cerawood Oil, Tall Oil in Printing Inks, Agarwood and Oil of Agarwood, Katha Production, Lignin and its Derivatives, Minor Forest Products)**

# Introduction

The forest in India yields a large number of products, which play an important role in the economy of the country. Natural products may be extracted from tissues of terrestrial plants, marine organisms or microorganism fermentation broths. A crude (untreated) extract from any one of these sources typically contains novel, structurally diverse chemical compounds, which the natural environment is a rich source of. There are numerous product which is has a vital commercial applications for example gum karaya, locust bean gum, tamarind gum, rosin and rosin derivatives, turpentine and its derivaties, tall oil and its derivatives, essential oil of deodar, essential oils of cinnamon species and many more. Gum is any of a number of naturally occurring resinous materials in vegetative species.

Various essential oils are also obtained from natural resources like deodar, Juniperus recurvavar, Suamata, Cinnamum species, agar wood etc.

Tall oil products find use in many product applications because of their economy and ready availability. Tall oil is more like a chemical product with a constant and dependable supply and a steady price. It has a large number of applications like; adhesives, carbon paper, cement addition agent, detergents, drawing oils, fungicides, lubricants, soaps, rubber additives, surface coating etc. Phenolic adhesives continue to be the most significant adhesives for the production of weather resistant wood products. In terms of volume of trade, revenue and employment potential, the minor forest products have surpassed the traditional major forest products viz, timber, firewood, pulp, wood etc.

Aromatic and medicinal plants are one the major resource from forests; the medicinal plants have been used since ancient times for the treatment of human ailments. Rosin, also called colophony is a solid form of resin obtained from pines and some other plants, mostly conifers, produced by heating fresh liquid resin to vaporize the volatile liquid terpene components. It is semi transparent and varies in color from yellow to black. At room temperature rosin is brittle, but it melts at stove top temperatures. It chiefly consists of different resin acids, especially abietic acid. Oleoresin is a naturally occurring mixture of oil and a resin extracted from various plants, such as pine or balsam fir. Over three quarters of the world population relies mainly on plants and plant extracts for health care. Natural products have evolved to encompass a broad spectrum of chemical and functional diversity.

It is this diversity, along with their structural complexity, that enables small natural molecules to target a nearly limitless number of biological macromolecules and often to do so in a highly selective fashion. Because of these characteristics, natural products have seen great success as therapeutic agents. However, this vast pool of compounds holds much promise beyond the development of future drugs.

This book makes an attempt to provide information of chemical nature, physical properties, manufacturing process, purification, applications, and compatibility of gums, adhesives, oils, rosin & derivatives, resins, oleoresins, katha, chemicals with other natural products. This book contains chapter on rosin and rosin derivatives, esterification of methylolated rosin, turpentine and its derivatives, tall oil and its derivatives, tall oil in liquid soaps,

essential oils of cinnamon species, utilization of tannin from waste conicer barks, katha production in Tarai area of Uttar Pradesh, adhesives for wood based on natural polyphenolic substance, etc. This book contains process of forest based products like Gums, Resins, Oleoresins, Essential Oils and other natural products obtained from Indian forests. It gives an insight of richness and vastness of the forest wealth.

This book is first of its kind, which covers comprehensive treasure of information on a wide variety of products. This is very resourceful book for students, growers and marketing agencies, country where there is rich flora and fauna awaiting proper exploitation, production and utilization .

## Market Demand

The demand for the product in adhesives accounted for over USD 700 million in 2015 owing to increasing use of the compound as an ingredient for the manufacture of adhesives. In addition, rapid development of the adhesives industry in China and India is expected to translate into a growing demand for the compound over the forecast period.

The global gum rosin market is expected to reach USD 2.49 billion by 2024, increasing demand of gum rosin owing to growth of synthetic rubber industry primarily in China is expected to drive the market growth.

The global market value of the adhesives was estimated to be about \$45.36 Billion in 2014 and is projected to reach \$59.75 Billion by 2020, growing at a CAGR of 4.72% between 2015 and 2020.

The global oleoresins market was valued at approximately USD 1.0 million in 2014 and is expected to reach approximately USD 1.65 million by 2020, growing at a CAGR of around 9% between 2015 and 2020.

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**STYRENE COPOLYMERIZATION OF BABUL (ACACIA)  
OIL AND ITS ALKYL**

- Experimental Materials Used
- Refining and Bleaching of the Oil
- Isomerization
- Styrenation of Babul Oil
- Preparation of Styrenated Alkyds
- Pre styrenation Process
- Formulation
- Post Styrenation Process



- Formulation
- Testing
- Results and Discussion
- Conclusion

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- Experimental : Preparation of Sample
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### **DEVELOPMENT OF SALSEED OIL INDUSTRY**

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- Experimental : Materials
- General Methods
- Extraction, Purification and General Characterization of Tamarind Kernel Oil

- Analysis of Fatty Acid Composition
- Extraction and Identification of Monoglycerides
- Extraction and Identification of Free Fatty Acids
- Isolation and Characterization of Unsaponifiable Matter
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- Analysis of Neutral Lipids
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- Hydrolysis of Phospholipids, Identification of Bases

- Identification of Polyhydroxy Compounds
- Analysis of Glycolipid Fraction
- Identification of Component Sugars
- TLC Analysis of Glycolipid Fraction
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- Chemical Evaluation
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### **PRODUCTION OF STRYCHINE AND BRUCINE FROM NUX VOMICA PROCESS**

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- Yields
- Equipments Required
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- Earlier Methods of Extraction of Strychnine and Brucine
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### **SOLVENT EXTRACTION OF ARTEMISIA ANNUAL ON PILOT PLANT SCALE**

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- Transplanting and Harvesting
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- Physico Chemical Properties
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### **CHEMURGY OF KALPVRIKSHA**

- Collection
- Transportation
- Drying
- Decortication

- Crushing/Extraction
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- Saponin
- Wet Rendering Process
- Production of Palmitic Acid
- High Pressure Splitting
- Meal
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# CHAPTER 67

## UTILIZATION OF MOHUA FLOWERS FOR CITRIC ACID PRODUCTION

- Materials and Methods
- Microorganism
- Growth of the Organism
- Viscosity
- Determination of Sugar

- Determination of Citric Acid: Fermentation Conditions
- Results and Discussion
- Effect of Cultural Conditions of Citrate Production

## **CHAPTER 68**

### **INDUSTRIAL UTILIZATION OF KOKAM**

## **CHAPTER 69**

### **NUTRITIVE VALUE OF SOME LESSER KNOWN WILD FRUITS OF JAMMU & KASHMIR STATE**

- Availability and Utilization
- Experimental
- Results and Discussion

## **CHAPTER 70**

### **WILD VEGETABLE FOOD MATERIALS OF JAMMU AND KASHMIR**

- Bauhinia Variegata Linn
- Bombax Ceiba Linn



- Capparts Spinosa Linn
- Caralluma Tuberculata N.E. Br.
- Cicer Soongaricum Stapf
- Coccinia Cordifolia
- Codonopsis Ovata Benth
- Corylus Colurna Linn.
- Diplaium Esculentum
- Emblica Officinalis Gaertn.

- Eremurus Spp.
- Euphorbia Royleana Linn.
- Megacarpaea Polyandra Benth.
- Momordica Dioica Roxb.
- Morniga Oleifera Lamk
- Punica Ranatum Linn
- Rheum Spp. Redid Wall
- Taraxacum Officinale Weber

- *Telosma Pallia* Craib. (D.Goalmanda)

## CHAPTER 71

### EDIBLE MUSHROOMS OF JAMMU & KASHMIR FORESTS

- Morels (*Morchella* Sp.)
- Dhingri (*Pleurotus*)
- *Pleurotus Fossulatus* (Cooke) Sacc
- *Pleurotus Flabellatus* (Berk, and Br.) Sacc; Vern
- Other Edible Mushrooms

- Coprinus
- Geopora Arenicola
- Boletus Sp.
- Agrocybe Cylindracea (D.C. ex. Fr) R.maire
- Flammulina Velutipes Curt. Ex. Fr. (Karst): Lactarius
- Scrobiculatus Scop. Ex. Fr.
- Tuber Cibarium Sibth.

# CHAPTER 72

## PROSPECTS OF FURFURAL AND FURFURAL BASED INDUSTRIES IN INDIA

- Uses
- Conventional Processes
- Possibilities
- Conclusion

# CHAPTER 73

## KEWDA INDUSTRY IN ORISSA

- Distribution Pattern and Availability of the Plant
- Historical Development and Present Set Up of the Industry
- Uses and Demand of the Perfume
- Collection
- Distillation
- Cost Estimation
- Present Position and Future Prospects of the Industry

# CHAPTER 74

## **PENCIL RAW MATERIALS IN KERALA Industry A Birds Eye View**

- Specification of Wood
- Species Used and Availability
- Some Suggestions conclusion
- Conclusion

# CHAPTER 75

## FOREST BASED RAW MATERIALS IN NEPAL

- Tropical Zone (below 1000 M)
- Sub Tropical Zone (1000 2000 M)
- Temperate Zone (2000 3000 M)
- Sub Alpine Zone (3000 4000 M)
- Climate and Temperature
- Raw Materials



- Plants Yielding Vegetable Gums and Resins
- 
- Bengal Kino Gum or Palash Gum
- Sal Gum
- Sahanjan Gum

## **CHAPTER 76**

### **MINOR FOREST PRODUCTS OF BIHAR**

# CHAPTER 77

## INDUSTRIALLY IMPORTANT MINOR FOREST PRODUCTS OF ORISSA

- Plants Used in Drug and Pharmaceutical Industry
- Plants Used in Perfumery Industry
- *Vetiveria Zizanioides* (Vetiver)
- *Cymbopogon Flexuosus* (Lemongrass)
- *Hyptis Suavelens* (Linn.) Poit

- Plants Yielding Gums and Resins of Industrial Use
- Plants Used in Vegetable Oil and Fat Industry
- Madhuca Latifolia (Roxb)
- Pongamia Pinnate (Linn.)
- Seleichera Elesa (Lour)
- Plants Used in Food or Food colourant Industries
- Bixa Orellana Linn
- Plants Used in Leather Tanning Industry

- Cleistanthus Collinus (Karade)
- Broomgrass for Broom Industry
- Kendu for Bidi Manufacturing Industry
- Bamboo for Pulp in the Paper Industry
- Fibre Yieldig Plants for Cordage Industry
- List of Address of Machinery Suppliers

# Tags

Gums, Manufacturing of Gums Ghati, Lignin, Gum Ghati Manufacturer, Strychnine, Adhesive, Minor Forest Products of Bihar, Production of Palmitic Acid, Palmitic Acid, Production of Palmitoleic Acid, Production of Brucine, Brucine, Process for Production of Brucine, Production of Strychnine, Strychnine Production, Minor Oilseeds, Minor Oil Seed Manufacturer, Minor Oil Seeds Process, Particle Board, Particle Board Manufacturing Process, Particleboard Formations, Particle Board Manufacture, Wood Polymer Composites Process, Wood Polymer Composite Production, Manufacturing of Wood Polymer Composite, Surface Coating Industry, Manufacture of Desi Katha, Processing of Desi Katha, Manufacture of Lignin, Production of Lignin, Process of Producing Lignin, Agarwood, Oil of Agarwood, Agarwood Manufacture, Agarwood Production, Himalayan Cedarwood Oil, Cedarwood Oil Process, Paper Making Process, Gum Arabic, Manufacture of Paper, Paper Making and Paper Manufacturing Process, Paper Production, Short Oil Baking Alkyd Fusion Process, Tall Oil Products in Surface Coating, Tall Oil, Tall Oil Production and Process, Pine Oil, Processing Production of Pine Oil, Pine Oil Manufacture, Camphor, Camphor Manufacturing, Procedure of Making Camphor, Oleoresin Processing, Manufacturing of Oleoresin, Production of Oleoresin, Adhesive Gum Manufacture, Adhesive Gum Process, Formulation and Manufacturing Process of Adhesives Gum, Production of Adhesives Gum, Salt Formation, Manufacture of Tamarind Gum, Production of Tamarind Gum, Mining Industry, Carpets Manufacturing Process, Production Process of Carpets, Carpet Production, Formulation of Gum Tragacanth, Formulation of Gum Karaya, Gum Karaya Manufacture, Formulation of Gum Arabic, Manufacturing of Gum Arabic, Arabic Gum Manufacturing, Production of Gum Arabic, Wax Emulsions Formulation, Chemical Products Manufacture, Katha Production, Process of Making Katha, Katha Manufacturing Process, How to Start Adhesive Gum Processing Industry, Paper Making Industry, Most Profitable Lignin Processing Business Ideas, Wood Polymer Composite Manufacturing Projects,

# Tags

Small Scale Paper Making Projects, Starting Oleoresin Processing Business, How to Start Agarwood Production Business, Arabic Gum Based Small Scale Industries Projects, New Small Scale Ideas in Minor Oil Seeds Processing Industry, NPCS, Niir, Process Technology Books, Business Consultancy, Business Consultant, Project Identification and Selection, Preparation of Project Profiles, Startup, Business Guidance, Business Guidance to Clients, Startup Project for Gums, Adhesives, Oils, Rosin & Derivatives, Resins, Oleoresins, Startup Project, Startup Ideas, Project for Startups, Startup Project Plan, Business Start-Up, Business Plan for Startup Business, Great Opportunity for Startup, Small Start-Up Business Project, Start-Up Business Plan for Adhesives Gums, Start Up India, Stand Up India, Resins Making Small Business Manufacturing, Modern Small and Cottage Scale Industries, Profitable Small and Cottage Scale Industries, Setting Up and Opening Your Oleoresin Business, How to Start Particle Board Manufacturing Process?, How to Start Successful Gum Tragacanth Business, Small Scale Commercial Desi Katha Making, Best Small and Cottage Scale Industries, Tamarind Gum Business, Profitable Small Scale Manufacturing, cutch and katha extraction

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**Niir Project Consultancy Services**

**106-E, Kamla Nagar, Opp. Spark Mall,**

**New Delhi-110007, India.**

**Email: [npcs.ei@gmail.com](mailto:npcs.ei@gmail.com) , [info@entrepreneurindia.co](mailto:info@entrepreneurindia.co)**

**Tel: +91-11-23843955, 23845654, 23845886, 8800733955**

**Mobile: +91-9811043595**

**Fax: +91-11-23845886**

**Website : [www.entrepreneurindia.co](http://www.entrepreneurindia.co) , [www.niir.org](http://www.niir.org)**

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- *Industry Trends*
- *Market Research Reports*
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- *Databases on CD-ROM*
- *Laboratory Testing Services*
- *Turnkey Project Consultancy/Solutions*
- *Entrepreneur India (An Industrial Monthly Journal)*

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- *We have two decades long experience in project consultancy and market research field*
- *We empower our customers with the prerequisite know-how to take sound business decisions*
- *We help catalyze business growth by providing distinctive and profound market analysis*
- *We serve a wide array of customers , from individual entrepreneurs to Corporations and Foreign Investors*
- *We use authentic & reliable sources to ensure business precision*

# Our Approach

Requirement collection

Thorough analysis of the project

Economic feasibility study of the Project

Market potential survey/research

Report Compilation

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- *Industry / trade associations*

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- *Bio-fertilizers And Biotechnology*
- *Breakfast Snacks And Cereal Food*
- *Bicycle Tyres & Tubes, Bicycle Parts, Bicycle Assembling*

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- *Building Materials And Construction Projects*
- *Biodegradable & Bioplastic Based Projects*
- *Chemicals (Organic And Inorganic)*
- *Confectionery, Bakery/Baking And Other Food*
- *Cereal Processing*
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- *Cold Storage For Fruits & Vegetables*
- *Coal & Coal Byproduct*

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- *Disinfectants, Pesticides, Insecticides, Mosquito Repellents,*
- *Electrical, Electronic And Computer based Projects*
- *Essential Oils, Oils & Fats And Allied*
- *Engineering Goods*
- *Fibre Glass & Float Glass*
- *Fast Moving Consumer Goods*
- *Food, Bakery, Agro Processing*



- *Fruits & Vegetables Processing*
- *Ferro Alloys Based Projects*
- *Fertilizers & Biofertilizers*
- *Ginger & Ginger Based Projects*
- *Herbs And Medicinal Cultivation And Jatropha (Biofuel)*
- *Hotel & Hospitability Projects*
- *Hospital Based Projects*
- *Herbal Based Projects*
- *Inks, Stationery And Export Industries*

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- *Jute & Jute Based Products*
- *Leather And Leather Based Projects*
- *Leisure & Entertainment Based Projects*
- *Livestock Farming Of Birds & Animals*
- *Minerals And Minerals*
- *Maize Processing(Wet Milling) & Maize Based Projects*
- *Medical Plastics, Disposables Plastic Syringe, Blood Bags*
- *Organic Farming, Neem Products Etc.*

# Sectors We Cover Cont...

- *Paints, Pigments, Varnish & Lacquer*
- *Paper And Paper Board, Paper Recycling Projects*
- *Printing Inks*
- *Packaging Based Projects*
- *Perfumes, Cosmetics And Flavours*
- *Power Generation Based Projects & Renewable Energy Based Projects*
- *Pharmaceuticals And Drugs*
- *Plantations, Farming And Cultivations*
- *Plastic Film, Plastic Waste And Plastic Compounds*
- *Plastic, PVC, PET, HDPE, LDPE Etc.*

## Sectors We Cover Cont...

- *Potato And Potato Based Projects*
- *Printing And Packaging*
- *Real Estate, Leisure And Hospitality*
- *Rubber And Rubber Products*
- *Soaps And Detergents*
- *Stationary Products*
- *Spices And Snacks Food*
- *Steel & Steel Products*
- *Textile Auxiliary And Chemicals*

- *Township & Residential Complex*
- *Textiles And Readymade Garments*
- *Waste Management & Recycling*
- *Wood & Wood Products*
- *Water Industry(Packaged Drinking Water & Mineral Water)*
- *Wire & Cable*

# Contact us

**Niir Project Consultancy Services**

**106-E, Kamla Nagar, Opp. Spark Mall,**

**New Delhi-110007, India.**

**Email: [npcs.ei@gmail.com](mailto:npcs.ei@gmail.com) , [info@entrepreneurindia.co](mailto:info@entrepreneurindia.co)**

**Tel: +91-11-23843955, 23845654, 23845886, 8800733955**

**Mobile: +91-9811043595**

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