

Drugs & Pharmaceutical Technology Handbook

Author:- NIIR Board

Format: paperback

Code: NI130

Pages: 636

Price: Rs.1075US\$ 125

Publisher: NIIR PROJECT CONSULTANCY SERVICES

Usually ships within **5** days

Drugs and pharmaceutical industry plays a vital role in the economic development of a nation. It is one of the largest and most advanced sectors in the world, acting as a source for various drugs, medicines and their intermediates as well as other pharmaceutical formulations. India has come a long way in this field, from a country importing more than 95% of its requirement of drugs and pharmaceuticals; India now is exporting it even to developed countries. Being the intense knowledge driven industry, it offers innumerable business opportunities for the investors/ corporate the world over. The existence of well defined and strong pharmaceutical industry is important for promoting and sustaining research and developmental efforts and initiatives in an economy as well as making available the quality medicines to all at affordable prices. That is, it is essential to improve the health status of the individuals as well as the society as a whole, so that positive contributions could be made to the economic growth and regional development of a country. On the global platform, India holds fourth position in terms of volume and thirteenth position in terms of value of production in pharmaceuticals. The pharmaceutical industry has been producing bulk drugs belonging to all major therapeutic groups requiring complicated manufacturing processes as well as a wide range of pharmaceutical machinery and equipments. The modern Indian Pharmaceutical Industry is recent and its foundation was laid in the beginning of the current century. The pharmaceutical industry can be broadly categorised as bulk drugs, formulations, IV fluids and pharmaceutical aids (such as medical equipment, hospital disposables, capsules, etc.). Special feature of the pharmaceutical industry is a large number of manufacturers in the small scale sector. The government is also encouraging the SSI sector providing some incentives. The recent developments in the technology and R & D work in this field have led to the increased growth rate of industries and have established Indian Pharmaceutical industries in the international market.

The content of the book includes information about properties, general methods of analysis, methods of manufacture, of different types of drugs and pharmaceuticals. Some of the fundamentals of the book are polymeric materials used in drug delivery systems , theoretical aspects of friction and lubrication , a convenient method for conversion of quinine to quinidine, formulation and evaluation of bio-available enteric-coated erythromycin and metronidazole tablets, extraction of virginiamycin, antipyretics and analgesics, column chromatographic assay of aspirin tablets, differentiating titration of phenacetin and caffeine, infrared spectra of some compounds of pharmaceutical interest etc.

This book covers an intensive study on manufacturing, production, formulation and quality control of drugs and pharmaceuticals with technology involved in it. This book is an invaluable resource for technologists, professionals and those who want to venture in this field.

1. INTRODUCTION

Manufacturing
Production
Formulation
Quality Control

2. POLYMERIC MATERIALS USED IN DRUG DELIVERY SYSTEMS

Preparation of polymers
Addition (chain reaction) polymerization
Condensation (step-growth) polymerization
Crosslinked polymers
Copolymerization
More complex co-polymer systems

3. PROPERTIES OF FATTY ALCOHOL MIXED EMULSIFIERS AND EMULSIFYING WAXES

Mixed emulsifier components
Fatty alcohols
Surfactants
Mixed emulsifiers and emulsifying waxes

4. TABLET LUBRICANTS

Theoretical aspects of friction and lubrication
Mechanisms of friction
Boundary lubrication
Applications to tableting
Chemical composition of lubricants
Metallic salts of fatty acids (soaps)
Fatty acids, hydrocarbons and fatty alcohols
Fatty acid esters
Alkyl sulphates
Polymers
Inorganic materials
Miscellaneous materials
Effects of lubricants on the manufacture and properties of tablets
Batch variation of lubricants
Processing
Tablet properties
Magnesium stearate
Commercial materials and batch variation
Pure grade materials
Selection of Lubricants

5. PARACETAMOL-AN ANALYSIS OF TECHNOLOGIES FOR CLEANER PRODUCTION

6. A MODIFIED PROCESS FOR CONVERSION OF - PICOLINE TO NOCOTINIC ACID

Experimental Procedure
Experimental Data

7. A CONVENIENT METHOD FOR CONVERSION OF QUININE TO QUINIDINE

Experimental Procedure
Reduction of quinidinone with alane

8. SUSTAINED RELEASE SALBUTAMOL TABLETS - THEORETICAL CONSIDERATIONS

Theoretical considerations

Calculation of Sustained Release Parameters for Salbutamol Sulphate

9. SUSTAINED RELEASE SALBUTAMOL TABLETS - FORMULATION ENGINEERING AND EVALUATION USE OF FAT AND WAX MATRIX

Materials and methods

Discussion

10. SUSTAINED RELEASE SALBUTAMOL TABLETS - FORMULATION ENGINEERING AND EVALUATION COMPOSITE WAX MATRIX AND INFLUENCE OF ADDITIVES

Materials and methods

Results and Discussion

11. FEASIBILITY OF PRODUCTION OF CHOLERA VACCINE IN FERMENTOR

Materials and methods

Media

Results and Discussion

12. MODIFICATION OF BEESWAX FOR ITS APPLICATION IN TABLET COATING

Materials and methods

Results and discussion

13. FORMULATION AND EVALUATION OF BIO-AVAILABLE ENTERIC-COATED ERYTHROMYCIN AND METRONIDAZOLE TABLETS

Materials and Methods

Coating formulations

Coating process

Dissolution rate studies

Methods of analysis

Results and discussion

Conclusion

14. REDUCING - SUBSTANCES-FREE ACETIC ANHYDRIDE FOR PHARMACEUTICAL INDUSTRIES

Experimental procedure

Materials

Procedure

Results and discussion

15. ANTHRACYCLINE ANTIBIOTICS (DAUNORUBICIN AND ADRIAMYCIN)

Biosynthesis

A. Origin of the Carbon Skeleton

B. Biosynthetic Interrelationships

Fermentation and Recovery

A. Inoculum Preparation and Production of Daunorubicin

B. Isolation and Purification of Daunorubicin

C. Inoculum Preparation and Production of Adriamycin

D. Isolation and Purification of Adriamycin

16. 6-APA

Production of 6-Apa using Penicillin Acylase

A. Enzymation of Penicillin G

B. Extraction of 6-APA

17. EXTRACTION OF VIRGINIAMYCIN

Extraction

18. SAGAMICIN

Fermentation Process

19. CHEMOTHERAPEUTICS, ANTIVIRAL

Antiviral Agents Effective in Humans

Thiosemicarbazones

Amantadine Hydrochloride

5-Iodo-2'-deoxyuridine

Trifluorothymidine

Arabinosylcytosine

Arabinosyladenine

Ribavirin

Interferon

Immunopotentiating Agents

Future of Antiviral Chemotherapy

20. CHEMOTHERAPEUTICS, ANTIPROTOZOAL

Coccidiosis

Thiamine Competitors

Antifolates

Antibiotics

Nitrobenzamides and Nitrofurans

Toxoplasmosis

Anaplasmosis

Babesiosis

Theileriasis

Trypanosomiasis

African Trypanosomiasis

Chagas' Disease

Leishmaniasis

Pneumocystosis

Trichomoniasis

Hexamitosis

Balantidial Dysentery

Giardiasis

Amebiases

Intestinal Amebiasis

Primary Amebic Meningo-Encephalitis

The Malarias

Drugs Acting on Asexual Blood Forms

Drugs Affecting Tissue Forms

Drugs Acting on Gametocytes

Action Spectra of Antiprotozoal Drugs

Economic considerations

21. CHEMOTHERAPEUTICS, ANTIMYCOTIC AND ANTIRICKETTSIAL

Mycotic Infections

Superficial Mycoses

Systemic and Generalized Mycoses

- Antifungal Agents
 - The Polyene Antibiotics
 - Candicidin
 - Pimaricin
 - Nonpolyene Antifungal Antibiotics
 - Griseofulvin
 - Cycloheximide
 - Other antifungal agents
- Synthetic Antifungal Agents
 - Nonspecific Systemic Medications
 - 5-Fluorocytosine
 - Imidazole Compounds
 - Tolnaftate
 - Haloprogin
- Agricultural Use of Antifungal Agents
- Rickettsial Infections
 - Treatment of Rickettsial Infections

22. CHEMOTHERAPEUTICS, ANTIMITOTIC

- Drug Classification
 - Alkylating Agents
 - Antimetabolites
 - Antibiotics
 - Plant alkaloids
 - Miscellaneous Agents
 - Hormones
- Combination therapy
- Multidrug Treatment
- Immunology
- Drug Toxicity
- Radiation Therapy

23. CHEMOTHERAPEUTICS, ANTHELMINTIC

- Treatment of Blood Fluke Disease (Schistosomiasis)
- Treatment of Fluke (Trematode) Infections in the Lungs, Intestines, and Liver
- Treatment of Tapeworm (Cestode) Infections
- Treatment of Intestinal Roundworm (Nematode) Infections
- Treatment of Tissue Roundworm (Nematode) Infections

24. ANTIPYRETICS AND ANALGESICS

- Salicylic Acid and its Derivatives
 - Methods of Manufacture
 - Sodium Salicylate
 - Aspirin
 - Salicylamide
 - Salicylic Acid
 - Sodium salicylate
 - Aspirin
 - Salicylamide
- Methods of Analysis
- Separation and Identification
 - Extraction into Sodium Bicarbonate Solution
- Procedure

Separation by Column Chromatography
Procedures
Preparation of Chromatographic Column
Preparation of Samples
Separation of Components
Separation by Gas Chromatography
Procedures
Preparation of Column
Preparation of Samples
Separation of Components
Identification
Procedures
Test with Ferric Chloride
Precipitation of Salicylic Acid
Assay Methods
Titrimetric Assay of Aspirin Capsules
Procedure
Column Chromatographic Assay of Aspirin Tablets
Procedures
Preparation of Column
Preparation of Samples and Standard
Analysis of Samples
Assay by Gas Chromatography
Procedures
Preparation of Column
Calibration
Assay of sample for aspirin content
Determination of Impurities
Determination of free salicylic acid in aspirin
Chromatographic Method
Procedures
Preparation of Reagent
Preparation of Salicylic Acid Standard
Preparation of Column
Analysis of Aspirin and Aspirin Tablets
APC Tablets and Flavoured Tablets
Spectrophotometric Method
Procedure
Readily Carbonizable Substances in Aspirin
Procedures
Preparation of Reagents
Cobaltous Chloride
Cupric Sulphate
Ferric Chloride
Sulfuric Acid
Testing of Sample
Impurities in Salicylic Acid
Ion Exchange Ultraviolet Method
Procedures
Preparation of Apparatus
Preparation of Column
Analysis of Samples
Procedure

Procedures
Preparation of Plates
Preparation of Reagents & Standards
Preparation of Sample
Qualitative Detection
Quantitative Determination
Determination in mixtures
Determination After Separation by Extraction
Ultraviolet absorption method
Procedures
Calibration
Calculations
Heuermann And Levine Method
Procedures
Preparation of Sample
Preparation of Column
Separation of APC Organic base Combination
APC Barbiturate Combinations
TURI Method
Procedures
Preparation of Column
Preparation of Samples
Separation of Fractions
Spectrophotometric Measurement
Koshy Method
Procedures
Preparation of Column
Preparation of Samples
Separation of Components
Determination of Components
Determination by Gas Chromatography
Hoffman and Mitchell Method
Procedures
Calibration
Analysis of Samples
Crippen & Freinuth Method
Procedure
Preparation of Column
Operating Conditions
Preparation of Methylating Reagent
Preparation of Samples & Standards
Analysis of Samples
Calculations
Direct Spectrophotometric Procedure
Procedure
Preparation of Mixed Solvents
Preparation of Reference Solutions
Analysis of Samples
Development of Equations
Infrared and Ultraviolet Spectrometry
Procedures
Mixtures of Aspirin, Phenacetin and Caffeine
Mixtures of Aspirin, Phenacetin and Caffeine and Cadeine Phosphate

Mixtures of Aspirin, Phenacetin and Caffeine and Thenylpyramine Hydrochloride

Nonaqueous Titrations

Wollish Methods

Procedures

Determination of Aspirin in the Presence of Stearic Acid

Determination of Aspirin in the Absence of Stearic Acid

Determination of Phenacetin

Determination of Caffeine

APC Tablets in Combination with Phenindamine Tartrate

Determination of Phenacetin

Determination of phenindamine Tartrate

Lin and Blake Methods

Procedures

Determination of Aspiring in APC Mixtures

Differentiating Titration of Phenacetin and Caffeine

Differentiating Titration of Aspirin and Phenobarbital

Nuclear Magnetic Resonance Spectrometry

Procedures

Determination of Spectra

Calculations

Derivatives of Aniline and p-Aminophenol

Methods of Manufacture

Commercial Grades and Specifications

Methods of Analysis

Separation and Identification

Separation by Ion Exchange Paper Chromatography

Procedures

Preparation of Iodoplatinate Reagents

Extraction

Chromatography

Separation by Gas-Chromatography

Procedures

Preparation of Column

Operationg Conditions

Calibration

Preparation of Samples

Separation of Components

Assay Methods

Gravimetric Methods

Procedure

Titrimetric Methods

Titration with Sodium Nitrite

Procedure

Iodometric Titration

Procedure

Assay Through Ethoxy Content

Procedure

Preparation of Reagent

Analysis of Sample

Calculations

Colorimetric Methods

Hydroxamic Acid Method

Procedure

Diazotation Procedures
Procedure
Procedures
Preparation of Buffer Solution
Calibration of the Method
Hydrolysis of Phenacetin
Mouton and Masson Method
Procedure
Chromic Acid Method
Procedure
Ultraviolet Spectrophotometry
Procedure
Determination of Impurities
Impurities in Phenacetin
Procedures
Determination of Acetanilide
Determination of P-Chloroacetanilide
Determination of P-Phenetidine
Free P-Amino Phenol in Acetaminophen
Procedures
Determination in Mixtures
Derivatives of Quinoline
Methods of Manufacture
Commercial Grades and Specifications
Methods of Analysis
Separation and Identification
Cinchophen
Neocinchophen
Assay Methods
Gravimetric Methods
Procedure
Titrimetric Methods
Procedures
Assay of Cinchophen Powder
Assay of Cinchophen Tablets
Procedure
Procedure
Spectrophotometric Methods
Procedure
Determination of Impurities
Procedures
Aniline Derivatives in Cinchophen
Readily Carbonizable Substances
Cinchophen in Neocinchophen
Determination in Mixtures
Derivatives of Pyrazolone
Methods of Manufacture
Commercial Grades and Specifications
Methods of Analysis
Separation and Identification
Antipyrine
Separation by Gas Chromatography
Aminopyrine

Assay Methods
Antipyrine
Spectrophotometric Methods
Procedure
Preparation of Reagent
Analysis of Sample
Gravimetric Method
Titrimetric Method
Polarographic Method
Procedure
Aminopyrine
Gravimetric Methods
Procedure
Assay of Elixir
Assay of Tablets
Acid-base Titration
Complexometric Titration
Procedures
Preparation of Reagents
Analysis of Samples
Bromate Titration
Procedure
Oxidative-Cleavage Method
Procedure
Colorimetric Methods
Procedure
Preparation of Diazotized P-Nitroaniline
Preparation of Sample Solution
Determination by Ferric Chloride
Determination of Diazotized P-Nitroaniline
Determination of Impurities
Antipyrine in Aminopyrine
Procedure
Determination in Mixtures
Antipyrine
Aminopyrine

25. ANTI-ASTHMATIC AGENTS

Adrenergic Stimulants
Anticholinergics
Inhibitors of the release of Allergic Mediators
Xanthine Derivatives
Prostaglandins
Other Drugs

26. PENICILLINS AND RELATED COMPOUNDS

Properties
General Method of Analysis
Separation and Identification
Chromatography
Spectroscopy
Other Methods
Assay Methods

Microbiological Methods
Chemical Methods
Iodometric Titration
Procedure
Acid-Base Titration
Hydroxylamine Colorimetric Method
Procedure
Ultraviolet Spectrophotometric Method
Procedure
Determination of Impurities
Benzylpenicillin
Analysis of Benzylpenicillin
Microbiological Assay Methods
Procedure
Procedure
Chemical Assay methods
Procedure
Procedure
Allylmercaptomethylpenicillin
Analysis of Pencillin O
Microbiological Assay Methods
Chemical Assay Methods
Phenoxymethylpenicillin
Analysis of Phenoxymethylpenicillin
Microbiological Assay Methods
Chemical Assay Methods
Phenethicillin
Analysis of Phenethicillin
Microbiological Assay Methods
Chemical Assay Methods
Methicillin
Analysis of Methicillin
Microbiological Assay Methods
Chemical Assay Methods
Carbenicillin
Analysis of Carbenicillin
Microbiological Assay Methods
Procedure
Chemical Methods
Ampicillin
Analysis of Ampicillin
Microbiological Assay Methods
Procedure
Chemical Assay Methods
Isoxazolympenicillins
Analysis of Isoxazolympenicillins
Microbiological Assay Methods
Chemical Assay Methods
Nafcillin
Microbiological Assay Methods
Chemical Assay Methods
Cephalsoporins
Analysis of Cephalosporins

Microbiological Assay Methods
Chemical Assay Methods

27. SULFONAMIDES

Therapeutic Aspects

Systemic infections

Urinary Tract Infections

Physical and Chemical Properties

Theoretical Aspects

Biological Mechanism of Action

Structure-Activity Relationship

Preparation and Manufacture

N1-Heterocyclic Sulfanilamides

N1-Acylsulfanilamides

N1-Heterocyclic-N4-Acylsulfanilamides

N1-Heterocyclic-N1-Acetylsulfanilamides

Miscellaneous Compounds

General Anesthetics, Volatile and Gaseous

Nitrous Oxide

Cyclopropane

Diethyl Ether

Fluroxene

Methoxyflurane

Halothan

Enflurane

Isoflurane

General Anesthetics, Fixed

Ultrashort-Acting Barbiturates

Propanidid

Ketamine

Innovar

Althesin

Etomidate

Spinal Anesthetics

Metabolism and Toxicity of Volatile Anesthetics

Adjuncts to General Anesthesia

Local Anesthetics

Benzocaine

Bupivacaine Hydrochloride

Cocaine Hydrochloride

Dibucaine Hydrochloride

Dimethisoquin Hydrochloride

Dyclonine Hydrochloride

Lidocaine Hydrochloride

Pramoxine Hydrochloride

Procaine Hydrochloride

Tetracaine Hydrochloride

28. INFRARED SPECTRA OF SOME COMPOUNDS OF PHARMACEUTICAL INTEREST

DIRECTORY SECTION

PHARMACEUTICAL / BIOTECHNOLOGY COMPANIES

WORLD WIDE PHARMACY RESOURCES

PHARMACEUTICAL, BULK DRUGS, MEDICINES & RAW MATERIALS

PHARMACEUTICAL MACHINERY & EQUIPMENT

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.

Our various services are: Detailed Project Report, Business Plan for Manufacturing Plant, Start-up Ideas, Business Ideas for Entrepreneurs, Start up Business Opportunities, entrepreneurship projects, Successful Business Plan, Industry Trends, Market Research, Manufacturing Process, Machinery, Raw Materials, project report, Cost and Revenue, Pre-feasibility study for Profitable Manufacturing Business, Project Identification, Project Feasibility and Market Study, Identification of Profitable Industrial Project Opportunities, Business Opportunities, Investment Opportunities for Most Profitable Business in India, Manufacturing Business Ideas, Preparation of Project Profile, Pre-Investment and Pre-Feasibility Study, Market Research Study, Preparation of Techno-Economic Feasibility Report, Identification and Section of Plant, Process, Equipment, General Guidance, Startup Help, Technical and Commercial Counseling for setting up new industrial project and Most Profitable Small Scale Business.

NPCS also publishes various 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.

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

Fri, 09 May 2025 06:37:37 +0000