

Hand Book on Neem & Allied Products

Author:- NIIR Board

Format: paperback

Code: NI49

Pages: 478

Price: Rs.975US\$ 100

Publisher: NIIR PROJECT CONSULTANCY SERVICES

Usually ships within 5 days

Nature has blessed man with a number of wonders. Of all, plants are found to be its best boon. Among them, neem is distinguished by their astonishing versatility. Neem is such a fascinating tree that no other tree probably has provided wide range of benefits to mankind. Neem tree and its products have been reputed since long for some physiological activity and have been used quite extensively as a household remedy, since time immemorial, for the treatment of some of the common ailments. The Neem tree, which is also known as Margosa or Indian lilac is grown extensively in Asian and African countries. The neem is very useful tree due to its medicinal and insecticidal properties. Neem oil is the major product of neem seed industry. The chief limitation of the oil is its odour due to the presence of odouriferous substances and other non saponifiable components. Amongst the non edible oilseeds the potential availability of neem is by far the largest because of its very extensive growth throughout the country and fairly good yield of oils from the seeds. Neem seed cake is the major by product of neem seed oil. Various parts of the neem tree have been used as traditional Ayurvedic medicine in India. Almost every product of this invaluable tree has been largely employed for medical purposes. Neem works as blood purifier. Consuming raw neem leaves or neem leaf powder helps in eradicating toxins from the blood. This is one of the greatest benefits of neem tree. Azadirachtin in the neem products have been found to act as repellents, antifeedants, affect food consumption and utilization and interfere with the growth regulation and ovarian development in insects. Neem manufacturing products are in high demand and several manufacturing companies are readily in business trying to satisfy their natural product consuming and environment sensitive market. Along with a good natural resource management program, Neem can be an income generator and a sustainable medicinal alternative in developing countries.

Some of the fundamentals of the book are technology for production of insecticides of plant origin at rural level, neem seed cake as a source of pests control chemicals, neem oil as possible biorational insecticide, chemistry of neem (*azadirachta indica*), a sustainable source of natural pesticides, machineries for neem processing, engineering properties of neem nut, neem and transfer of technology, processing of neem fruit and seed, processing of neem oil and its utilization, uses of neem is indigenous system of medicine, cold processing of neem seed, products from neem, development of a neem formulation and its evaluation for control of crop pests, evaluation of nematocidal potential in neem, etc.

The book covers cultivation of neem and processing of its products. It will be of immense value to all concerned with manufacturing of neem products; consultants Institutions or those who want to diversify in to production of neem based products.

1. Technology for Production of Insecticides of Plant Origin at Rural Level

Materials and Methods
Results and Discussion
Use of leaf Bits
Use of Leaf Extracts
Impregnation of Bags with Kernel Extract
Surface Treatment of Bins
Vapour Effect of Extract/Oil
Technology for Rural Level

2. Neem seed cake as a Source of Pests Control Chemicals

Methods and Materials
Results and Discussion

3. Neem oil as Possible Biorational Insecticide

Materials and Methods
Results and Discussion

4. Improving the Productivity of Neem Trees

Distribution
Agroclimatic Adaptability
Establishment and Growth
Production and uses
Non-wood Products
Environmental Safety
Problems of Neem Production and Utilization
Propagation of Neem
Variation in Germplasm
Silvicultural Practices to Improve Productivity
Establishment of neem
Fruiting
Seed Collection and Processing
Promotion of Neem Production
Packaging of Silvicultural Practices
Popularising the Use of Neem Products
Marketing of the Produce

5. Vegetative Propagation of *Azadirachta indica* A. Juss.

Materials and Methods
Mist Propagation
Micropropagation
Results
Mist Propagation
Micropropagation
Discussion

6. An Assay of Genetic Variability through Phenological Studies on Neem (*Azadirachta indica* A. Juss.)

Plantation
Materials and Methods
Observations and Discussions

7. Chemistry of Neem (*Azadirachta indica*), a Sustainable Source of Natural Pesticides

8. Photo-oxidation of Tetranortriterpenoids

Materials and Methods

Results and Discussion

9. New Tetra and Pentanortriterpenoids from *Azadirachta indica* A. Juss.

Results and Discussion

1 a-Destigloyl-1a-benzoylazadirachtin (II)

11b-Hydroxyazadirachtinin (III)

4a-benzoyl nimbandiol [V]

Ochinin Acetate [VII] and Ochinolide B [VIII]

10. Machineries for Neem Processing

Materials and Methods

Results and Discussion

Summary and conclusion

Suggestions for Further Work

11. Engineering Properties of Neem Nut

Introduction

Review of Literature

Materials and Methods

Apparatus and Procedure

Dimensions and Hardness

Nut weight and Kernel-shell Mass Ratio

Angle of Repose

Porosity

Bulk Density and Particle Density

Friction

Preparation of Samples

Results and Discussion

Dimensions and Hardness

Nut Weight and Kernel-Shell Mass Ratio

Angle of Repose and Porosity

Bulk Density and Particle Density

Coefficient of Friction

Conclusions

12. Neem and Transfer of Technology

Use of Neem Pest Control

Transfer of Neem Technology to the Farmers in India

As Pest Control Agent

On Tobacco

On-Farm Trial

Demonstration Trials

Lab-to Land Programme

NSKS in Integrated Pest Management

On Cotton

On Paddy

On Pulses

On Castor

Use of Neem Cake as Nematicide

Use of Neem Oil as a Suckericide on Tobacco
Neem Cake as Organic Manure

13. Processing of Neem Fruit and Seed

Availability of neem

Collection and processing of fruit and seed

Depulpers, driers and decorticators

Driers

Decorticators

Discussion of Results

Maturity, storage and pressing of seed

Maturation of Oil in Stored Fruits

Depulping of The Neem Fruit

Cost of Operation

Crushing of Neem Seed Kernels in Wardha Ghani

Fall of Oil yield with Storage

Processing of Neem Seed Kernel and production of
Neem Oil

Crushing

Storage Experiments on Neem Seed

Conclusions

Characteristics of neem oil and its quality

Specific Gravity and Refractive Index

Acid Value

Alcohol Soluble Material in the oil

Other Characteristics

Unsaponifiable Matter

14. Processing of Neem Oil and its Utilization

Quantitative estimation of the different constituents
of neem oil by alcohol extraction

Total Dilute Alcohol Extractive of Neem Oil

Large Scale Alcohol Extraction of Neem Oil

Refining of alcohol-extracted oil

Alkali Treatment

Refining Loss on Alkali Treatment

Bleaching of Neutral oil (Alcohol-Extracted and
Alkali-Refined)

Hydrogenation Experiments (Laboratory Scale) with
Neutral and Bleached Neem Oil

Refining Loss in Factory Pilot Unit

Tentative Cost of the Process of Alcohol Extraction
of Neem oil based on the Pilot Plant work

High Pressure Splitting

Deodorization and hydrogenation of purified and
refined oil

Alkali Refining

Hydrogenation of Refined Neem Oil

Soap

Stearin and olein

Pyronimin, a denaturant

Pyronimis-A Denaturant for Alcohol

Production of the Denaturants

Requirement of the Denaturants
Results of tests with the denatured spirit
Tentative Specifications for Pyronimin-250
Tentative Specifications for 'Total Bitters' Fraction
Tentative Specifications for the Spirit Denatured with
Pyronimin and 'Total Bitters' on Neem
Pharmaceutical Preparations with the Bitter Constituents
Preparations from Nimbidin-T and their uses
Costing
Other Experiments at Refining
Factors influencing industrial utilization of neem oil
and its by-products

15. Medicinal Uses

Uses of neem in indigenous system of medicine
Medicinal Uses of Neem in Recent Times

16. Cold Processing of Neem Seed

Experiment
Seed Cleaning
Mechanical Destoner
Mechanical Sieve-shaker Separator Fitted with
Air Cyclone System
Sedimentation (Gravitational) Technique
Decorative of Seed
Crushing
Discussion

17. Products from Neem

Semi-greaseless cold cream
Skin toning lotions
Cream Cholesterol Type
Herbal Soap (Neem based)
Neem based tooth paste
Radhas Ayurvedic Soap
Arya Neem Plus Turmeric Herbal Soap
Krishna Tulsi Herbal Soap
Medimix Skin Care Capsule
Shodha
Alargin forte
Beauty plus
Dantshodhak
Hemoclin syrup
Epidermoil Oil
Neem capsule
Charmi capsules
Hemocleen

18. Repellent Action of Neem Oil on Insects of

Public Health Importance
Methodology
Results
Discussion

Conclusion

19. Effect of Neem Oil: Structural and Functional Change in the Epididymis of Rats

Materials and Methods

Neem Oil

Animals

Sperm Motility and Sperm Count

Biochemical Estimations

Histological Investigation

Statistical Analysis

Results

Discussion

20. Rat Toxicity Studies with Neem Oil

Materials and Methods

Neem Oil

Animals

Biochemical Studies

Statistical Analysis

Results

Tissue Biochemical Parameters

Blood and Serum Parameters

Histological Studies

Discussion

21. Evaluation of Neem Extract Sprays on Maize

Introduction

Materials and Methods

Results

Discussion

22. Antifeedant and Insecticidal Activity of Some Neem Fractions

Materials and Methods

Results and Discussion

23. *Azadirachta indica* A. Juss. Stem Bark as an Anti-Leprosy Source

Materials and Methods

Observation and Results

Pharmacognosy

Macromorphology of Bark

Micromorphology of Bark

Powder Study

Phytochemistry

Biochemical Estimation (Percentage on Dry Weight Basis)

Geochemical Estimation

Active Principle Determination (from Ethanolic Extract)

Chemical Identity Comparison

Discussion

24. Evaluation of Neem Derivatives and *Lantana camara* L.

against Cardamom Pests
Materials and Methods
Field Evaluation of Neem Derivatives against the
Cardamom Thrips, *Sciothrips cardamomi* (Ramk.)
Field Evaluation of Neem Oil against Cardamom
Whitefly, *Dialeurodes cardamomi* David & Subr.
Laboratory Evaluation of the Crude Extract of Stem of
Lantana camara against the Cardamom Hairy
Caterpillar, *Eupterots undata*
Laboratory Evaluation of the Crude Extract of the Stem of
Lantana camara L. against Cardamom Shoot Borer,
Conogethes punctiferalis (Guen.)
Results and Discussion
Effect of Neem Derivatives on Cardamom Thrips
Effect of Neem Oil on Cardamom Whitefly
Effect of 1 per cent Suspension of the Extract of *Lantana*
camara on *E. undata*
Effect of 1 per cent Suspension of the Extract of *L. camara*
on *C. punctiferalis*

25. Development of a Neem Formulation and Its Evaluation for Control of Crop Pests

Materials and Methods
Product Development
Laboratory Studies
Field Studies
Results and Discussion
Laboratory Studies
Field Studies

26. Effect of Neem Cake, Neem Oil, Repelin and Carbofuran on Control of Soybean Nematodes

Materials and Methods
Results and Discussion

27. Thyroid Hormones and Intermediary Metabolism in Fish: Influence of Neem Kernel Extract

Materials and Methods
Results
Effect of T3 or T4 in Fish Injected with NKE
Effect of T3 and T4 in Fish Immersed in NKE-treated Water
Discussion

28. Clinical Studies with Praneem Polyherbal Cream in Chlamydial Cervicitis

Materials and Methods
Polyherbal Cream
Patients
Diagnostic Methods for *C. trachomatis*
Dose Schedule
Follow-up
Results
Discussion

29. Identification and Characterization of the Immunomodulator
Fraction from Neem Seed Extract Responsible for
Long-term Anti-fertility Activity
Materials and Methods
Results
Conclusion

30. Identification of Effective and Inexpensive Neem
(*Azadirachta indica* A. Juss.) Seed Kernel Extract
Materials and Methods
Seed Collection and Processing
Extraction
Aqueous Extract (AE)
Ethanollic Extract (EtoHE)
Hexane Extract (HE)
Chloroform Extract of DNKP (CHEDK)
Ethanol Soluble (Eto HSHE) and Insoluble (EtoHIHE)
Part of Hexane Extract
Extract Yield
Formulation of the Extracts
Rearing Culture of *H. armigera*
Biological Testing
Oviposition
Ovicidal
Feeding deterrent
Growth and Development
Results
Effect on Oviposition
Effect on Egg Hatching
Effect on Feeding
Effect on Growth and Development
Pupal Mortality and Adult Emergence
Discussion
Effect of oviposition
Effect on Egg Hatching
Effect on Feeding
Effect on Growth and Development of Larvae
Conclusion

31. Field Evaluation of Some Botanical Insecticides Alone
and in Combination with Other Insecticides for
Management of Bollworm Complex on Cotton
Materials and Methods
Results and Discussion
RD-9 Repelin
Neemark
Ind-Ne
Conclusions

32. Evaluation of Enriched Neem (*Azadirachta indica* A. Juss.)
Seed Extracts against Mango Hoppers, *Idioscopus*
nitidulus Walker and *Amritodus atkinsoni* Leth.

Materials and Methods

Laboratory Trial

Field trials

Results

Laboratory trials

Field Trials

Evaluation of neem derivatives for control of mango
hopper, *I. nitidulus*

Discussion

33. Potential of Neem in Insect Pest Management in Rice

Introduction

Materials and Methods

Results and Discussion

Effect of Neem Oil on Rice Leaf Folder and Stem Borer

Efficacy of Neem-based Insecticides Against Stem Borer

Effect of Neem-based Insecticides on the Growth

and Development of White-backed Planthopper

Combination of Neem-based Products with Synthetic
Insecticides

34. Effect of Neem Kernel Extract and Neem Oil on Nutritive and Reproductive Physiology of *Heliothis armigera* Hub.

Materials and Methods

Mass Culture and Biological Studies

Preparation of Extracts

Treatment

Quantitative Food Utilization

Efficiency of Digestion

Reproduction Studies

Biochemical Assays

Enzyme Assays

RESULTS

Effects on Reproductive Parameters

Effects on Quantitative Food Utilization

Effects on Efficiency of Digestion and Digestive Enzymes

Effect on Protein, Glycogen, Lipid and Enzyme Profiles
in Subsequent Female Moths

Effect on Protein, Glycogen, Lipid and Enzyme Profiles
in Subsequent Male Moths

Discussion

Conclusion

35. Bioefficacy of Some Neem Formulations against *Spodoptera litura* F.

Materials and Methods

Laboratory Tests

Nursery Experiment

Studies on Effect of Repelin B versus Repelin A and
NSKS against *S. litura* on Castor in Laboratory

Studies on Effect of Repelin B Alone and in Combination
with Endosulfan against *S. litura* (1992)

Bio-efficacy of Repelin B and Other New Neem
Formulations against *S. litura* on Tobacco (1992)
Results and Discussion
Laboratory Tests
Nursery Experiments
Effect of Repelin B versus Repelin A and NSKS against
S. litura on Castor in Laboratory
Choice Situations
No-choice Situation
Effect of Repelin B alone and in Combination with
Endosulfan against Tobacco Caterpillar, *s. litura*
on Tobacco
Bio-efficacy of Repelin B and Other New Neem
Formulations against *S. litura* (1992)
Laboratory tests
No-choice Situation
Nursery Tests

36. Effects of Extracts from Neem on Aphids (Homoptera: Aphididae) and Their Natural Enemies

Materials and Methods
Azadirachtin Content
Aphid Control
Aphid Natural Enemies
Antifeedant Activity
Aphid Reproduction
Results and Discussion
Aphid Control
Aphid Natural Enemies
Antifeedant Activity
Aphid Growth and Development
Aphid Reproduction
Conclusion

37. Azadirachtin Content and Bioactivity of Some Neem

Ecotypes of India
Materials
Methods
Estimation of Azadirachtin Content
Kernels
Oil
Extraction and Enrichment
Physicochemical Properties of Oil
Azadirachtin Estimation by PHLC
Insect Growth Regulation (IGR)
Fungicidal Activity
Results and Discussion
Azadirachtin Content of Neem Ecotypes
Kernels
Oil
Enrichment
Insect Growth Regulation
Fungicidal Property

38. The Effects of Various Neem Formulations on Mortality Rate and Morphogenetic Defects Upon *Schistocerca gregaria* (Forsk.) Larvae
Materials and Methods
Laboratory Insects
Field Insects
Neem Products
Controls
Application of the Larvae
Application of the Vegetation
Results
Mortality Rates Following Application of Neem Products to Larvae
Mortality Rates after Treatment of the Plants with Enriched Neem Oil; The Repellent Effect of Neem
Morphogenetic Defects
Discussion

39. Efficacy of Cakes in the Management of Root Knot Nematode (*M. arenaria*) in Groundnut
Materials and Methods
Results and Discussion

40. Efficacy Profile of a Commercial Neem Insecticide
Factors Influencing the Commercial Success of Azadirachtin
Consistency and Quality of Extracts
Product Positioning
Supply and Availability
Increase in Environmental Awareness
The Acceptance of Insect-Growth-Regulators
Cost of Raw Material
Important Commercial Characteristics of Azadirachtin
Representative Efficacy Data with Azatin/Turplex/Align in the United States

41. Evaluation of Nematicidal Potential in Neem Allelochemicals
Materials and Methods
Results
Discussion

Directory Section

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

Sun, 07 Dec 2025 13:44:34 +0000