AN ISO 9001 : 2015 CERTIFIED COMPANY

The Complete book on Natural Dyes & Pigments

FREE SAMPLE: contents and introduction of the 448-page book
Price: Rs 1,100 | US$ 29.73

Order the full book >

AN ISO 9001 : 2015 CERTIFIED COMPANY

Author: NIIR Board of Consultants & Engineers
Format: paperback
Code: NI160
Pages: 448
Price: Rs 1,100 | US$ 29.73
Publisher: NIIR PROJECT CONSULTANCY SERVICES
Shipping: 5 days

About the Book

Natural dyes are dyes or colorants derived from plants, invertebrates, or minerals. The majority of natural dyes are vegetable dyes from plant sources. Dyeing is the process of imparting colors to a textile material. Different classes of dyes are used for different types of fiber and at different stages of the textile production process, from loose fibers through yarn and cloth to completed garments. There are technologies that manufacture the pigments for plastics, rubber and cosmetics. Therefore; dyes and pigments have a vast area of applications and have a huge demand in industry. Contrary to popular opinion, natural dyes are often neither safer nor more ecologically sound than synthetic dyes. They are less permanent, more difficult to apply, wash out more easily, and often involve the use of highly toxic mordant. Of course, the colour possibilities are far more limited; the color of any natural dye may be easily copied by mixing synthetic dyes, but many other colors are not easily obtained with natural dyes. However, some mordant are not very toxic, and the idea of natural dyestuffs is aesthetically pleasing. Applying natural dyes in your fabric production using enzymes will reduce your production cost and improve control. There are various kind of natural dyes; quinonoid dyes, cyanine dyes, azo dyes, biflvonyl dyes, omochromes, anthraquinone, coprosma gesus etc. The use of natural dyes in cloth making can be seen as a necessary luxury to trigger off a change in habits. Dyes which stand out for their beauty and ecological attributes would never be employed on just any material but on noble fabrics such as wool, silk, linen or cotton, made to last more than one season. Market value will benefit from consumer preferences for environmentally friendly products, which will support consumption of high performance dyes and organic pigments.
This book basically deals with the use of carotenoids as food colours , bianthraquinones and related compounds, intermediate degradation products of biflavonyls, dyestuffs containing nuclear sulphonic and carboxylic acid groups, quinonoid dyes, cyanine dyes, optical whitening agents, natural dyes for food, stability of natural colourants in foods effect of additives, pyrimidine pigments, the total synthesis of the polyene pigments, red pigment from geniposidic acid and amino compound, effect of acid and amine on the formation of red pigment from
geniposidic acid, effect of the substituted position of amino group and chain
length of amino compound etc.

Due to pollution problems in synthetic dyes and pigments industry, the whole world is shifting towards the manufacturing of natural dyes and pigments. The present book contains techniques of producing different natural dyes and pigments, which has huge demand in domestic as well as in foreign market. It is hoped that entrepreneurs, technocrats, existing units, institutional libraries will find this book very useful.

Contents

1. Ommochromes
Distribution
A. Ommatins
B. Ommins
Isolation and Purification
A. Ommatins
B. Ommins
Structure of the Ommochromes*
  Xanthommatin
  Ommatin D
  Rhodommatin
  Ommin A X
Biogennesis
2. Bisdehydrocanthaxanthin
3. Carotenoids Field
Carotenoid Biogenesis
Carotenoid Total Syntheses
The use of Carotenoids as Food Colours
4. Black pigments
Animal Pigments
  Melanins
  Sclerotization
Plant Pigments
  Humic acids
  1,8-Dihydroxynaphthalene polymers
5. Anthraquinone
Plant Pigments
Insect Pigments
6. Coprosma genus
7. Bianthraquinones and related compounds
Skyrin
Oxyskyrin
Skyrinol
Iridoskyrin
Rugulosin
Luteoskyrin and Rubroskyrin
Lumiluteoskyrin
Flavoskyrin
Biogenesis
8. The Biflavonyl Pigments
The First Investigations
The Work of Nakazawa on Ginkgeting
The Work of the Bristol Group
On Ginkgetin and Isoginkgetin
The Work of Kariyone and Kawano on
Sciadopitysin, 1956
Further Work of Brispol Group on

Ginkgetin and Sciadopitysin
The Work of Kawano on Sciadopitysin and GINKGETIN, 1959
The Synthesis of Ginkgetin Tetramethyl ether, Nakazawa, 1959
The Structure of Ginkgeting
The Structure of Isoginkgetin
The Structure of Kayafyavone
The Structure of Sotetsuflavone
Summary of Biflavonyl Structures

Intermediate Degradation Products of Biflavonyls
Optical Inactivity of the Biflavonyls
The Structure of Hinokiflavone
Natural Occurence of Biflavonyls
9. Azo dyes
10. Dyestuffs
Introduction
Primary Products for VS-Dyestuffs
1. Methods of preparation
2. Reactions
Processes for the Manufacture of VS-Dyestuffs
Fastness and Dyeing Properties of VS-Dyestuffs
1. VS-Dyestuffs free from nuclear sulphonic and carboxylic acid groups
2. Dyestuffs containing nuclear sulphonic and carboxylic acid groups
Summary
11. Disperse dyes
Light Fastness
Gas Fastness
Sublimation Fastness
Wash Fastness
Structural Modifications Leading to All-Round Fastness
12. Quinonoid dyes
13. Cyanine dyes
Chemistry of 2, 3-Dichloro-1,4-Naphthoquininone (I)
Chemistry of Chloranil (II)
Vat Dyes from Chloranil
Benzodipyrrocolinequinones Pyrrocolinequinones,
Unsymmetrical Dipyrrocolinequinones and Naphth of Uranopyrrocolinequinones
2-alkylamino-(arylamino)-3-chloro-1,
4-naphthoquinones And Di-3-(2-chloro-1,
4-naphthoquinonyl)-alkylamines And Arylamines
Cellulose Acetate Dyes From (i) And (ii)
Sinthesis Of Non-coplanar Quinonoid Dyes
14. Fluorescent brightening agents
15. Optical whitening agents
Introduction
Physical Considerations of Fluorescence and Optical Whitening
Chemical constitution of Optical Whitening Agents
1. Stilbene derivatives
2. Benzidine derivatives

3. Benzthiazole, benzoxazole and benziminazole derivatives
4. Coumarins
5. Pyrazolines
6. Other types
Some Specific Applications of Optical
Whitening Agents
1. Soaps and detergents
2. Textile applications
16. Natural dyes for Food
Natural Colourants
Natural Colours Presently Used in Food
Methods of Improving Natural Colourants
Novel Sources of Natural Colourants
Microbial Sources
Animal Sources
Plant Source
General Reviews
Colourants from By-products
Gardenia Extracts
Other Sources
Feasibility of Novel Sources
Stability of Natural Colourants in Foods Effect of Additives
Ascorbic Acid and Derivatives
Effect of Metal Ions
Effect of Neutral Salts
Effect of Organic Acids
Photoprotection
Miscellaneous Additives
Conclusion
Stable Forms of Natural Colourants Found in Vivo
Stabilised Forms Of Natural Colourants Flavonoids
Chemical Features Affecting Stability
Self association
Complex formation
Copigmentation
Condensation
Chemical modifications
Porphyrins
Others
17. Pyran Pigments : I. Flavones and Flavonols
Flavones
Chrysin (IV)
General Methods of Synthesis of Flavones
A. From Aromatic Diketones
B. From o-Hydroxyacetophenones
C. From o-Hydroxychalkones
D. From Phenols
Flavonols
The Wessely-moser and Related
Rearrangements of Flavones
The Formation of Salts by Flavones and Flavonols

The Reduction of Flavones
Isoflavones
The Synthesis of Isoflavones
18. Pyran Pigments : II. Anthocyanins and Anthocyanidins
Cyanidin (III)
The Synthesis of Anthocyanidins
The Synthesis of Anthocyanins
Color Reactions of The Anthocyanidins and Anthocyanins
Anhydrobases
Carajurin (XCIX)
Dracorubin (CXXV)
19. Pyran Pigments : III. Xanthones
Ravenelin (II)
Mangostin (XI)
Pyran Pigments : IV. Rottlerin
Pyran Pigments : V. Brazilin and Mematoxylin
Brazilin (XXXII)
Hematoxylin (XL)
Trimethylbrazilone (XLI)
Brazilein (LXXIX, R - H)
The Synthesis Of Brazilin
Pyrrole Pigments : I. The Porphyrins
Hemin (cxxxvii)
The Synthesis of Dipyrrylmethenes
The Synthesis of Porphyrins
The Structure of Hemin
Pyrrole Pigments : II. Chlorophylls
Pheoporphyrin, Chloroporphyrin, and Phylloerythrin
The Vinyl Group in Chlorophyll
The Structure of Chlorophyll
Position of the Phytyl Group in Chlorophyll
The Phase Test
Allomerization
Approaches to the Synthesis of Chlorophyll
Chlorophyll-b
Bacteriochlorophyll
20. Pyrrole Pigments : III. The Bile Pigments
Bilirubin (XXXII)
Verdins
Violins
Bilenes
Bilanes
Stereochemistry and Tautomerism
Complex Salts of the Bile Pigments
Pyrrole Pigments : IV. Prodigiosin
21. Pyrimidine Pigments : The pterins
The Gmelin Reaction
Pterorhodin
22. Quinonoid Pigments
Benzoquinonoid Pigments
Perezone (XII)

Polyporic Acid (XIV)
Astromentin (XXVIII)
Phoenicin (LXI)
Napthaquinonoid Pigments
Lapachol (LXXI)
Eleutherin (CXXI)
Alkannin and Shikonin (CXLIX)
Anthraquinonoid Pigments
Helminthosporin (CLVIII)
Kermesic Acid (CLXI)
Skyrin (CLXXVIII)
Extended Quinone Pigments
The Aphin Pigments
Erythroaphin-fb (CCXVI) or (CCXVII)
Hypericin (CCXXV)
23. Polyene Pigments
Bixin (X) and Croceting (XI) the Carotenes
b-Carotene (LV)
Lycopene (LXXIII)
The Total Synthesis of the Polyene Pigments
Combination of Units in the Order C19 + C2 + C19
Combination of Units in the Order C16 + C8 + C16
Combination of units in the Order C14 + C12 + C14
Combination of Units in the Order C10 + C20 + C10
The Dehydro - Retrodehydrocarotenoids Epoxides
and Furanoid Oxides
24. Anthocyanins from Indian varieties of Grapes
Material and Methods
Extraction
Purification
Total anthocyanins
Separation
Partial hydrolysis of anthocyanin
Aglycone and sugar
Acyl moieties
Spectral measurements
Thin layer chromatography
Results and Discussion
Recovery of anthocyanin
Separation of pignnents by paper chromatography
Absorption spectra of pigments
Partial hydrolysis of anthocyanins
Aglycones
Sugar identification
Acyl moieties
25. Red pigment from Geniposidic Acid and Amino Compound
Materials and Methods
Preparation of geniposide (GS) and GSA solution
Preparation of other iridoid compounds
Enzyme and reagents
General method of preparation of pigment

Evaluation of pigment
Identification and quantification of carbon dioxide
HPLC and NMR measurement
Structural relationship of iridoids to red pigment production
Acidity and evolution of carbon dioxide
Time course of enzymic reaction
Acidity and atmosphere on the reaction
HPLC monitoring of the pigment formation from GAA and a-alanine
NMR monitoring of the pigment formation from GAA and methylamine
Results and Discussion
The relationship between the evolution of carbon dioxide and reaction pH
The process of formation of red pigment
Molecular mass and colour evaluation of red pigment derived from GAA and a-alanine
NMR spectroscopy of red pigment formed from GAA and methylamine
Monitoring of the reaction by NMR
The formation mechanism of red pigment
26. Effect of Acid and Amine on the formation of Red Pigment from Geniposidic Acid
Materials and Methods
Preparation of geniposide (GS)
Preparation of geniposidic acid (GSA) solution
Enzyme and reagents
General procedure for the red pigment formation
Evaluation of pigment
Kind of acid
The concentration of organic acid
The substituted position of amino group and chain length of amino compound
Kind of amino compound
Results and Discussion
Effect of acidz
Effect of the substituted position of amino group and chain length of amino compound
Kind of amino compound

Get the full book
This sample shows only the contents and introduction. The full book has every chapter.
Price: Rs 1,100 | US$ 29.73
Delivery: Shipped within 5 working days of payment
Order online: niir.org/books/natural-dyes-pigments/ **WhatsApp:** +91 9097-075-054

Planning a unit? NPCS project reports:

- Dyes and Dye Intermediates project report
- Food Colours project report
- Acetates project report

- Coumarin project report

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, Market Research, Manufacturing Process, Machinery, Raw Materials, Project Feasibility, Investment Opportunities, Technical Consultancy and Startup Help.

NPCS also publishes process technology books, technical books, startup books, directory, business database, detailed project reports and market research reports.

Our Detailed Project Report aims at providing all the critical data required by entrepreneurs for starting new business ventures.

NIIR PROJECT CONSULTANCY SERVICES
106-E, Kamla Nagar, New Delhi-110007, India

Email: npcs.india@gmail.com **Website:** https://www.niir.org/

Scan to order the full book on niir.org