

Logo

106-E, Kamla Nagar, New Delhi-110007, India.
Tel: 91-11-23843955, 23845654, 23845886, +918800733955
Mobile: +91-9811043595
Email: npcs.ei@gmail.com, info@entrepreneurindia.co
Website: www.entrepreneurIndia.co

The Complete book on Natural Dyes & Pigments

Code: NI160	Format: paperback
Indian Price: ₹1100	US Price: \$125
Pages: 448	ISBN: 8178330326
Publisher: Asia Pacific Business Press Inc.	

Description

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.

Content

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

Biogenesis

2. Bidehydrocanthaxanthin

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 Occurrence 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-Naphthoquinone (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)

Synthesis 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-Hydroxychalcones

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 Hematoxylin

Brazilin (XXXII)

Hematoxylin (XL)

Trimethylbrazilone (XLI)

Brazilein (LXXIX, R - H)

The Synthesis Of Brazilin

Pyrrole Pigments : I. The Porphyrins

Hemin (cxxxvii)

The Synthesis of Dipyrromethenes

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 Phytol 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 pigments 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 α -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 α -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

About NIIR Project Consultancy Services (NPCS)

NIIR Project Consultancy Services (NPCS) is a reliable name in the industrial world for offering integrated technical consultancy services. Its various services are: Pre-feasibility study, New Project Identification, Project Feasibility and Market Study, Identification of Profitable Industrial Project Opportunities, Preparation of Project Profiles and Pre-Investment and Pre-Feasibility Studies, Market Surveys and Studies, Preparation of Techno-Economic Feasibility Reports, Identification and Selection of Plant and Machinery, Manufacturing Process and/or Equipment required, General Guidance, Technical and Commercial Counseling for setting up new industrial projects and industry. NPCS also publishes various technology books, directories, databases, detailed project reports, market survey reports on various industries and profit making

business. Besides being used by manufacturers, industrialists, and entrepreneurs, our publications are also used by Indian and overseas professionals including project engineers, information services bureaus, consultants and consultancy firms as one of the inputs in their research.

NIIR PROJECT CONSULTANCY SERVICES

106-E, Kamla Nagar, New Delhi-110007, India.

Tel: 91-11-23843955, 23845654, 23845886, +918800733955

Mobile: +91-9811043595

Email: npcs.ei@gmail.com, info@entrepreneurindia.co

Website: www.entrepreneurIndia.co