

INDUSTRIAL BIOTECHNOLOGY • NATURAL COLORANT SKILL DEVELOPMENT



NTHRYS
OPC PVT LTD



Microbial Pigments Industrial Manufacturing Training Programs

A complete industrial catalogue of hands-on microbial pigment fermentation training modules — from astaxanthin & beta-carotene to phycocyanin & monascus colours.

56

PROGRAMS

10

CATEGORIES

2026

EDITION

Program Categories at a Glance

This catalogue lists every microbial pigment and natural colorant our training programs are equipped to manufacture and teach, organised into 10 technology streams. Each program carries a unique product code for easy reference, enrolment and certification.

STREAM	CATEGORY FOCUS	DESCRIPTION	COUNT
NMP-CR	Carotenes & Lycopene	Beta-carotene & lycopene pigment production	5
NMP-XA	Xanthophylls & Astaxanthin	Astaxanthin, lutein & zeaxanthin production	6
NMP-MO	Monascus & Fungal Pigments	Red-yeast-rice & anthraquinone pigment production	5
NMP-PB	Phycobiliproteins	Phycocyanin & phycoerythrin pigment production	5
NMP-BP	Bacterial Pigments	Prodigiosin, violacein & indigoidine production	6
NMP-ME	Melanins & Specialty Pigments	Melanin & specialty photopigment production	5
NMP-PR	Production Strains & Fermentation Technology	Fungal, yeast, bacterial & photobioreactor production	6
NMP-DS	Downstream Extraction & Purification	Solvent, supercritical & chromatographic recovery	6
NMP-FT	Stabilization, Formulation & Grades	Encapsulation, dispersion & colour standardisation	6
NMP-AP	Application: Food, Feed, Cosmetic & Pharma	Food, feed, aqua, cosmetic & nutraceutical grades	6
Total training programs			56

HOW TO READ A CODE

NMP – CR – 01

NMP Nthrys Microbial-Pigment Program **CR** Category stream **01** Program number

01

CATEGORY • NMP-CR

Carotenes & Lycopene

Beta-carotene & lycopene pigment production

5

PROGRAMS

CODE	TRAINING PROGRAM	DESCRIPTION
NMP-CR-01	Beta-Carotene (Blakeslea)	Fungal beta-carotene.
NMP-CR-02	Beta-Carotene (Dunaliella)	Algal beta-carotene.
NMP-CR-03	Lycopene	Red carotenoid pigment.
NMP-CR-04	Mixed Carotene Extract	Natural carotene blend.
NMP-CR-05	Torulene / Torularhodin	Red-yeast carotenoids.

02

CATEGORY • NMP-XA

Xanthophylls & Astaxanthin

Astaxanthin, lutein & zeaxanthin production

6

PROGRAMS

CODE	TRAINING PROGRAM	DESCRIPTION
NMP-XA-01	Astaxanthin (Haematococcus)	Microalgal astaxanthin.
NMP-XA-02	Astaxanthin (Phaffia / Yeast)	Yeast astaxanthin.
NMP-XA-03	Astaxanthin (Paracoccus)	Bacterial astaxanthin.
NMP-XA-04	Lutein	Yellow xanthophyll.
NMP-XA-05	Zeaxanthin	Eye-health xanthophyll.
NMP-XA-06	Canthaxanthin	Pink / red xanthophyll.

03

CATEGORY • NMP-MO

Monascus & Fungal Pigments

Red-yeast-rice & anthraquinone pigment production

5

PROGRAMS

CODE	TRAINING PROGRAM	DESCRIPTION
NMP-MO-01	Monascus Red Pigment	Red-yeast-rice red pigment.
NMP-MO-02	Monascus Yellow Pigment	Monascin / ankaflavin yellow.
NMP-MO-03	Monascus Orange Pigment	Rubropunctatin orange.
NMP-MO-04	Fungal Anthraquinone	Red / orange anthraquinone pigment.
NMP-MO-05	Azaphilone Pigment	Polyketide fungal pigment.

04

CATEGORY • NMP-PB

Phycobiliproteins

Phycocyanin & phycoerythrin pigment production

5

PROGRAMS

CODE	TRAINING PROGRAM	DESCRIPTION
NMP-PB-01	Phycocyanin (Spirulina)	Blue phycobiliprotein.
NMP-PB-02	Allophycocyanin	Blue accessory pigment.
NMP-PB-03	Phycoerythrin	Red / pink phycobiliprotein.
NMP-PB-04	Phycocyanin (Food / Cosmetic Grade)	Graded blue colorant.
NMP-PB-05	C-Phycocyanin Powder	Spray-dried blue colorant.

05

CATEGORY • NMP-BP

Bacterial Pigments

Prodigiosin, violacein & indigoidine production

6

PROGRAMS

CODE	TRAINING PROGRAM	DESCRIPTION
NMP-BP-01	Prodigiosin	Serratia red pigment.
NMP-BP-02	Violacein	Chromobacterium purple pigment.
NMP-BP-03	Pyocyanin	Blue-green bacterial pigment.
NMP-BP-04	Indigoidine	Blue bacterial pigment.
NMP-BP-05	Bacterial Carotenoid	Bacterial yellow carotenoid.
NMP-BP-06	Flexirubin	Yellow bacterial pigment.

06

CATEGORY • NMP-ME

Melanins & Specialty Pigments

Melanin & specialty photopigment production

5

PROGRAMS

CODE	TRAINING PROGRAM	DESCRIPTION
NMP-ME-01	Microbial Melanin	UV-protective melanin.
NMP-ME-02	Pyomelanin	Soluble melanin pigment.
NMP-ME-03	Riboflavin Colorant	Yellow vitamin colorant.
NMP-ME-04	Anthocyanin-Type Pigment	Microbial anthocyanin analogue.
NMP-ME-05	Specialty Photopigment	Carotenoprotein / rhodopsin pigment.

07

CATEGORY • NMP-PR

Production Strains & Fermentation Technology

Fungal, yeast, bacterial & photobioreactor production

6

PROGRAMS

CODE	TRAINING PROGRAM	DESCRIPTION
NMP-PR-01	Fungal Pigment Production	Monascus / Blakeslea process.
NMP-PR-02	Yeast Pigment Production	Phaffia / Rhodotorula process.
NMP-PR-03	Bacterial Pigment Production	Serratia / Paracoccus process.
NMP-PR-04	Photobioreactor / Algal Production	Haematococcus / Spirulina culture.
NMP-PR-05	Engineered-Strain Production	Recombinant overproducer hosts.
NMP-PR-06	Light & Stress Induction	Pigment-inducing process control.

CODE	TRAINING PROGRAM	DESCRIPTION
NMP-DS-01	Cell Disruption & Extraction	Biomass pigment release.
NMP-DS-02	Solvent Extraction	Lipophilic-pigment extraction.
NMP-DS-03	Supercritical CO2 Extraction	Solvent-free extraction.
NMP-DS-04	Aqueous / Protein Extraction	Phycobiliprotein extraction.
NMP-DS-05	Chromatographic Purification	High-purity polishing.
NMP-DS-06	Concentration & Crystallisation	Pigment finishing.

09

CATEGORY • NMP-FT

Stabilization, Formulation & Grades

Encapsulation, dispersion & colour standardisation

6

PROGRAMS

CODE	TRAINING PROGRAM	DESCRIPTION
NMP-FT-01	Microencapsulated Pigment	Oxygen / light-protected pigment.
NMP-FT-02	Oil-Suspension Format	Oleoresin pigment suspension.
NMP-FT-03	Water-Dispersible Powder	Beadlet & emulsion powder.
NMP-FT-04	Spray-Dried Colorant	Stabilised dry colorant.
NMP-FT-05	Liquid Colorant Concentrate	Liquid application format.
NMP-FT-06	Standardised Colour Grade	Colour-value standardisation.

10

CATEGORY • NMP-AP

Application: Food, Feed, Cosmetic & Pharma

Food, feed, aqua, cosmetic & nutraceutical grades

6

PROGRAMS

CODE	TRAINING PROGRAM	DESCRIPTION
NMP-AP-01	Food-Grade Natural Colour	Food & beverage colorant.
NMP-AP-02	Feed-Grade Pigment	Egg-yolk & flesh pigmentation.
NMP-AP-03	Aquaculture Pigment	Salmon / shrimp colour enhancer.
NMP-AP-04	Cosmetic-Grade Pigment	Personal-care colorant.
NMP-AP-05	Nutraceutical Antioxidant Pigment	Supplement-grade antioxidant.
NMP-AP-06	Pharma / Diagnostic Pigment	Fluorescent & pharma-grade.

ENROL • FERMENT • COLOUR

Build a Career in Natural Colour Manufacturing

Every program in this catalogue is delivered as hands-on training on working fermentation, photobioreactor and extraction equipment — covering producer-strain handling, fermentation & algal culture, pigment extraction & purification, stabilisation & encapsulation, colour standardisation, assay & QC and quality compliance. Mix and match programs to design a track that fits your goals.

56 training programs

10 technology streams

Unique **product code** for every module

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