

Vitatene

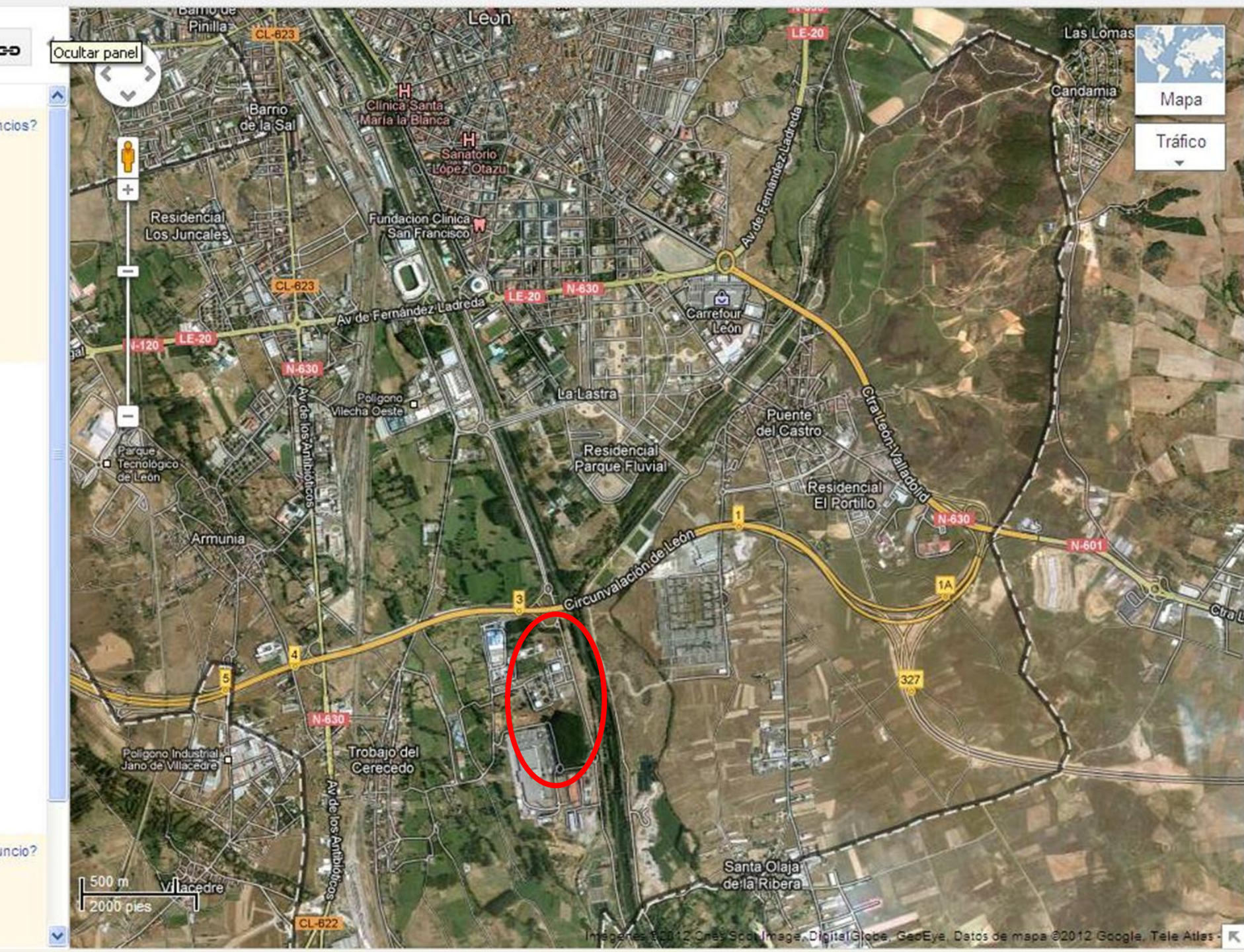
(DSM Nutritional Products León)

Perfiles Profesionales en la Industria Alimentaria

1. DSM Vitatene: ¿Quiénes somos?
2. Nuestra Cultura: One DSM
3. ¿Qué perfil profesional necesitamos?

1. DSM Vitatene: ¿Quiénes somos?





Ocultar panel

ancias?

ancio?

Mapa

Tráfico

500 m

2000 pies





Our Monuments&landscapes

León (Spain)

VITATENE HISTORY

1997: R&D Activities starting up in Antibioticos SA

June, 1999: Constitution of the Society

May, 2004: Starting up of the Plant

Nov., 2009: Separation from Antibioticos SA

July, 2011: Ownership transfer from P&R to Royal DSM



DSM OVERVIEW

DSM Structure - Clusters and Business Groups

DSM Managing Board

Nutrition

DSM Nutritional Products

- Human Nutrition & Health
- Animal Nutrition & Health
- Personal Care

DSM Food Specialties



Pharma

DSM Pharmaceutical Products

DSM Anti-Infectives



Performance Materials

DSM Engineering Plastics

DSM Dyneema

DSM Resins



Polymer Intermediates

DSM Fibre Intermediates



[illegible]

DSMs global presence

World total: 200+ locations, 22,000 employees



WHAT WE DO?

NATURAL CAROTENOIDS

Industrial manufacture of carotenoids

HEALTH • NUTRITION • MATERIALS

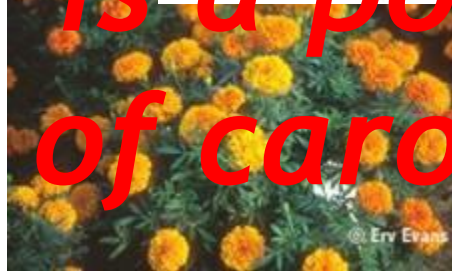
- Most of carotenoids in the market are produced by chemical synthesis: 500 Tn
- Just a few produced from Natural sources
- **Vitatene manufactures natural carotenoids**

More than 700 naturally occurring carotenoids
Annual carotenoids production in nature: 100 million tons

**Nature is a powerful
source of carotenoids**

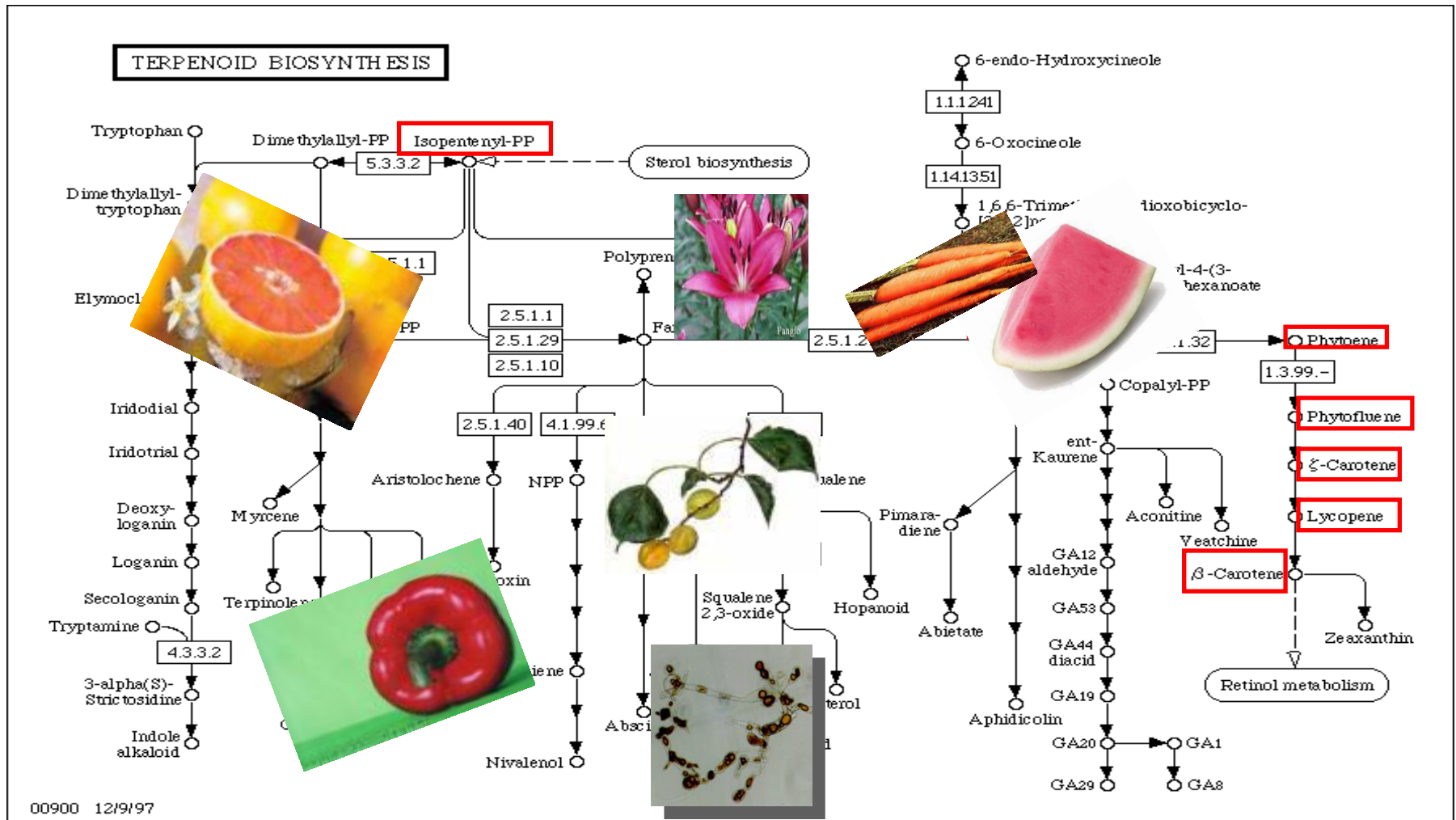


NATURE

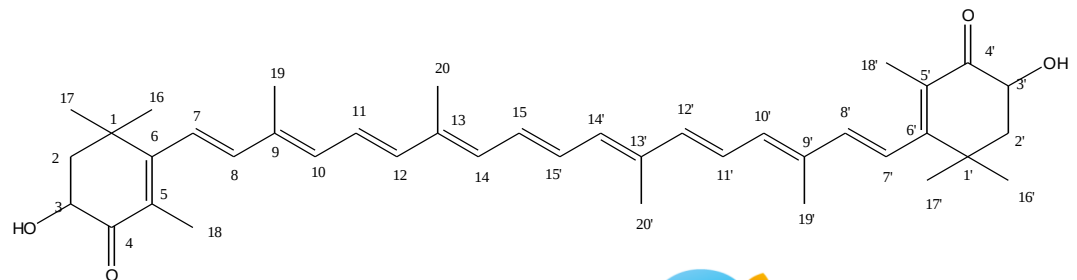
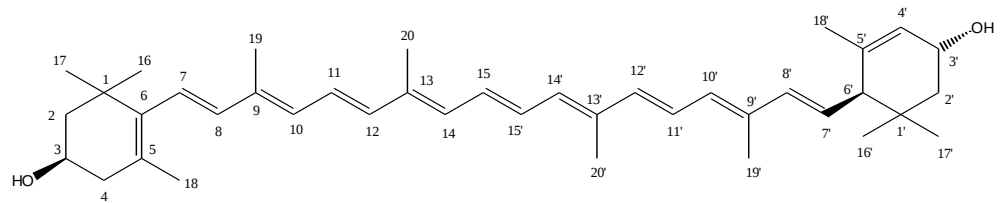
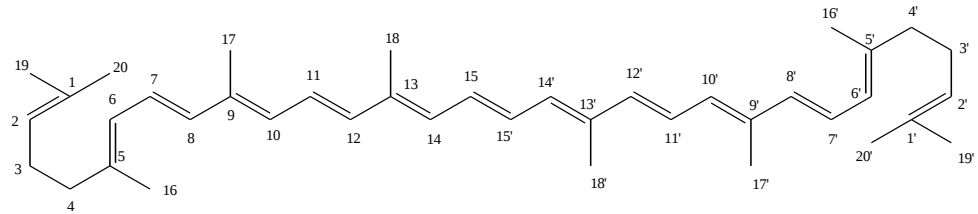
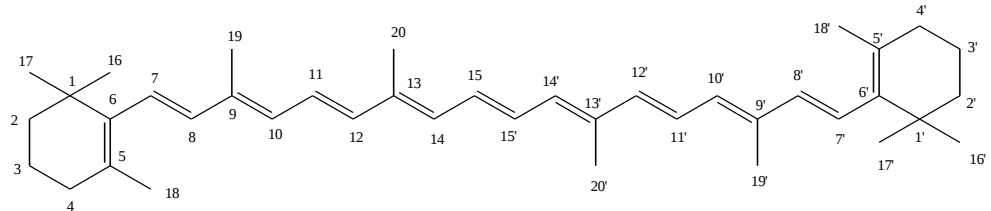


CAROTENOID PRODUCTION IN NATURE

“The biosynthetic path of carotenoids is universal in bacteria, fungi and vegetables” (G. Sandmann, 2001)



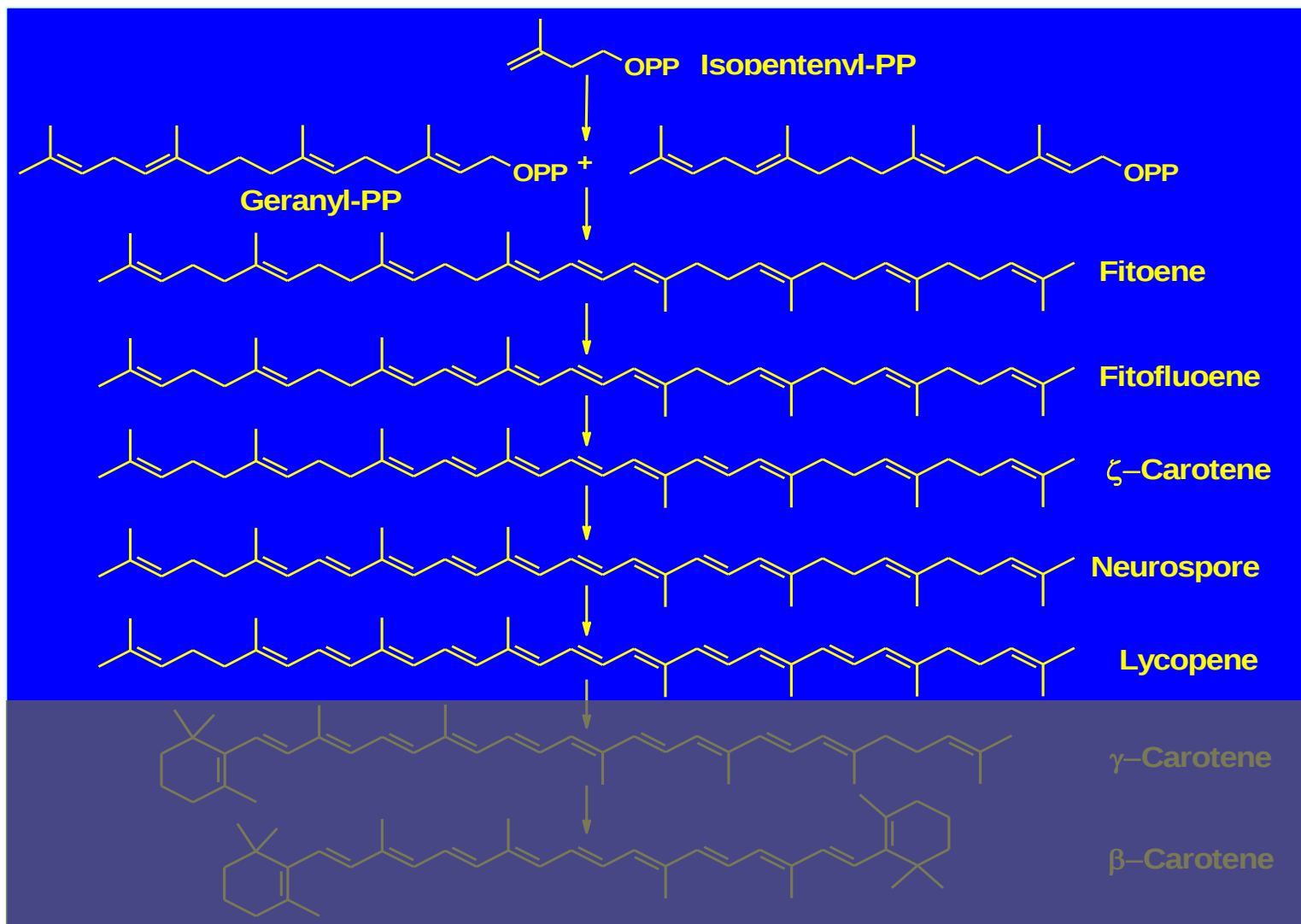
- Natural products
- Tetraterpenes
 - Carotenes
 - β -carotene
 - Lycopene
 - Xanthophylls
 - Lutein
 - Astaxanthin



Lycopene or Beta-carotene crystals are accumulated INSIDE *Blakeslea trispora* fungus cells

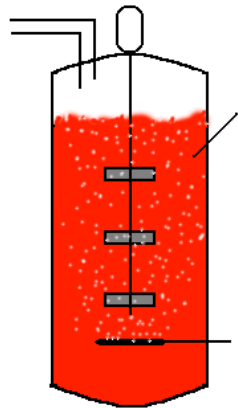


β -carotene & Lycopene: Identical Biosynthetic Route

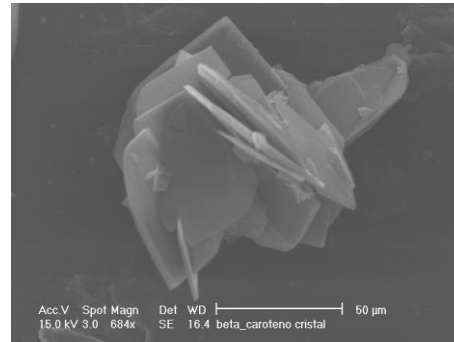


Production Process

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RECOVERY



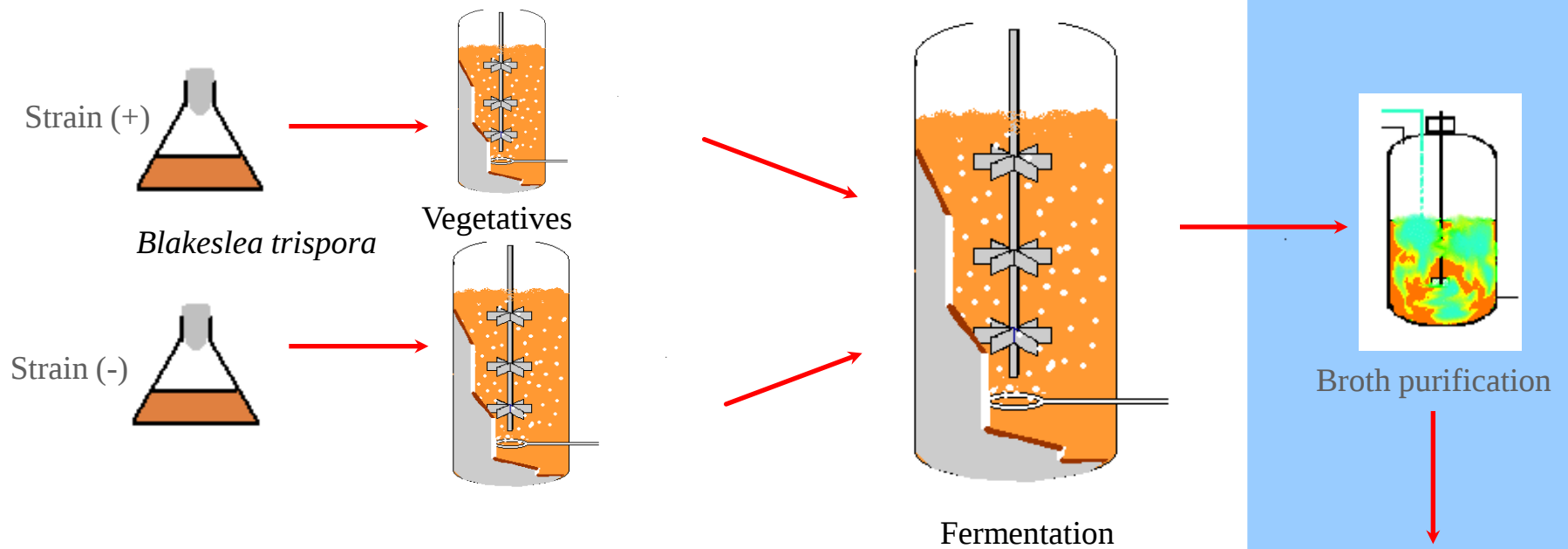
FORMULATION



Blakeslea trispora
fermentation

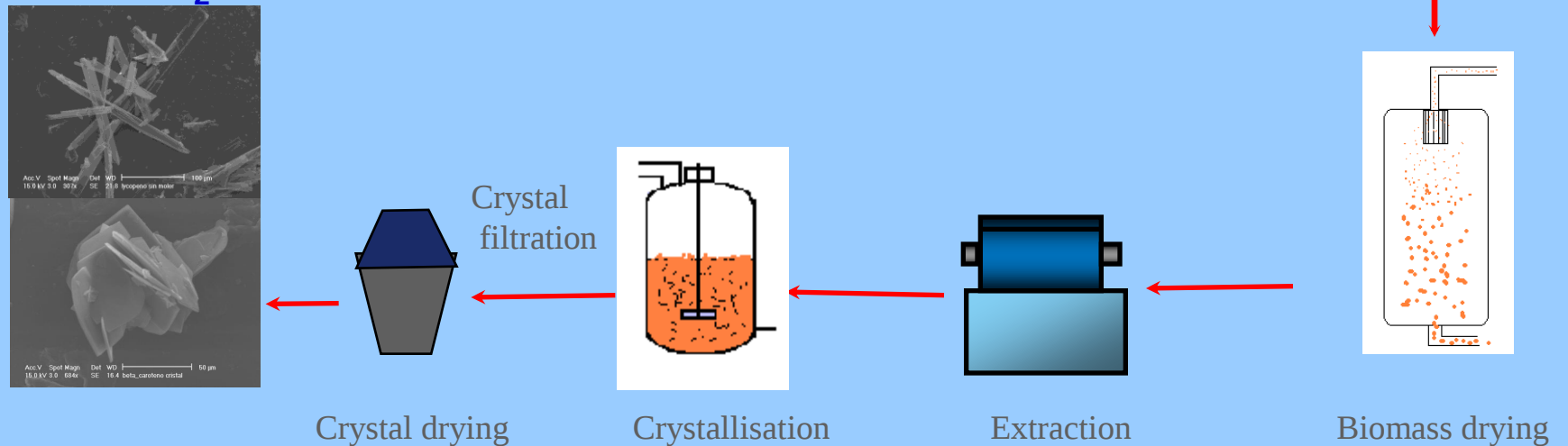
Beta-carotene
crystal

Final formulations



Betanat® & Lyconat® Production Process:

Under N₂ atmosfere

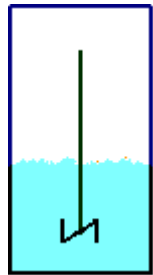


Powder Formulation Process

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**Carotenoid
solution**

Antioxidant



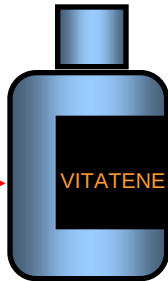
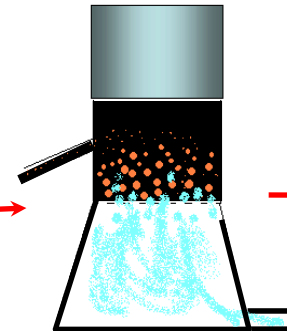
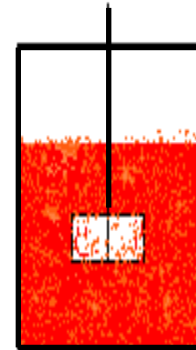
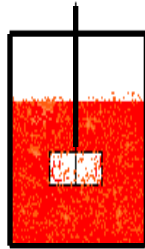
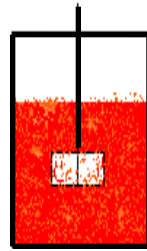
Emulsion

Homogenisation

Evaporation

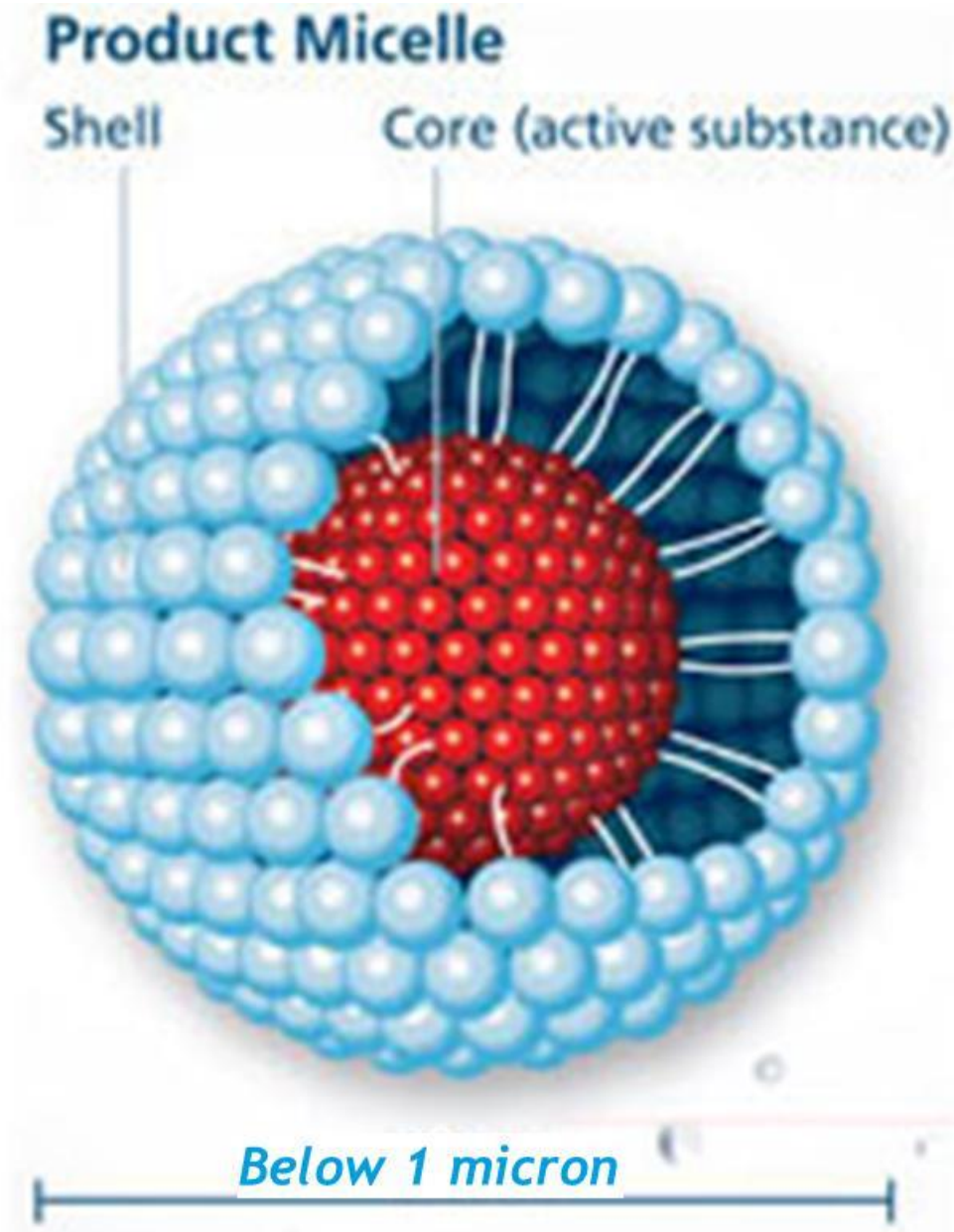
Agglomeration

Packaging



**Starch
suspension**

Microencapsulation of carotenoids: Formulation technology to make carotenoid water dispersible



What we obtain?

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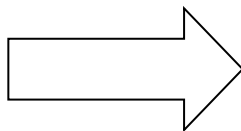
Powder Formulations



*Liquid emulsion:
Oily Formulations*

DSM León FORMULATIONS

Just a few of lypophilic applications
Oily formulations



DSM León FORMULATIONS

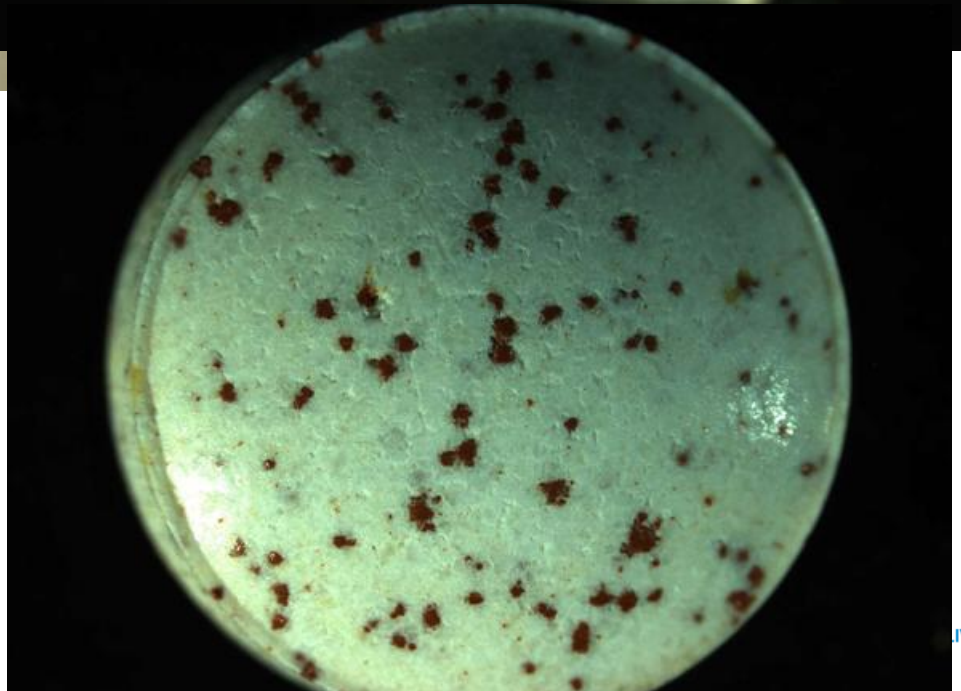
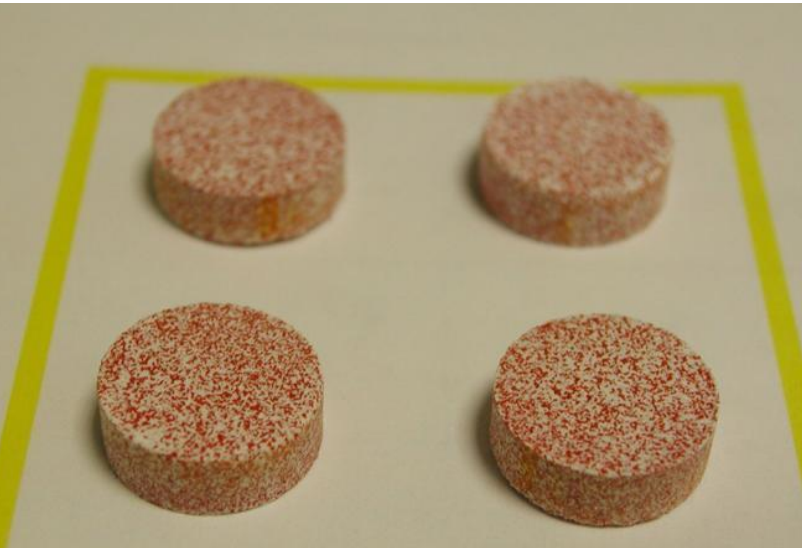
But in nature and most of applications carotenoids are mainly in aqueous environments



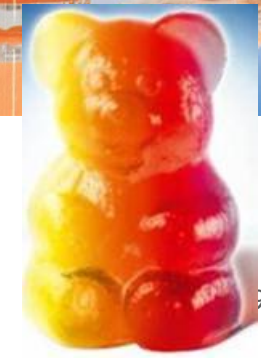
Carotenoid formulation dispersible in water



Tablets

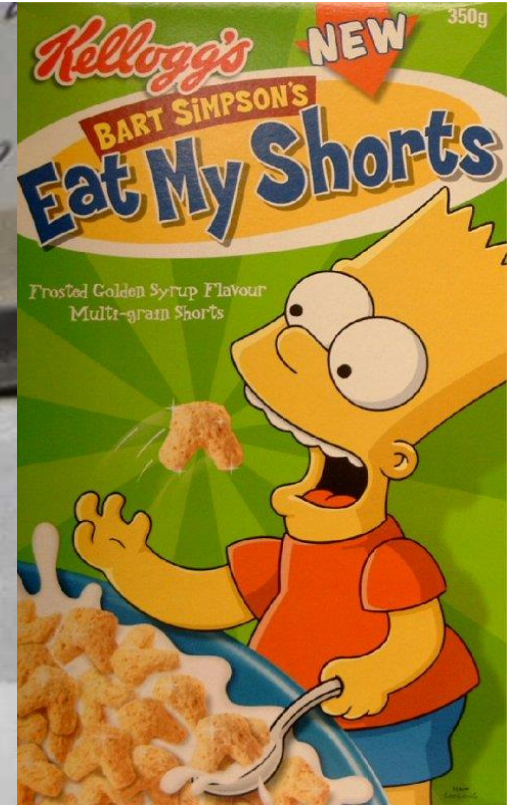
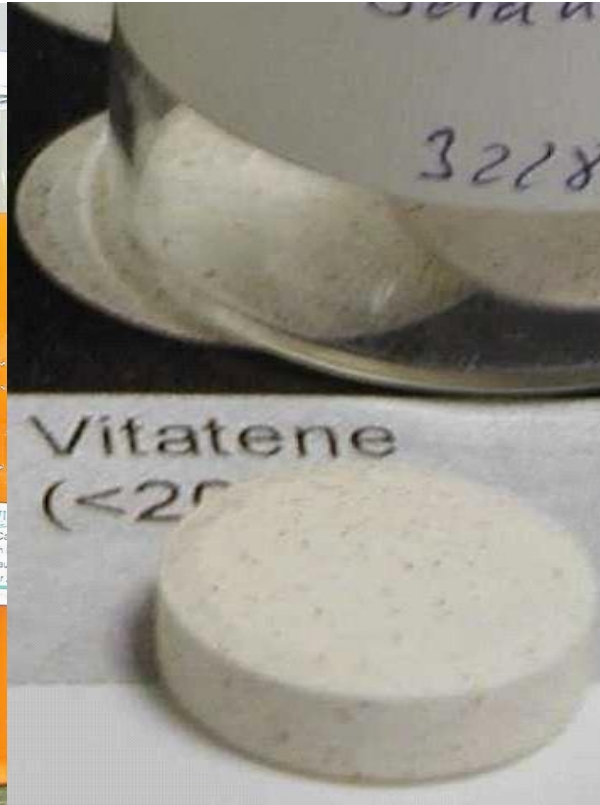


Colour portfolio for different applications and market necessities



Applications

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Food colorant

Supplement

Food fortification

Reg Approvals of BC from *B trispora*

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USES:	EUROPEAN COMMISSION	FDA	JECFA
Colour Additive	Reg1333/2008 food addit	21 C.F.R. 73.95 Legal Opinion 04/01/2004	57 th JECFA meeting, 05/06/2001: approved
Nutrient	Dir 1925/2006 20/12/2006 (1)	Self Determined GRAS Status Expert Opinion, 7/1/04	
Food Suppl.	Dir 2002/46/EC 10/6/2002 (1)	Expert Scientific Opinion, 08/10/2002	

Reg Appr of Lycopene from *B trispora*

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USES	EUROPEAN COMMISSION	FDA	JECFA
Colour Additive	Reg1333/2008 on food additives		JECFA 67th meeting, Rome, June 2006: approved
Nutrient	Commission Decission 2009/365/EC authorizing the use of Lycopene from <i>B. trispora</i>	FDA GRAS notice No. GRN 000173 June 20, 2005 FDA: No questions December, 2005	
Food Suppl		Expert Scientific Op OS, Nov 02 CWD, May 04 Legal Op., Jan 04	

COMMISSION DIRECTIVE 2008/128/EC

of 22 December 2008

laying down specific purity criteria concerning colours for use in foodstuffs

2. *Beta-carotene from Blakeslea trispora*

Synonyms

CI Food Orange 5

Definition

Obtained by a fermentation process using a mixed culture of the two sexual mating types (+) and (-) of natural strains of the fungus *Blakeslea trispora*. The beta-carotene is extracted from the biomass with ethyl acetate, or isobutyl acetate followed by isopropyl alcohol, and crystallised. The crystallised product consists mainly of trans beta-carotene. Because of the natural process approximately 3 % of the product consists of mixed carotenoids, which is specific for the product.

Class

Carotenoid

Colour Index No

40800

Einecs

230-636-6

Chemical names

Beta-carotene, beta,beta-carotene

Chemical formula

$C_{40}H_{56}$

Molecular weight

536,88

Assay

Not less than 96 % total colouring matters (expressed as beta-carotene)

$E_{1\text{ cm}}^{1\%}$ 2 500 at approximately 440 nm to 457 nm in cyclohexane

Description

Red, brownish-red or purple-violet crystals or crystalline powder (colour varies according to extraction solvent used and conditions of crystallisation)

Identification

Spectrometry

Maximum in cyclohexane at 453 nm to 456 nm

2. Nuestra Cultura: ONE DSM

One DSM Culture

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External
Orientation



Accountability
for Performance



Inclusion &
Diversity



Collaboration
with Speed

One DSM Culture

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External
Orientation

- *Rapidly adapt and anticipate to changing customer and industry requirements*
- *Be fully in tune with the challenges of the external world*
- *Track, learn and compete with best practices for all functions*
- *Broaden our networks and engage with stakeholders*

One DSM Culture

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External
Orientation

LAST SUMMER I WENT CLIMBING IN NEPAL...
NOBODY'S BEEN THERE BEFORE!

I WENT DOWN A RIVER IN THE AMAZON
IN BRAZIL ... NOBODY DID IT BEFORE!

I VISITED A CUSTOMER....
NOBODY VISITED HIM BEFORE!

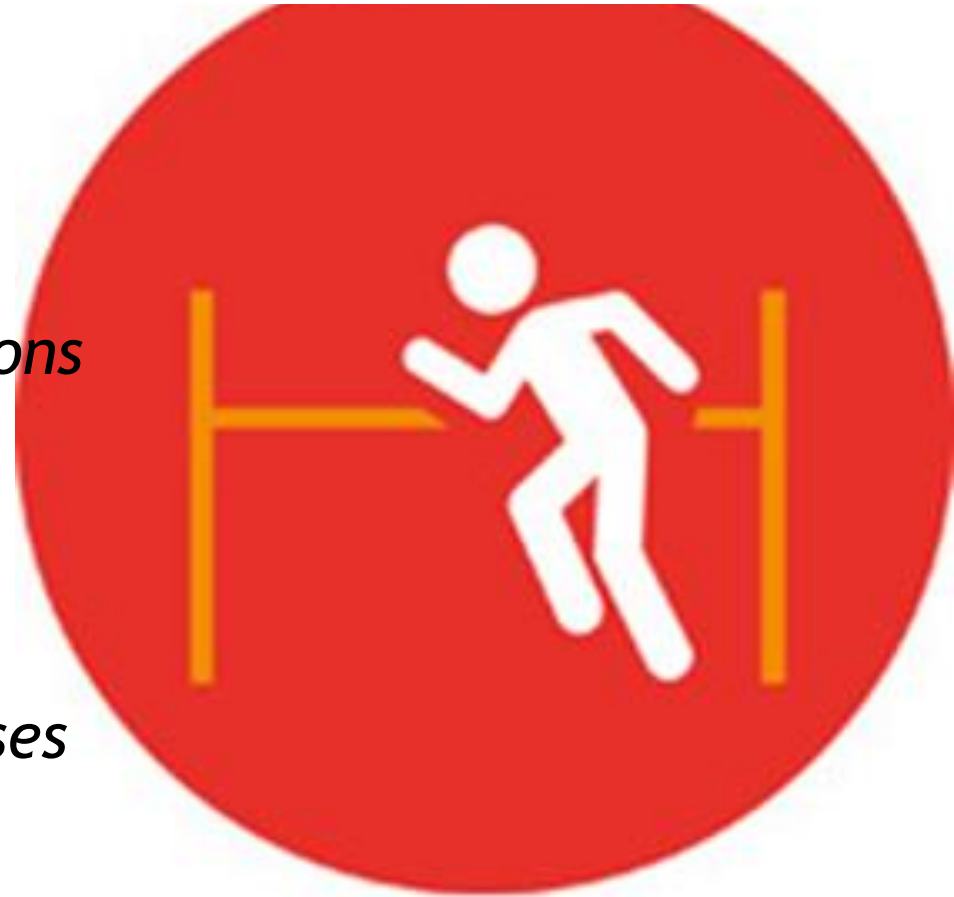


WHEN WAS THE LAST TIME
YOU VISITED A CUSTOMER?

One DSM Culture

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- *Set ambitious targets and take ownership to deliver*
- *Take responsibility for own actions and performance of teams*
- *Deliver on your promises*
- *Recognize and celebrate successes and view mistakes as learning opportunities*



Accountability
for Performance

One DSM Culture

HEALTH • NUTRITION • MATERIALS



Inclusion &
Diversity

- *Embrace differences and create a more diverse workforce to drive high performance*
- *Foster inclusion to mirror our internationalization and drive innovation & sustainability*
- *Balance leadership profiles (a.o. gender and nationality) to improve decision making processes*
- *Ensure and apply bridging skills and commit to our joint values*

DSM Chemtech Center



One DSM Culture

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Collaboration
with Speed

- *Actively share, build and co-create on internal and external ideas, knowledge and expertise*
- *Harvest the power of growing global workforce in a leveraged organizational model*
- *Speed up decision making and execution*
- *Trust each other's skills as we are ONE DSM*

3. ¿Qué Perfil Profesional Necesitamos?

Richard N. Bolles

¿DE QUÉ COLOR ES TU PARACAÍDAS?

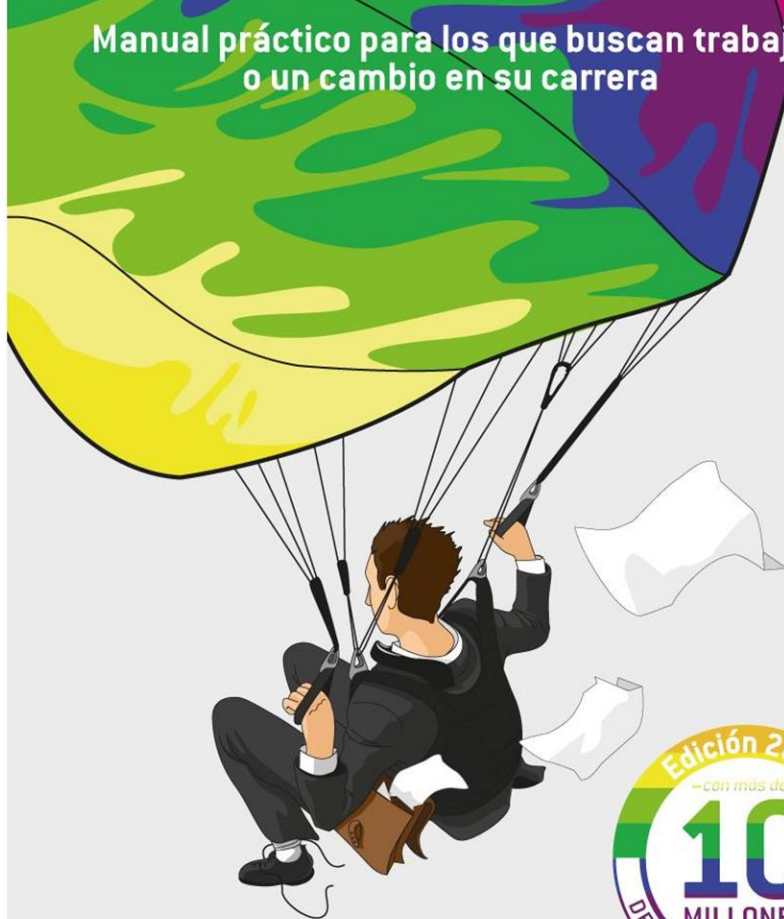
Manual práctico para los que buscan trabajo
o un cambio en su carrera



Richard N. Bolles

¿DE QUÉ COLOR ES TU PARACAÍDAS?

Manual práctico para los que buscan trabajo
o un cambio en su carrera



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“No tengo paracaídas de
ningún color”.

Richard N. Bolles

¿DE QUÉ COLOR ES TU PARACAÍDAS?

Manual práctico para los que buscan trabajo
o un cambio en su carrera



1º Secreto del Mercado Laboral:

“Hasta en los mejores tiempos
siempre hay millones
de personas
que *NO consiguen empleo*”

Richard N. Bolles

¿DE QUÉ COLOR ES TU PARACAÍDAS?

Manual práctico para los que buscan trabajo
o un cambio en su carrera



2º Secreto del Mercado Laboral:

“Hasta en los peores tiempos

siempre hay millones

de personas

que *SI consiguen empleo*”

Perfil Profesional

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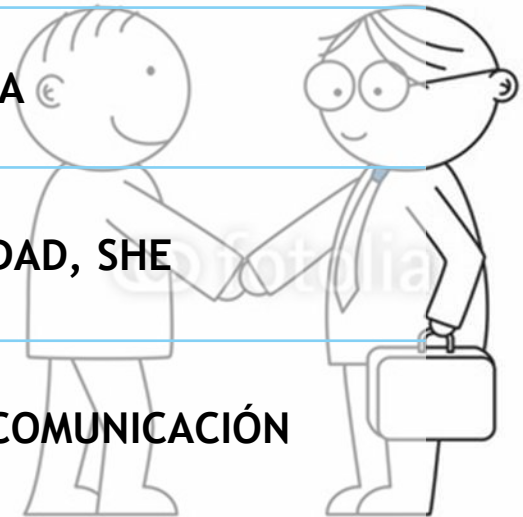
INGLES FLUÍDO

FORMACIÓN TECNICA, INFORMATICA

HIGIENE Y SEGURIDAD ALIMENTARIA, CALIDAD, SHE

COLABORACION, NEGOCIACIÓN, INTEGRACIÓN, COMUNICACIÓN

COMPROMISO, RESPONSABILIDAD, DISPONIBILIDAD, ENFOQUE POSITIVO



¡GRACIAS POR VUESTRA ATENCIÓN!

