



PRACTICAL MARKET INSIGHTS INTO THE PRODUCT GROUP OF

Natural Colourants

Growth in the natural products industry has led to great interest in natural ingredients. While there is no legal definition of “natural” when it comes to colourants, it is commonly understood that colourants derived from fruits, vegetables, plants and spices are considered natural colourants. Following the food and beverage industries also the cosmetic and skin care brands are making the switch to natural colours in their quest to offer a cleaner and more natural product.



1	Product description	2
2	Natural colourants with potential	4
3	What makes Europe an interesting market for natural colourants?	10
4	Which European Trends offer opportunities for natural colourants?	12
5	What requirements must natural colourants comply with?	15
6	Challenges for the natural colourants	21
7	Trade channels for Market Entry	22
8	What are the Price Developments for natural colourants?	24
9	Useful sources	25

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1 Product description

Natural colourants find application mainly in the food & beverage industry, but in this study the use as cosmetic ingredient is also included.

FOOD COLOURANTS

In general, food colourants are an ingredient to enhance, strengthen or add colour to foods and find application from dairy products, snacks and sweets, to beverages and condiments. Natural colourants add or restore colour in food, which in some cases are essential for the taste as one eats “with the eye”.

As food companies increasingly investigate how to substitute synthetic ingredients with natural alternatives, the use of natural colourants gains importance.

There is an essential distinction between

1. *Food additives, also called natural food colour, and*
2. *Colouring foods, which have colouring properties*

A *food additive* is any substance not normally consumed as a food in itself and not normally used as a characteristic ingredient of food. Plant extracts rich in components capable of causing colouration are called colouring additives. This means it is a substance where the pigments were selectively extracted from the raw material. This depends on the ratio of the pigments relative to the nutritive or aromatic constituents in the obtained extract as well as in the source material.¹

As an example, a *food additive* can be Annatto, where the pigments are selectively extracted (e.g. solvent- or oil-extracted) and its only purpose is the colouring.

Foods (and flavourings) with a secondary colouring effect, so foods normally consumed as such or used as characteristic ingredients of food, should not be considered as food additives and thus can be called *colouring food* or ‘colouring foodstuffs’. This means, foods normally consumed as such in the EU – made from edible fruits, vegetables, or other edible plants, juices, concentrates, and others with colouring properties – would be regarded as ingredients and would be labelled as such, even when added principally for colouring purposes. Those *colouring foods* were manufactured by physical processes resulting in concentrates in which the pigments have not been selectively extracted.²

Colouring foods is, for instance, (the raw) saffron or elderberry concentrate, which can be consumed as such offers additional properties and is not selectively extracted.

As the Regulation No. 1333/2008 states, food colours (the additives) include “natural constituents of foods and natural sources which are normally not consumed as foods”. Extracts derived from fruit, vegetables or herbs, therefore, cannot automatically be classified as colouring foods, even if the source they came from could be eaten as a food. Whether an extract from these sources counts as a colouring food depends on whether the way it was extracted was selective or not. With processes like drying, concentrating, milling or cooking, foods retain their essential characteristics, and so can be regarded as colouring foods. However, extraction can be carried out with varying degrees of selectivity.

If the pigments in the original product are extracted selectively relative to nutritive or aromatic constituents of the food, the extract is no longer considered to retain the essential characteristics of the food and it will be classed as a food colour additive. If, however, the extraction is not selective and the extract retains the same ratio of constituents as the starting product had, it will be a colouring food.

1 Regulation (EC) No. 1333/2008 + JRC Technical Report (Report EUR27425 EN)

2 Regulation (EC) No. 1333/2008

Note:
Natural colourants like carotenes, curcumin and lycopene, do not count as colouring foods and come under the “additive” category instead.

TABLE 1. MAIN NATURAL COLOURANTS ALLOWED IN THE EU, EXAMPLES (SOURCE: NATCOL):

Both *colouring foods* and *food colour* additives should be used in accordance with the rules of the EU General Food Law, and other national rules applicable.

It is important to further note, that colouring foods do not need to be designated on the label by the name of their category “colour” and an E-number – the food colours though need the E-number.³

For more details, also on the legislation, please check the [Guidance note](#).

E-number	Name / pigment	Occurring in	Colour	HS code
E100	Curcumin	Turmeric	yellow	09103000
E101	Riboflavin	Eggs, milk, yeast	yellow	29362300
E120	Carmin Carminic acid	Cochineal	Red	3204
E140 E141	Chlorophylls / chlorophyllins	Alfalfa, spinach, nettles, parsley	Green	320300
E153	Vegetable carbon black	Carbonised vegetables material	black	28030000
E160 a-g	Carotenoids	Annatto (bixin), carrots, saffron, red peppers, tomatoes, palm fruit, oranges	Yellow, orange, red	32041990
E160 d	e.g. Lycopene	Tomatoes, red carrots, papayas, grapefruits		
E161b	Lutein	Broccoli, pepper, peas, spinach	Yellow, orange	320300
E162	Betanin	Beetroot	Red / pink	32030010
E163	Anthocyanins	Elderberry, black currant, cherries, red cabbage, strawberries	Red / blue	320300

The natural colour of foods is primarily given by pigments, such as carotenoids, anthocyanins, betanin, carmin and chlorophylls, either as inherent food constituents or as additives to food or feed. These compounds have drawn considerable attention in recent years, not because of their colouring properties, but due to their potential health-promoting effects.

In recent years, extensive research has been carried out to understand factors of occurrence and composition, as well as the search for adequate natural sources. But only few natural food colours have reached the market, as their stability is the main constraint. However, natural sources can provide a comprehensive range of attractive colours for use in modern food industry.

COSMETIC COLOURANTS

Natural colourants likewise find application as cosmetic ingredients. Colours play an important role in attracting and fulfilling colourful, aesthetic expectations. As in food, the trend towards natural alternatives instead of synthetic colours is growing. Natural cosmetics can be more than just a bland colour, as consumers more and more understand the existence and aesthetic of natural colourants, which can add specific properties to the product, not just colour.

The general trend based on the consumers' demand for natural cosmetics implies the use of natural ingredients. In the end, the colourants used in cosmetics need to be also approved as food ingredients.

Natural colourants in cosmetics are highly regulated and only the ones found on the list of approved substances can be used. Such list of colourants allowed in cosmetic products is

³ E-numbers (“E” stands for “Europe”) are codes for substances permitted as food additives. An E number means that an additive has passed safety tests and has been approved for use by the European Food Safety Authority (EFSA)

compiled by the Cosmetic Ingredient database (CosIng). This list, comprising 153 substances allowed for cosmetics application, can be found when following this [link](#), including the chemical name, CAS and EC number.

2 Natural colourants with potential

In this study, natural colourants as additives as well as colouring foods are presented. Natural colourants which find their origin in developing and emerging markets have potential to find application on the European market.

SAFFRON

SAFFRON



Source: sonoranspice.com

Botanical name: *Crocus sativus*

INCI: Crocus sativus extract

Main chemical component: Crocin, Picrocrocin, Riboflavin

Colour: Yellow

General description: Saffron has accompanied all civilizations, whether for its culinary role, for its quality of dye or its ancestral virtues rooted in folk medicine. Today, saffron is regarded as the most expensive spice, the "golden spice". The so-called saffron threads, give rich colour, an exquisite flavour and are comprised of dried stigmas and styles picked from the flower. The high cost goes back to the fact the one kg of dry saffron requires 150,000 to 200,000 flowers and about 400 hours of work.

The saffron plant, growing to a maximum height of 12 cm, is mainly cultivated and not found in the wild. The dried stigmas and tops of the styles of the *Crocus sativus* contain crocines, crocetins and picrocrocin and safranal, whose delicate colours should be protected from light. The stigmas of *C. sativus* are rich in riboflavin, a yellow pigment and other vitamins. In addition, saffron contains crocin, the major source of yellow-red pigment. α -crocin is a carotenoid pigment which is primarily responsible for saffron's golden yellow-orange colour. The bitter glycoside picrocrocin is responsible for saffron's flavour. Safranal is responsible for the aroma of the saffron.

Use: The stigmas of saffron find application in various exotic dishes for colouring and flavouring of rice, baked goods, meat preparations, but can also be added to beverages, ice cream confectionary and others. In cosmetics, saffron stigmas are used, but also the dried and powdered crocus petal as it is rich in antioxidants. Saffron benefits not only in the context of natural colourant and the specific smell, but also as an anti-UV agent, it is effective as a lightening agent for skin and it has an anti-aging effect.

BUTTERFLY PEA FLOWER

BUTTERFLY PEA FLOWER



Source: theguardian.com

Botanical name: *Clitoria ternatea*

INCI: Clitoria ternatea flower extract

Main chemical component: Delphinidin

Colour: purple / blue

Used as dried full flower, grinded in powder.

General description: Butterfly Pea Flower has gained relevance since 2020 on the European market. Grown in countries of West Africa, but also in Asian countries such as Sri Lanka the dried flowers are used in several teas, for instance traditionally together with lemongrass. Moreover, the colouring properties of Butterfly Pea Flower are also applied through grinded powder and extracted. Butterfly pea flowers contain anthocyanins, as well as p-coumaric acid and ferulic acid. Apart from anthocyanins, *Clitoria ternatea* petals contain a lot of flavonoid compounds such as p-coumaric acid and ferulic acid.

Use: Dried flowers find application, traditionally, in tea – pure or as a blend. The dried flower powder can be added as colourant to foods and beverages. As an extract it is also used in cosmetics, as it is known for properties such as antioxidant and anti-glycation properties.

Additional info: For Butterfly Pea Flower, please check the Novel Food regulation on the latest developments and consult with the potential European partner.

BLUE TANSY

BLUE TANSY



Source: northglow.de

Botanical name: *Tanacetum annuum*

INCI: Tanacetum annuum flower oil

Main chemical component: Chamazulene

Colour: blue

General description: Blue Tansy, as a member of the Asteracea family, is related to chamomile. The compound Chamazulene (17-38%) is found in the essential oil of Blue Tansy. Blue Tansy is an annual, yellow-flowered Mediterranean plant that grows in northern Morocco. It is not to be confused with Moroccan chamomile (*Ormenis multicaulis*). Blue tansy essential oil is a deep blue coloured oil with an intense, sweet-fresh herbaceous and fruity aroma with a subtle, camphoraceous overtone. It exerts a calming effect that works well in anxiety states, depression etc. Blue Tansy is a relatively new essential oil to the pharmacopoeias⁴ for aromatherapy and other applications.

Use: Blue Tansy is distilled to an essential oil and used as such. If used as colourant the oil is rather an additive, as it is only applied for the purpose of colour (for beverages it needs to be thujone free). In the context of aromatherapy, for instance, the colour is only secondary but the therapeutic effect is relevant.

Additional info: Check on the specific requirements for the export of essential oils to the European Union. For instance, on the documentation, such as the Technical Data Sheet and the Material Safety Data Sheet. Check the CBI [study](#) on the market requirements.

ANNATTO SEED

ANNATTO SEED



Source: wikipedia.org

Botanical name: *Bixa orellana* (annatto)

INCI: Bixa orellana seed extract

Main chemical component: Norbixin, Bixin

Colour: Orange / Red

General description: Annatto is a colourant – ranging from yellowish to deep, dark orange – derived from the seeds of the achiote tree (*Bixa orellana*). The seeds are used as a spice in traditional cooking in tropical countries such as Brazil, Bolivia, Ecuador, Jamaica, East Africa, Peru or the Philippines. The reddish orange colour dye of the annatto mainly comes from the resinous outer covering of the seeds of the plant. The yellow to orange colour is produced by the chemical compounds bixin and norbixin, which are classified as carotenoids. The lipophilic colour is called bixin, which can then be saponified into water-soluble norbixin. This dual solubility property of annatto is rare for carotenoids. The seeds contain 4.5–5.5% pigment, which consists of 70–80% bixin. Unlike beta-carotene, another well-known carotenoid, annatto-based pigments are not vitamin A precursors. The more norbixin in an annatto colour, the more yellow it is; a higher level of bixin gives it a more orange shade.

In principle, the main export form of annatto is the seed, although to add value in the countries of origin, seed suppliers have started to manufacture extracts. The average colour content is 2%.

Use: The annatto extract – the main colouring compound bixin – is used in dairy, dairy spreads, dressings, meat & fish, oil & fat and extruded snack foods, also confectionary.

Additional info: In Europe, [check](#) regularly for updates on the maximum levels for approved applications.

4 Pharmacopoeia is a reference book for medicines and substances for pharmaceutical use, published by local/regional government or medical/pharmaceutical society

TURMERIC



Source: medical news today

TURMERIC

Botanical name: *Curcuma longa*

Curcuma longa extract

Main chemical component: Curcumin

Colour: Yellow / orange

General description: The rhizome of the Turmeric has been used as a medicine, spice (one of the principal ingredients in curry powder) and colouring agent for thousands of years. Turmeric contains a chemical called Curcumin which will give a range of colour from yellow to a deep orange. Turmeric contains about 5% of volatile oil, resin and yellow colouring substances known as curcuminoids. Chemically turmeric contains about 50-60% curcumin, which is responsible for the yellow colour of the natural colourant.

Turmeric is cultivated in the tropics, such as India, Pakistan, Peru but also African and South American countries, then either exported as fresh or dried rhizome, or even milled into a fine powder, imparting both flavour and colour to the product.

Turmeric powder is insoluble in water and imparts colour by dispersion or dissolution only. Turmeric is mainly used as Turmeric oleoresin, as it contains the flavour and colour compounds in the same relative proportion as present in the spice. Spice oleoresins have excellent microbiological quality, standardised organoleptic properties and freedom from contaminants. It has therewith several advantages over ground spice and contains approximately 37-55% curcumin.

Curcumin, a component and pigment of turmeric, is basically what adds the pure colouring principle but contains little of the flavour components (meaning the typical turmeric taste). Curcumin is obtained from the oleoresin by crystallisation and for obtaining the colour, producers aim at obtaining a purity level of 95% (EU requires not less than 90%).

Use: Turmeric is used as a (traditional) spice – pure and in mixes or seasonings. It is for instance the main spice in curry. It is further used to flavour and colour other food and beverage products, such as mustards, cheeses, dairy drinks etc. Also, it is used for colouring cosmetics, as it is known for its anti-inflammatory effects. It is a rich biological source of trace elements with a high percentage of natural antioxidants protecting against skin ageing. Turmeric and turmeric extracts play also a role in Traditional Chinese Medicine and Ayurveda.

HIBISCUS

HIBISCUS



Source: intermountainbiota.org

Botanical name: *Hibiscus sabdariffa*

INCI: Hibiscus sabdariffa flower extract

Main chemical component: Cyanidin-3-sophoroside, Cyanidin-3-sambubioside, Delphinidin-3-sambubioside

Colour: Red / pink

General description: Hibiscus sabdariffa produces red calyces that are used in various food and beverages. The extracted colour is also a good alternative for the cosmetic and pharmaceutical industries. Hibiscus is mainly known in tea and other beverage preparation, as the flavour of hibiscus is appealing to all age groups. The red pigments contained in red flowers of the Hibiscus species are anthocyanins and are widely used as colouring agents. The main anthocyanins found in *Hibiscus sabdariffa* are cyanidin-3-sambubioside and delphinidin-3-sambubioside.

Hibiscus extracts are widely used in the food industry to give colour and flavour. New developments such as freeze-dried powder extract (stabilized with maltodextrin) offers a stable colourant for the industry.

Use: Dried hibiscus (hibiscus flowers, leaves, and dark red calyces) is used mainly in teas, both for the taste as for the colouring properties. The tea and hibiscus plant extract are proven to lower blood pressure and cholesterol levels. It finds also application in food supplements.

Additional info: Hibiscus may also impart natural colour to cosmetic products, though it is not a recognized colourant. Therefore, it would need a specific purpose in the product, it not being a colourant.

ALFALFA



Source: awl.ch

ALFALFA

Botanical name: *Medicago sativa*

INCI: Medicago sativa extract

Main chemical component: Chlorophyll

Colour: green

General description: One of the richest sources for chlorophyll – green colour – is Alfalfa (also called Lucerne), a plant which can be found around the globe. Alfalfa is widely grown throughout the world as forage for cattle and most often harvested as hay. It has leguminous flowers that can vary in colour from yellow to purple, as well as trifoliate leaves along its stem. Due to its wide root system, alfalfa is adaptable and very drought resistant.

Alfalfa is usually used as a green plant source for the extraction of chlorophyll because of its availability along all seasons of the year and because of its low price. Chlorophyll is relatively labile and during isolation it is necessary to protect it from degradation. As a general precaution, it is advantageous to work in dim light and low temperature to avoid pigment loss.

Alfalfa brings various health benefits such as lowering of cholesterol and control of blood sugar. Alfalfa is in general not only very nutritious, containing vitamin A, B₁, B₆, B₁₂, C, E, K, niacin, biotin, folic acid, proteins, calcium, iron, zinc, and others, but it holds skin and hair cleansing as well as purifying qualities. Additionally, alfalfa has a comparatively high protein content.

Use: The Alfalfa extract is known for its properties as a moisturising agent, supporting anti-aging, anti-inflammatory and thus widely used in cosmetics. Alfalfa sprouts, extract, powder etc. are used in foods and food supplements.

BEET ROOT

BEET ROOT



Source: medicalnewstoday.com

Botanical name: *Beta vulgaris*

INCI: Beta vulgaris (Beet) extract

Main chemical component: Betanin

Colour: red / pink

General description: The red beetroot has been cultivated for many hundreds of years in all temperate climates. The pigments present are collectively known as betalains and can be divided into two classes, the red betacyanins and yellow betaxanthins; both are very water soluble. The betalains have a limited distribution in the plant world and it would appear that betalains and anthocyanins are mutually exclusive. Plants producing betalains do not contain anthocyanins.

Concentrated beet root juice is mainly used as a food ingredient. The juice can also be spray-dried to a powder, though a carrier as maltodextrin has to be added, since the high sucrose content precludes direct drying of the juice. The application is confined to products that receive limited heat processing, have low water activity or a short shelf life, due to the susceptibility of betanin. It is the natural colour equivalent of raspberries or cherries.

Beetroot is a very well-known colourant for water-based natural cosmetics. Its main chemical compound is called **betanin**, which degrades when subjected to light, heat, and oxygen. Beetroot powder can be infused into glycerine to create a bright pink or red glycerite which can be used in emulsions or water-based gels and tonics.

Use: Beet root concentrate is used as a colouring ingredient in various food products or as a food colour itself. It is also used in drinks and beverages in general. Furthermore, it is used in skin care and cosmetic items for the colour, but also the high antioxidant and vitamin content.

SAFFLOWER



Source: biconcolors.com

SAFFLOWER

Botanical name: *Carthamus tinctorius*

INCI: Carthamus tinctorius seed oil

Main chemical component: Carthamin

Colour: Yellow / red

General description: Safflower has some valuable characteristics which have made the plant important throughout the centuries. In particular, safflower oil is obtained from the safflower seeds, whereas the flower itself holds the medicinal properties and the dye source – the carthamin.

Safflower contains a pigment called carthamin, which is a yellow-orange colour. On closer examination it is shown that the petals contain two natural colourants, one yellow, the other red. Carthamin produces a water-insoluble red dye and carthamidin produces a water-soluble yellow colour dye.

Use: As a medicinal plant, safflower is used as a dried flower. As dye, it is applied to foods, cosmetics, but also fabrics. Safflower yellow and red pigments are used as a colouring agent for food and cosmetics – from beverages to confectionary, sauces, meat products to hair and face products, and colouring cosmetics.

Additional information: Currently safflower is not allowed for use in foods in the USA.

SPIRULINA

SPIRULINA



Source: wellandgood.com

Botanical name: *Arthrospira platensis*

INCI: Spirulina platensis extract

Main chemical component: Phycocyanin and Phycoerthyrin

Colour: Blue / green

General description: For centuries, humans have consumed spirulina for its concentration of vitamins, minerals, protein, and chlorophyll. Due to the growing demand for natural blue and green shades in confectionary and beverages, various companies work on developing spirulina-based extracts for food colouring. It is best known for its antioxidant properties, high nutrient content and vibrant colour.

Spirulina represents a biomass of cyanobacteria (blue-green algae). There are two species, *Arthrospira platensis* and *Arthrospira maxima*, which produce pigments called phycocyanin and phycoerthyrin. Phycocyanin is a blue-coloured pigment, absorbing orange and red light, and phycoerthyrin is a red-coloured pigment. Pigments of microalgal origin are currently enjoying high market demand.

Even though spirulina opens up a new world of natural colour, the ingredient does not perform well in every product and it has its limits, as all-natural colourants do. For example, it is not stable in beverages or at high temperatures, and also the application in dairy products can be problematic.

Use: Spirulina has achieved success in the health food and supplements market, although its taste is not appealing to everyone.

Spirulina extract is widely used for its blue to green colour in ice creams, desserts, beverages, yogurts, cheese, and many other applications. Also, spirulina has a long history of use as a safe functional food, nutraceutical and food supplement due to its high nutritive compounds (rich in protein, amino acids etc.).

Additional information: Until today, spirulina is not allowed as a colouring agent in the USA.

COCHINEAL

COCHINEAL



Source: NewYork Times

Botanical name: *Dactylopius coccus costa* (*Coccus cati*)

Main chemical component: Phycocyanin and Phycoerthyrin

Colour: Blue / green

General description: Cochineal insects produce a crimson-coloured pigment known as carmine. The insect is a parasite of cacti from the genus *Opuntia*. Cochineal is used to describe both the dried insects themselves and also the colour derived from them. As a water-soluble natural dye, it is reasonably stable against light, heat and oxidation.

The pigment was already in use early on in Central and South American history by the Aztecs and Mayans. While its use as a textile dye was most prominent in the pre-synthetic dye era, cochineal also found use in foods and cosmetics. It is used in fruit products, beverages, confectionary, and animal products. Today, cochineal is popular in cosmetics again, after it experienced a huge decline in popularity during the nineteenth century, as natural plant-based and animal-free food and cosmetics were trending. The colour is not permitted in foods and cosmetics for vegetarians and vegans and is recognized with an E-number E120 (it always needs to be declared in the ingredient list).

Additional information: Note that for cochineal, specific requirements and legal [EU](#) rules apply, since it is of animal origin. Please check regularly for updates.

In addition to the natural colourants described above, other interesting natural colourants are, for instance: spinach, red cabbage, hemp, elderberry, carrot root, purple potato, purple corn, calendula, açai, avocado, paprika (oleoresin), pomegranate, sea buckthorn, tomato and walnut.

TIPS

Please have a close look at the [guidance note](#) on the classification of food extracts with colouring properties, based on Regulation (EC) No 1333/2008. As well as the European Commission's info on [Food Improvement Agents](#).

Also consult the Position Papers of [NATCOL](#), Natural Food Colours Association.

Check with the potential European partner on the field of application and category the respective natural colour would fall into.

Always keep an eye on the latest developments and legal requirements regarding natural food and cosmetic colourants.

Do not use direct health claims without any scientific proof for your product. You may present in your product Specification results of chemical analyses, e.g. a special high value of a specific component, active ingredient.

In the context of food, pay special attention to the [Novel Food](#) regulation.

For more details regarding international trade with the respective natural colourants, kindly refer to the [ITC Intracen](#) database for trade statistics.

3 What makes Europe an interesting market for natural colourants?

Natural colourants – both in food or cosmetics – face similar challenges and also potentials from the production to the application on the European market.

Natural colourants are extracted mostly from plant material and tissue. However, the industry faces problems with those extracts, including the lack of consistent colour intensities, instability upon exposure to light and heat, variability of supply, reactivity with other components, and addition of secondary flavours and odours. In some cases, if insoluble in water, an emulsifier must be added to achieve an even distribution throughout the product.

The colour tones of the crops used as source materials may differ from one harvest to the next, making it difficult to achieve a good level of consistency, and if the perfect colour cannot be achieved with the varieties available or by mixing different colours together, entirely new varieties might have to be bred to get the desired result. Stability under certain heat, light and pH conditions could cause problems too, and all this could have an impact on the pricing of the ingredients.

Such challenges must be faced by food companies and cosmetic manufacturers as their aim is to achieve products according to sustainable, healthy and natural criteria. Considering the very strong consumer demand for sustainable and natural products, the awareness about “new” colouring from purely natural sources being as colour-strong as the synthetic alternatives, has also risen. Consumers are progressively interested in what the products they consume are comprised of, as well as the origins and the story behind. This has made the amount of natural and organic sourcing and processing of cosmetic products to increase year by year.

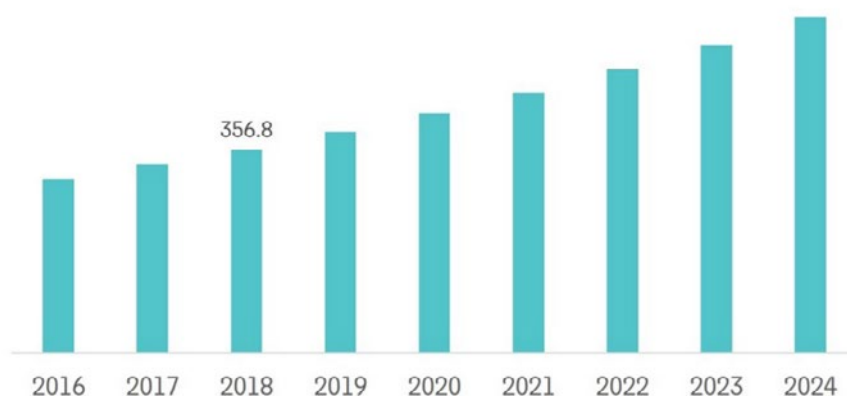
The global natural skin care products market is expected to grow at a compound annual growth rate (CAGR) of 5.0% from 2020 to 2027. Growing concerns regarding the side effects of chemical product compounds on the skin, which can cause skin irritation, allergies, and skin dullness, have been some of the key factors fuelling the market growth of natural and organic cosmetics. Dissemination of knowledge related to the benefits of natural skincare has led consumers to seek eco-friendly, sustainable, natural skincare products that come with greater product ingredient transparency.

As for Europe, it dominated the market for natural skin care products and accounted for a 33.2% share of the global revenue in 2019. Consumers in countries such as the U.K., France, Italy, and Germany are more conscious about the products they apply on their skin, and thus prefer natural, herbal, and organic care for their skincare routines. Due to its large cosmetics & food industry, the EU plays a strong role in the global natural colourant markets. The leading markets for natural colours in the EU are the UK, Germany, France, Italy and Spain, which also have the largest food industries. The market for natural food colours is estimated to increase by approximately 10% annually. Europe needs imports of natural colourants to meet the demand of the industry.

The European food and beverage market is among the biggest globally, and the competition is high. Therefore, the size of the European market as well as the steady growth rates are attractive in the context of natural ingredients, which creates opportunities for suppliers of natural ingredients – among those natural colourants – from emerging markets and developing countries.

The European food colourant market is projected to grow at a CAGR of 3.8% in the time period 2020 to 2025. At present, 39 colours are authorised as colour additives for the use in foods in the European Union. The market for food colourants captures the largest market share, due to the growing demand for clean label foods and health awareness. In general, the market is segmented by natural colour and synthetic colour, and also by application and geography.

FIGURE 1:
EUROPE FOOD COLORANT MARKET:
NATURAL FOOD COLOURS.
REVENUE IN USD MILLION, 2016-2024.
SOURCE: MORDOR INTELLIGENCE*



The everywhere growing health concerns (additionally triggered by the Corona-crisis) increases the demand for natural products in general. Natural food colouring in the food & beverages industry is gaining popularity with an increasing number of natural food colours and dyes being produced commercially. Innovative practices in natural food colours for mitigating the application challenges (heat and light stability, etc.) faced by the food industry is one of the key focuses adopted by companies to be able to meet the growing consumer demand.

Europe's food colour market is dominated by Germany with a CAGR of 6.51%. Many convenience food manufacturing companies have started using natural food colour ingredients to provide value addition and to make product differentiation from their competitors. This factor is playing a key role in driving sales of natural food colour ingredients.

Europe has been predominantly using natural colours for food and beverage colourings for over 20 years, putting the region at the global forefront of utilizing colouring foods. Dairy and confectionary are the leading categories for food and drink products where colourants find their application. This is followed by desserts, ice cream, juice drinks, bakery, chocolate, snacks, meals, soft drinks, sauces and seasonings.

TIPS

Check out large natural food companies like Chr. Hansen from Denmark or Sensient in France to get an impression of the market players.

Conduct additional market research for more insight into the differences between the countries mentioned above. Use free statistical databases such as [ITC Trade Map](#) or the [EU Trade Helpdesk](#). Look for trends on websites such as [Cosmetics Design Europe](#).

Stay up to date on the European food and beverage market by visiting relevant website, such as www.foodanddrinkeurope.eu

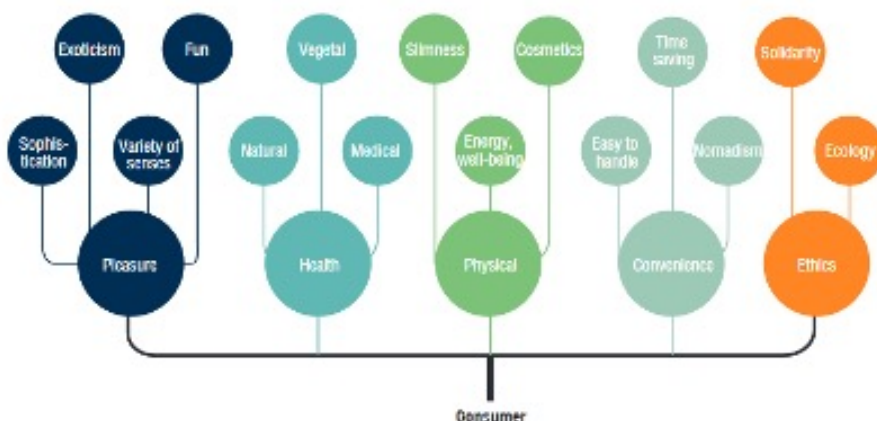
Visit or participate in trade fairs to test whether the market is open to your product, to obtain market information and to find potential buyers: Especially the [Food Ingredients Europe FIE](#) trade fair, as well as the [in-cosmetics](#) trade fair for cosmetic ingredients.

4 Which European Trends offer opportunities for natural colours?

The international association FoodDrinkEurope collects every year data and trends for the EU food & drink industry, and sums up the 2020 developments into 15 trends, grouped along five axes which correspond to the general five consumer expectations: pleasure, health, physical, convenience and ethics.

FIGURE 2:
FOOD INNOVATION TRENDS

Source: FoodDrinkEurope.eu



Though these displayed trends account to all food related products, natural colourants are a matching trend and therefore have potential in the European market. A sharp increase in natural and vegetal innovation – plant-based innovation – in the health context is a main driver for the steadily increasing interest in natural alternatives, substituting synthetic ingredients. Even cosmetics are listed within the physical innovation trends, as food trends and innovations spill over and also influence developments in the cosmetics industry.

NATURAL AND “CLEAN LABEL” CONSUMER DEMANDS

The trend for “clean label” foods containing few E-numbers is emerging in European markets. Even though E-numbers are also assigned to natural additives, the overriding consumer perception is that E-numbers are undesirable, unhealthy and therewith better to be avoided.

“Adding value with less” is a slogan used by the ingredient company Döhler. Healthy foods and beverages are increasingly defined not by complex lists of ingredients and E-numbers, but rather by what the recipe consciously does not include – “free from”. The trend started with “calorie-free”, “free from artificial additives” and “sugar-free”, and even product claims like “lactose-free” and “gluten-free” are now moving from niche to the mainstream.

Long and complicated names and lists on labels cause concerns over the safety of artificial additives and allergens creating more awareness of ingredients and their origin. Synthetic (or even synthetic sounding) ingredients create a counter effect on the consumers' side.

Colouring foods, which are basically strongly coloured foods that can be used as ingredients to add colour to other foods, are starting to have a strong impact in the food industry, and it is expected that the global market for colouring foods could expand immensely in the next years.

Colouring foods are actual foods – not additives – and are labelled on the ingredient list as a food (not with an E-number). Consumers desire increasingly natural products containing natural ingredients that have undergone little processing.

EUROPEAN COSMETIC INDUSTRY FINDS INSPIRATION IN FOOD INGREDIENTS

The cosmetic industry trends are focused on natural themes, social responsibility, interesting origin and traceability. Cosmetic product manufacturers are continuously looking to include ingredients with these attributes.

At the same time there are some overlaps as food industry trends are being picked up by cosmetic companies, especially by including natural ingredients in formulations that are closely associated with foods – and their specific properties. For example, European consumers associate fruits with freshness, natural food and health benefits. In a society that is increasingly aware of the importance of healthy lifestyles, fruit seed oils, for example, offer great opportunities for cosmetic brands to stand out. Another example for the crossover of food trends to the cosmetics industry is ingredients derived from superfoods also being interesting for use in cosmetics.

NATURAL FOODS AND COSMETICS SALES CONTINUE GOING STRONGLY

In 2020, the COVID-19 pandemic changed nearly every aspect of life — and the diet habits were no exception. In the first stage, many people stockpiled bottled water for hydration, there was a banana bread baking boom, and, with a temporary shortage of meat last year, much more vegetarian food options are available and demanded.

European sales of natural cosmetics grew more rapidly than the sales of conventional cosmetics. This development offers opportunities for natural ingredients including natural colourants. There continues to be a strong public perception in Europe that natural ingredients are safer and healthier than synthetic substitutes such as silicones, even though consumer safety in Europe with regard to cosmetics is assured and closely monitored by the European Commission. Nonetheless, the trend for natural is a trend that suppliers of natural ingredients can take advantage of.

In the age of conscious consumerism, this once trendy niche is rapidly becoming the norm. According to EcoviaIntelligence, in Europe, sales of natural and organic cosmetics have grown at an average of +7% per year over the past five years and are expected to reach 5 billion euros by 2023. Furthermore, an astounding 18.7% year-over-year growth in sales of natural and organic cosmetics is highlighted in the French market from 2017 to 2018. As the third biggest market for natural and organic cosmetics in the world, France's turnover in 2018 is exceeded only by Germany and the United States, which boasted 1.34 billion euros and 4.32 billion euros respectively in sales for that same period. Sustainability's move into the mainstream is at the root of these numbers.

FIGURE 3:
PERCEPTION OF EUROPEAN CONSUMERS
REGARDING ORGANIC PRODUCTS

Source: Sensient



This development implies – both for food and for cosmetics ingredients – the need to transparently present the raw material supply chains for products with a low environmental impact, as well as the outlining of social benefits.

Plant-forward products will continue to trend in 2021 – not only for their known health benefits, but also because of their association with sustainability. An increasing number of consumers are becoming concerned with where their food comes from and how it affects the environment. Those companies that offer a positive environmental story will be sought after.

GROWING IMPORTANCE OF MARKETING STORIES

European consumers are increasingly interested in the story behind the products that they use. So, the interest in authenticity and transparency almost demands companies to tell a story about their products. Innova Market Insights ranked storytelling as the No. 1 trend among its top 10 trends in 2020. Survey findings show that 56% of global consumers include the stories around a brand as a factor influencing their purchase decision.

Consumers mostly want to know about the ingredients in a product and the origin of the ingredients. Food and beverage companies may focus on ingredient storytelling in several ways: detailing culture and tradition, explaining where the ingredients are sourced from or telling how they are processed.

Consumers are especially keen on ingredients with an interesting provenance. For example, ingredients that:

- + come from a fascinating, exotic or mystical origin
- + are produced with traditional or specific local production processes; are associated with traditional use or local beauty rituals
- + are associated with health, such as fruits
- + are ethically sourced as ethical claims are increasingly important to demanding consumers.

Offering consumers insights into how products are produced, and the source of individual ingredients promotes a dialogue and builds consumer trust around a product. Thus, one of the biggest advantages of storytelling is its ability to convey a brand's sustainability efforts.

Complying with international standards and certification can be added to the marketing story. Not only in terms of food safety, but when talking about organic certification in particular, the social component is of high interest to the consumers and therewith also automatically to the importers in Europe. This social component is covered in the scheme of Corporate Social Responsibility (CSR). CSR is a management concept whereby companies integrate social and environmental concerns in their business operations and interactions with their stakeholders. The most acknowledged standards are SMETA audit and Sedex.

In this social context, Fair Trade certification is currently less relevant for natural colourants as the market for it is very small. However, you can use this certification to support your ethical claim. In addition, if buyers do not require Fair Trade certification right away, specialised buyers may ask you to become certified to support your claims.

SUSTAINABLE USES AND ENVIRONMENTAL PROTECTION EXPERIENCE INCREASING IMPORTANCE

Today the world is facing dramatic climate change, destruction of ecosystems and diminishing natural resources. Social and economic inequity remains an issue for countries and societies. On the bright side, there is the growing emphasis worldwide on sustainable development.

Consumer interest in sustainability, the no. 3 trend according to Innova, increased in 2020. In 2018, 65% of global consumers said they expect companies to invest in sustainability. The percentage increased to 87% in 2019. Consumer interest in sustainability varies by geographic region. French consumers care most about organic, while animal welfare is the top concern in Germany. Food waste and packaging are major concerns in general.

As mentioned before, telling the story of the company and the product, and presenting the people involved, can help convey the sustainability efforts of the company. In today's market, sustainability and environmental consciousness are major concerns for shoppers.

A sustainable ingredient is produced and transported in a way that limits its contribution to global warming, which threatens our planet. Likewise, this ingredient must also protect biodiversity and ecosystems, which implies that it respects natural resources and the living world. Finally, an ingredient is only sustainable if it also ensures fair and sufficient compensation, as well as decent working conditions.

TIPS

Work out a marketing story for your natural colourant. What sets your product or your company apart from competitors? For example, does it come from an exotic origin? Can you link it to a traditional use in cosmetics or food? Is it used in local beauty rituals? What benefits do you provide to local communities? Determine which story is the most attractive for your targeted market segment.

Provide your buyers with good-quality pictures or videos to support your marketing story, for example, pictures of the exotic origin of your colourant (raw material) and traditional or local production processes.

Be prepared to support statements that you make with documentation. When talking about social policies or orientation, your company is put further into the focus of the consumers in Europe. Be ready to prove your policies on Corporate Social Responsibility (CSR).

Importers in Europe increasingly look into Food Safety standards. HACCP is mandatory and ISO22000 becoming a minimum requirement.

Especially in post-Covid times, digital formats (as the website) have gained importance. Establish a well-designed website with meaningful content, which offers direct insights into your company, production, supply chain etc.

Check on Standard Operating Procedures (SOPs) and Work Instructions (WIN), which are important tools to ensure sustainable sourcing of natural ingredients from different perspectives. Implementing SOPs also help companies to comply with legal requirements.

Establish a sustainable wild collection system.

Keep up to date with developments in natural colourants; for example, by checking the websites of [Cosmetics-Design](#) and [in-cosmetics](#).

Have a close look at the various niches in which the consumers have broken into. Get to know your consumers in the target market.

5 What requirements must natural colourants comply with?

REQUIREMENTS AS FOOD INGREDIENTS

The history of adding colour to food contains many examples of excessive use of toxic and harmful substances. Today, food colours are probably the most strictly regulated food ingredients all over the world, often requiring pre-market approvals and authorisations. However, the rules are not the same everywhere and therefore exporters need to reformulate their products for the intended marketplace and demonstrate compliance with the applicable rules. That creates an additional cost and could be considered as a barrier to trade. Failure to comply with these rules may give rise to claims of adulteration, misbranding or non-compliance. Products may be rejected at the border or recalled from the market.

One of the advantages of using natural colours is that they are generally more widely permitted in foodstuffs than synthetic colours. It should be remembered that colour usage may be controlled in three distinct ways as follows:

1. National legislation lists colours that may be used in foods.
2. Colour use within a country is limited by the type of food that may be coloured.
3. The maximum quantity of colour that can be added to a food may also be specified.

It is therefore crucial to check the legislation not only on the EU level, but also on the national level. For instance, a natural colour is maybe allowed in one specific EU country, but only to a certain extent. The application, dose level etc. may vary in other European countries. Also, consultation with the importer will provide more insights into the specific market.

LEGAL REQUIREMENTS

The key legislation in the European Union can be summarised, according to the Natural Food Colours Association, as follows:

Legislation applicable Colours	Colouring foods
General food law	Regulation (EC) No. 178/2002
Food additives which can be used in colours/colouring foods	Regulation (EC) No. 178/2002
Labelling	Annex III to Regulation (EC) No. 1333/2008
Enzymes used in production	Annex II to Regulation (EC) No. 1333/2008
Extraction solvents	Directive 2000/13/EC Regulation (EC) No. 1333/2008
Impurities / contaminants	Regulation (EC) No. 231/2012
Novel Food	Regulation (EC) No. 1881/2006
	Regulation (EC) No. 258/97

Food Safety is a key issue in European food legislation and implies traceability, hygiene and control. The General Food Law is therefore the legislative framework in the European Union. Additionally, in recent years, buyers' specific requirements have severely increased. The implementation of HACCP principles, the baseline for food safety management, is mandatory. ISO22000 – as a next step – has been the standard for food safety since 2005 and is based on HACCP guidelines in accordance with Codex Alimentarius and the management principles of ISO 9001. It is a globally accepted standard that forms the basis for an internationally valid ISO food safety certificate and is addressed towards the entire agri-food chain. HACCP purely focuses on food safety, while ISO also looks at business processes and structures.

An increasing number of importers put new focus on food safety and are thus requiring higher standards. ISO 22000 and FSSC 22000 are both international standards and both relate to the most important components for ensuring food safety. See more info under "Voluntary standards and certification" in this study.

To guarantee food safety, and to initiate an appropriate internal risk management, any product needs to be fully traceable throughout the entire supply chain – from the field, through the processed ingredient and to the final product reaching the consumer. Only this allows for instance a product recall in case of quality issues and creates at the same time a fully transparent supply chain.

Contamination of food ingredients and foods can be caused by physical elements (dirt, metal residues etc.), by chemical elements (e.g. pesticides) and biologically (by bacteria or fungus). Products containing any contamination above the permitted level will be withdrawn from the market.

A maximum level of contaminants, pesticides and criteria for the microbiological contamination of food, and therewith also food ingredients, is clearly stated by the EU legislation. The Maximum Residue Levels (MRLs) can be found in the EU Pesticide [database](#). Please note, the MRLs might also differ among the European member states.

TIPS

Novel Food is defined as food that has not been consumed to a significant degree by humans in the EU before 15 May 1997. Check whether and to what extent Novel Food would apply to your product. If it would apply, an extensive process for admission is needed.

Pay special attention to the raw material if you must purchase it from suppliers. Adulteration is a serious problem. If the strict controls in Europe uncover adulteration it falls right back to the exporting company, which will be held liable and have to take the responsibility.

Consult with the importer regarding the specific Maximum Residue Levels (MRLs.)

Include the issue of contamination in your internal procedures, throughout the entire chain. Especially the cultivation and storage conditions are critical stages.

When sending samples, assure that the samples come from the batch that would also be exported. Additionally, mind the right labelling and documentation which needs to be sent along.

Check with national institutions regarding support and consultancy for Food Safety measures and management.

Keep in mind that there is European legislation, but also national legislation which might vary.

Have an eye on the latest developments on the European market in terms of legislation.

Visit Access2Markets – a portal from the EU regarding tariffs, rules of origin, requirements, customs procedures etc.

Prepare for each of your products a so-called Specification, including a technical data sheet, analyses etc. – this is like the passport of your product- to be shared with the interested importer

REQUIREMENTS FOR COSMETIC INGREDIENTS

Natural colourants can only be exported to the European cosmetics market if they comply with the legal requirements for natural ingredients for cosmetics. These requirements include:

- + relevant European cosmetics legislation (Regulation (EC) 1223/2009)
- + well-structured product (technical aspects) and company documentation to supply to your buyers
- + Classification, Labelling and Packaging of chemicals (CLP)
- + Check if applicable: REACH, a law to regulate chemical substances
- + if applicable: Organic legislation (Regulation (EC) 834/2007), COSMOS and NaTrue, and other social component certifications (CSR, fair trade etc.)

For certain natural colourants, a check regarding biodiversity and species protection is advised.

TIPS

Note that European, as well as national regulations and respective MRLs are subject to constant change and updates. Keep track especially on allowed and prohibited substances applicable to cosmetic ingredients.

Visit Access2Markets – a portal from the EU regarding tariffs, rules of origin, requirements, customs procedures etc.

See the CBI workbook on preparing a technical dossier for cosmetic ingredients for more information and tips.

ALLOWED SUBSTANCES

The European Union strictly regulates which substances are permitted in foods and cosmetics to ensure the safety of customers. Regulation 1333/2008 sets rules for the use of additives, such as colourants. For cosmetics, the Cosmetic Ingredient database (CosIng) offers a [list](#) of colourants allowed as cosmetic ingredients (at present 153 substances).

Additives need to be labelled with the respective E-number, which indicates the approval by the European Food Safety Authority EFSA. An overview can be found in the [annex](#) of Regulation 1333/2008. It is essential to evaluate, also in cooperation with the European importer depending on the application, whether the colourant would be categorised as food colour additive or rather as colouring food, which would not need an E-number.

If the extraction process of the natural colourant requires solvents, the Directive 32/2009 provides a list of permitted solvents, conditions for the use of solvents and maximum residue levels. Importers in Europe would, for instance, verify the compliance on the product's Certificate of Analysis.

For more information on how to prepare a Technical Data Sheet or Specification, which includes a Certificate of Analysis, please follow this [link](#). Also see the table below for more details.

ALLERGEN INFORMATION

There are several ingredients that are known allergens (e.g. nuts and seeds) that when incorporated in a food or when handled in the same factory must be highlighted on the label. Whilst the cosmetics industry is concerned about skin contact allergens typically found in fragrances, a similar legislation relating to labelling of food allergens does not exist. Nevertheless, cosmetic manufacturers are concerned about the ingredients derived from food allergens, such as nuts and seeds, which are incorporated in cosmetics and must represent zero or negligible risk for consumers susceptible to allergies.

TIPS

Check the website of the [Scientific Committee on Consumer Safety](#) for updates.

For changes to the cosmetics legislation, see the [EUR-Lex website](#) of the European Union, where legislation and amendments are published.

See the CBI study on [buyer requirements for natural ingredients for cosmetics](#) for additional information.

ADDITIONAL – NON-LEGAL – BUYER REQUIREMENTS

Many buyers have additional requirements that go beyond legislation and standards. These elements are established in buyer specifications and include the following requirements:

- + Delivering a good and reliable level of quality by following Good Practices and each step fully documented – HACCP and ISO22000 are basic requirements, to which importer can still have specific higher requirements.
- + Being a sustainable supplier to ensure the future availability of your ingredients – Avoid overharvesting wild plants, provide living wages to your collectors and ensure that you can deliver a stable quality and quantity of the of the product. Certification of these sustainable practices is only a requirement for niche markets;
- + Having good CSR practices, such as developing a code of conduct and improving your performance in key areas (for example, ensuring that there is no child labour in your supply chain and limiting damage to the environment) – Today adding the social component is a crucial next step, specifically in the context of organic products ("organic+").
- + Implementing some form of traceability is already a legal requirement in certain sectors in the European Union – Beyond mandatory traceability, more and more industries are voluntarily deploying traceability programs to improve efficiency and to help protect their brands and ensure that their foods and cosmetics are safe. In short: traceability is a vital part of the supply chain.

- + Offering excellent customer service is the intangible aspect that sets you and your company apart from others – It does not matter how low your prices are; if your customer service (e.g. communication) is poor, you will lose out on repeat customers.

VOLUNTARY STANDARDS AND CERTIFICATIONS

- + Organic certification – ensure the certification complies to EU regulations and is audited by an accredited certification body.



- + For natural and organic ingredients (incl. natural colourants) and final cosmetics, the certifications NaTrue and Cosmos (BDIH, Soil Association, EcoCert) are the most known ones (all very similar but still different – take your time to understand each one and choose the best for your company/product).



- + The ISO 16128 standard is an alternative minimum standard, which covers definitions and criteria for natural and organic cosmetic ingredients and products. Buyers of cosmetic ingredients expect that private-sector standards will continue to remain the standard for natural and organic cosmetics in Europe until the EU introduces legal standards. However, the ISO standards are an option for small producers for whom certification according to a private standard is too expensive or not required.



- + ISO 22000 is a requirement for the management system of the FSSC 22000 scheme. However, the FSSC 22000 contains additional requirements, including the Pre-Requisite Program (PRP) universal procedures used to control the operating conditions in food factories and specific requirements to ensure consistency, integrity and management of the system itself. The main difference between the two certifications is that the FSSC 22000 scheme, in contrast to the ISO standard, is recognized by the GFSI (Global Food Safety Initiative). GFSI recognition demonstrates that the scheme meets the highest standards globally leading to international food industry acceptance

- + Other GFSI recognised schemes are GlobalGAP (for fresh produce), BRC and IFS for final food products.



- + CSR – e.g. Smeta audit by Sedex – is a highly requested social component audit, which is specifically interesting in addition to organic certification.
- + Fair production is a small niche market in terms of certified cosmetic ingredients – certifications include Fairtrade and FairWild (for wild-collected ingredients).

TIPS

Check CSR schemes and whether you have already “naturally” included CSR in your daily work life. See for instance the Smeta audit by Sedex.

Keep facilities and equipment clean to prevent contamination with foreign materials – in near future FSSC 22000 will be for most importers a requirement.

Ensure full traceability along the entire chain – for internal risk management and food/product safety.

LABELLING AND DOCUMENTATION REQUIREMENTS

FOOD APPLICATION:

The categorization of colouring substances as “food colours” or “colouring foods” has implications for the way things are labelled. As colouring foods are not considered as additives, they do not require the same legal approval that additives do and there is no E number associated with them (although they still need to be used in accordance with the rules of the general food law). And while some “natural” food colours (colourants) do come from natural sources, they must be classified as additives. It is believed that this could create problems for manufacturers as consumers seek “clean label” formulations.

Colouring foods, however, can be listed for instance as “Colouring Food (carrot concentrate)”, which meets and mirrors the “clean label” requirements that food companies and consumers are after.

In general, the product labels – throughout the entire value chain – must include:

+ product name/INCI name;

TIPS

See CBI's study on [buyer requirements for natural ingredients for cosmetics](#) for information on classification, labelling and packaging (CLP).

See CBI's manual on [Preparing a Technical Data Sheet](#) for more information (it includes information on preparing a Safety Data Sheet)

- + batch code;
- + place of origin;
- + name and address of exporter;
- + date of manufacture;
- + best-before date;
- + net weight;
- + recommended storage conditions.

For organic ingredients, include the name and code of the inspection body as well as the certification number.

You also need to provide your buyer with the following documentation:

- + Technical Data Sheet
- + Safety Data Sheet (SDS)
- + GMO certificate (if requested)
- + certificate of origin
- + product information sheet
- + allergen declaration (this process is especially important if you are selling directly to a cosmetics manufacturer)
- + on-animal Testing declaration (sometimes requested as part of customers due diligence to their customers)

PACKAGING REQUIREMENTS

Packaging requirements could differ per buyer. However, there are some general requirements that you must take into account to preserve the quality of the product. See the tips below.

TIPS

Always ask your buyer for their specific packaging requirements.

Use packaging material that does not react with components of the product.

Fill the headspace in the container with a gas that does not react with constituents of oil, such as nitrogen or carbon dioxide.

Store containers/bottles/boxes etc. in an adequate place to prevent quality deterioration.

If you produce both conventional and organic certified ingredients, physically separate them from products that are not certified.

See CBI's study on [buyer requirements for natural ingredients for cosmetics](#) for information on classification, labelling and packaging (CLP).

6 Challenges for the natural colourants

Challenges, and to some extent also market entry barriers, for natural colourants do not only exist in terms of technology available and the European legislative requirements. But they are also present in the adequate documentation and traceability of the supply chain, as well as positioning and differentiating of the product and company on the market.

To access the European market, stable supplies, regular quantities of the natural colourant at a consistent quality are required.

For food and cosmetic manufacturers, it is important to find reliable partners, which apply good practices along the supply chain with transparency from communication to documentation, in detail:

- + Communication
- + Raw material supply
- + Processing
- + Storage
- + Use
- + Availability
- + Traceability

It is critical to have documented processes to understand how to manage risks on all of the above points. Ideally, you will certify some or all processes.

As mentioned before, traceability is key and a pre-requisite to start a trustworthy relationship with an importer. Importers generally ask for a detailed Technical Data Sheet (also called Specification), Certificate of Analysis (CoA) and a Safety Data Sheet.

TDS	CoA	SDS
is the passport of the product	Checks batch conformity with TDS data	Comprised of 16 sections
Product description (incl. clear botanical identity), INCI name etc.	Analysis data mentioned in the TDS	Product description
Product classification	Pre-shipment sample data	Classification
Quality analysis	Contractual agreements	Hazard identification
Content, active ingredients etc.		Information on safety measures
Information on applications		
Standards and certifications		

More details can be found [here](#).

FACTORS AFFECTING THE COLOUR

In terms of natural colourant production, good technological equipment is crucial for the consistent quality of the product.

As mentioned previously, the main challenge of natural colourants is the stability and the solubility. Consequently, each colourant is formulated to ensure the compatibility with the particular application in food or cosmetics. A product application form is a formulation that enables a specific additive to be incorporated into a manufactured product. Several factors such as solubility, physical form and microbiological quality need to be taken into consideration.

There are several factors, which affect and influence the choice of colour:

1. Colour required. The shade might entail the need to blend colours.
2. Legislation of the countries where the coloured product is to be sold.
3. Physical form required. Liquid natural colours are generally more cost effective than powder forms.
4. Composition of the foodstuff. For instance, the presence of tannins or proteins may limit the use of some colours such as anthocyanins.
5. Processing conditions. In particular, temperature and the processing times have a significant influence.
6. pH. The suitability of a specific colour for a given application, as well as stability or colour shade are affected by pH.
7. Packaging. The amount of oxygen and light reacting with the product is determined by the quality of packaging (specifically carotenoids and curcumin).
8. Required shelf-life and storage conditions.

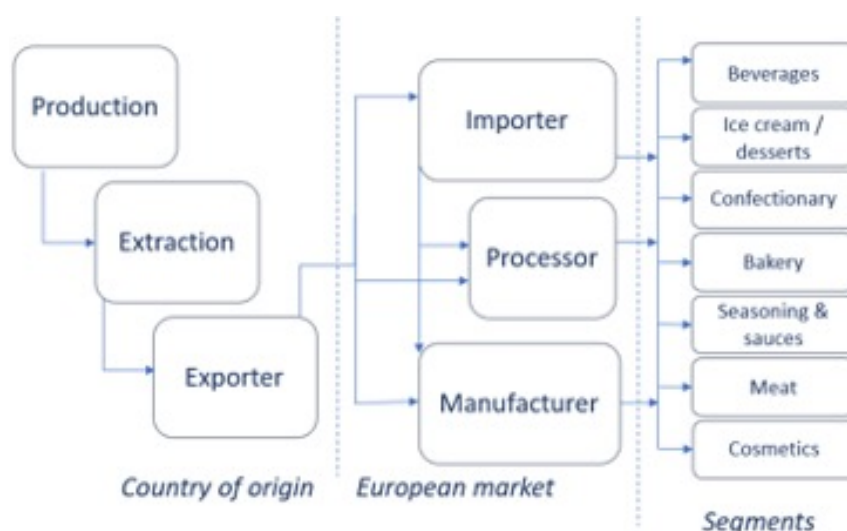
An essential point to note is that through the extraction process even minimal (and allowed thresholds) pesticide residues are multiplied. Therefore, a high-quality raw material for the production of natural colours is of the outmost importance in being able to meet the quality required on international – and in specific the European – markets.

7 Trade channels for market entry

This section provides some information about the marketing channels through which natural colourants can be marketed.

Trade structure depends on the product and the application of the product. It will not only differ between food and cosmetics, but also within food whether it is applied as an additive or colouring food. Figure 4 provides an overview of possible routes.

FIGURE 4: TRADE CHANNELS OF NATURAL COLOURANTS



The raw material production, extraction of the colourant as well as the export can lie in the hands of one entity of the chain. However, the value addition can also be split into three steps. The raw material is supplied to the processing industry, such as flavour houses (e.g. blending, refining, etc.) and then sold, for instance, to manufacturers or formulators which sell it as an ingredient on the market. In any case, the so-called Good Practice (GACP and GMP)⁵ needs to be applied to standardise procedures aiming at a consistent product quality from the very first step in the production and throughout the entire chain. This even holds when the product leaves the country of origin and is either used directly or further processed in Europe.

Food additives are only a small part of the price of the final product, which makes it expensive for food manufacturers to import the ingredient directly from the country of origin. Thus, traders play an important role in the distribution of products. In recent years, though, the direct import of ingredients has been gaining importance due to the need to secure resources, meaning the direct access to the origin has become important. Establishing a direct, long-term partnership between the European importers and the producing companies in the origin creates a realistic future perspective.

When the producing companies aim at keeping the extraction and processing of plant raw material into natural colourants in the country of origin – in order to keep as much of the value addition there – the challenge is to find and establish respective adequate methods and techniques of producing natural colourants that meet the European requirements for the sector and segments.

Research is therefore needed to develop food ingredients which can be commercialized at a reasonable cost, comply with the high-quality requirements and retain their functional properties under specific conditions (e.g. light, heat and acidity). Particularly, formulations of food & cosmetic colours are becoming increasingly complex, as food manufacturers are constantly demanding tailor-made products. Their suppliers thus need to have extensive expertise on food science. Establishing communication with the manufacturers, who can transfer the required knowledge, is key.

INDUSTRY SEGMENT

Natural colourants can be used in practically all segments of the food and cosmetic industry:

- + Skin care products
- + Colour cosmetics
- + Cosmetics cleansing
- + Beverages (tea, soft drinks, juices etc.)
- + Ice cream & desserts
- + Confectionary & chocolates
- + Bakery
- + Seasoning & sauces
- + And others

WHAT IS YOUR UNIQUE SELLING POINT?

As natural colourants are used for their marketing appeal (as well as their cosmetic properties) you need to find out how your product stands out from the competition in terms of its marketing story. What makes it different or special? For example, is it used in traditional beauty rituals? See in the trend section above for growing importance of marketing stories.

⁵ Good Agricultural and Collection Practice GACP and GMP Good Manufacturing Practice offer standard procedures on the cultivation, wild collection of plants as well as the processing and manufacturing. For medicinal purpose it is even mandatory.

TIPS

If you cannot produce sufficient quantity and quality, link up with other producers.

Work on your visibility (website etc.) and communicate clearly what makes your product and company unique. What differentiates you from competitors. Use strong facts, like qualitative components, describe your way of procurement & processing, your CSR activities, certifications etc.

Benefit from the experience and knowledge of European importers instead of approaching end-users directly.

Visit and participate in trade fairs to test market receptivity, to obtain market information and to find potential business partners.

8 What are Price Developments for natural colourants?

For natural colourants, the price structure highly depends on the market channels or paths the colourant takes. The more value addition – e.g. from production, to processing and then export, which remains in the country of origin, the higher the prices of the product will be.

Other relevant factors are:

- + Availability & demand
- + Quality – quality also impacts the price, but it is a subjective factor. You need to comply with legal requirements as a minimum quality standard. Beyond that aspect, your buyer will decide how they define “high quality”; for example, in terms of the composition or properties for which they are looking. You need to find a buyer who values what you can offer and who is willing to pay more than other importers.
- + Exclusivity & novelty vs. availability
- + Price of raw material vs. the yield of colourant
- + Certifications & standards

As an example, if a colourant would at first be sold from the producer to an intermediary like a manufacturer or a formulator, who would process the natural colourant (e.g. use it as colouring ingredient in a cosmetic product), the price of the product – and therefore the value addition – can increase already from a few percent to more than 100%. The mark-up will depend at all stages along the chain on the efforts required and activities involved. Though, the main aim shall be to keep as much as possible of the value addition in the country of origin. In general, the most important aspect is to make sure that all your costs – after an in-depth cost calculation – are covered with a reasonable margin and then “go to market” to find out who is interested in your product at that price.

9 Useful sources

Check the various links provided throughout this document, but here are some other useful references:

www.foodnavigator.com

www.foodbusinessnews.net/articles/15010-storytelling-takes-top-spot-in-innovas-2020-trends

www.fooddrinkEurope.eu/

www.specialtyfoodingredients.eu/

www.britannica.com/topic/food-additive/natural-colorants

<https://natcol.org/library/natcol-position-papers/>

https://ec.europa.eu/food/safety/food_improvement_agents_en

www.efsa.europa.eu/en/topics/topic/food-colours

<https://data.europa.eu/euodp/en/data/dataset/cosing-list-of-colorants-allowed-in-cosmetic-products>

www.efsa.europa.eu/en/topics/topic/novel-food

EXPORT AND MARKET ENTRY SUPPORT:

www.cbi.eu/market-information/natural-ingredients-cosmetics

www.cbi.eu/market-information/natural-food-additives

Interesting European importers:

Roeper www.roeper.de

Sensient www.sensient.com

Döhler www.doehler.com

Naturex www.naturex.com

Gustav Heess www.heessoils.com

Chr. Hansen www.chr-hansen.com

Lush www.lush.com

Symrise: www.symrise.com

RELEVANT TRADE FAIRS:

Biofach/Vivaness www.biofach.de/en

In-Cosmetics www.in-cosmetics.com/

Food Ingredients Europe & Health Ingredients Europe www.figlobal.com/fieurope