

DSM's position on naturalness of nutritional and food ingredients

January 2020

Increasingly, consumers are looking for more natural foods; a demand that is linked to the desire for foods that are perceived to be healthier and produced in a more sustainable way. According to the 2019 DSM Global Health Concerns Study, natural ingredients is globally the most sought on-pack information.

DSMs leadership position in tasty and nutritious ingredients

DSM is a global science-based company active in nutrition, health and sustainable living. DSM is a leading supplier of nutritional and food ingredients for the dietary supplement, food and pharmaceutical industries. DSM supplies vitamins, carotenoids, Omega-3 & 6 lipids, nutraceutical ingredients and custom premixes to the dietary supplement, food and pharmaceutical industries. In addition, DSM also provides food enzymes, cultures, savory ingredients, and sugar reduction, taste enhancement and bio preservation solutions.

Our ingredients help to create tasty, healthy, nutritious, affordable and more sustainable food for everyone. We are an industry leader in terms of ensuring the quality, reliability, traceability and sustainability of our ingredients.

In line with this leadership position, we aim to be transparent about our view on the pros and cons of natural ingredients and how we provide choices to meet consumption preferences.

Our growing portfolio includes naturally sourced ingredients extracted from plants, animals, minerals or microbiological sources, as well as man-made ingredients that are identical to those found in nature.

Transparency, food security and sustainability

Through our ability to produce a range of naturally sourced and nature-identical nutritional and food ingredients we are providing our customers with a choice as to the naturalness of the ingredients they use and helping them be transparent with consumers. We are also making a very significant contribution to meeting the nutritional, health and food security needs of the world's growing population, while limiting the impact on the environment and the use of natural resources.

Although naturally sourced nutritional and food ingredients may at first glance appear preferable,

there are other considerations to take into account. Quality and availability of raw material needed for production, cost and sustainability considerations (including land, water and energy use, and carbon footprint), as well as limited shelf life of ingredients, may mean that using mainly naturally sourced nutritional and food is unfeasible, with a world population expected to reach about 10 billion by 2050.

This is why our portfolio of nutritional and food ingredients include ingredients from natural sources, such as plants, animals, minerals or microorganisms; and nature-identical ingredients which are produced by chemical synthesis or by biotechnological processes, and which are identical to substances occurring in nature. These ingredients are different from artificial ingredients which are engineered and cannot be found in nature.

More sustainable ingredients, wider availability

DSM's nutritional and food ingredients can often be manufactured more economically, with greater purity and more consistent quality, by using technologies which go beyond the extraction from a natural starting material. For the consumer this means that:

- These ingredients function in a biologically equivalent manner to their natural counterparts and offer efficient and safe health benefits
- The products are at affordable price levels (possibility to scale up and reduce price), i.e.. making essential nutritional ingredients available for all
- There is a reliable supply of consistently high-quality ingredients
- These products can be more eco-friendly, with low raw material use and low energy consumption.

What are the environmental benefits of synthetic processing of nutritional and food ingredients?

Carbon footprint analysis as well as land and water use studies show that the production of certain natural ingredients requires significantly more natural resources (including land and water) than ingredients produced with synthetic processes. It results in significantly increased energy use and greenhouse gas emissions. This difference, or sustainability gap, keeps on growing as these synthetic production processes are further improved.

If we were, for example, to supply today's world population with vitamin C from oranges only, as opposed to vitamin C made synthetically from corn, we would need to increase the production of oranges worldwide 11-fold. It is questionable whether there is enough farmland to support this. By contrast, the land required to produce DSM vitamin C is 136 times less than for vitamin C from orange trees.

DSM is also producing omega-3 fatty acids from algae that support brain and heart health and are traditionally derived from oily fish such as tuna, mackerel and salmon. By using algae, the original source of omega-3, grown in a tightly controlled environment in an FDA inspected facilities in Kingstree, South Carolina, USA, we are helping to reduce the pressure on wild fish and safeguard fragile marine ecosystems.