

Novel Food and food supplements

Algae and insect products



Novel foods¹⁾ are often referred to as „super food“ and a variety of dietary supplements have been increasingly enriching the range of products on offer in Europe for some years now. Sometimes forgotten cereals are rediscovered or food trend scouts track down exotic products from other regions of the world and bring them to domestic markets such as goji berries, algae products and, more recently, insects as an alternative source of protein and as possible meat substitutes.

A growing interest in a healthy and sustainable diet together with the promises of special health benefits of the new foods, generate curiosity and encourage experimentation.

But these new foods and ingredients also raise new questions about product safety, origin, authenticity and benefits.

USING TWO EXAMPLES, WE WOULD LIKE TO SHOW YOU WHICH ANALYTICAL INVESTIGATIONS CURRENTLY APPEAR TO BE USEFUL FROM THE POINT OF VIEW OF FOOD SAFETY.



Algae products

Algae have long been known in the Asian diet. A distinction is made between freshwater and seawater algae.

This coarse classification already results in substantial differences with regard to the analysis of ingredients and residues. The vast majority of freshwater algae, including Chlorella and Spirulina algae (where Spirulina is not an alga at all, but a filament-forming cyanobacterium) are now cultivated in aqua cultures. This reduces the risk of environmental contamination. The water quality is crucial. These products are often produced in countries where the drinking water quality at least fluctuates or where surface water is also used in algae farms. Therefore, it makes sense to examine the products for undesirable substances that could enrich the algae from the water during their growth:

Heavy metals (Pb, Cd, As, Hg)²⁾, Pesticide residues

After harvesting, these algae are usually dried, ground and offered as powder or extract. This gives rise to further risks:

Polyaromatic hydrocarbons (PAH)³⁾, Extraction solvent residues

In addition, in certain countries of origin, there are no more stringent hygiene standards to be expected, which increase the risk of microbial contamination.

Microbiological quality, Mycotoxins

In the case of high-quality, expensive and mostly ground natural products, there is always an increased risk of fraudulent manipulation („food fraud“), which can be effectively minimized by preventive analytical characterisation methods.

Authenticity proof (e.g. by chemical and/or genetic fingerprints)

For dried marine algae such as Kombu, Wakame and Nori, we recommend determining the iodine content

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Risks of possible radioactive contamination or other environmental contaminants such as dioxins, dl-PCBs and ndl-PCBs should also be considered.

All consumer information on the product composition (specification, MHD) should be analytically controlled and the legally compliant labelling of the commercial products should be regularly assessed.

Your plus - our know-how

Insect products

The insect burger recently hit the headlines. Some courageous people found the buffalo-worm paddy nutty and tasty. Others are already turning their stomach around at the thought of eating insects. However, in order to meet the world's increasing protein requirements in the future, also against the background of the climate-damaging production of meat, eating habits could change in the future.

In Europe, foods made from whole insects, insect parts or extracts have been approved under the Novel Food Regulation since 1 January 2018.

New analytical challenges arise not only for sensory perception, because in our culture there are hardly any concrete expectations of the typical taste and texture experience.

Insects (components) approved as novel food must first be tested for their safety in accordance with the regulations generally applicable to foodstuffs. However, in many cases there is no specific basis for assessment.

So far there is little scientific data available on the toxicological and microbiological safety of insects. In particular, possible risks from „new“ zoonotic pathogens, i.e. possible insect-specific bacteria, fungi or parasites, are largely unexplored.

Another potential hazard is possible allergies to certain insect proteins, for which there are hardly any scientific studies to date, let alone analytical tests or labelling requirements. In Asia, cases of anaphylactic shock after eating insects have been reported.

There is also hardly any experience with industrial production. What influence do certain feed constituents have on metabolic products? Which feedstuffs are approved at all? How do the „raw materials“ behave during further processing (extraction, drying) etc.?

We currently recommend the investigation of such products for:

- Microbiological parameters (analogous to crustaceae)
- Heavy metals (Pb, Cd, As, Hg, Cu, Zn)
- Pesticide residues
- Polycyclic aromatic hydrocarbons (PAH)
- Dioxins , dl- and ndl-PCBs
- Mycotoxins (Aflatoxins, DON/ ZEA)
- Nutritional values Big 8



LABORATORIES

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1) Verordnung (EU) 2015/2283 des Europäischen Parlaments und des Rates vom 25. November 2015 über neuartige Lebensmittel, zur Änderung der Verordnung (EU) Nr. 1169/2011 des Europäischen Parlaments und des Rates und zur Aufhebung der Verordnung (EG) Nr. 258/97 des Europäischen Parlaments und des Rates und der Verordnung (EG) Nr. 1852/2001 der Kommission
<https://eur-lex.europa.eu/legal-content/DE/ALL/?uri=CELEX%3A32015R2283>

2) Verordnung (EG) Nr. 1881/2006 der Kommission vom 19. Dezember 2006 zur Festsetzung der Höchstgehalte für bestimmte Kontaminanten in Lebensmitteln
<https://eur-lex.europa.eu/legal-content/DE/TXT/?uri=LEGISSUM%3A121113>

3) Verordnung (EU) 2015/1933 der Kommission vom 27. Oktober 2015 zur Änderung der Verordnung (EG) Nr. 1881/2006 hinsichtlich der Höchstgehalte an polyzyklischen aromatischen Kohlenwasserstoffen in Kakaofasern, Bananenchips, Nahrungsergänzungsmitteln, getrockneten Kräutern und getrockneten Gewürzen
<https://eur-lex.europa.eu/legal-content/DE/TXT/?uri=celex:32015R1933>