Algae as an enrichment of food diversity

Algae are used in a wide variety of foods. In addition to their high nutrient content, they can also contain substances that are harmful to health.

Date published online: 09/2023

Explainer videos

The media contribution was created by Clara Marx as part of her degree in Lebensmittel- und Gesundheitswissenschaften (Food and Health Sciences) (M.Sc.) at the University of Bayreuth for the Ernährungsradar project and is published online in the E-Tutor section. The video consists of her own film and image material. The video was animated by Anna Umnig as part of her studies in Lebensmittel- und Gesundheitswissenschaften (Food and Health Sciences) (M.Sc.) at the University of Bayreuth. Microsoft PowerPoint 365 was used as the software. Subtitles for the video are available in German and English and can be switched on and off via the YouTube settings.

English translation of the German explainer video transcript

Would you like to try a spirulina smoothie, or would you prefer seaweed crackers?

Algae are quite the trend. But what makes them so special and are they more than just a marketing tool?

Algae are frugal, they mainly need sunlight, water, and carbon dioxide to grow. They draw nutrients they need for growth from their environment. These growth conditions make them very attractive as a food source because they can be grown in a space-saving way and with comparatively few resources. They thus have a decisive advantage over other plants that are an integral part of our diet. They do not consume agricultural land, which is becoming increasingly scarce due to the growing world population. There are about 400,000 different species of algae, of which about 500 are used for human consumption and about 150 species are sold commercially. Pressed into sheets and wrapped around sushi, the red alga nori is probably one of the best-known algae. But other algae species such as chlorella, spirulina and co. are also entering the market as "superfoods". With good reason?

By superfoods we commonly mean products that are particularly healthy because of their nutrients.

In fact, some types of algae contain a lot of protein. The green microalgae chlorella, for example, contains up to 70 percent protein in its dry matter. The composition of its protein is also comparable to that of eggs. It contains all essential amino acids, i.e. all those that we humans do not produce ourselves and have to take in via food. If you want to know more about the composition of proteins and their availability for humans, take a look at our video on the subject. Spirulina also contains a lot of protein. Chlorella and spirulina belong to the so-called microalgae. They are classified in this group because they are so small that they cannot be seen with the bare eye. However, the algae that can be found in the sea or on the bottom of the nearest bathing lake contain significantly less protein. So, buy products from certified producers rather than go harvesting yourself.

Algae also contain many vitamins such as vitamin B1, B12, vitamin C and carotenoids. Some carotenoids are a precursor of vitamin A. Essential omega-3 fatty acids are also found in algae.

So instead of schnitzel, just seaweed salad?

Unfortunately, it's not that simple. In addition to the many health-promoting ingredients, algae also have ingredients that are rather harmful to our health in larger quantities. Seaweed in particular can contain very high amounts of iodine, which it draws from its environment. Our body needs iodine for the thyroid gland to function. It produces hormones and helps maintain our immune system. But too much iodine can disrupt its function. What is too much varies greatly from person to person. The German Nutrition Society recommends a maximum daily intake of 0.2 of iodine per day. Depending on the type of algae, this value is already exceeded with a consumption of only 20 mg of algae. Therefore, a tip: When buying algae products, make sure that the iodine content and the daily intake are labelled. If you are not sure about your iodine balance, ask your family physician at your next visit.

Algae that grow in the wild can also be contaminated with toxins and heavy metals. So again, it is better not to go algae fishing yourself, but rather to buy products from certified European traders.

Speaking of buying products: Where are algae found in the first place?

Algae have many uses in the food industry. Would you have thought that they are contained in puddings and ice cream? Their stabilising and gelling properties are used there, for example in the form of carrageenan. Perhaps some of you have heard of agar-agar. This is a vegan gelling agent made from algae that is an excellent substitute for animal gelatine. In the meantime, however, there are all kinds of products made with algae: From bread to spreads to crisps.

So, we can conclude:

Algae contain many important nutrients such as omega-3 fatty acids and vitamins, as well as a lot of protein. They need few resources to grow and can therefore be cultivated in a comparatively environmentally friendly way. However, algae obtained from the wild can unfortunately be contaminated with heavy metals and toxins. In addition, many algae contain large amounts of iodine, which is essential for our survival but can be harmful to health in high doses. It is therefore not possible in Germany to cover one's protein requirements with algae alone. For a healthy diet, however, the more varied the better. Algae can therefore enrich our diet and should no longer be missing from any kitchen.

Literature

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