

Seaweed: Should people eat more of it?

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BBC Food

Seaweed is unexploited in Western cuisine, new research says. But while it is popular in Asia, could it become a staple food elsewhere?

It has been eaten by coastal people since prehistoric times, and today 145 species of red, brown or green seaweed are used worldwide as food.

But modern Westerners have lost their appetite for the stuff.

"We've forgotten to eat seaweed," says physicist Prof Ole Mouritsen, from the University of Southern Denmark.

In China, Japan and Korea seaweed has for centuries formed part of the daily diet, and demand far outstrips supply.

In Japanese meals, more than 20 species are used - including a seaweed-based soup stock called "dashi" believed to contain chemicals forming the "fifth flavour" known as "umami".

But despite the West embracing sushi, its consumption of seaweed is "minimal", according to new research in the journal [Trends in Food Science and Technology](#).

That's because people don't like the idea of eating something washed up and smelling on the seashore, says Mouritsen.

"You wouldn't go to an orchard and eat the rotting food on the ground," he says, making an analogy.

But his [research](#) suggests that its time to embrace seaweed as an important food. "There's a whole world of algae out there that can be developed," he says.

There are around 10,000 species of macroalgae, and they are among the least studied groups of organisms.

UK waters hold about 630 species, but only around 35 have been used in cooking, so there is plenty of untapped potential, agrees trained chef and forager Fergus Drennan.

"If you were absolutely genius in the kitchen you could probably push that figure up to about 90," he says.

"We have a coastline that's almost as big as the coastline of Japan, which is the greatest seaweed-eating culture in the world... we've got as many varieties but we just don't use it."

Some traditional seaweed dishes have been preserved in the West, particularly in coastal areas such as California and Maine in the US, British Columbia and Nova Scotia in Canada, and in the cuisines of Brittany and Wales, where laverweed (*Porphyra*) is mixed with oats to make laverbread (bara lawr).

In Iceland dulse is eaten in dried form as a snack, and mixed in to salads, bread dough and curds, and in Ireland dillisk is also

eaten as a snack, while carrageen (Irish moss) is used for jellies and puddings.

But Prof Mouritsen advocates embracing seaweed via an emerging scientific discipline known as "gastrophysics", which deconstructs cooking and gastronomy.

Recently a [Sheffield Hallam University study](#) found seaweed can be used in bread as an alternative to salt.

Seaweeds contain natural antioxidants such as polyphenols, and have high levels of minerals such as calcium. They are high in both soluble and insoluble dietary fibres.

Seaweed protein content ranges from 7-35% of its dry weight, although some species like "nori" (*Porphyra spp*) contain as much as 47% protein.

But getting Westerners to eat more seaweed isn't straightforward.

The Cleggan Seaweed Company in Galway, Ireland produces flaked seaweed, harvesting and drying wild dillisk, kelp, sea spaghetti and carrageen.

It was sold in the high-end store Harvey Nichols until the artisan company could no longer keep up with demand.

But Cleggan Seaweed's Shane Forsythe says in Ireland seaweed is associated with poverty, making it a hard product to sell to the mainstream.

"The problem is... this learning curve of actually getting people to accept and buy the stuff," he says.

One way is to incorporate it in to "normal" foods, says Dr Craig Rose, executive director of the Seaweed Health Foundation. "It's very much about putting it into existing foods that people are used to, to enhance the flavour and enhance the nutrition."

Another is to use seaweed as fodder to grow other foodstuffs, such as shellfish, a technique advocated by the research published in Trends in Food Science and Technology.

Supplying enough edible seaweed is another issue. Most seaweed eaten in the UK is imported from Asia, says Dr Adam Hughes, lecturer in aquaculture at Scottish Association for Marine Science.

Homegrown seaweed is mostly gathered by hand. "If you're handpicking it there's only so much of a market you can supply," he says.

"It's weather dependent, it's seasonal, and businesses have problems meeting their demand from wild supply at the moment."

One option is to farm seaweed. As well as being hand-collected, seaweed can be grown on ropes or gathered by mechanical harvesters.

In Ireland, the seaweed industry is worth €18m (£14.7m) a year, according to the Bord Iascaigh Mhara, the Irish fishery board.

On the Galway coast, Forsythe's firm picks seaweed off the rocks at low tide. The dark seaweeds are dried out, and the carrageen is bleached in the sun until it turns a creamy-white colour.

"At the moment sea spaghetti is nice and young and it's tender," he says.

It's grown for speciality products including food and cosmetics, as well as "low value" products such as animal feeds, agricultural products, plant supplements and specialist fertilisers.

However, Hughes believes the edible seaweed business in the UK will never reach the same heights as in Asia, where in countries such as Indonesia, it has been farmed close to shore for years.

Also, some seaweed species aren't always as healthy as they might seem.

Hijiki is a seaweed variety containing high levels of inorganic arsenic. In the past, various authorities, including the Food Standards

Agency in the UK, have recommended not eating this particular variety, as inorganic arsenic has been linked to cancer.

Other seaweeds contain polysaccharides which can inhibit the digestion of proteins.

But generally "it's an extraordinarily nutritious source of food..." says Dr Rose, "and it has things in it that land plants don't have in the same levels or the same balance."

How much seaweed ends up on our plates, it seems, will be a matter of taste.



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