

Wonders from the Sea

By Tanya Triber

Chances are you haven't given much thought to sea vegetables lately. Indeed, the closest most of us come to adding seaweed to our diets is by occasionally dining out in Japanese and Chinese restaurants. The frequent spa-goer has likely experienced a detoxifying and slimming seaweed wrap, but for many, seaweed, kelp, spirulina, and chlorella are foods that other people eat. Unless you're throwing a sushi party, sea vegetables just don't make the weekly shopping list.



However, promising anti-cancer research and a phenomenal nutritional profile may change that. According to Dr. Gabriel Cousens at The Tree of Life Rejuvenation Center in Patagonia, Arizona, "[Seaweed] is one of the best mineral sources as a food that there is, as well as a powerful source of many nutrients, phyto-nutrients, protein [if you consider spirulina, chlorella, and Klamath blue-green algae], and chelators for toxins and radioactive elements." Indeed, researchers at McGill University in Montreal have shown that alginates, a complex-carbohydrate found in brown algae prevent the absorption of such toxic metals as cadmium, mercury, and plutonium as well as strontium-90 (the radioactive toxin known to cause bone and bone marrow cancer).

Consumed for centuries in Asian, Celtic, and Nordic cultures, seaweeds and other sea vegetables are slowly gaining much deserved attention and acclaim for their amazing health benefits. Commonly known by the Japanese names nori, kombu, wakame, arame, hijiki, and others, these unique foods are neither plant nor animal but are classified as algae and are harvested from marine salt water as well as fresh water lakes and seas. Though the nutritional content varies among the different

types of algae, all are high in trace minerals, such as iodine and potassium, as well as chlorophyll, beta-carotene, vitamins B1, B2, and B12, amino acids, and fiber.

Thanks to overly depleted soils and the less than impressive standard American diet, minerals are no longer abundant in land-grown foods. According to Cousens, "There are 72 biological minerals, many of which used to be found in deep, rich, native topsoils, but have been depleted through unnatural farming. Only around 23 of the 72 minerals are then renewed by fertilizer." Ria Holmgren, national seaweed trainer for Seaflora Wild Organic Seaweed Skincare adds, "Seaweed is ten to twenty times richer in trace minerals than any plants on land." And though we don't need large doses of these minerals, they are significant to our overall health. "Trace minerals are what enable enzymes to work," Cousens notes, "and enzymes catalyze reactions necessary for the building and functioning of every physiological system."

Is it possible to get too many minerals from algae? Although some may be concerned about getting too much sodium from seaweeds, Terry Shaw, nutritionist at Lake Austin Spa Resort notes, "Most of the sodium is on the surface of the sea vegetable, so it can be rinsed off, if desired." If you are sensitive to iodine, or are prone to iodine-induced goiter, stick with seaweed varieties that are low in iodine, including blue green algae, wakame, sargassum and nori, and avoid Icelandic, Norwegian, Atlantic, and Pacific kelps, all of which are high in iodine. Holmgren notes, however, that "one in six people suffer from iodine deficiencies around the world, hardly indicating an overage."

Often categorized by color—green, brown, red, and blue green—the various species of algae have different nutritional compositions and thus slightly different health benefits. For example, green algae or chlorophyta have more chlorophyll and protein than red or brown algae and contain all nine essential amino acids. Chlorophyta also boast significant amounts of iron, potassium, calcium, and vitamin C. Brown algae, or phaeophyta, contain chemicals called brown algae polyphenols, which have shown promise in protecting against and treating skin cancer caused by too much sun, according to research at Ohio State University's Comprehensive Cancer Center. High in fiber, phaeophyta are also gentle bulk laxatives, and have been shown to inhibit abnormal cell growths. In fact, Dr. Jane Teas at the Harvard School of Public Health has correlated the consumption of seaweed, especially kelp (brown algae) with a lower incidence of breast cancer in postmenopausal women in Japan. Rhodophyta, or red algae, have similar nutritional content to brown algae. Rich in vitamins and minerals, they were traditionally used to treat worms. Rhodophyta are also the source of carrageenan, a popular additive in food, health and beauty products, and more. Carrageenan has been used medicinally for millennia as treatment for sinus infections and other lingering respiratory ailments. In addition, scientists at the National Cancer Institute recently reported that carrageenan has been found to guard against HPV (human papillomavirus), a virus linked to cervical cancer.

Blue-green algae are not technically algae at all. They are classified rather as cyanobacteria or cyanophyta, and include spirulina and aphanizomenon flos-aquae (AFA), the latter of which is harvested from Upper Klamath Lake in Oregon. These "algae" have similar but distinct nutritional benefits as compared to true algae. Cyanophyta are high in protein and amino acids, carotenoids, minerals, chlorophyll, and omega-3 fatty acids. According to Cousens, "It is the only sea vegetable and plant source food outside of purslane that contains long chain omega-3 DHA and EPA." Blue green algae also contains phycocyanin, a natural anti-inflammatory and antioxidant that gives cyanophyta its remarkable hue. Additionally, cyanophyta have shown strong antiviral activity. Researchers at The National Cancer Institute have discovered that a protein specific to blue green algae, cyanovirin-N, effectively inhibits HIV infection of cells grown in the laboratory.

For vegans and vegetarians, algae are an almost essential food group. Consumption of spirulina and chlorella (a green algae) adds a boost of iron and non-animal protein to meatless diets, as well as providing selenium, a mineral essential to thyroid hormone metabolism that is easily absorbed from meat and eggs, but has few plant sources aside from Brazil nuts. Add to that the vegetarian omega-3s, phytonutrients, vitamins, and minerals available in algae and suddenly you have a very nutrient-dense food source. However, it's not just the impressive dietary value of these foods that counts, it is also the fact that the nutrients in algae "tend to be in a colloidal, or well-absorbed, form," says Shaw, making sea veggies an important part of a balanced diet.

If the thought of noshing on kelp makes you queasy, rest assured. There is a host of creative ways to add sea veggies and algae to your diet without diving in at the proverbial deep end. Shaw recommends soaking granulated kelp or hijiki flakes (found at health foods stores and Japanese markets) and then sprinkling them on other greens and vegetables. Cousens suggests soaking seaweeds to make a nutritional broth for soups or using spirulina and chlorella in conjunction with sea salt, olive or sesame oil, and herbs for a rich salad dressing. Ann Gentry proprietor of Real Food Daily in Santa Monica, California, and the author of the cookbook by the same name, advocates adding a three-inch piece of kombu to every pot of beans to make them easier to digest. Another source of sea veggie recipes is Cousen's book *Rainbow Green Live-Food Cuisine* (North Atlantic Books, 2003).

Not a cook? Then wildcrafted, organic, and raw supplements are your answer. They are available in tablet, capsule, or 'flake' form and can be found at many natural foods markets or online (see sidebar). Look for products that indicate that the algae were dried in raw (uncooked) form to ensure that none of the vital nutrients were lost. Holmgren says, "It's just like any food you eat, the more raw it is, the more you know you will get the full potential of the vitamins. Even better, make it organic and you can double or triple your nutrient intake." Additionally, whether you're shopping for the supplement or the food, it's important to know your source. Cousens says, "The source of the sea vegetables should be from an unpolluted area. They should be tested for heavy metals, pesticides, herbicides, etc. The

harvesting should be sustainable—so that the ecosystem is not depleted or harmed.”

Sea Salt

Another great source of trace minerals from the seas and oceans around the globe is sea salt. These natural crystalline seasonings provide many of the same trace minerals as seaweeds, providing a much healthier alternative to regular table salt. And, sea salts come in an amazing and gorgeous array of colors, including pink, red, black, grey, and more. Though they don't provide the vitamins, fiber, protein or other nutrients of algae, using sea salt is an easy and tasty way to add some essential trace minerals like magnesium and potassium to almost any meal. Found at many gourmet food shops, including Williams-Sonoma, they can be used in cooking or as a finishing salt at the table.