

Name

Station B

Bio II --- February 2012

There Is Algae in Your House!

Although fish and other seafood products make delicious, healthy meals for people all over the world, many American children would not mind if they never had to eat tuna casserole again. But they would mind if suddenly there were no more cheese, chocolate milk, peanut butter, pudding, frozen desserts and fruit drinks. What could such different foods have in common? Along with hundreds of other common foods and household items, they contain the protists known as seaweed.

Many kinds of seaweed are edible and rich in vitamins and iodine. They are as common in many Asian countries as green beans and carrots are in the United States. But until more people here develop a taste for sea vegetables, it is alginates, carrageenan, and beta carotene (seaweed products that act as stabilizers, thickeners, and colorants) that end up on our dining room tables.

Seaweeds are not really weeds but large forms of marine algae that grow in the coastal ocean waters of many countries. They include thousands of species ranging from microscopic plants called phytoplankton to giant floating or anchored plants.

The three main groups of seaweed are brown, red, and green algae. Each phylum provides important ingredients for the manufacture of food and other products.

Carrageenan, extracted from species of red algae, has been used as a stabilizing and gelling agent in foods such as chocolate, milk, instant puddings, frostings, and creamed soups. It is also used in cosmetics, pharmaceuticals, and industrial products.

Agar, made from red algae, is used to substitute gelatin, as an anti-drying agent in breads and pastry, and also for thickening and gelling. It is used in the manufacture of frozen dairy products, processed cheese, mayonnaise, puddings, creams, and jellies. A form of seaweed that has been dried and powdered to be used as a thickener in food. Traditionally used in Asia, it can be substituted for gelatin. It actually sets stronger than gelatin and does not require refrigeration to set up, so not as much of it is needed to achieve the required effect. It is often used in commercially produced ice cream as a thickener. This is the preferred thickener for vegetarians.

Alginates (Alginic acid) from brown algae thicken water-based products, also making them creamier and more stable over wide differences in temperature, pH, and time. A typical application is in preventing ice crystals from forming in ice cream. This chemical also is used as a stabilizer or emulsifier in a variety of products. This means they help liquids to stay mixed together without separating. Dressings, sauces, and beverages are important PGA applications. For sodium alginate the applications include cheese sauces, fruit fillings, instant flans and mousses, icings and glazes, and restructured foods such as onion rings, pimentos, and meats

Beta-Carotene, green algae's pigment, is used as a natural yellow-orange food colorant and may help prevent certain types of cancers.