TerranearPMC Safety Share

Week of November 7, 2016 – Carrageenans

Recently, I went to the refrigerator in our break room to look for some “half n’ half” to add to my morning cup of Joe. Upon opening the door I noticed two containers of almond milk; both with bold letters stating, “CARRAGEENAN FREE.” Carrageenan free? OK, so what’s that? I thought it might be something like gluten; that portion of grains, such as wheat, barley and oats that have recently received some serious criticism due to causing allergic reactions and dysfunction of the immune system (aka celiac disease). I’m sure we have all been to restaurants and health food stores where there are signs that boldly tout gluten-free products.

While gluten and carrageenan are “natural” ingredients, they are, by no stretch of the imagination, similar. Carrageenans are a family of linear sulphated polysaccharides (long-chained sugar molecules) that are extracted from red edible seaweeds. They are large, highly flexible molecules that curl, forming helical structures. This gives them the ability to form a variety of different gels at room temperature. As such, they are widely used in the food industry for their gelling, thickening, and stabilizing properties. Their main application is in dairy and meat products as they create strong binds to food proteins.

Carrageenans were introduced on an industrial scale in the 1930s and, while used in in foods, have no nutritional value. Typical products that use carrageenans as either a thickener or emulsifier to improve food texture include ice cream (dairy and non-dairy), yogurt, cottage cheese, soy milk and processed foods. Chocolate milk, deli meats, canned soup, frozen foods and baby formula also use carrageenans (and for all you Starbucks fans, check out the label on a can of Spiced Vanilla DOUBLE**SHOT**™!).

The actual word, carrageenan, comes from the Irish *carraigín*, meaning "little rock." This probably came about as historical records indicate that, as far back as 400 A.D., Irish moss was first used as an edible product. China began using a similar substance, *Gigartina* (a red marine algae), around 600 A.D. Today carrageenan is extracted from a red seaweed, Chondrus crispus, which is popularly known as Irish Moss.

Irish moss? Marine algae? Sounds pretty natural. One would expect this product in Natural Foods and Organic health stores throughout the country.

Although derived from a natural source, reports have suggested that carrageenans may have some properties that adversely affect the digestive system, which can trigger an immune response similar to that of such pathogens as Salmonella. The comparison to Salmonella may appear to be extreme; however modern research does indicate that carrageenan predictably causes inflammation, which can lead to ulcerations and bleeding. This food ingredient irritates by activating an immune response that triggers inflammation.

The concern over food-grade carrageenan isn't new. Beginning in the 1960s, researchers started linking carrageenan to gastrointestinal disease in lab animals, including ulcerative colitis, intestinal lesions, and colon cancer.

Carrageenan is commonly classified between two types: degraded and undegraded. From a chemical standpoint, the difference between these two types is in their molecular weight. From a

practical standpoint, undegraded carrageenan is approved for use in food products, while degraded carrageenan, often referred to as poligeenan, is not.

Most of the present health concerns stem from animal studies that implicate carrageenan in the formation of ulcerations and cancerous lesions in the colon. A review of these animal studies (published in 2001), while indicating evidence of serious human health effects, the majority of these animal experiments used poligeenan (degraded carrageenan – the type NOT approved for food use).

The USDA's National Organic Standards Board (NOSB) first approved carrageenan in the mid-1990s based research conducted by independent scientists that were funded by manufacturers and food processors. This past April, the NOSB conducted an initial review on whether or not carrageenan should continue to be used in organic food. After assessing written and oral public comments the NOSB plans to vote this November (that's this month!) to determine whether carrageenan should remain on the National List of substances allowed in organic food.

During the review process (April, 2016) several farmer and consumer groups testified that carrageenan does not meet the criteria defined in the Organic Foods Production Act, including essentiality and harm to human health. As such, there is a concerted effort to urge the NOSB to remove carrageenan from organic foods.

Meanwhile the carrageenan trade lobby group, United 4 Food Science, is taking an opposite stand, and is working with a number of food companies that make organic products that contain carrageenan. These organizations manufacture organic liquid infant formula (Similac) and vegan products (Follow Your Heart). However, there are other companies that, at one time, fought to continue using carrageenan, have since removed carrageenan from some or all of their products in response to consumer demand. These organizations include Group Danone (Stonyfield), CROPP (Organic Valley), WhiteWave (Horizon and Silk), Hain Celestial (Earth's Best, Rice Dream and Westsoy) and Smucker's (Santa Cruz Organics and R.W. Knudsen).

So this controversy is reaching its peak. However, it should be noted that the current battle of carrageenan will not determine whether it shall be banned in food products; only that it can or cannot be used in organic food products for the purpose of being listed as an organic product. The larger picture, of whether carrageenans cause adverse health effects seems to be a long way off, if, indeed, there will even be such a stage. Just because something is natural, does not automatically mean it is healthy. Radon and many mushrooms are quite poisonous and therefore, should be avoided. Quite possibly, as with so many products that are available to consumers, buying products that contain carrageenans, whether proven to be harmful or will never even make it to the FDA to be banned, we, as individuals, are fortunate, in this age, to do our own research and determine for ourselves, what foods we choose to eat and what foods we want to avoid.

Conformity is the jailer of freedom and the enemy of growth

John F. Kennedy