

Doubts surface about safety of common food additive, carrageenan



Sara Baker cooks dinner with her daughter Me

March 18, 2013 | By Monica Eng
[Chicago Tribune](#) reporter

Sara Baker says the light went on in her head after a cup of hot cocoa set off a storm in her stomach.

"I went back and looked at the package, and there it was: carrageenan," said Baker, a career services coordinator from Bloomington, in central Illinois.

Baker had been taking medication for ulcerative colitis for years but still suffered debilitating digestive flare-ups without warning. She had read warnings about carrageenan in a natural health newsletter but didn't take them seriously. After all, researchers haven't conclusively linked the common food additive to gastrointestinal problems in humans.

This time, though, "it really clicked," she said. "It took awhile to learn just how many things it's in, but now that know, I can avoid it, and I no longer have the problems."

Experiences like Baker's have led some people with gastrointestinal problems to sidestep mainstream medical advice and avoid carrageenan, a seaweed-derived texturizer found in meat, dairy and other processed foods — including some organic products.

For scientists, however, these are just anecdotes. Though studies on lab animals and human cells have suggested that carrageenan can cause gastrointestinal inflammation, many researchers and physicians say it's unclear whether the additive has the same impact on

people who consume it.

Scientists at the University of Illinois at Chicago and University of Chicago are seeking to address that question with a controlled clinical trial that Baker is participating in.

"I believe it's worth investigating and doing the science to find out," said Dr. Stephen Hanauer, a medical professor and chief of gastroenterology and nutrition at University of Chicago Medicine.

His co-researcher, UIC physician and professor Joanne Tobacman, has been looking at the health effects of carrageenan for more than a decade and is concerned enough to have petitioned the U.S. Food and Drug Administration in 2008 to prohibit the use of carrageenan in food.

Her petition cited decades of publicly funded, peer-reviewed science — including her own — on carrageenan-induced inflammation in animals and cells. In June, the FDA responded with a letter of denial. (My question why is our government taking 4 years to respond?)

Tobacman said "it was disappointing that, with such clear evidence about the effects of carrageenan on inflammation, the FDA did not restrict the use of carrageenan, particularly in infant formula." Europe doesn't allow the ingredient in formula.

The additive, which lends a uniform, creamy texture to food, can be found in soy milk, yogurt, ice cream, cheeses, some meats, diet soft drinks and even toothpaste.

Michael Adams, deputy director of the FDA's Office of Food Additive Safety, said the petition didn't make a compelling case to re-examine the safety of carrageenan. "It has been reviewed repeatedly by FDA scientists and other international organizations, and in the judgment of those experts there hasn't been a problem," he said.

Adams called a rat study from 2006 "the gold standard for us because it exactly mimics the exposure consumers are going to get when they eat these carrageenan-containing foods."

That study was funded and performed by a manufacturer of carrageenan. Adams said he didn't know that but added: "If you look at the science and you believe it's well done, it doesn't matter where the money comes from."

The Cornucopia Institute, a Wisconsin-based organic industry watchdog group, was expected to release a report Sunday night on carrageenan called "How a Natural Food Additive Is Making Us Sick."

Charlotte Vallaeys, Cornucopia's director of food policy, said the group felt "an ethical obligation" to raise awareness. "If government agencies weren't going to protect consumers, then it seemed we needed to let consumers know about this so they could protect themselves."

The institute also is challenging the FDA's denial of Tobacman's petition. Among other objections, Cornucopia's letter to the agency asks why officials didn't consider any studies on carrageenan published in the last four years.

Adams said the FDA's scientific evaluation in response to the petition was finished in May 2009, after which it spent more than three years in what he calls the "administrative chain."

Regarding infant formula, Adams said, Europe takes a different approach to food additives than the U.S., sometimes banning a substance when toxicity studies raise concerns but aren't conclusive. "The Europeans do their business that way, but we don't," he said. "We would base it more on the science we have rather than waiting for science to be developed."

While the Chicago researchers proceed with their work and advocates seek federal action, some consumers and activists have made an impact on their own by lobbying manufacturers directly to phase out the ingredient.

Last month **Stonyfield joined a number of manufacturers who have removed or have pledged to remove carrageenan from their organic products.** Organic Valley says it has removed the ingredient from most food items but is still working on reformulations for soy milk, chocolate milk and one version of its whipping cream.

A representative of the organic dairy company Horizon Organic and soy milk maker Silk (each majority-owned by Dean Foods) said both view carrageenan as safe and wouldn't comment on any plans to remove it.

The U.S. National Organic Standards Board reapproved the use of carrageenan in most organic foods last year but **decided to prohibit its use in organic infant formula.**

Carrageenan manufacturers, the FDA, the United Nations food additives committee and some scientists say it is safe, as evidenced by centuries of use.

Marinalg International, a Brussels-based trade association representing producers of carrageenan, notes in an online statement that the U.N. additives committee has approved the use of carrageenan without a specific limit — with the exception of infant formula.

Among the studies the panel looked at, Marinalg said, was "a valuable, scientifically critical literature review" of carrageenan by Drs. Samuel Cohen and Nobuyuki Ito. The fact that Marinalg **funded** the 2002 report didn't influence the "thorough and sound" review, according to Cohen, a physician and **professor** of medicine at the University of Nebraska.

James McKim, chief scientific officer at the toxicological research firm CeeTox Inc., said industry-funded science is not unusual and should be taken seriously. Marinalg **recently hired** McKim to review the last 30 years of carrageenan safety studies. His paper hasn't been published yet, but he says it will affirm carrageenan's safety.

The Tribune asked Marinalg and McKim if they were aware of any peer-reviewed scientific research that supported the safety of carrageenan but wasn't performed by industry-funded scientists. They agreed to look but provided no examples after three weeks. The Tribune made a similar request to the FDA, which also provided no immediate examples.

In 2001, Tobacman published a scientific review in a National Institute of Health journal

suggesting that consumption of carrageenan in lab animals was associated with "intestinal ulcerations" and tumors. She concluded that the "widespread use of carrageenan in the Western diet should be reconsidered."

Beyond the acute reaction it triggers in some, Tobacman said in a recent email, carrageenan may also promote low levels of chronic internal inflammation, a factor linked to common chronic disorders such as diabetes, atherosclerosis and arthritis.

Still, many gastroenterologists are not convinced carrageenan is dangerous.

"There are some studies in rats and mice showing that carrageenan exposure can lead to GI inflammation that mimics things like Crohn's" disease, said Dr. Sunanda Kane, a Mayo Clinic physician and medical adviser to the Crohn's and Colitis Foundation of America. "But it's never been shown on human tissue in humans walking around."

Over the last 50 years, incidence of inflammatory bowel disease has risen as people eat more processed food, Kane said. "But is it carrageenan or that we don't exercise or have lots of other additives and preservatives or fructose in our food supply?"

In Hanauer and Tobacman's study, people whose ulcerative colitis is in remission are being put on a carrageenan-free diet, then given either a controlled dose of carrageenan or a placebo.

So far, the research has been hampered by low volunteer rates — currently, fewer than 20 subjects. Hanauer notes that the prospect of re-inflaming one's inactive ulcerative colitis isn't particularly attractive.

But Baker, who was one of more than 120 people who responded when Cornucopia asked to hear from those with carrageenan-related digestive problems, said she was willing to go through it to help establish human science on the topic.

"I believe there are people who are as sick as I was, or even worse, who need this information," she said.