



BEYOND PESTICIDES

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April 26, 2012

National Organic Standards Board
Spring 2012 Meeting
Albuquerque, NM

Re. Comments on Carrageenan Sunset

Dear Board Members:

These comments are submitted on behalf of Beyond Pesticides. Beyond Pesticides, founded in 1981 as a national, grassroots, membership organization that represents community-based organizations and a range of people seeking to bridge the interests of consumers, farmers and farmworkers, advances improved protections from pesticides and alternative pest management strategies that reduce or eliminate a reliance on pesticides. Our membership and network span the 50 states and groups around the world.

We oppose the recommendation of the Handling Committee to list carrageenan on §205.605(b) and believe that the substance should be removed from the National List. We agree with the committee's reclassification of carrageenan as a synthetic. As we will explain below, this use does not meet the requirements of the Organic Food Production Act — carrageenan may have adverse effects on the health of consumers, its production results in adverse ecological impacts, there are alternatives to its use, and its use is inconsistent with a system of organic and sustainable production.

- 1. We agree with the Handling Committee's reclassification of carrageenan as a synthetic.** The recent TR (lines 387-388) says, "No information was found to indicate that any form of commercially-available carrageenan is extracted without chemical modifications."
- 2. Carrageenan may have adverse effects on the health of consumers.** We note that the Handling Committee's recommendation is silent on the issue of health effects. This is surprising, since the TR is quite clear about the impacts. After a discussion of the impacts of "degraded carrageenan," the TR (571-582) continues,

Today, both concern and debate exists over human health hazards from not only direct use of degraded carrageenan in foods, but also based on the idea that acid hydrolysis in the stomach following consumption of non-degraded carrageenan could result in formation of degraded carrageenan, which could then potentially promote colon cancer (Tobacman, 2001; Carthew, 2002). In 2001, Joanne K.

Tobacman published a review of 45 studies dated from 1969 through 1997, that showed that exposure to degraded and/or undegraded carrageenan was associated with intestinal lesions such as ulcerations and neoplasms in several different animal models, including ferret, guinea pig, monkey, mouse, rat, and rabbit (Tobacman, 2001). Animal studies published since 1997 that were not included in Tobacman's review have shown conflicting results. While some studies have verified that carrageenan is associated with induction or promotion of gastrointestinal tract inflammation, ulcerations and/or neoplasms in animal models (e.g., Benard et al., 2010 and human tissues (e.g., Borthakur et al., 2007; Bernard et al., 2010), other studies have contradicted this finding (e.g., *in vivo*: Weiner et al., 2007; and *in vitro*: Tobacman and Walters, 2001).

Even taking into account the two negative studies, this is a considerable weight of evidence of harm to humans from carrageenan. The standards of the Organic Foods Production Act are distinct from the Federal Food Drug and Cosmetic Act and the determinations of FDA, requiring that a hazard analysis be incorporated into a decision making process that is precautionary. The TR contains several cautions beyond the two studies cited above. "JECFA [Joint FAO/WHO Expert Committee on Food Additives] advised that carrageenan should not be used in infant formula intended for children under 13 months of age based on a concern over the narrow margin of exposure between the level of carrageenan consumed through infant formula and the lowest doses reported to cause inflammatory responses in laboratory rats and mice (Benford et al., 2008)." "[C]arrageenan has a high tendency to sequester metal ions such as arsenic, lead, zinc, and copper (Piculell, 2006)."

- 3. The production of carrageenan results in adverse ecological impacts.** Again, we are surprised that the Handling Committee made no mention of ecological impacts, since the TR went into such detail. Overharvesting of a cold water species of seaweeds used to make carrageenan resulted in a population crash of the wild species. Warm water species are cultivated and present "serious bio-invasive risks for nearby marine communities" —not only spreading beyond cultivation sites, but also smothering coral ecosystems and contributing to reef degradation. Other adverse impacts are detailed in the TR (469-551). Furthermore, "The industrial manufacture of carrageenan is a process that produces large amounts of alkaline waste water which may pose environmental problems." (TR 533-534)
- 4. Carrageenan is unnecessary.** The use of carrageenan is widespread, but that does not make it necessary. The TR lists a number of substitutes that "may be substituted for carrageenan to achieve a similar functionality when used either alone or in combinations." The Cornucopia Institute has surveyed organic products, and found that

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every product made with carrageenan can be made without it. Some people prefer food that has none of these materials.

- 5. The use of carrageenan is inconsistent with a system of organic production and handling.** Carrageenan is an unnecessary synthetic material. Volatile synthetic solvents are used in at least some of its manufacturing processes.(TR 287-294) Depending on the production method, it may contain residues of other synthetic materials including polysorbate 80 and epichlorohydrin. (TAP review pages 3, 4, 7) In some cases, it is used as a preservative. (TR 415)

Therefore, we ask that you reject the recommendation of the Handling Committee and remove carrageenan from the National List.

Thank you for this opportunity to comment.

Sincerely,



Terry Shistar, Ph.D.
Board of Directors