**Reply to NOSB on the petition for the addition of sulfuric acid to section 205.605**

**Summary of Proposed Action**

**The petition is for the listing of sulfuric acid on 205.605(b) for use as a processing aid in the production of a seaweed extract. Sulfuric acid is used as a pH adjuster in the extraction water for the production of seaweed extracts called fucoidans, which are used largely as ingredients in dietary supplements.**

**In reply to the Handling Subcommittee recommendations (Jan 9,2013)**

1. **Fucoidan is a naturally occurring sulfated polysaccharide found in brown seaweeds. Validated tests of the carbohydrate profile and molecular weight have shown that the fucoidan occurring in the seaweed is essentially identical to the material extracted using sulfuric acid. A low pH (2.5) is essential to reduce extraction of impurities and non-functional polysaccharides. Only a strong acid can achieve these conditions due to the buffering effects of the seaweed. This low pH has the added effect of destroying pathogenic micro-organisms, and is used in a manner directly analogous to the NOP approved use of sulfuric acid for pH adjustment of liquid fish products. The products extracted by this method exhibit high bio- activity, purity and stability and comply with HACCP, ISO9001 and GMP standards.**

**They are the only organic products of this type accepted in Europe, Asia and Australia. Extraction in the presence of other organic and/or mineral acids is inefficient and uneconomical and results, in some instances, in degraded or ‘synthetic’ extracts.**

1. **The seaweed extracts produced where sulfuric acid is used as a processing aid are used for human consumption. There is no residual sulfuric acid in the product, as verified by per-batch sulphate residue analysis. The sulfuric acid concentration used in the process is very low (<0.5%w/w) which is deemed non-hazardous according to the Australian National Occupational Health & Safety Commission (Safework 2010). During the process the acidic conditions are neutralised to form sulfate salts which are also deemed non-hazardous according to the Australian National Occupational Health & Safety Commission (Safework 2010). The neutralised effluent (containing sulfate salts) is recycled into horticultural products.**
2. **Fucoidan has been shown to impart therapeutic and health benefits such as cardiovascular function, immune support, viral inhibition and joint health and to promote skin care attributes such as anti-ageing and skin whitening. Research has shown that the benefits of fucoidan extend to inhibiting viruses such as influenza, HIV and Herpes.**
3. **Further to TR lines 268-269, it is noted that non synthetic sulfuric acid is not commercially available, however it should be noted that sulfuric acid is a naturally occurring substance, most commonly associated with volcanic activity, but also from natural degradation of humic substances. The production of commercial quantities of sulfuric acid impacts negatively on the environment, where 1 billion tonnes is produced annually worldwide. In contrast, the tiny quantity used by the petitioned process cannot have the slightest impact overall. When used in production the sulfuric acid is contained in a closed system and dosed automatically at <0.1% solution, and the product is neutralised. All the acid is converted to its salt and is then filtered and washed from the product. Extensive clinical trials have not shown any adverse effects on humans or animals from using this product and we have no evidence of negative health effects when properly used in production.**
4. **Sulfuric acid, in this proposal, is used in a manner directly analogous to the NOP approved use of sulfuric acid for pH adjustment of liquid fish products and is additionally fully neutralised to the salt form and all residues removed. This step complies with the NOSB Materials committee requirements (March 4 ,2011) for a synthetic residual “level without any technical and functional effects in the final material.” Similar approvals have been granted for the analogous usage of sulfuric acid in organic sugar and gelatin products as regulated by the EEC, IFOAM, the Codex Alimentarius Commission, AQIS and JMAFF.**

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