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Health Canada's Proposal to Enable the Use of a New Food Additive, Yeast Mannoproteins, to Inhibit Crystal Formation in Wine

Notice of Proposal – *Lists of Permitted Food Additives*

January 06, 2015

Bureau of Chemical Safety
Food Directorate
Health Products and Food Branch



Canada

Summary

Food additives are regulated in Canada under [Marketing Authorizations](#) (MAs) issued by the Minister of Health and the *Food and Drug Regulations*. Approved food additives and their permitted conditions of use are set out in the [Lists of Permitted Food Additives](#) that are incorporated by reference in the MAs and published on Health Canada's website. A petitioner can request that Health Canada approve a new additive or a new condition of use for an already approved food additive by filing a food additive submission with the Department's Food Directorate. Health Canada uses this premarket approval process to determine whether the scientific data support the safety of food additives when used under specified conditions in foods sold in Canada.

Health Canada received a food additive submission seeking approval for the use of yeast mannoproteins, at a maximum level of use of 0.04% (400 parts per million), to inhibit the formation of potassium bitartrate crystals in wine.

The results of Health Canada's evaluation of available scientific data support the safety and efficacy of yeast mannoproteins when used for this purpose. Therefore, it is the intention of Health Canada to modify the [List of Permitted Food Additives with Other Generally Accepted Uses](#) by adding an entry to this list as indicated below.

Proposed Modification to the *List of Permitted Food Additives with Other Generally Accepted Uses*

Item No.	Column 1 Additive	Column 2 Permitted in or upon	Column 3 Purpose of Use	Column 4 Maximum Level of Use and Other Conditions
Y.1	Yeast Mannoproteins	Wine	To inhibit crystal formation	0.04%

Rationale

Health Canada's Food Directorate has completed a pre-market safety and efficacy assessment of yeast mannoproteins when used as described in the table above. The assessment considered the toxicological, chemical, microbiological and technical aspects of the proposal.

Wine, in its normal state, is supersaturated with significant concentrations of potassium bitartrate. Potassium bitartrate can form crystals and precipitate from the wine during storage resulting in undesired sediment in the wine. Yeast mannoproteins stabilize these crystals during storage in order to prevent this phenomenon.

Potassium bitartrate crystals in wine do not pose a health risk. However, their presence affects the aesthetics and consumer acceptability of the wine. Enabling the use of yeast mannoproteins

would provide an efficient and cost effective alternative to other stabilization techniques currently available to the wine industry (e.g., cold stabilization or the use of metatartaric acid or sodium carboxymethylcellulose).

Mannoproteins are a large family of natural compounds found in the cell walls of baker's yeast (*Saccharomyces cerevisiae*). They consist of polysaccharide chains that are bound to proteins and peptides by covalent and non-covalent (i.e., ionic) linkages. The exact mechanism by which mannoproteins inhibit crystal formation in wine is unknown. However, it has been postulated that they attach to the developing tartrate crystals at the nucleation site, thereby preventing crystal growth, and resulting in mannoprotein-tartrate complexes which remain in solution in the wine.

It is known that mannoproteins naturally form in wine as a result of the yeast used during fermentation. However, the winemaking process does not allow sufficient time for the mannoproteins to reach levels that will prevent the precipitation of tartrate crystals. The amount of mannoproteins and tartrates naturally present in wine are factors in determining the amount of mannoproteins to be added.

The mannoproteins to be used in wine treatment are enzymatically extracted from non-genetically modified baker's yeast (*Saccharomyces cerevisiae*). Extraction is followed by multiple filtration steps and heat treatment.

Mannoproteins are a natural constituent of foods such as wine, beer, breads and pastries because of the yeast used to make these foods. They are also in yeast extract that is used as a food ingredient. As a result, yeast mannoproteins are already part of the Canadian diet. No toxicological, microbiological or allergenic food safety concerns for the additional use of mannoproteins, extracted from baker's yeast, in wine to prevent crystal formation were identified by Health Canada's safety assessment.

Based on the results of the safety assessment, Health Canada's Food Directorate considers that the data support the safety of yeast mannoproteins when used under the conditions set out in the table above. The Department is therefore proposing to enable the use of yeast mannoproteins as set out in that table.

Other Relevant Information

In the United States of America, a Generally Recognized as Safe (GRAS) notice for baker's yeast mannoprotein (GRN 000284) was submitted to the US Food and Drug Administration (FDA) for review on March 6, 2009. In a response letter dated August 28, 2009, the US FDA had no further questions regarding the petitioner's determination that its baker's yeast mannoprotein was GRAS for use as a stabilizing agent in wines, at levels ranging from 50 – 400 milligrams per litre (mg/L), to prevent tartaric acid precipitation.

Australia and New Zealand permit the use of yeast mannoproteins for wine stability treatment at a maximum level of 400 mg/kg (p.p.m.).

Yeast mannoproteins may be added to wines sold in the European Union to ensure tartaric and protein stabilization as authorized under oenological practices by Commission Regulation (EC) No 606/2009 (Annex 1A, point 35).

Yeast mannoproteins is not listed in the Codex General Standards for Food Additives (GSFA).

Implementation and Enforcement

The proposed changes will be effective the day on which they are published in the [List of Permitted Food Additives with Other Generally Accepted Uses](#). This will be announced via a Notice of Modification which will be published on the [Food and Nutrition - Public Involvement and Partnerships](#) section of Health Canada's Website.

The Canadian Food Inspection Agency is responsible for the enforcement of the *Food and Drugs Act* and its associated regulations with respect to foods.

Contact Information

For additional information or to submit comments related to this proposal, please contact:

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If communicating by e-mail, please use the words “**yeast mannoproteins**” in the subject line of your e-mail. Health Canada is able to consider information received by **March 21, 2015**, 75 days from the date of this posting.