

20 November 2023

Project Manager
Food Standards Australia New Zealand
PO Box 10559
The Terrace
Wellington 6143
NEW ZEALAND

Email: submissions@foodstandards.gov.au

Tēnā koe

Attached are the comments that the New Zealand Food and Grocery Council wishes to present on the *Call for submissions – Application A1278 Beta-Fructofuranosidase from GM Trichoderma reesei as a processing aid.*

Ngā mihi nui

A handwritten signature in blue ink, appearing to be "Raewyn Bleakley".

Raewyn Bleakley
Chief Executive



Call for submissions: Application A1278
Beta-Fructofuranosidase from GM
Trichoderma reesei as a processing aid

**Submission by the New Zealand Food and Grocery
Council**

20 November 2023

NEW ZEALAND FOOD AND GROCERY COUNCIL

1. The New Zealand Food and Grocery Council (**NZFGC**) welcomes the opportunity to comment on the *Call for submissions – Application A1278 Beta-Fructofuranosidase from GM Trichoderma reesei as a processing aid*.
2. NZFGC represents the major manufacturers and suppliers of food, beverage and grocery products in New Zealand. This sector generates over \$40 billion in the New Zealand domestic retail food, beverage and grocery products market, and over \$34 billion in export revenue from exports to 195 countries – representing 65% of total good and services exports. Food and beverage manufacturing is the largest manufacturing sector in New Zealand, representing 45% of total manufacturing income. Our members directly or indirectly employ more than 493,000 people – one in five of the workforce.

THE APPLICATION

3. AB Enzymes GmbH develops enzyme products for food, animal feed and technical application. It provides products in a range of compositions to enable manufacturers to select the enzyme solution that best fits their needs. AB Enzymes has applied have the Australia New Zealand Food Standards Code (the Food Standards Code) amended to permit the enzyme beta-fructofuranosidase to be used as a processing aid. The enzyme is sourced from a genetically modified (**GM**) strain of *Trichoderma reesei* (**T. reesei**) containing the beta-fructofuranosidase gene from *Aspergillus niger* (**A. niger**). The enzyme is proposed to be permitted as a processing aid for the production of short-chain fructooligosaccharides (**scFOS**) and to produce a reduction in sugar (sucrose) levels in treated fruit and vegetable products.

COMMENTS

Assessment by Food Standards Australia New Zealand (FSANZ)

4. FSANZ addressed health and safety concerns in its risk assessment covering:
 - a characterisation of the transferred genetic material, its origin, function and stability in the genome
 - characterisation of novel nucleic acids and protein in the whole food
 - detailed compositional analyses
 - evaluation of intended and unintended changes
 - assessment of the potential for any newly expressed protein to be either allergenic or toxic in humans.
5. FSANZ has already assessed the safety of *T. reesei* strains (including that derived from QM6a as the host organism as is the case here) for a number of enzymes approved for use as processing aids in Schedule 18. The production strain *T. reesei* AR-996 has been derived from a safe strain lineage. There is a long history of safe industrial use of *T. reesei* as a safe production of enzymes for food as well as feed processing and numerous other industrial applications. The data provided in the application shows that *T. reesei* AR-996 is safe to use as the production organism for beta-fructofuranosidase enzyme. *T. reesei* QM6a strains are non-pathogenic, not known to possess any virulence factors associated with colonisation or disease, and do not present any human toxicity concerns.
6. The long history of safe use of *T. reesei* as a production microorganism of enzyme processing aids has resulted in several that are already permitted in the Code. The production organism is neither pathogenic nor toxigenic. Analysis of the genetically modified production strain confirmed the presence and stability of the inserted DNA.

-
7. A synthetic beta-fructofuranosidase gene from *A. niger* was constructed using polymerase chain reaction (PCR). *A. niger* also has a long history of safe use for industrial and food applications.
 8. FSANZ considered that there did not appear to be a history of safe use for the specific beta-fructofuranosidase that is the subject of this application. However, AB Enzymes has indicated in its application to FSANZ that dossiers on the beta-fructofuranosidase enzyme had been submitted in Brazil, Canada, Denmark, the EU and USA, with plans to also make submissions in China, Indonesia, South Korea and Thailand.
 9. Multiple beta-fructofuranosidase enzymes from other microbial sources are currently permitted as processing aids in Schedule 18 of the Code and/or in other countries. In relation to the potential for allergenicity, FSANZ advises that based on the available information, the beta-fructofuranosidase enzyme is not expected to pose a food allergenicity concern.
 10. The estimate of the theoretical maximum daily intake (**TMDI**) undertaken by AB Enzymes and FSANZ are likely overestimates of the dietary exposure given the conservatism in the methods both used. FSANZ advises that if any inactivated enzyme remains after processing, it would be present in insignificant quantities and perform no function in the final food.
 11. FSANZ concludes that no public health and safety concerns were identified in the assessment of beta-fructofuranosidase produced by GM *T. reesei*.
 12. In light of FSANZ's conclusion on safety, and that the increase in the range of such processing aids increases choice for industry and competition amongst suppliers to maintain price pressure, NZFGC agrees with FSANZ that the enzyme beta-fructofuranosidase from GM *T. reesei* containing the beta-fructofuranosidase gene from *A. niger* as a processing aid for a specific technological purpose be permitted for use in the Australia-New Zealand food supply.