Health Canada Santé Canada

NATURAL HEALTH PRODUCT

PREBIOTICS

This monograph is intended to serve as a guide to industry for the preparation of Product Licence Applications (PLAs) and labels for natural health product market authorization. It is not intended to be a comprehensive review of the medicinal ingredients.

Prebiotics are defined by their ability to selectively feed beneficial gut microbiota to confer a health benefit, not by being a fibre itself. It is important to note that some prebiotics **are not** fibres.

i.e., Not all prebiotics contain fibre and not all fibres are prebiotics.

Notes

- Text in parentheses is additional optional information which can be included on the label at the applicant's discretion.
- The solidus (/) indicates that either term and/or statement may be selected on the label.
- This monograph may be used to support single ingredient products or multi-ingredient products containing a medicinal ingredient from Table 1. Combination restrictions are described in the 'Combination rules' section.
- This monograph is intended to support prebiotic claims for the listed medicinal ingredients under specified conditions of use. Certain listed ingredients may also be eligible for fibre-content claims, where applicable. Prebiotic and fibre-content claims are distinct concepts and are assessed independently. Not all fibres qualify as prebiotics, and a fibre-content claim must not be represented or implied as a prebiotic effect (and vice versa).
- Refer to **Appendix I** for the definitions of prebiotics, both internationally and domestically, and for the additional considerations applied by the Natural and Non-prescription Health Products Directorate (NNHPD) when establishing evidence requirements.

Restrictions when this monograph is combined with other monographs (Class II and III applications):

The following combinations are not acceptable as Class II applications. These products may be submitted as a Class III application with supporting evidence.

- Inulin and/or FOS – with invertase
- GOS – with lactase or alpha-galactosidase
- XOS – with hemicellulase or xylanase
- 2'-Fucosyllactose and/or Lacto-N-neotetraose – with lactase
- Acacia gum – with any digestive enzymes

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Proper name(s), Common name(s), Source information

Table 1. Proper name(s), Common name(s), Source information

Proper name(s)[1]	Common name(s)[1]	Source information[1]		
		Source ingredient(s)	Source material(s)	Part(s)
Acacia	• Acacia • Acacia gum • Gum arabic	N/A	• *Senegalia senegal* • *Vachellia seyal*	Gum
Fructooligosaccharides (FOS)	• Fructooligosaccharides • Oligofructose	N/A	*Cichorium intybus*	Root
		N/A	*Helianthus tuberosus*	Tuber
Short-chain fructooligosaccharides (scFOS)	Short-chain fructooligosaccharides	Short-chain fructooligosaccharides	N/A	N/A
Inulin	Inulin	N/A	*Cichorium intybus*	Root
		N/A	*Helianthus tuberosus*	Tuber
		N/A	*Agave tequilana*	Stem and base leaves
Transgalactooligosaccharides (GOS)	• Transgalactooligosaccharides • Galactooligosaccharides	Transgalactooligosaccharides	N/A	N/A
Xylooligosaccharides (XOS)	Xylooligosaccharides	N/A	*Zea mays*	Cob
		Xylooligosaccharides	N/A	N/A
alpha-L-Fucopyranosyl-(1→2)-beta-D-galactopyranosyl-(1→4)-D-glucose	2'-Fucosyllactose	2'-Fucosyllactose	N/A	N/A
		N/A	*Escherichia coli*	Whole cell for biosynthesis
O-beta-D-Galactopyranosyl-(1→4)-O-2-(acetylamino)-2-deoxy-beta-D-glucopyranosyl-(1→3)-O-beta-D-galactopyranosyl-(1→4)-D-glucose	Lacto-N-neotetraose	Lacto-N-neotetraose	N/A	N/A
		N/A	*Escherichia coli*	Whole cell for biosynthesis

[1] At least one of the following references was consulted per proper name, common name, and source information: NHPID 2026; HC 2025; USDA 2025; Barkeer et al. 2024; Eveleens Maarse et al. 2024; Bongartz et al. 2022; USP 2022; Jarrar et al. 2021; Kaddam et al. 2019; Mariod 2018; Babiker et al. 2017; CFIA 2016; Gardner and McGuffin 2013; Jensen et al. 2013; Calame et al. 2008; IOM 2005; Cherbut et al. 2003; Facciola 1998.

Route of administration

Oral

Dosage form(s)

This monograph excludes foods or food-like dosage forms as indicated in the Compendium of Monographs Guidance Document.

Acceptable dosage forms for oral use are indicated in the dosage form drop-down list of the web-based Product Licence Application form for Compendial applications.

Use(s) or Purpose(s)

Refer to Tables 2.1 to 2.3 below.

Dose(s)

Subpopulation(s)

Adults 18 years and older

Quantity(ies)

Table 2.1. Prebiotic and growth of healthy bacteria uses or purposes, and associated dose information (grams) per day

Uses or Purposes[1]	Medicinal ingredients	Doses/day[2]
• A source of prebiotic(s). • Helps stimulate the growth of healthy bacteria (such as bifidobacteria) in the intestine/gut.	Inulin	5 – 15 grams
	Acacia	10 – 20 grams
	Fructooligosaccharides (FOS) and/or Short-chain fructooligosaccharides (scFOS)	2.5 – 15 grams

Uses or Purposes[1]	Medicinal ingredients	Doses/day[2]
• A source of prebiotic(s) that help(s) support/maintain a healthy digestive system.	Transgalactooligosaccharides (GOS)	2 – 15 grams
	Xylooligosaccharides (XOS)	1.4 – 8 grams
	2'-Fucosyllactose	10 – 20 grams
	2'-Fucosyllactose + Lacto-N-neotetraose[3]	

[1] References consulted for the uses or purposes: Lee et al. 2024; Looijesteijn et al. 2024; Van Harsselaar et al. 2024; Jackson et al. 2023; Parker et al. 2023; Wilson et al. 2021; Vulevic et al. 2018; Hong et al. 2017; Elison et al. 2016; Ramnani et al. 2015; Finegold et al. 2014; Holscher et al. 2014; Xiao et al. 2012; Marteau et al. 2011; Ramnani 2010; Calame et al. 2009; Silk et al. 2009; Na and Kim 2007; Roberfroid 2007a,b; Bouhnik et al. 2006; IOM 2005; Bouhnik et al. 2004; Cherbut et al. 2003; Menne et al. 2000; Bouhnik et al. 1999; Iino et al. 1997; Gibson et al. 1995; Tamai et al. 1992.
[2] References consulted for the doses: Lee et al. 2024; Looijesteijn et al. 2024; Van Harsselaar et al. 2024; Jackson et al. 2023; Parker et al. 2023; Jarrar et al. 2021; Wilson et al. 2021; Kaddam et al. 2019; Vulevic et al. 2018; Babiker et al. 2017; Hong et al. 2017; Elison et al. 2016; Hernandez-Gonzalez et al. 2016; Ramnani et al. 2015; Childs et al. 2014; Finegold et al. 2014; Holscher et al. 2014; Xiao et al. 2012; Calame et al. 2009; Glover et al. 2009; Silk et al. 2009; Kolida and Gibson 2007; Kolida et al. 2007; Na and Kim 2007; Bouhnik et al. 2006; IOM 2005; Bouhnik et al. 2004; Cherbut et al. 2003; Menne et al. 2000; Bouhnik et al. 1999; Coussement 1999; Iino et al. 1997; Tamai et al. 1992.
[3] For products containing 2'-fucosyllactose (2'-FL) in combination with lacto-N-neotetraose (LNnt), the prebiotic/growth of healthy bacteria uses or purposes are supported only when the combined daily intake of 2'-FL and LNnt is 10-20 grams and the 2'-FL:LNnt ratio is between 2:1 and 4:1 (Iribarren et al. 2020, 2021; Elison et al. 2016).

Fibre-related claims

Table 2.2. Fibre and digestive health uses or purposes, and associated dose information (grams) per day

Uses or Purposes[1, 3]	Medicinal ingredients	Doses/day[2]
• Source of fibre (for the maintenance of good health). • Source of fibre that helps support/maintain a healthy digestive system. • Fibre supplement (for the maintenance of good health). • Source of fibre that helps support/promote digestive regularity (as part of a fibre-containing diet).	Inulin	2 – 15 grams
	Acacia[4]	2.5 – 20 grams
	Fructooligosaccharides (FOS)	2 – 15 grams
	Short-chain fructooligosaccharides (scFOS)	2 – 15 grams
	Transgalactooligosaccharides (GOS)	2 – 15 grams
	Xylooligosaccharides (XOS)	2 – 8 grams

[1] References consulted for the uses or purposes: HC 2025; CNF 2024; FCC 2024; Calame et al. 2009; IOM 2005; Cherbut et al. 2003.

[2] References consulted for the doses: HC 2025; CNF 2024; Jarrar et al. 2021; Kaddam et al. 2019; Babiker et al. 2017; Canfora et al. 2017; Childs et al. 2014; Calame et al. 2009; Glover et al. 2009; IOM 2005; Cherbut et al. 2003; Menne et al. 2000; Coussement 1999.
[3] The claim "source of fibre" may be further qualified on the label, as applicable. Products providing at least 4 grams of fibre per day may use the additional qualifier "**High** source of fibre" on the label, while products providing at least 6 grams of fibre per day may use "**Very high** source of fibre". These thresholds were adapted from Health Canada's food labelling approach and applied within the NHP framework, where products are evaluated based on the recommended daily dose (HC 2025).
[4] The minimum dose of acacia was adjusted to 2.5 g as acacia contains around 80% fibre (2.5 g of acacia would provide 2 g of fibre).

Table 2.3. Gentle relief of constipation use or purpose, and associated dose information (grams) per day

Use or Purpose[1]	Medicinal ingredients	Doses/day[1]
Helps provide (gentle) relief of constipation and/or irregularity	Inulin sourced from *Cichorium intybus* and/or *Helianthus tuberosus*	10 – 15 grams
	Inulin sourced from *Agave tequilana*	7.5 – 15 grams
	Fructooligosaccharides (FOS) and/or Short-chain fructooligosaccharides (scFOS)	10 – 15 grams

[1] References consulted for the use or purpose and doses: Watson et al. 2019; Buddington et al. 2017; Micka et al. 2017; Meksawan et al. 2016; Holscher et al. 2014; Marteau et al. 2011; Yen et al. 2011; IOM 2005; Chen et al. 2000.

Notes

- The claims from Table 2.1. can be combined on the product label (e.g., A source of prebiotic which helps stimulate the growth of healthy bacteria (such as bifidobacteria) in the intestine).
- The claims from Table 2.2. and 2.3 can also be combined; however, it is recommended to keep claims from Table 2.1 separate from the other claims on the label to avoid any misinterpretation or implied links between the effects.
- The terms 'Helps' or 'Helps to' can be used interchangeably on the label.

Direction(s) for use

All products except those containing 2'-Fucosyllactose alone or in combination with Lacto-N-neotetraose

- Take with at least 250 mL of liquid (Daley and Shreenath 2025; IOM 2005; Wardlaw 1999).
- Maintain adequate fluid intake (Daley and Shreenath 2025; IOM 2005; Wardlaw 1999).
- Take a few hours before or after taking other medications or health products (IOM 2005; Wardlaw 1999).

Powder dosage forms

- (Thoroughly) Mix product in at least 250 mL of liquid immediately before consumption (Daley and Shreenath 2025; IOM 2005; Wardlaw 1999).
- Maintain adequate fluid intake (Daley and Shreenath 2025; IOM 2005; Wardlaw 1999).
- Take a few hours before or after taking other medications or health products (IOM 2005; Wardlaw 1999).

Products containing inulin or fructooligosaccharides (FOS) (optional)

To minimize gastrointestinal side effects, take in divided doses with meals (Schaafsma and Slavin 2015).

Products containing inulin, fructooligosaccharides (FOS) or Short-chain fructooligosaccharides (scFOS) for constipation/irregularity

Start at a lower dose and increase gradually to the recommended daily dose or until the desired effect is obtained.

Combination rules

- The total amount of a combination of 2 or more medicinal ingredients from Table 1 must not exceed 15 g per day and the amount of the medicinal ingredient XOS must not exceed 8 g per day.
- The claims listed in Table 2.2. can be supported by a combination of the supporting medicinal ingredients if the total amount meets a minimum of 2 g per day. Note that only 80% of the daily dose of acacia gum should be included in the calculation.

Duration(s) of use

Products providing more than 10 g acacia, per day

Ask a health care practitioner/health care provider/health care professional/doctor/physician for use beyond 12 weeks (Jarrar et al. 2021; Kaddam et al. 2019; Babiker et al. 2017; Glover et al. 2009).

Products providing up to 4 g xylooligosaccharides (XOS), per day

Ask a health care practitioner/health care provider/health care professional/doctor/physician for use beyond 8 weeks (Sheu et al. 2008; Tateyama et al. 2005).

Products providing more than 4 g xylooligosaccharides (XOS), per day

Ask a health care practitioner/health care provider/health care professional/doctor/physician for use beyond 3 weeks (Childs et al. 2014).

Risk information

Caution(s) and warning(s)

Products containing inulin for constipation/irregularity

Ask a health care practitioner/health care provider/health care professional/doctor/ physician if symptoms persist or worsen.

Contraindication(s)

Products containing inulin for constipation and/or irregularity

Do not use if you have fever or any undiagnosed gastrointestinal trouble (HC 2009).

Known adverse reaction(s)

Products containing inulin, fructooligosaccharides (FOS), or transgalactooligosaccharides (GOS)

Stop use if hypersensitivity/allergy occurs (Lee et al. 2020; Brinker 2010; Hendler and Rorvik 2008; Franck et al. 2005; Gay-Crosier et al. 2000).

Products providing 5 g or more inulin, fructooligosaccharides (FOS) or short-chain fructooligosaccharides (scFOS) per day

When using this product you may experience temporary gas and bloating (Mysonhimer and Hoslcher 2022; Ramnani et al. 2015, 2010; Schaafsma and Slavin 2015; Holsher et al. 2014; Marteau et al. 2011; Bonnema et al. 2010; Bruhwyler et al. 2009; Bouhnik et al. 2007, 2006; Kolida and Gibson 2007; Menne et al. 2000; Coussement 1999).

Non-medicinal ingredients

Must be chosen from the current Natural Health Products Ingredients Database (NHPID) and must meet the limitations outlined in the database.

Storage conditions

Must be established in accordance with the requirements described in the *Natural Health Products Regulations*.

Optional

Store in a cool, dry place. Keep tightly closed.

Specifications

- Isolates of inulin, fructooligosaccharides (FOS), short-chain fructooligosaccharides(scFOS), transgalactooligosaccharides (GOS) and xylooligosaccharides (XOS) are acceptable provided that the quantity listed on the PLA and label represents the declared active oligosaccharide/fructan content (dry basis) only.
- Isolates of acacia gum are acceptable provided that the quantity listed on the PLA and label represents the acacia gum preparation and that it contains not less than 80% fibre (dry basis).
- Preparations of inulin (native inulin-type fructans), including preparations of inulin with a degree of polymerization (DP) ≥ 2 and ≤ 60, preparations of FOS/oligofructose with a DP of ≥ 2 and ≤ 10, and preparations of scFOS with a DP ≥2 and ≤5 are considered acceptable.
- Preparations of GOS with a DP of ≥2 and ≤9 are considered acceptable, with the majority between 3 and 5. Preparations with a higher DP are not considered to be captured by this monograph.
- Preparations of XOS consisting of linear β-(1 →4) linked xylose oligomers are considered acceptable. Preparations of arabinoxylan-oligosaccharides (AXOS) (i.e. xylose backbone with arabinose side chains) are not considered to be captured by this monograph.
- The finished product specifications must be established in accordance with the requirements described in the NNHPD Quality of Natural Health Products Guide.
- The medicinal ingredient must comply with the requirements outlined in the NHPID.
- Validated analytical methods for determining oligosaccharide amounts can be used (i.e., can be developed by the manufacturer), and can include but are not limited to HPLC (High-Performance Liquid Chromatography), LC-MS (Liquid Chromatography-Mass Spectrometry), and SEC (Size Exclusion Chromatography).
- Enzymatic-gravimetric methods are not generally suitable on their own for the accurate quantification of low molecular weight oligosaccharides. Analytical methods for determining fibre amounts are available in the Policy for Labelling and Advertising of Dietary Fibre-Containing Food Products.

Regarding risk information:

- If any ingredient in the product (e.g., GOS) has come into contact with a priority allergen or derivative (e.g. milk) (list available at: https://www.canada.ca/en/health-canada/services/food-nutrition/food-safety/food-allergies-intolerances/food-allergies.html), one of the following risk statements must be included on the product label (Consult the Guidance Document, Labelling of Natural Health Products for more details):
    - **Allergen: XXX** OR
    - **(May) contain(s)** XXX

- In addition to allergen labelling requirements, certain ingredients may inherently contain residual constituents as a result of their manufacturing process. Where applicable, non-allergen-related disclosures (e.g., intolerance-related statements or ingredient composition disclosures) may be included on the product label:

Products providing 2'-fucosyllactose or Lacto-N-neotetraose

- **(May) contain(s)** (small amounts of) lactose.

Products providing transgalactooligosaccharides (GOS)

- **(May) contain(s)** (small amounts of) lactose and/or sugar/glucose.

EXAMPLE OF PRODUCT FACTS:

Consult the Guidance Document, Labelling of Natural Health Products for more details.

Product Facts
Medicinal ingredient in each scoop Fructooligosaccharides (*Cichorium intybus* – root) XX g
Uses • A source of prebiotic. • Helps stimulate the growth of healthy bacteria in the intestine. • A source of prebiotic that help maintain a healthy digestive system.
Warnings
If applicable[1]: **Allergens: food allergen, gluten (gluten source), sulphites** **Contains aspartame**
When using this product you may experience temporary gas and bloating.[2]
Stop use if allergy occurs.
Directions Adults 18 years and older: • Take X scoop(s), X time(s) per day • Mix product in at least 250 mL of liquid immediately before consumption[3] • Maintain adequate fluid intake • Take a few hours before or after taking other medications or health products • To minimize gastrointestinal side effects, take in divided doses with meals.[4]
Other information (Add storage information)
Non-medicinal ingredients List all NMIs
Questions? (Call) 1-XXX-XXX-XXXX

[1] This section can be removed from the table if the product contains no allergen or aspartame.
[2] Products providing 5 g or more fructooligosaccharides, per day.
[3] For powder dosage forms.
[4] Optional.

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APPENDIX I – INTERNATIONAL AND DOMESTIC PREBIOTIC DEFINITIONS AND CONSIDERATIONS

Various definitions and considerations for prebiotics are available in the scientific and regulatory literature. The following is provided as background for future refinement of the product class's definition and regulation in Canada.

The International Scientific Association for Probiotics and Prebiotics (ISAPP) prebiotic definition is described as follows:

- "A substrate that is selectively utilized by host microorganisms conferring a health benefit".

(Hutkins et al. 2025; Gibson et al. 2017)

The ISAPP definition has also been adopted by the International Probiotics Association (IPA 2025), which has published a narrative scientific review on prebiotic history, challenges, and proposed standards (Saville et al. 2025). Notably and importantly, this includes five recommendations for prebiotic characteristics:

- "The first characteristic is that the prebiotic compound should be resistant to digestion by the host; a prebiotic must reach the site of action intact."
- "The second characteristic for a prebiotic is that they should not be absorbed within the GI tract, so that they will remain available for selective utilisation by the gastrointestinal microbes."
- "The third characteristic for a prebiotic relates to its fermentability, and the fourth (related) characteristic implies that microbial fermentation must be selective."
- "The last characteristic requires that the product must have positive physiological effects, i.e. a prebiotic compound must be delivered in a sufficient/appropriate dose to elicit a physiological benefit (i.e. promote health)."

(Saville et al. 2025)

For clarity, the NNHPD recommends the ISAPP definition and IPA characterization of prebiotics be followed. The NNHPD intends to uphold the notions of selectivity (i.e., increasing beneficial bacterial levels with limited/no growth of problematic/pathogenic bacteria) and beneficial physiological effects (based on human clinical evidence) in all prebiotic products.

However, the NNHPD's approach to evidence requirements is also risk-based as outlined in the Pathway for Licensing Natural Health Products Making Modern Health Claims guidance document. This approach means that low-risk prebiotic products do have a specific set of minimum requirements that would potentially not meet ISAPP's defined criteria of controlled, well-conducted trials. Medium- and high-risk prebiotic product use scenario evidence requirements are considered to align with the ISAPP definition's criteria and the IPA characterization requirements, however.

The NNHPD's approach to low-risk minimum evidence requirements for prebiotics includes corroborated preliminary scientific findings (e.g. two pilot or open-label well conducted human clinical trials). This amounts to a scientific **likelihood** of effect that is derived from small sample sizes and potentially uncontrolled data. Under low-risk requirements and based on the accumulated evidence, a significant **beneficial** shift to the microbiota composition is considered

to be consistent with general physiological benefits inherent to a prebiotic compound's effects. This includes helping support and maintain a healthy digestive system (e.g., microbiota utilization of the prebiotic leads to fermentation and production of metabolites that are known to influence gut function by supporting normal bowel movements and promoting a favourable gut environment).

Overall, this means that demonstration of a significant and selective beneficial shift to the microbiota composition can be considered sufficient evidence of a beneficial physiological effect in low-risk scenarios for claims such as 'Source of Prebiotics' (e.g., supported by human clinical evidence from two pilot studies or open-label well conducted human clinical trials). These minimum evidence requirements were obligatorily applied in the creation of this monograph as the ingredients and prebiotic claims are considered low-risk as per the Pathway for Licensing Natural Health Products Making Modern Health Claims guidance document.

Considering the difference between NNHPD's low-risk minimum requirements and ISAPP's criteria, it is also recognized that the term "prebiotic" is used variably across the global marketplace and the scientific literature. Some publications, such as that from the Global Prebiotic Association (Deehan et al. 2024), use broader definitions that don't put as much weight on "selectivity" as the ISAPP definition does. While NNHPD does not currently apply these broader definitions, they are considered indicative of a need for continued discussion.

Given this, the NNHPD re-iterates that it currently intends to follow the ISAPP definition of a prebiotic as best possible, including within the limitations of pre-existing Canadian guidance for low-risk products. The NNHPD will continue to monitor the literature for future developments.

Version History

Publication date	Update type	Summary of main updates
2026-04-24	Initial release	–