codex alimentarius commission

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

WORLD HEALTH ORGANIZATION

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**Agenda Item 3** **CX/NFSDU 05/27/3**
**September 2005**

**JOINT FAO/WHO FOOD STANDARDS PROGRAMME**

**CODEX COMMITTEE ON NUTRITION AND FOODS FOR SPECIAL DIETARY USES**
**Twenty-seventh Session**

**Bonn, Germany, 21 - 25 November 2005**

# GUIDELINES FOR THE USE OF NUTRITION CLAIMS: DRAFT TABLE OF CONDITIONS FOR NUTRIENT CONTENTS (PART B COTAINING PROVISIONS ON DIETARY FIBRE)

- ***Comments at Step 6 of the Procedure –***

**Comments from:**

**ARGENTINA**
**AUSTRALIA**
**BRAZIL**
**INDIA**
**MEXICO**
**NEW ZEALAND**
**UNITES STATES OF AMERICA**
**VENEZUELA**

**AAC – Association des amidonneries de céréales de I'UE**
**IADSA – International Alliance of Dietary/Food Supplement Associations**
**ICGMA – International Council of Grocery Manufacturers Associations**
**ISDI – International Special Dietary Foods Industries**

# ARGENTINA

Concerning the Draft Table of Conditions for Nutrient Contents Provisions for Dietary Fibre, Argentina considers it adequate to lower the value for the attribute Source from 1,5 g/100 ml to 1 g/100 ml. In this way we are also taking into account the content of fibre of the products which are supported by international studies.
Concerning the attribute high content, Argentina agrees on eliminating the square brackets.
Concerning the definition of Dietary Fibre, Argentina thinks of taking a value of polymerisation (DP) not lower than 3 degrees, due to the fact that, in this way, they include all non digestible oligo-saccharides.

# AUSTRALIA

**Table of Conditions**

- Insert **1.5g** and **3g** respectively into the criteria for 'source' and 'high' per serving to complete the detail and eliminate ambiguity.
- Change 1.5g/100kcal to 2g/100kcal for 'source' and delete 3g/100kcal for 'high' because the values per 100kcal as drafted misclassify many fruits and vegetables as high. Adopting the proposed amended values per 100kcal provides for a more comparable set of criteria.
- Delete text in square brackets for separate 'source' and 'high' fibre claims for liquids. If the Committee decides to retain separate criteria /100mL for liquids, then the other criteria per serve and per 100kcal should also be reproduced in relation to liquids to remove ambiguity.

**Definition of Dietary Fibre**

- Delete text in square brackets. The degree of polymerisation (DP) should be at least 3 DP.

# BRAZIL

Observations: - proposals of additions to the text are underlined
- proposals of elimination of the text are ~~crossed~~
- explanations and justifications are ***in italic*** and in **bold.**

**Definition of Dietary fibre**

Dietary fibre means carbohydrate polymers 1 with a degree of polymerisation (DP) not lower than 3 ~~[or 10]~~, which are neither digested nor absorbed in the small intestine. Dietary fibre consists of one or more of:

***Brazil suggest that it must be adopted a degree of polymerization (DP) not to lower than 3 and be excluded the expression: "[or 10]"***

***Justification:***

***1) There is no scientific explanation for the use of a degree of polymerization (DP) [10].***

***2) This is the range of the polymerization degree best appropriate to dietary fibre definition and guarantees the inclusion of other fibre of low polymerization degree. Thus, it contemplates the bigger part of fiber proprieties. Several scientific studies have shown that these components significantly stimulate the colonic fermentation.***

**RECOMMENDATIONS TO CODEX COMMITTEES USING THIS DEFINITION OF DIETARY FIBRES**

Codex Committees, when making use of this definition, may wish to consider that:
*(…)*

*Brazil proposes the inclusion of the following recommendation:*

- It is appropriate to consider, for labeling purposes that some dietary fibres from daily excessive intake may affect some nutrients absorption and/or lead to a laxative effects".

***Justification: Since the excessive consumption of fiber may have negative effects on the organism, consumers must be aware of these effects.***

**METHODS OF ANALYSIS FOR DIETARY FIBRE**

***Brazil proposes the inclusion on the list of AOAC 993.21 general method.***
AOAC 993.21 - Total polysaccharides (used in products with <2% starch, Nonenzymatic gravimetric (Li & Cardozo, 1993).
***Justification: the AOAC methodology is used for samples of fruits, vegetables or isolated fibre. In this in case, the content starch present on the dry sample must be under 2% and content fibre be < 10%. This sample represents a significant reduction of costs analysis and assumes a particular importance for countries as Brazil.***

# INDIA

In the draft table of conditions for nutrient content (Part B) Dietary fiber, the value for source for liquid foods be read as 1.5 g in place of 1,5.
Square brackets could be removed.

**Definition of Dietary Fibre**
The line "or of synthetic carbohydrate polymers" may be removed from the second bullet under the definition.

# MEXICO

We suggest deleting the square brackets from table B.

**Definition of dietary fibre**
We suggest keeping the square brackets in the definition around "[or 10]".

# NEW ZEALAND

**Definition of Dietary Fibre**
New Zealand agrees that it is appropriate to base the definition of dietary fibre on its physiological properties such as increased stool production, rather than the material's origins. It also needs to be recognized that dietary fibre has a spectrum of physiological effects and that different dietary fibres will have different combinations of these effects. The proposed definition caters for a wide range of emerging products that may have properties typical of dietary fibre. New Zealand does wish to reiterate that appropriate risk assessment procedures should be undertaken before any new product is considered a dietary fibre.
New Zealand does not support using a DP of 10 as a defining feature of dietary fibre. It is the inherent properties associated with different types of dietary fibres that give rise to the health benefits, not the DP. Whether an oligosaccharide has a DP of 3 or 10, it will still exhibit physiological properties such as stimulating microbial growth in the colon, providing faecal bulk, and stimulating fermentation. For example, fructoligosaccharides and polydextrose both have a DP less than 10 but still stimulate microbial growth in the colon, producing short chain fatty acids, and may positively alter the bacterial population (Personal Communication, 2005). An oligosaccharide with a DP greater than 10 will be depolymerised to have a DP less than 10 almost immediately upon entering the colon, so an arbitrary DP cut-off of 10 is not scientifically tenable (Personal Communication, 2005). This is consistent with the proposed definition of dietary fibre which is based on physiological properties.
New Zealand does not support the inclusion of footnote(1) in the definition of dietary fibre due to its reference to the AOAC gravimetric analytical method for dietary fibre analysis. It is our understanding of the footnote that if substances such as lignin and/or other compounds are naturally associated with polysaccharides and are quantified by AOAC methods of analysis, they are included in the dietary fibre fraction. However when these substances are extracted or re-introduced into a food containing non-digestible polysaccharides, they cannot be defined as dietary fibre. This is not consistent. If substances such as lignin and/or other compounds are sometimes considered dietary fibre, and sometimes not, dietary fibre values will not be dependable. If substances such as lignin do not meet the definition of dietary fibre in terms of physiological effects, they should not be classified as dietary fibre. We believe allowing these substances to be classed as dietary fibre when naturally present, would then be supporting an inadequacy of the AOAC method, namely its inability to separate individual components.

It was agreed at the 26th Session that a definition for dietary fibre would be established before specifying methods of analysis. The inclusion of footnote(1) in the definition of dietary fibre with its reference to methods of analysis is not appropriate. We support either removing all reference to methods of analysis in the draft guidelines, or re-introducing the table that lists methods of analysis for dietary fibre in square brackets, and including the Englyst method in this list.

**Methods of Analysis for Dietary Fibre**

New Zealand still strongly recommends that the Englyst method is recognised as an acceptable method of analysis for the following reasons:

**1. The Englyst method of analysis yields a more accurate value for dietary fibre than the AOAC method.**

The Englyst procedure was designed specifically to measure non-starch polysaccharides, which are the major compounds of interest when measuring dietary fibre. The AOAC method measures non-starch polysaccharides, lignin and some resistant starch. Because the AOAC method only measures some resistant starch, the value obtained is not representative of all the resistant starch in the food. The AOAC method also includes non-specific compounds such as Maillard reaction products and highly variable amounts of unidentified material (Monro et al, under review for publication). The Englyst method is a much more specific method of analysis because it does not measure these other compounds and therefore produces an accurate value for non-starch polysaccharide which is not provided by the he AOAC method. As the definition of dietary fibre has been expanded to include resistant starch, oligosaccharides and lignin, the need to measure these compounds by supplementary analysis has arisen. The need applies equally to both the AOAC and Englyst procedures.

**2. The Englyst method of analysis yields a more accurate energy value than the AOAC method.**

In theory, the Englyst method, which only measures non-starch polysaccharides, should give a more accurate energy value than the AOAC method. This is because lignin which has no energy value, as it is non-fermentable, is included in the analysis of dietary fibre using the AOAC method (Personal Communication, 2005). In addition, total non-starch polysaccharide values obtained using the Englyst method can easily be coupled with resistant starch and lignin values in laboratories that determine these measurements routinely, yielding an energy value similar to that obtained using the AOAC method. Such laboratories should not be penalised because they have greater proficiency at measuring specific components than other laboratories that have less capability.

In most foods, non-starch polysaccharides and resistant starch make relatively small contributions to total energy, therefore the discrepancy in food energy caused by the differences between the Englyst and AOAC fibre values will be small. It has been demonstrated through an analysis of the discrepancy between calculated food energy values from nutrient data determined using the AOAC and Englyst methods, that there is very little effect of methodology on calculated energy. The difference in food energies calculated using the two methods has been found to be less than 5% for 89% of foods (Personal Communication, 2005). Furthermore, considering that dietary fibre contains half the energy of starch and protein, and a quarter of the energy of fat and it is not a major component in most foods, one can reasonably predict that for most foods, use of the Englyst versus the AOAC method of analysis for dietary fibre will only make a small difference to the overall energy value for the whole food.

The energy value assigned to dietary fibre is an approximation that does not take into account the large differences in fermentability of dietary fibres in different foods. Therefore, the error involved in calculating energy from both the AOAC and Englyst methods will be much greater than any differences due to the method used for fibre analysis. Englyst non-starch polysaccharides will give more accurate energy values in some foods and AOAC fibre in others, therefore it is important that both methodologies are recognised as acceptable methods of analysis (Personal Communication, 2005).

**3. The Englyst method of analysis can be more practical and less time consuming than the AOAC method.**

As mentioned earlier, the AOAC method of analysis only measures a portion of the resistant starch that may be present in a food. The residue obtained using the AOAC method may contain retrograded resistant starch. Therefore if total resistant starch is to be determined, this analysis must be conducted separately from the AOAC procedure, then an analysis of the retrograded resistant starch in the AOAC residue must be conducted. This is to ensure that the retrograded resistant starch is not accounted for twice. The Englyst procedure is a more practical method because it does not encounter this problem as all

starch is removed before non-starch polysaccharides are measured. Resistant starch is then measured separately and specifically, so that one rather than two resistant starch analyses are required (Personal Communication, 2005). For this reason, the Englyst procedure is less time consuming and methodologically more practical, therefore it should be recognised as an acceptable method of analysis.

**4. Methods of analysis for dietary fibre should be recognized by the quality of the data that is produced.**

Where there is a choice of methods available for the analysis of dietary fibre, New Zealand believes that the main criterion for acceptance of a particular method should be the quality of the data that is produced, not the complexity of the method of analysis. Complexity is an issue for laboratories and should not be part of the consideration at Codex. The international standard should adopt a flexible approach and recognize more than one method of analysis provided the relevant criteria for selection of methods are met.

New Zealand does not agree that the Englyst method is complicated and therefore less suitable for routine analysis. With appropriate equipment, reference samples and skilled staff, it is possible to use the Englyst procedure without difficulty.

The Englyst method does not significantly differ from the Theander *et al.,* method which has recently been recognised as an acceptable method of analysis for dietary fibre. Both the Englyst and Theander *et al.,* methods involve digestion, ethanol precipitation and hydrolysis of the residue for measurement of sugars released in hydrolysis. The Englyst method is also less labour intensive compared to the Prosky *et al.,* and Lee *et al.,* methods as the latter two require a separate ash and Kjeldahl protein analysis of the residues. Given that a choice of procedures is available, the main criterion for acceptance of a particular method of analysis should be the quality of the data produced.

New Zealand hopes these comments will be considered and looks forward to continued participation in the electronic working group. New Zealand believes the issues regarding the definition and methods of analysis for dietary fibre content are paramount and would welcome a small working group meeting prior to the plenary session in November 2005.

**References**

Monro J, Athar N, McLaughlin J. Food energy calculations using non-starch polysaccharide versus total dietary fibre. Asia Pacific Journal of Clinical Nutrition (under review for publication).

Personal Communication. Dr John Monro. February 2005.

# UNITED STATES OF AMERICA

## I. TABLE OF CONDITIONS FOR DIETARY FIBER CONTENT CLAIMS

**Levels for Dietary Fiber Content Claims**

The United States recommends that the table explicitly state levels on a per serving basis for "Source" and "High" claims, and that the levels be based on scientific recommendations for daily dietary fiber intake. With regard to recommendations for specific numeric levels on a per serving basis, the U.S. may defer its final recommendations until the Committee has reached agreement on the definition of dietary fiber.

As background, we note that the U.S. Food and Drug Administration issued regulations in the early 1990s which established a Daily Reference Value (DRV) for nutrition labeling of 25 grams for dietary fiber based on a reference caloric intake of 2,000 calories-- after considering dietary fiber intake recommendations from scientific bodies such as the U.S. Life Sciences Research Office of the Federation of American Societies for Experimental Biology. The regulations further state that a food may bear a "good source" claim if it contains 10-19% of the DRV per reference amount customarily consumed (i.e., at least 2.5 g in the case of dietary fiber) and an "excellent source" or "high" claim if it contains at least 20% of the DRV (i.e., at least 5 g for dietary fiber).

The U.S. Food and Drug Administration has initiated efforts to consider updates to its reference values for labeling purposes for dietary fiber and other nutrients, taking into consideration among other things, recent reports from scientific bodies. We note, for example, that a recent report of the National Academy of Sciences' Institute of Medicine (IOM) on Dietary Reference Intakes for macronutrients established Adequate Intake levels for Total Fiber based on 14 g/1,000 kcal and the median energy intake for each age and gender group (IOM, 2002).

Basis for Dietary Fiber Content Claims

The United States emphasizes the importance of retaining the option to express dietary fiber claims as well as other nutrient content claims on a per serving basis, consistent with the provision of this option in other Codex texts. For example, serving size is included as an option for declaring nutrient content in the Codex *Guidelines on Nutrition Labelling* (CAC/GL 2-1985 (rev.1-1993) and as an option for expressing nutrient content claims about protein, vitamins and minerals (ALINORM 04/27/22, Appendix III).

The U.S. has found expressing nutrient content on a per serving basis to be the best option to help U.S. consumers construct healthful diets. Standardized serving sizes reflect amounts that consumers commonly consume. In contrast, the declaration of nutrient content based on a single standard weight such as 100 grams (or volume such as 100 ml) will often not reflect the nutrient levels in amounts commonly consumed.

## II. DEFINITION OF DIETARY FIBER, RELATED RECOMMENDATIONS, AND METHODS OF ANALYSIS

### A. General Comments

### Definition of Dietary Fiber and Related Recommendations

*Purpose and Application of Dietary Fiber Definition.* In considering a definition for dietary fiber, we agree that it is important for the Committee to have a common understanding of how this definition will be used. After the last CCNFSDU session, we assume there is a common understanding that the Committee's current mandate is to define dietary fiber as it applies to nutrition (nutrient content) claims (ALINORM 05/28/26, para 18). We also assume this definition will apply to the declaration of dietary fiber content for purposes of nutrition labeling, but note that the mandate does not encompass health claims.

*Inclusion of Physiological Effects in Definition.* The proposed definition includes both a chemical and physiological definition, stating that material considered as dietary fiber should have at least one of several identified properties (stimulate colonic fermentation, reduce blood total and/or LDL cholesterol levels, etc.) (ALINORM 05/28/26, Appendix III).

The United States continues to be concerned about the inclusion of physiological effects in the definition of dietary fiber principally for the following reasons:

- It is our understanding that a major impetus for including physiological effects is to address novel sources of dietary fiber. However, the proposed wording in the definition implies the need to demonstrate one or more physiological effects of dietary fiber for all foods that make a claim about the amount of dietary fiber or declare dietary fiber as part of nutrition labeling, although such testing should not be necessary for dietary fiber that is naturally occurring (e.g., in fruits, vegetables, whole grains, etc.). The potential burden of such testing is further illustrated by the fact that in certain countries nutrition labeling is now mandatory on most food labels, and could become mandatory in others. We recognize that at the last session, the Committee added a bullet to the "Recommendations to Codex Committees Using this Definition of Dietary Fiber" that would clarify that physiological effects need not be demonstrated for naturally occurring sources, and that the establishment of criteria to quantify physiological effects is left to national authorities. However, the Committee did not come to a conclusion on where these recommendations should be placed in the Guidelines (ALINORM 05/28/26, para 17).

- Even if it was clarified in the definition that testing of physiological effects applies only to novel sources of dietary fiber, we still do not support the inclusion of physiological effects in the definition without agreed upon criteria for the use of these physiological effects in defining dietary fiber, and established methods to test all the identified physiological effects.

- Moreover, we raise the question whether the list of the "physiological properties" that are proposed to be part of the definition is intended to represent only beneficial effects, and if so, the most important beneficial effects, and whether there is agreement that effects such as "stimulate colonic fermentation" would always be beneficial.

In addition, we invite consideration of the following additional implications of including this list of physiological effects in the definition:

- If physiological effects are included, the declaration of dietary fiber content for purposes of nutrition labeling or dietary fiber content claims could convey to the consumer an implied claim for all the physiological effects.

- Existing definitions of nutrients (i.e., sugars, dietary fibre, and polyunsaturated fatty acids) in the Definitions section of the Codex *Guidelines on Nutrition Labelling* are chemical definitions only, and do not address specific physiological effects. If specific physiological effects are included, it raises the question as to whether this would be done only for dietary fiber, or could set a precedent for including physiological effects in definitions of other nutrients.

Based on the above considerations, the United States continues to believe that it is more appropriate for the physiologic aspects of dietary fiber (that are currently shown as a general list of properties in Appendix III) to be provided as background information in the "Recommendations to Codex Committees Using this Definition of Dietary Fibre", and not be included in the definition *per se* in the Codex *Guidelines on Nutrition Labelling.* On the other hand, we do agree that the statement in the definition that dietary fiber is neither digested nor absorbed in the small intestine is an appropriate physiological aspect to include in the definition, because it has been incorporated into the methods for dietary fiber analysis.
If the Committee decides to retain the current list of physiological effects in the definition, then we recommend that the last bullet under "Recommendations to Codex Committees Using this Definition…" --that addresses the need to demonstrate physiological effects only for sources that are not naturally occurring-- also be included in the definition, with a few minor edits (Please refer to Specific Comments).

*Degree of Polymerization.* The United States appreciates the opportunity to further consider the degree of polymerization (DP) for carbohydrate polymers in the chemical definition. The proposal in ALINORM 05/28/26, Appendix III reads:

> "Dietary fiber means carbohydrate polymers with a degree of polymerization (DP) not lower than 3 [or 10],….."

The United States does not support a DP level of not lower than 3 in the statement above principally for the following reasons:

- Low molecular weight oligosaccharides, particularly those at the lower DP values, are capable of inducing laxation (and, when consumed in large quantities, diarrhea) by altering the osmotic equilibrium of the large intestine and increasing the water content in the bowel. This property has not been considered as a beneficial property of dietary fiber, although it can be interpreted as decreasing transit time, increasing stool bulk, and stimulating colonic fermentation.

- Some low molecular weight oligosaccharides can contribute to the sweetness of a product. While the effect is generally not as substantial as for of typical sweeteners such as sucrose, it is nonetheless present. Sweetness has never been considered a property of dietary fiber and low molecular weight oligosaccharides used for these attributes should not be considered to be dietary fiber.

- The intended meaning of setting a cut-off at a "DP not lower than 3" is not clear. The measurement of DP estimates the average DP in a mixture, not a specific size of polymer. Thus, a fiber with an average DP not lower than 3 will contain a mixture of smaller mono- and disaccharides, and larger oligosaccharides with DP greater than 3. We do not believe that it was the intent of the CCNFSDU to include such a broad range of saccharides—essentially monosaccharides through large polysaccharides—in the definition of dietary fiber.

The United States recommends that the average DP be not lower than 10 so that the inclusion of mono- and disaccharides is minimized and that dietary fiber generally incorporates compounds that fulfill the stated intention in the definition (i.e., carbohydrate polymers that are neither digested nor absorbed in the small intestine). If a DP not lower than 3 is allowed, then the so-called dietary fiber will contain compounds that are not consistent with the digestibility and absorption criteria, and this could be a

significant portion of the compounds. Moreover, as noted above, a DP not lower than 3 would include low molecular weight oligosaccharides that are capable of inducing laxation—and in large quantities, diarrhea--through a mechanism not considered to be a beneficial property of dietary fiber.

Methods of Analysis

The Committee report noted that no decision could be taken on methods of analysis at this stage since the conditions for claims had not yet been finalized, and agreed that they would require further consideration (ALINORM 05/28/26 para 21). We also assume that the Committee's decision on the cutoff for degree of polymerization will inform the final title and listing of compounds in the methods of analysis table. The United States anticipates having comments on methods of analysis at a later date.

**B. Specific Comments**

The United States proposes below revised text for the definition of dietary fiber and related recommendations in ALINORM 05/28/26, Appendix III based on the general comments above, and a few additional editorial comments.

| U.S. Proposal for Revised Text | **Nature of Proposed Revision and Comments** |
|---|---|
| Definition of Dietary Fibre<br><br>Dietary fibre means carbohydrate polymers[1] with a degree of polymerisation (DP) not lower than 3 [or 10], which are neither digested nor absorbed in the small intestine. Dietary fibre consists of one or more of :<br>• ~~Edible~~ Carbohydrate polymers naturally occurring in the **edible portions of** food as consumed,<br>• carbohydrate polymers, which have been obtained from food raw material by physical, enzymatic or chemical means, or of synthetic ~~carbohydrate polymers~~ **origin**. | We recommend DP $\geq$ 10.<br><br>-We believe the intent is for "edible" to refer to food rather than carbohydrate polymers.<br>-Propose replace "carbohydrate polymers" with "origin" to remove redundancy |
| ~~Dietary fibre generally has properties such as:~~<br>~~• Decrease transit time and increase stools bulk~~<br>~~• Stimulate colonic fermentation~~<br>~~• Reduce blood total and/ or LDL cholesterol levels~~<br>~~• Reduce post-prandial blood glucose and/or insulin levels.~~<br><br>~~*Material considered as dietary fibre should have at least one of these properties.*~~ | Propose to slightly revise the text indicated with strikeouts and move it to the section on "Recommendations to Codex Committees Using this Definition…". However, if the text indicated with strikeouts is retained as part of the definition, then we recommend that the last bullet under the Recommendations be included after the sentence "*Material considered as dietary fibre…*". |
| [1] When derived from a plant origin, dietary fibre may include fractions of lignin and/ or other compounds when associated with polysaccharides in the plant cell walls and if these compounds are quantified by the AOAC **Enzymatic G**ravimetric analytical method for dietary fibre analysis: Fractions of lignin and the other compounds (proteic fractions, phenolic compounds, waxes, saponins, phytates, cutin, phytosterols, etc.) intimately "associated" with plant polysaccharides are often extracted with the polysaccharides in the AOAC 991.43 method. These substances are included in the definition of fibre insofar as they are actually associated with the poly- or oligo-saccharidic fraction of fibre. However, when extracted or even re- introduced into a food containing non digestible polysaccharides, they cannot be defined as dietary fibre. ~~When combined with polysaccharides, these associated substances may provide additional beneficial effects.~~ | Propose to add "Enzymatic" to refer to the proper name of this method.<br><br>Propose to delete this last sentence. The footnote's intent appears to be to clarify what dietary fibre is, rather than to |

| U.S. Proposal for Revised Text | **Nature of Proposed Revision and Comments** |
|---|---|
| | address possible beneficial effects of certain substances. |
| RECOMMENDATIONS TO CODEX COMMITTEES USING THIS DEFINITION OF DIETARY FIBRE~~S~~<br><br>Codex Committees, when making use of this definition, may wish to consider that :<br>• Food safety requirements should be met by the substances purporting to be presented as source of dietary fibres;<br>• Dietary fibre generally has ~~properties~~ **physiological effects** such as:<br>• Decrease **intestinal** transit time and increase stool~~s~~ bulk<br>• Stimulate colonic fermentation<br>• Reduce blood total and/or LDL cholesterol levels<br>• Reduce post-prandial blood glucose and/or insulin levels.<br>*Material considered as dietary fibre should have at least one of these ~~properties.~~* **p**hysiological effects.<br>• The physiological effects ~~listed in the definition~~ may vary with the substances present in the foods and the justification for the use of ~~the nutrition and~~ health claims must accommodate this diversity;<br>• If the dietary fibre does not derive from plants, it may be appropriate to consider, when establishing labelling provisions, that consumers in many countries generally regard foods designated as sources of dietary fibre as having a plant origin.<br>• With the exception of non-digestible edible carbohydrate polymers naturally occur**r**ing in foods as consumed, where a declaration or claim is made with respect to dietary fibre, the physiological effect ~~must~~ **should** be scientifically demonstrated by clinical studies and other studies as appropriate. The establishment of criteria to quantify physiological effects is left to national authorities. | -Bullets on physiologic effects were moved from the Definition section to this section<br>-Also propose to use only one term "physiological effects" in these bullets and bullets that follow<br>-Propose to make this bullet specific to health claims. We do not believe that justification needs to be provided for a dietary fiber *content* claim that must accommodate diversity in physiological effects. |

## VENEZUELA

| PROPOSED CHANGES TO ALINORM 05/28/26 | JUSTIFICATION |
|---|---|
| Clarify the table.<br><br>The meaning of CONDITIONS is not clear as far as the relevance of the terms "source" and "high" is concerned. | |
| **Definition of dietary fibre**<br>Dietary fibre means carbohydrate polymers with a degree of polymerisation (DP) not lower than ~~3~~ [or 10], ~~which are neither digested nor absorbed in the small intestine.~~<br><br>Dietary fibre generally has properties such as:<br>Decrease transit time [and increase stools bulk]<br>**Decrease intestinal transit time.** | Consider a degree of polymerisation of 10.<br><br>Delete the property from the definition.<br><br>Delete the wording in square brackets and add the word "intestinal". |

## AAC – Association des amidonneries de céréales de I'UE

Having considered the discussion at international level, the AAC (European cereal starch industry) believes that the definition of dietary fibre should be based on the following concepts:

1. Dietary fibre consists of the non digestible carbohydrates contained in foods that have a Degree of polymerization (DP) not lower than 3. It includes processed or synthetic carbohydrates added to food.
2. Dietary fibre is neither digested nor absorbed in the small intestine.
3. Dietary fiber has at least one of the following properties:
   - Decrease transit time and increase stools bulk
   - Stimulate colonic fermentation
   - Reduce fasting cholesterol levels
   - Reduce post-prandial blood sugar and / or insulin levels.

The AAC holds that dietary fiber includes starchy products such as resistant starch (RS), resistant dextrins or polydextrose.
In the Report of the 26th session of the Codex Committee on Nutrition and Foods for Special Dietary Uses, the delegation of the United States expressed the view that a degree of polymerisation (DP) of 10 should be adopted for the definition of dietary fibre as carbohydrates polymers with DP lower than 10 have physiological properties (e. g. laxation) that cannot be associated with the beneficial properties of dietary fibre. In addition, the US delegation commented on the fact that low molecular weight oligosaccharides can contribute to the sweetness of a product.

The AAC would like to present the following comments:

- Low molecular oligosaccarides (DP lower than 10) have prebiotic properties, i. e. they stimulate the colonic flora which, indeed, represents one of the major properties of fibres. Laxation can only occur at high intake level, therefore this property should not prevent low molecular oligosaccharides from being considered as dietary fibre.
- Organolectic properties, like the capacity of sweetening a product, should not be taken into account in the definition as these should not be regarded as an attribute property of dietary fibres.

**Given the arguments set out above, the AAC believes that dietary fibre consists of carbohydrates polymers with a DP not lower than 3.**

## IADSA – International Alliance of Dietary/Food Supplement Associations

### Fibre4 and Dietary Fibre

The term "fibre" as generally understood, is satisfactorily measured by the AOAC method and, when present in the diet, can be expected to "decrease transit time and increase stools bulk".
However, the term "dietary fibre" is less well understood, has the composition and properties described in the definition in Appendix III of the ALINORM 05/28/26, and only one of these, transit time and bulk, can be measured by the AOAC method. When all these properties are to be claimed, a method capable of measuring them should be used: the Englyst method.
Therefore the component should be described as "Fibre" when its presence has been measured by the AOAC method.
However, the component should be described as "Dietary Fibre" when its presence has been measured by the Englyst method.

## ICGMA- International Council of Grocery Manufacturers Associations

### Definition of dietary fibre

ICGMA supports a definition of fiber that characterizes dietary fiber as "a degree of polymerization (DP) of 3 or higher." The AOAC definition and the Institute of Medicine (IOM) Macronutrient Report

classified non-digestible carbohydrates with DP of 3 or more as fiber. The definition in the Life Science Research Office (LSRO 1987) did not exclude these shorter polymers. ICGMA agrees that it will be necessary to enhance the dietary fiber analysis methods to incorporate the definition of fiber that characterizes dietary fiber as a degree of DP of 3 or higher.
ICGMA supports a definition of fiber that is obtained from food raw material. ICGMA believes we should not exclude fiber from animal origin because animal fibers such as chitin or chitosan are non digestible carbohydrates that have been shown to have physiological benefits on blood lipids in clinical studies.

RECOMMENDATIONS TO CODEX COMMITTEES USING THIS DEFINITION OF DIETARY FIBERS
Under the fourth bullet point:
ICGMA believes the Committee should provide guidance on the criteria to quantify physiological effects rather than leave it to national authorities. The fourth bullet point reads as follows:

- "With the exception of non-digestible edible carbohydrate polymers naturally occurring in foods as consumed, where a declaration or claim is made with respect to dietary fiber, the physiological effect must be scientifically demonstrated by clinical studies and other studies as appropriate. The establishment of criteria to quantify physiological effects is left to national authorities."

ICGMA encourages the CCNFSDU Committee to develop the criteria to quantify the physiological effects. The Committee should establish reasonable scientific evidence of efficacy as a basis for fortificant fibers to be declared as dietary fiber.

## ISDI – International Special Dietary Foods Industries

ISDI suggests the following modifications to the proposed definition of dietary fibres:

**Definition of dietary fibre**
Dietary fibre means **edible** carbohydrate ~~polymers[1] with a degree of polymerisation (DP) not lower than 3 [or 10]~~, which are neither digested nor absorbed in the **human** small intestine. ~~Dietary fibre consists of one or more of~~ **These carbohydrates include**:

- ~~Edible carbohydrate polymers~~ **Those** naturally occurring in the food as consumed, **and**
- ~~carbohydrate polymers~~ , **Those** which have been obtained **either** from food raw material by physical, enzymatic or chemical means, or ~~of synthetic carbohydrate polymers~~ **by chemical synthesis**.

Dietary fibre generally has properties such as:

- Decrease transit time and increase stools bulk
- Stimulate colonic fermentation
- Reduce blood total and/or LDL cholesterol levels
- Reduce post-prandial blood glucose and /or insulin levels.

*Material considered as dietary fibre should have at least one of these properties.*

~~[1] When derived from a plant origin, dietary fibre may include fractions of lignin and/or other compounds when associated with polysaccharides in the plant cell walls and if these compounds are quantified by the AOAC gravimetric analytical method for dietary fibre analysis : Fractions of lignin and the other compounds (proteic fractions, phenolic compounds, waxes, saponins, phytates, cutin, phytosterols, etc.) intimately "associated" with plant polysaccharides are often extracted with the polysaccharides in the AOAC 991.43 method. These substances are included in the definition of fibre insofar as they are actually associated with the poly- or oligo-saccharidic fraction of fibre. However, when extracted or even re-introduced into a food containing non digestible polysaccharides, they cannot be defined as dietary fibre. When combined with polysaccharides, these associated substances may provide additional beneficial effects.~~
justification

**Current definitions on dietary fibre**
According to Asp (2004) small intestinal digestibility is a key determinant of the nutritional haracteristics of food carbohydrates and should be the main feature in the delimitation between carbohydrates and dietary fibre.

In 2001 the AACC (American Associations of Cereal Chemists) adopted the following definition (Anon, 2001): *"Dietary fibre is the edible parts of plants or analogous carbohydrates that are resistant to digestion and absorption in the human small intestine with complete or partial fermentation in the large intestine. Dietary fibre includes polysaccharides, oligosaccharides, lignin, and associated substances. Dietary fibres promote beneficial physiological effects including laxative effects and/or blood cholesterol attenuation, and/or blood glucose attenuation."*

In 2002 the FNB (Food and Nutrition Board of the National Academy of Sciences, USA) adopted the following definitions (Anon, 2002): *"Dietary fibre consists of non digestible carbohydrates and lignin that are intrinsic and intact in plants. Functional fibre consists of isolated, non digestible carbohydrates and lignin that have beneficial physiological effects in humans. Total fibre is the sum of dietary fibre and functional fibre"*.

These new definitions are concordant in including resistant oligosaccharides, resistant starch and lignin in dietary fibre and total fibre. Furthermore, both definitions require that components included are not only indigestible in the small intestine, but have beneficial physiological effects typical for dietary fibre (Asp, 2004).

Both definitions do not describe any restrictions concerning degree of polymerisation (DP).

**References**

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