

## APPENDIX II

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

(At Step 6 of the Procedure)

COMPONENT	CLAIM	CONDITIONS
<b>B.</b>		<b>NOT LESS THAN</b>
Dietary Fibre	Source	3 g per 100 g or 1.5 g per 100 kcal or [ <u>10 % of recommended intake</u> ] per serving*  [(liquid foods: 1.5 g per 100 ml)]
	High	6 g per 100 g or 3 g per 100 kcal or [ <u>20 % of recommended intake</u> ] per serving*  [(liquid foods: 3 g per 100 ml)]

\* Serving size [and recommended intake] to be determined at national level.

**Definition and properties of dietary fibre:**

**DEFINITION:**

Dietary fibre means carbohydrate polymers<sup>1</sup> with a degree of polymerisation (DP) not lower than 3, which are neither digested nor absorbed in the small intestine. A degree of polymerisation not lower than 3 is intended to exclude mono- and disaccharides. It is not intended to reflect the average DP of a mixture. Dietary fibre consists of one or more of:

- Edible carbohydrate polymers naturally occurring in the food as consumed,
- carbohydrate polymers, which have been obtained from food raw material by physical, enzymatic or chemical means,.
- synthetic carbohydrate polymers.

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<sup>1</sup> 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.

**Properties:**

Dietary fibre generally has properties such as:

- Decrease intestinal transit time and increase stools bulk
- Fermentable by colonic microflora
- Reduce blood total and/or LDL cholesterol levels
- Reduce post-prandial blood glucose and /or insulin levels.

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 fibre, a physiological effect 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.

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

Codex Committees, when making use of this definition, may wish to consider that:

- Food safety requirements should be met by the substances purporting to be presented as source of dietary fibres;
- 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;
- 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.

**Methods of Analysis for Dietary Fibre<sup>1</sup>**

Name	Quantified compounds	Reference	Type	Chapter <sup>2</sup>
AOAC 991.43	Soluble + insoluble polysaccharides (including RS 3)+ lignin	Lee et al	Enzymatic-gravimetric	32.1.17
AOAC 985.29	Soluble + insoluble polysaccharides ( including RS 3)+ lignin	Prosky <i>et al.</i> 1992	Enzymatic-gravimetric	45.4.07
AOAC 994.13	Soluble + insoluble polysaccharides (including RS 3)+ lignin	Theander et al.	Enzymatic-chemical	45.4.11
AOAC 995.16	beta-glucans	McCleary & Codd, 1991	Enzymatic	32
AOAC 2002.02	Resistant starch and algal fibre	McCleary & Monaghan, 2002	Enzymatic	45.4.15

<sup>1</sup> As presented in CX/NFSDU 04/3-Add.1.

<sup>2</sup> Official Methods of Analysis of AOAC International. 17th edition. Volume II. Horwitz, editor.

Name	Quantified compounds	Reference	Type	Chapter <sup>2</sup>
AOAC 999.03	Fructans (oligofructans, inulin derivatives, fructooligosaccharides)	McCleary & Blakeney, 1999 McCleary <i>et al.</i> , 2000	Enzymatic & colorimetric	45.4.06B
AOAC 997.08	Fructans (oligofructans, inulin derivatives, fructooligosaccharides)	Hoebregs, 1997	Enzymatic & HPAEC	45.4.06A
AOAC 2001.02	Trans-galacto-oligosaccharides	De Slegte	HPAEC-PAD	45.4.12
AOAC 2001.03	Total dietary fibre in foods containing resistant maltodextrin		Enzymatic gravimetric and Liquid chromatography	45.4.13
AOAC 2000.11	Polydextrose	Craig <i>et al.</i> 2001	HPAEC	45.6.06C

All the above methods are approved AOAC techniques. These methods have the advantage of being used world-wide as well as being easily used in routine analysis.

The AOAC 985.29 and 991.43 are the general methods for measuring 'total dietary fibre' in most foods. The other methods can be used for complementary assessment of other fibre components/fractions not measured by the general methods due to their solubility in aqueous alcohol or for analysis of certain foods or raw materials for which the standard methods may be less suitable. The methods for total or soluble+insoluble dietary fibre give satisfactory results for foods that contain neither added non-digestible oligosaccharides (e.g. FOS) nor resistant starch<sup>3</sup> fractions RS1 and RS2 which are not measured by these AOAC method.

The AOAC 991.43 includes part of the resistant starch fractions (retrograded starches, RS3). Therefore, in order to include total RS, it is necessary to analyse RS independently and correct for the RS in the fibre residue.

The Englyst method, which is not used world-wide, is complicated and may therefore be less suitable for routine analysis. However, this or similar methods may be necessary in some foods difficult to analyse with the routine methods, e.g. infant formula.

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<sup>3</sup> Resistant starch (RS) is defined as the fraction of starch not absorbed in the small intestine. It consists of physically enclosed starch (RS1), certain types of raw starch granules (RS2) and retrograded amylose (RS3). Modified starches used as food additives may also be partially resistant (RS4).