

*ILSI Seminar on Dietary Fibre,  
28 September 2009, Kuala Lumpur*



# Codex Alimentarius Definition of dietary fibre

---

*E-Siong Tee, PhD  
Scientific Director, ILSI Southeast Asia Region  
(nutrihealth.tes@myjaring.net)*

## Outline of presentation ....

---

- **Brief intro of Codex Alimentarius**
  - ❖ **Establishment, objectives, the Code**
- **Background of Codex work on dietary fibre definition**
  - ❖ **main discussions in recent years**
- **Adopted dietary fibre definition (July 2009)**
  - ❖ **Main features of adopted definition**
- **Areas for national authorities to decide**

## Brief intro of Codex Alimentarius ....

### Establishment of Codex Alimentarius

---

- In 1963, the Joint FAO/WHO Programme on Food Standards was established
  - ❖ **the statutes of the Codex Alimentarius Commission (CAC) and Rules of Procedure were adopted**
- **The Codex Alimentarius Commission is an intergovernmental organisation that coordinates food standards at the international level**

## Members of CAC

---

- **Membership of the Commission is open to all Member Nations and Associate Members of FAO and WHO**
- **By June 2009, 99 percent of the world's population were represented in the Commission through 180 member countries and one Member Organization (European Community)**
- **International NGOs are observers to the CAC**

## Objectives of CAC

---

- **Main objectives:**
  - ❖ **Protect health of consumers**
  - ❖ **Ensure fair practices in food trade**
- **The main task of the CAC is to develop the Codex Alimentarius – the food code**
- **Comprises international standards for a wide range of food products (commodity standards) and general /horizontal standards**
- **Aim to achieve international harmonisation in food quality and safety requirements**

## ... objectives of CAC

---

- These standards are used to provide guidance to governments for their respective national food control systems
- The two World Trade Organisation (WTO) agreements on the Application of Sanitary and Phytosanitary Measures (SPS) and Technical Barriers to Trade (TBT) both encourage the international harmonization of food stds
  - ❖ **Codex standards and texts used as benchmarks in WTO**

## Examples of horizontal stds ....

---

- These have across the board application to all foods and are not product specific
  - ❖ E.g. food labelling
- Currently being considered by Codex Committee on Nutrition and Foods for Special Dietary Uses
  - **Review nutrient reference value (NRV)**
- Recently completed
  - **Definition of dietary fibre**
  - **Substantiation of health claims**

## **Codex in Malaysia .....**

---

- **Food Safety and Quality Division of Ministry of Health is the Codex Contact Point for Malaysia since 1996**
- **National Codex Committee established**
- **Various National Codex Sub-Committees established, eg Food Labeling, Nutrition and Foods for Special Dietary Uses, etc**
- **Participates actively in work of Codex**
  - ❖ **Participates in meetings of Codex**
  - ❖ **Hosts Codex meetings**
- **Malaysia chairs the Codex Committee on Fats and Oils from 2009**

## **Background of Codex work on dietary fibre definition ....**

- **Discussions on definition of DF by Codex Committee on Nutrition and Foods for Special Dietary Uses (CCNFSDU) started more than 10 years ago**
- **Almost agreement on draft definition during the 28<sup>th</sup> Session of CCFNSDU in Chiang Mai 2006**
  - ❖ **Not digested or absorbed**
  - ❖ **Degree of polymerisation (DP)  $\geq 3$**
  - ❖ **Can be natural, modified or synthetic**
  - ❖ **Possesses physiological properties**
- **FAO/WHO proposed a different definition for consideration by members (via CRD 19)**
  - ❖ **Dietary fibre consists of intrinsic plant cell wall polysaccharides**

- **This definition restricts DF to only plant cell wall polysaccharides from fruits vegetables and grains**
- **Proposal an outcome of a FAO/WHO scientific update on CHO in mid 2006**
  - ❖ **all the papers prepared published as a supplement of the Eur J Clin Nutr (Vol 61, Suppl 1, Dec 2007)**
- **There was no agreement among CCNFSDU members on the WHO proposal**
- **Discussion continued during the 29<sup>th</sup> Session in 2007 and 30<sup>th</sup> Session in 2008**

- **General agreement on most aspects of the definition during the 30<sup>th</sup> Session in 2008**
  - ❖ **to take a broader view of CHO, into which a definition of fibre can be fitted**
  - ❖ **the newly discovered properties of the carbohydrate components of the diet should be recognised**
  - ❖ **important that these compounds must have beneficial physiological properties**
- **Great deal of discussion on whether DP 3-9 are DFs (oligosaccharides), but no consensus**
- **Agreed to propose for CAC adoption in July 2009**

**2009 adopted  
dietary fibre definition ....**

## Relevant Codex documents

---

- **Document Alinorm 09/32/26 Appendix II**
  - ❖ **Table of Conditions for Nutrient Contents (Part B: Provisions on Dietary Fibre) to the Guidelines for Use of Nutrition and Health Claims (CAC/GL 23-1997) (see attachment)**
- **Adopted at step 8 (final step) during the 32<sup>nd</sup> Codex Alimentarius Commission (CAC) in July 2009**

## codex alimentarius commission



FOOD AND AGRICULTURE  
ORGANIZATION  
OF THE UNITED NATIONS

WORLD  
HEALTH  
ORGANIZATION



JOINT OFFICE: Viale delle Terme di Caracalla 00153 ROMA Tel: 39 06 57051 www.codexalimentarius.net Email: codex@fao.org Facsimile: 39 06 5705 4593

ALINORM 09/32/26

JOINT FAO/WHO FOOD STANDARDS PROGRAMME

CODEX ALIMENTARIUS COMMISSION

*Thirty second Session*

*Rome, Italy, 29 June - 4 July 2009*

REPORT OF THE 30<sup>th</sup> SESSION  
OF THE CODEX COMMITTEE ON NUTRITION AND FOODS  
FOR SPECIAL DIETARY USES

*Cape Town, South Africa  
3 - 7 November 2008*



## APPENDIX II

GUIDELINES FOR THE USE OF NUTRITION CLAIMS: TABLE OF CONDITIONS FOR NUTRIENT CONTENTS (PART B) DIETARY FIBRE  
(At Step 8 of the Procedure)

COMPONENT	CLAIM	CONDITIONS
<b>B. NOT LESS THAN</b>		
Dietary Fibre	Source	3 g per 100 g <sup>*</sup> or 1.5 g per 100 kcal or 10% of daily reference value per serving <sup>**</sup>
	High	6 g per 100 g <sup>*</sup> or 3 g per 100 kcal or 20% of daily reference value per serving <sup>**</sup>

<sup>\*</sup> Conditions for nutrient content claims for dietary fibre in liquid foods to be determined at national level.

<sup>\*\*</sup> Serving size and daily reference value to be determined at national level.

**Definition: 1 Definition**

Dietary fibre means carbohydrate polymers<sup>1</sup> with ten or more monomeric units<sup>2</sup>, which are not hydrolysed by the endogenous enzymes in the small intestine of humans and belong to the following categories:

- 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 and which have been shown to have a physiological effect of benefit to health as demonstrated by generally accepted scientific evidence to competent authorities,
- synthetic carbohydrate polymers which have been shown to have a physiological effect of benefit to health as demonstrated by generally accepted scientific evidence to competent authorities

**Methods of Analysis for Dietary Fibre: 3 Methods of analysis of DF**

→ To be agreed.

## 1. Codex DF Definition, July 2009

- DF means carbohydrate polymers **with ten or more monomeric units**
  - ❖ not hydrolysed by the endogenous enzymes in the small intestine of humans
- DF include the following categories:
  - ❖ CHO polymers naturally occurring in food
  - ❖ CHO polymers obtained from food raw material by physical, enzymatic or chemical means
  - ❖ synthetic carbohydrate polymers
  - ❖ should be scientifically demonstrated to competent authorities to have a **physiological effect of benefit to health**

## .... 1. Codex DF Definition

---

- **When derived from plants, DF may include fractions of lignin and/or other compounds closely associated with polysaccharides in the plant cell walls, eg**
  - ❖ **proteic fractions, phenolic compounds, waxes, saponins, phytates, cutin, phytosterols**
- **When combined with polysaccharides, these associated substances may provide additional beneficial effects**
- **However, when extracted or even re-introduced into a food containing non-digestible polysaccharides, they cannot be defined as DF**

## Codex DF Definition - summary

---

- **This definition takes into consideration:**
  - ❖ **structure of DF (CHO polymers  $\geq 10$  units)**
  - ❖ **its indigestible nature**
  - ❖ **its physiological properties, e.g. 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**
- **They can be naturally occurring or obtained from food raw materials by various means, as well as synthetic polymers**

## 2. Conditions for DF content claims (source of, high in)

### Codex Nutrition and Health Claims .....

CAC/GL 23-1997  
(Rev. 1-2004)



Food Labelling

Fifth edition



## Nutrition claims

- Nutrition claim means any representation which states, suggests or implies that a food has particular nutritional properties
- Nutrition claims
  - ❖ Nutrient content claim
  - ❖ Comparative claim
- Nutrient content claim is a nutrition claim that describes the level of a nutrient contained in a food, e.g.
  - ❖ “source of calcium”, “high in fibre”, “low in fat”
- Conditions for nutrient content claim
  - ❖ Minimum amount of the nutrient must be present to qualify to make the claim

## Current conditions for nutrient content claims (source of, high in)

COMPONENT	CLAIM	CONDITIONS (not less than)
Protein	Source	10% of NRV per 100 g (solids) 5% of NRV per 100 ml (liquids) or 5% of NRV per 100 kcal (12% of NRV per 1 MJ) or 10% of NRV per serving
	High	2 times the values for "source"
Vitamins and Minerals	Source	15% of NRV per 100 g (solids) 7.5% of NRV per 100 ml (liquids) or 5% of NRV per 100 kcal (12% of NRV per 1 MJ) or 15% of NRV per serving
	High	2 times the value for "source"
<b>Dietary fibre</b>	<b>Source/high</b>	<b>??</b>

## 2. Conditions for DF content claims (source of, high in) – July 2009

COMPONENT	CLAIM	CONDITIONS
<b>B. NOT LESS THAN</b>		
Dietary Fibre	Source	3 g per 100 g* or 1.5 g per 100 kcal or 10 % of daily reference value per serving**
	High	6 g per 100 g* or 3 g per 100 kcal or 20 % of daily reference value per serving**

\* Conditions for nutrient content claims for dietary fibre in liquid foods to be determined at national level.

\*\* Serving size and daily reference value to be determined at national level.

### **3. Methods of DF analysis**

---

- **To be further discussed in 31<sup>st</sup> session of Codex Committee on Nutrition & Foods for Special Dietary Uses, November 2009 (CX/NFSDU 09/31/3)**
- **Electronic WG (led by France) reviewed various available methods**
- **Recommended to CCNFSDU a number of methods considered most appropriate to quantify DF, taking into account the definition adopted by CAC**

**Items to be decided by  
national authorities**

**.... no consensus within  
Codex on several items**

## **Government regulators to decide ....**

---

- **Whether to include carbohydrates from 3 to 9 monomeric units (oligosaccharides)**
  - ❖ **Adopted definition is for CHO  $\geq$  10 units**
- **Conditions for nutrient content claims for dietary fibre in liquid foods**
  - ❖ **Adopted conditions is for solid foods**
- **Serving size and daily reference value**
  - ❖ **May vary from country to country**

## **Concluding remarks**

- **After a decade of discussions, the issue can be laid to rest; at least for now**
- **Not total agreement, does not satisfy all; but it is something to start with**
- **National authorities will now proceed to put in place their own regulations on DF recognition/ definition and conditions for DF content claim**
  - ❖ **Issues to be decided include oligosaccharides, 3-9 units; required level in liquids for claims**
- **This seminar provides a platform for further understanding the science behind DFs; interaction among regulators and between industry and consumers**

- **The required science should be presented and discussed and all stakeholders given an opportunity to express views**
  - ❖ **Opportunity during panel discussion in the afternoon**
- **The ultimate intention is to enable consumers to obtain appropriate information about DF through nutrition labelling and claims**
  - ❖ **To promote greater intake of DF in view of their importance in lower risk to chronic diseases**