



MANAGING SUGARS WITH FIBRULOSE[®] F97, CHICORY OLIGOFRUCTOSE

April 2015



From seed to food. Naturally



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Naturally

Introduction

- ⇒ Sugar is one of the most controversial ingredient in food.
- ⇒ Though sugar is not (the only) responsible for all chronic diseases, excessive sugar intake should be avoided.
- ⇒ Controlling sugar intake is a necessity in case of blood glucose management disorders (happening often during adulthood) but can also be considered preventively for children...
- ⇒ Discover how **Fibrulose® F97** can be a perfect solution to replace totally sugars in applications where a high solubility is needed



Presentation plan

I

Demonization of sugars

II

**Managing sugars thanks to
Fibrulose[®] F97**

III

**How to promote our solutions toward
your customers?**


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I

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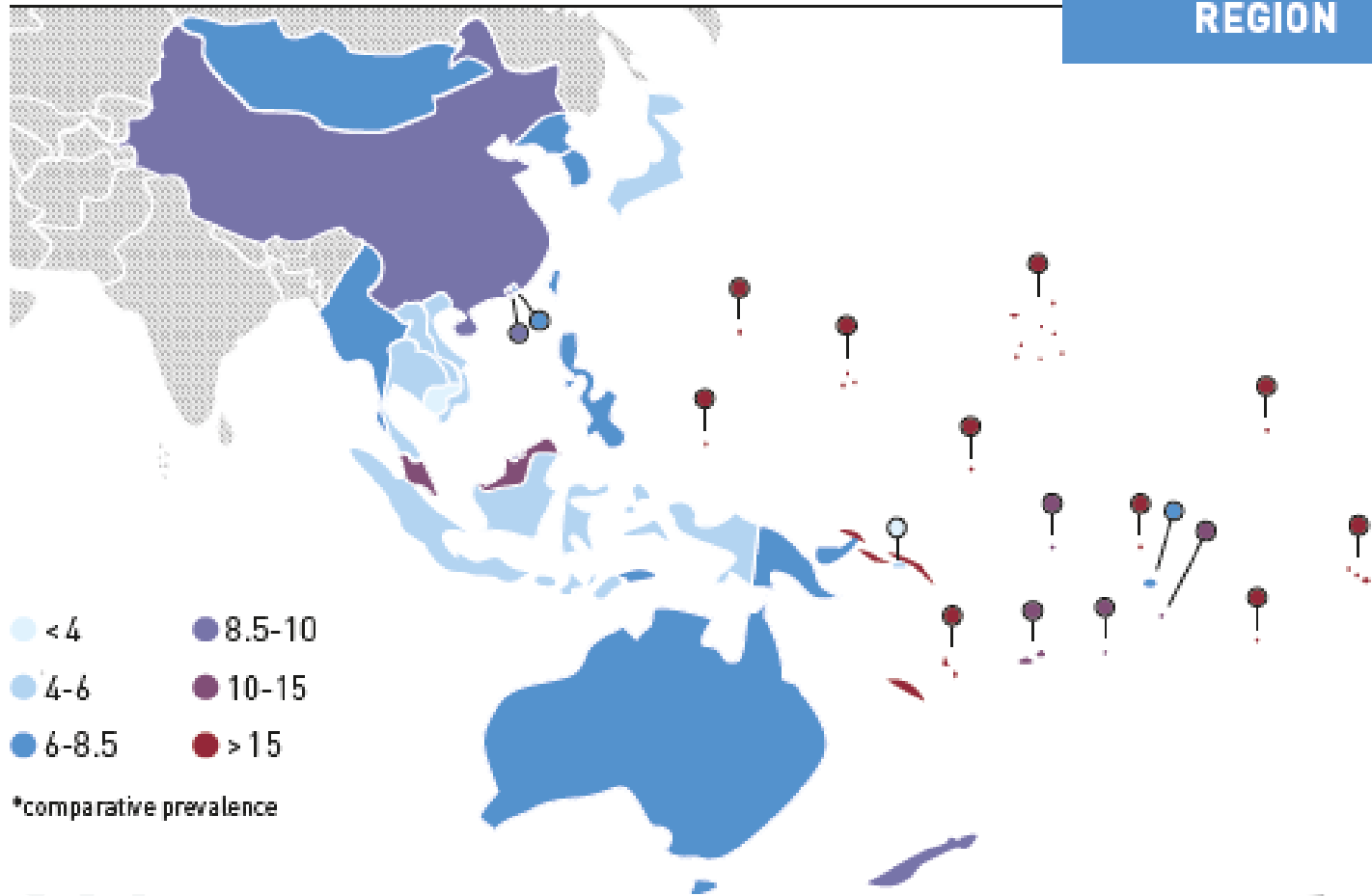

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I- Diabetes prevalence

Map 3.7 Prevalence* (%) estimates of diabetes (20-79 years), 2013

WESTERN PACIFIC
REGION



Source: IDF Diabetes Atlas, 2013

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I- A growing demonization of sugar in the press

THE SCOTSMAN
SCOTLAND & SUNDAY

Thursday 15th May 2014 Light rain 9°C / 18°C

Scotland UK World Politics Transport Education Sci-Tech Environment Health Celebrity Odd O

Dani Garavelli: Is sugar public enemy No 1?

the Jakarta Post

Google™ Custom Search

News

Views

Life

TRAVEL

COMMUNITY

JOBS

Editor's Choice

Headlines

Business

National

Archipelago

Jakarta



Opinion

The Telegraph

Home News World Sport Finance Comment Culture Travel **Life** Won

Women Men Motoring **Health** Property Gardening Food History Rela

Health News Health Advice Diet and Fitness Wellbeing Expat Health Pets

HOME » HEALTH » HEALTH NEWS

Fruit juices and smoothies contain 'horrifying' sugar levels

Telegraph analysis shows that many fruit juices and smoothies contain more sugar than the World Health Organisation recommends an average person should consume in a day

Indonesia's addiction to sugar and fat

Lenard Milich, Jakarta | Opinion | Sat, January 17 2015, 10:32 AM

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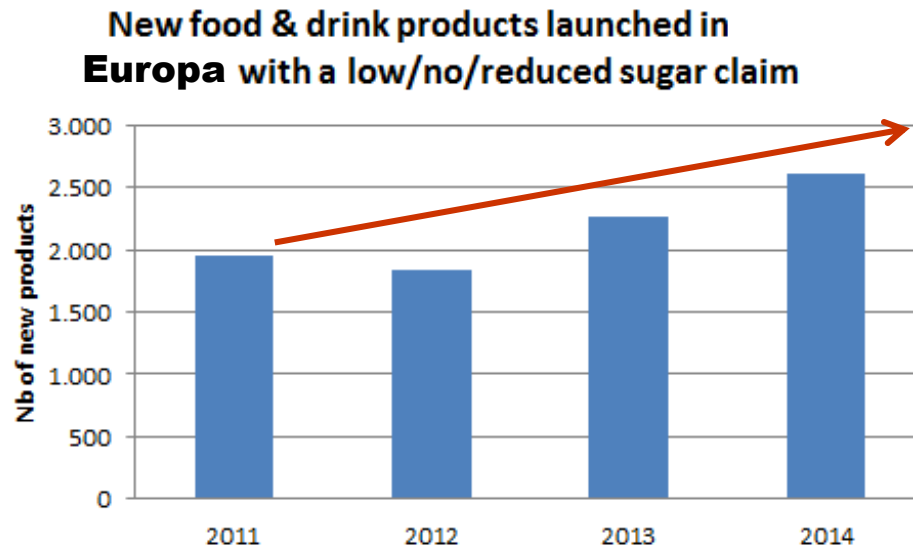
I- A growing demonization of sugar worldwide

- 2014: World health Organisation (WHO) calls for action on sugar
 - ⇒ they recommend a reduction to **below 5%** of total energy intake (*people in UK consume around 15% ...*)
 - ⇒ F&D manufacturers are urged to reduce significantly the amount of added sugars

Examples of
'hidden sugars' in
common
beverages



I- An increasing number of products with less sugars on the shelves



- The number of new product developments with ‘Sugar free’, ‘no added sugar’ or ‘low sugar’ claims has **increased by +34%** between 2011 and 2014.
- New products with a claim related to sugar reduction account for 4,5% of total new product developments worldwide



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II- Replacing sugars with Fibruline[®] inulin & oligofructose



Sugars functionality :

- Sweetness
- Viscosity / Texture / Structure (solubility / crystallisation (eg biscuits, candies))
- Mouthfeel
- Colour / flavour (caramelisation / Maillard reaction)
- Preservative (water activity)
- Energy

Reduction of the sugar content must be done carefully by replacing it with molecules having similar properties



II- Fibruline® Range

Solubility (at 20°C after 24h)

975g/L

350g/L

200g/L

100g/L

~0 g/L

Liquid

Powders



Fibrulose® L85

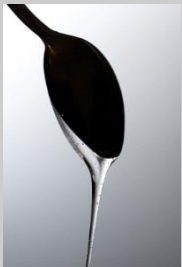
Fibrulose® F97

Fibruline® S20/DS2

Fibruline® Instant
(native inulin)

Fibruline® XL

Gel strength / Fat-mimetic effect
in high water system



Chains length



II- Replacing sugars with Fibruline[®] inulin & oligofructose

SUGAR REDUCED²

The product contains 25% less sugars than a reference product



NO ADDED SUGAR¹

The product does not contain any added mono- or disaccharides or any other food used for its sweetening properties


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Sources:
¹ EU Regulation 1924/2006
² CODEX ALIMENTARIUS, CAC/GL 23-1997
May be subject to local regulations

II- Fibruline® Range

Ingredient content	Oligofructose	Inulin			
	Fibrulose® F97	Fibruline® S20	Fibruline® DS2	Fibruline® Instant	Fibruline® XL
Inulin/ oligofructose on DM	95%	90%	98%	90%	99%
Free sugars on D.M	≤5%	≤10%	2%	≤10%	0,5%
Relative sweetness*	10%	10%	2%	10%	0%

**indicative values based on estimations*



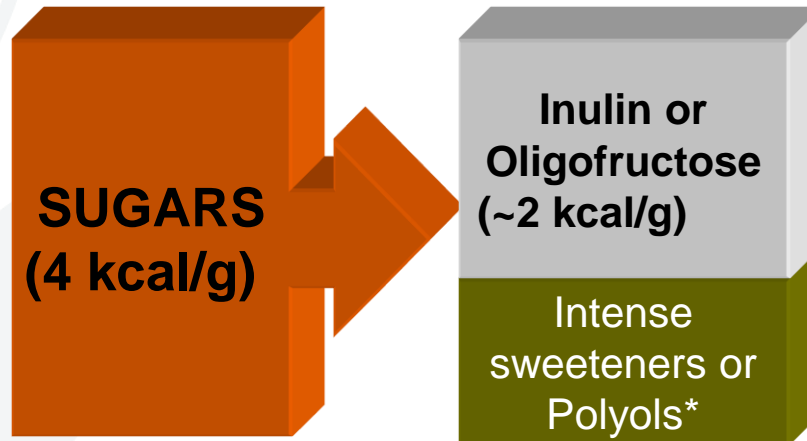
II- Fibruline® Range

- A wide range to ensure we have the best solution to each issue or application.

Ingredient		Main purpose	Main applications
Oligofructose	Fibroluse® F97	<u>Strong sugar reduction</u> , fat reduction and fibre enrichment when high solubility is needed	Bakery Confectionery Fruit preparation Dairy Beverages
Inulin	Fibruline® S20	Sugar and/or fat reduction, fibre enrichment with increased solubility	Dairy Bakery Confectionery Beverages Powder blends Savoury
	Fibruline® DS2	Strong sugar reduction	
	Fibruline® Instant	All-round product - Fat mimetic effect	
	Fibruline® XL	Fat replacement - Strong fat mimetic effect	

II- Replacing sugars with Fibruline[®] inulin & oligofructose

Total sugar replacement



**May be subject to local regulation*

II- Examples of products with total sugar replacement



**Yogurt Flavour Chewing Milk
Seoul Milk (S. Korea) – 2015**
“sugar-free”

Contain FOS & chicory dietary fiber



**Peach and Strawberry
Flavour Juice Drink
Erom (S. Korea) – 2014**
“no added sugar”
Contain FOS



**Diet Jelly mix
Tony Ferguson (Australia) – 2014**
“sugar-free”
Contain inulin



**Chocolate Flavour Milk Drink
for Diabetics
Monysaga Prima (Indonesia) – 2013**
“no added sugar, low GI”
Contain inulin

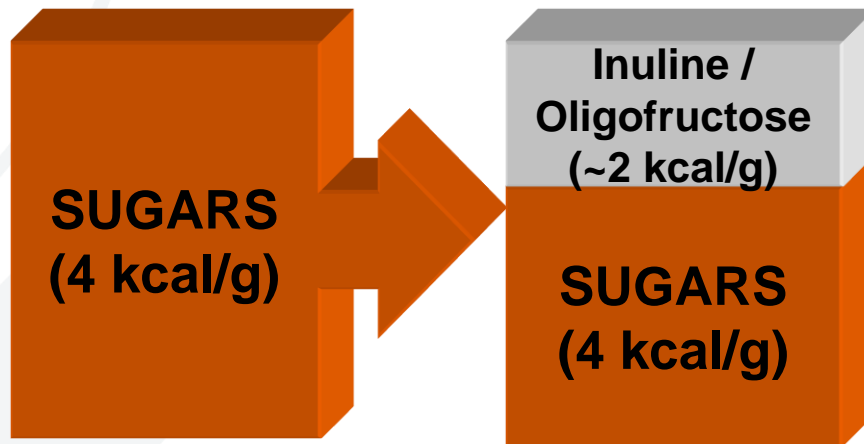


**Healthy Weight Management
Meal
My Gene Lab (Japan) – 2013**
“free from added sugar”
Contain chicory root extract



II- Replacing sugars with Fibruline[®] inulin & oligofructose

Partial sugar replacement



**May be subject to local regulation*

II- Examples of products with partial sugar replacement



Fat Free Yogurt with Nata de Coco
Dutch Mill Thailand – 2014
“0% fat and 64% less sugar”
Contain inulin (in the yogurt)



Skinny Latte
Arla (Denmark) – 2014
“reduced sugar”
Contain inulin



Chocolate Sandwich Cookies
Kraft Foods (S.Korea) – 2012
“contains 19% less sugar”
Contain FOS



Low Sugar Nutritious Cereal Drink
Nestlé (Vietnam) – 2014
“25% less sugar & rich in fiber”
Contain inulin fiber



I- Fibruline[®] as an ideal ingredient for sugar management

- Fibruline[®] inulin or oligofructose **are low calorie ingredients** (≤ 2 kcal/g) than can efficiently **replace part/all sugars** in many F&B applications,
- Physical and chemical characteristics of Fibruline[®] closely match those of sucrose:
 - Soluble
 - Tasteless
 - Heat stable
- Helps to **hide off-taste associated with polyols and intensive sweeteners** (Stevia among them)
- Fibruline[®] inulin or oligofructose have a **high fibre content (min 90% on DM)** \Rightarrow by **reducing sugars you also enrich your product with healthy soluble fibre!**
- With **max 5% free sugars** and **35% solubility**, Fibrulose[®] F97 is a perfect tool for reducing sugars in bakery products
- Fibruline[®] is an ingredient **sourced from nature** \Rightarrow **clean labelling**

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III- Cosucra's solutions for sugar management

No added sugar smoothie

Consumer's perceived qualities	<ul style="list-style-type: none">• Total sugar substitution• A high fibre content to maintain a good digestive health• A nice taste	
Fibrulose® F97 benefits for this product	<ul style="list-style-type: none">• Easy to disperse, good solubility• High fibre content• Invisible in the end-product• Naturally sourced ingredient for sugar reduction	
Technical points	<ul style="list-style-type: none">• Stability of inulin in acid beverages: it is recommended to store the final product in the to avoid acid hydrolysis of inulin• Sweeteners	

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Kilang makanan mamee: Lite Yo, Yogurt drink



Nutrition Facts

Serving Size 230.00g

Servings Per Container 3.30

Per Serving

Energy (kJ) 127.00 kJ

Energy (kcal) 531.00 kcal

Protein 3.70 g

Total fat 0.00 g

Monounsaturated Fatt... 0.00 g

Polyunsaturated Fatt... 0.00 g

Saturated Fatty Acid... 0.00 g

Trans Fatty Acids 0.00 g

Cholesterol 0.00 mg

Carbohydrate 28.10 g

Sugars 21.60 g

Sodium 9.00 mg

→ 9% sugars

Ingredients

water, sucrose, milk solids, mixed berries juice (blueberry juice, strawberry juice, raspberry juice, red grape juice, white grape juice, mulberry juice), collagen (from fish), acidity regulator (citric acid (E330)), live culture (Lactobacillus delbrueckii subsp. bulgaricus, Streptococcus thermophilus), stabilizer (E440), mixed berries flavour and colour (E124, E133)

Lite Yo, Yogurt drink : Sugar reduction



Sugar reduced

✓ Partial substitution: **Fibruline® Instant**

→ Unchanged mouthfeel

→ Nice taste

→ Good stability

→ **Very slightly reduced sweetness**

→ **RE-balanced nutritional profile**
(Fibre-increased, sugar-reduced, combination of pre and probiotic)

May be subject to local regulations



What will change on the label ?



INGREDIENTS: water, **sucrose**, **fructo-oligosaccharides (chicory fibre)**, milk solids, mixed berries juice (blueberry juice, strawberry juice, raspberry juice, red grape juice, white grape juice, mulberry juice), collagen (from fish), acidity regulator (citric acid (E330)), live culture (Lactobacillus delbrueckii subsp. bulgaricus, Streptococcus thermophilus), stabilizer (E440), mixed berries flavour and colour (E124, E133)

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What will change on the label ?



Sugar-reduced

Fibre-increased

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Per Serving

Energy (kJ) 127.00 kJ

Energy (kcal) 531.00 kcal

Protein 3.70 g

Total fat 0.00 g

Monounsaturated Fatt... 0.00 g

Polyunsaturated Fatt... 0.00 g

Saturated Fatty Acid... 0.00 g

Trans Fatty Acids 0.00 g

Cholesterol 0.00 mg

Carbohydrate 28.10 g

Sugars 21.60 g

16,20g sugars

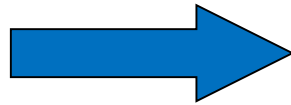
Sodium 9.00 mg

+ Dietary fibres


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Lite Yo, Yogurt drink : Sugar reduction



No added sugars

✓ Total substitution : **Fibrulose® F97**

→ Unchanged mouthfeel

→ Nice taste

→ Excellent stability

→ **Reduced sweetness** (intensive sweeteners* are required for total sugars substitution)

→ **RE-balanced nutritional profile** (High fibre, no added sugar, combination of pre and probiotic)

**May be subject to local regulations*

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What will change on the label ?



No added
sugars

High fibre

INGREDIENTS: water, **fructo-oligosaccharides (chicory fibre)**, milk solids, mixed berries juice (blueberry juice, strawberry juice, raspberry juice, red grape juice, white grape juice, mulberry juice), collagen (from fish), acidity regulator (citric acid (E330)), live culture (Lactobacillus delbrueckii subsp. bulgaricus, Streptococcus thermophilus), stabilizer (E440), mixed berries flavour and colour (E124, E133), **sucralose**


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Servings Per Container 3.30

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Energy (kJ) 127.00 kJ

Energy (kcal) 531.00 kcal

Protein 3.70 g

Total fat 0.00 g

Monounsaturated Fatt... 0.00 g

Polyunsaturated Fatt... 0.00 g

Saturated Fatty Acid... 0.00 g

Trans Fatty Acids 0.00 g

Cholesterol 0.00 mg

Carbohydrate 28.10 g

Sugars 21.60 g

Sodium 9.00 mg

<5?g sugars (depending on the concentration of fruit juice)

+ Dietary fibres


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III- Cosucra's solutions for sugar management

Sugar-reduced / No added sugar cakes

Consumer's perceived qualities

- Delicious taste and texture
- Just the right amount of sugar
- A good source of energy from slow carbohydrates
- Help to maintain digestive health

Fibrulose® F97 benefits for this product

- Naturally-sourced bulking agent for sugar reduction
- Invisible fibre
- Perfect ingredient in products with low water activity
- Easy to use in cakes



Example from the market: Gardenia (PH)

Ingredients : Wheat flour (vitamin A, iron), refined sugar, whole eggs, mango puree, vegetable oil (may contain one or more of the following (palm oil, coconut oil)), purified water, glucose syrup, cake emulsifier, buttermilk powder, leavening agent, dried mangoes, iodized salt, citric acid, artificial vanilla flavour, artificial mango flavour, preservative (potassium sorbate)



Per 30g serving (2 servings per pack):

Calories 112kcal, Calories from fat 36kcal,

Total fat 4g (5% RDA) (of which Saturated Fat 3g (12% RDA), Trans Fat 0g), Cholesterol 18mg (6% RDA),

Sodium 106mg (4% RDA),

Total carbohydrates 17g (5% RDA)

(of which Dietary Fiber 0g (0% RDA) (of which Soluble fibres 0g, Insoluble Fibre 0g), Sugars 7g),

Protein 2g, → **23,3g sugars /100g**

Vitamin A (9% RDA), Vitamin C (0% RDA), Calcium (5% RDA), Iron (7% RDA), Vitamin B1 (3% RDA), Vitamin B2 (2% RDA), Vitamin B3 (11% RDA), Folate (2% RDA)


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Possible sugar reduction



1. Sugar reduced (-25%)

- Final sugar content = **max. 17,5% (or 5,2g sugars/serving)**
- Partial replacement of the refined sugar in the batter by **Fibrulose® F97**
- **Good volume of the cake**
- **Excellent softness**
- **Slightly reduced sweetness**
- **RE-balanced nutritional profile (fibre-increased, sugar-reduced)**



What will change on the label ?

Ingredients : Wheat flour (vitamin A, iron), refined sugar, whole eggs, **fructo-oligosaccharides (chicory fibre)**, mango puree, vegetable oil (may contain one or more of the following (palm oil, coconut oil)), purified water, glucose syrup, cake emulsifier, buttermilk powder, leavening agent, dried mangoes, iodized salt, citric acid, artificial vanilla flavour, artificial mango flavour, preservative

Per 30g serving (2 servings per pack):

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Total fat 4g (5% RDA) (of which Saturated Fat 3g (12% RDA), Trans Fat 0g), Cholesterol 18mg (6% RDA),

Sodium 106mg (4% RDA),

Total carbohydrates 17g (5% RDA)

(of which **Dietary Fiber 1,7g (6,8% RDA)** (of which **Soluble fibres 1,7g**, Insoluble Fibre 0g),

Sugars **5,3g**), \longrightarrow = **17,7g sugars /100g**

Protein 2g, Vitamin A (9% RDA), Vitamin C (0% RDA), Calcium (5% RDA), Iron (7% RDA),

Vitamin B1 (3% RDA), Vitamin B2 (2% RDA), Vitamin B3 (11% RDA), Folate (2% RDA)



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Possible sugar reduction



Per 30g serving (2 servings per pack):
Calories 112kcal, Calories from fat 36kcal,
Total fat 4g (5% RDA)
Sodium 106mg (4% RDA),
Total carbohydrates 17g (5% RDA)
(of which Dietary Fiber 0g (0% RDA)
Sugars 7g), → = 23,3g sugars /100g
Protein 2g,
Vitamin A (9% RDA),

2. No added sugars

- Final sugar content = only residual sugars from the mango puree and mango pieces
- Full replacement of the refined sugar and the glucose syrup in the batter by **Fibrulose® F97 + addition of an intensive sweetener** (e.g. acesulfame K) or combination with polyol (e.g. maltitol)
- **Good volume of the cake**
- **Excellent softness**
- **Good sweetness**
- **Suitable for diabetics**



What will change on the label ?

Ingredients : Wheat flour (vitamin A, iron), **fructo-oligosaccharides (chicory fibre)**, whole eggs, mango puree, vegetable oil (may contain one or more of the following (palm oil, coconut oil)), purified water, cake emulsifier, buttermilk powder, leavening agent, dried mangoes, iodized salt, citric acid, artificial vanilla flavour, artificial mango flavour, preservative (potassium sorbate), **acesulfame K**.

Per 30g serving (2 servings per pack):

Calories 112kcal, Calories from fat 36kcal,

Total fat 4g (5% RDA) (of which Saturated Fat 3g (12% RDA), Trans Fat 0g), Cholesterol 18mg (6% RDA), Sodium 106mg (4% RDA),

Total carbohydrates 17g (5% RDA)

(of which **Dietary Fiber ~6g (80% RDA)** (of which **Soluble fibres ~6g**, Insoluble Fibre 0g), Sugars ~1g (? Depends on the concentration of mangoes),

Protein 2g, Vitamin A (9% RDA), ...



III- Cosucra's solutions for sugar management

Sugar-reduced sandwich biscuits

Consumer's perceived qualities

- Delicious taste and texture
- Just the right amount of sugar
- Help to maintain digestive health

Fibrulose® F97 benefits for this product

- Naturally-sourced bulking agent for sugar reduction
- Invisible fibre
- Perfect ingredient in products with low water activity
- Easy to use in the biscuit & in the filling




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Example from the market



Hwa Tai Industries Berhad
Malaysia

Ingredients : Wheat flour (44%), sugar (22%), palm oil (20%), corn flour(5%), dextrose (3.4%), salt (0.7%), baking powder (0.6%), whey powder (0.4%), lecithin (0.17%), natural identical flavours

Per 20g serving (6 servings per pack): Energy 100kcal, Total fat 4.5g (7% RDA), Cholesterol 0mg (0% RDA), Protein 1g, Total carbohydrates 14g (5% RDA) (of which **sugars 4g**), Sodium 85mg (4% RDA)

= 20g sugars /100g

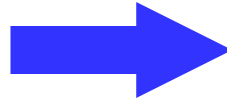


Possible sugar reduction



Per 20g serving (6 servings per pack):

Energy 100kcal,
Total fat 4.5g (7% RDA),
Cholesterol 0mg (0% RDA),
Protein 1g,
Total carbohydrates 14g (5% RDA)
(of which **Sugars 4g**), \longrightarrow = **20g sugars /100g**
Sodium 85mg (4% RDA)



Sugar reduced (-25%)

- Final sugar content = max. 15% (or 3g sugars/serving)
- Sugar reduction **through biscuit dough and through the filling** thanks to **Fibrulose® F97**
- **Nice texture (crispness / hardness) for the biscuit**
- **Good adhesion of the filling**
- **Slightly reduced sweetness**
- **RE-balanced nutritional profile (Fibre-increased, sugar-reduced)**



What will change on the label ?



Sugar-reduced

Fibre-increased

Ingredients : Wheat flour (44%), palm oil (20%), sugar (16,5%), corn flour(5%), **chicory fibre**, dextrose (3.4), salt (0.7%), baking powder (0.6%), whey powder (0.4%), lecithin (0.17%), natural identical flavours

Per 20g serving (6 servings per pack):

Energy 100kcal,
Total fat 4.5g (7% RDA),
Cholesterol 0mg (0% RDA),
Protein 1g,
Total carbohydrates 14g (5% RDA)
(of which Sugars 3g)
Dietary fibres ~1,1g,
Sodium 85mg (4% RDA)


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Conclusion

- Important and growing trend toward sugar reduction and diabetes prevention
 - With max 5% free sugars and 35% solubility, Fibrulose® F97 is a perfect tool for **strong sugar reduction** , especially in biscuits, cakes and other applications needing a high solubility
 - Fibruline® inulin & oligofructose have a **natural image** and enable **clean-labeling** which suits perfectly with premium brands positioning
 - Cosucra **offers more than just ingredients**: we also provide full concept ideas with positioning and claims proposals, technical & regulatory assistance for new product developments,...
- ⇒ Don't hesitate to come and ask for support, we are here for you and to help your customers increase their appeal on the market

