



FEDERAL UNIVERSITY OF SANTA CATARINA – BRAZIL  
*NUTRITION POSTGRADUATE PROGRAM*  
NUTRITION IN FOODSERVICE RESEARCH CENTRE



# Added sugars and low-calorie sweeteners on labels of packaged foods sold in Brazil

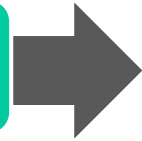
**Rossana Pacheco da Costa Proença**

**Tailane Scapin, Luiza dos Santos Figueiredo, Ana Carolina Fernandes**



# Introduction

## ADDED SUGARS



Sugars and syrups added to foods and beverages during food processing, preparation, or meals<sup>1</sup>



### INTAKE



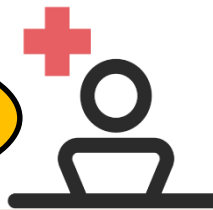
#### WORLDWIDE<sup>2</sup>

9% energy intake (2002)/  
17% energy intake (2014)

#### BRAZIL<sup>3</sup>

15% energy intake (2012)

### HEALTH INJURIES<sup>4</sup>



Tooth decay  
Obesity  
Diabetes  
Hypertension  
Cardiovascular diseases

### RECOMMENDATIONS



#### WHO (2015)<sup>5</sup>

<10% energy intake (strong)  
<5% energy intake (conditional)

**Dietary Guidelines from 85  
countries<sup>6</sup>: avoid added sugars!**

<sup>1</sup>UK, 1989; JOHNSON et al., 2009; FDA, 2014; USDA, 2015; SCAPIN; FERNANDES; PROENÇA, 2017; <sup>2</sup>FAO, 2014; <sup>3</sup>LOUZADA et al., 2015; <sup>4</sup>TE MORENGA; MALARD; MANN, 2013; WANG et al., 2014; FATTORE et al., 2016; FRANTSVE-HAWLEY et al., 2017; ASGARI-TAEE et al., 2018; MAKAREM et al., 2018; <sup>5</sup>WHO, 2015; <sup>6</sup>FAO, 2018.

# Introduction

## PACKAGED FOODS



➔ Main source of intake<sup>1</sup>

ADDED SUGARS → REPLACEMENT BY LOW-CALORIE SWEETENERS?

HEALTH INJURIES<sup>2</sup>



Diabetes  
Metabolic syndrome  
Cardiovascular disease  
Gut microbiota decay

Controversial health effects



<sup>1</sup>FAO, 2014; WITTEKIND; WALTON, 2014; STEELE et al., 2016; CEDIEL et al., 2017; RHANDPUR, 2017; FISBERG et al., 2018; <sup>2</sup>SHARMA et al., 2016; SWITHERS, 2016; AZAD et al., 2017 RUIZ-OJEDA et al., 2019

# Introduction

## PACKAGED FOODS



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# Introduction

**Brazilian food labelling regulation<sup>1</sup>**

Sugar information → not mandatory on Nutrition Facts Table (NFT)

## Ingredients

Whole white rice (90%), sugar, salt, barley malt extract, vitamins (vitamin C, niacin, riboflavin, thiamin, folate), minerals (iron, zinc oxide).

**Only way to identify sugars and low-calorie sweeteners**

<sup>1</sup>BRASIL, 2003; BRASIL, 2002.

# Aim

To analyze the presence and types of added sugars and low-calorie sweeteners in the labels of packaged foods sold in  
Brazil



# Methods

## Food labelling Census - large supermarket in Brazil

**Intentional  
place choice**



To investigate packaged foods from  
different brands sold in national  
context



### Criteria for defining the supermarket

- ✓ Belonging to one of the ten largest supermarket chain in Brazil
- ✓ Have a store located in the city of Florianópolis (Federal University of Santa Catarina)

# Methods

## Data collection

- ✓ All packaged food products subject to Brazilian and Mercosur Food Labeling Regulation were included in the survey
- ✓ Product data (name and type), nutrition information (energy, carbohydrate, protein, total fat, saturated fat, trans fat, fiber, and sodium per serving) and list of ingredients



**Tablets** Samsung  
Galaxy®  
Tab 8.0 note





# Methods



FABRICADO POR: INDÚSTRIA BRASILEIRA. • INGREDIENTES: FARINHA DE TRIGO ENRIQUECIDA COM FERRO E ÁCIDO FÓLICO, OVO INTEGRAL, AÇÚCAR, COBERTURA SABOR CHOCOLATE, RECHEIO SABOR CHOCOLATE (18%) (GORDURA VEGETAL, AÇÚCAR, CACAU EM PÓ, GLUCOSE, AROMATIZANTES, EMULSIFICANTE: LECITINA DE SOJA (INS 322), CONSERVADOR: ÁCIDO SÓRBICO (INS 200) E UMECTANTE: GLICERINA (INS 422)), CALDA AÇUCARADA, GLUCOSE, RISCAS SABOR CHOCOLATE MEIO AMARGO, LEITE INTEGRAL, CARBONATO DE CÁLCIO, GORDURA VEGETAL, SAL, VITAMINAS: B1, B2, NIACINA, B6 E A, UMECTANTES: SORBITOL (INS 420) E GLICERINA (INS 422), EMULSIFICANTE: MONO E DIGLICÉRIDES DE ÁCIDOS GRAXOS (INS 471), FERMENTOS QUÍMICOS: PIROFOSFATO ÁCIDO DE SÓDIO (INS 450i), BICARBONATO DE SÓDIO (INS 500ii), FOSFATO MONOCÁLCICO (INS 341i) E CARBONATO DE CÁLCIO (INS 170i), CONSERVADORES: PROPIONATO DE CÁLCIO (INS 282) E ÁCIDO SÓRBICO (INS 200) E ACIDULANTE: ÁCIDO CÍTRICO (INS 330). **CONTÉM GLÚTEN. CONTÉM TRAÇAS DE: AVEIA, AMEIA, CASTANHA DE CAJU, CENTEIO, CEVADA E GERGELIM.**

Farinha de trigo enriquecida com ferro e ácido fólico, ovo integral, açúcar, cobertura sabor chocolate, recheio sabor chocolate (18%) [gordura vegetal, açúcar, cacau em pó, glucose, aromatizantes, emulsificante: lecitina de soja (INS 322), conservador: ácido ascórbico (INS 200) e umectante: glicerina (INS 422)], calda açucarada, glucose, riscas sabor chocolate meio amargo, leite integral, carbonato de cálcio, gordura vegetal, sal, vitaminas: B1, B2, niacina, B6 e A, umectantes: sorbitol (INS 420) e glicerina (INS 422), emulsificante: mono e diglicerídeos de ácidos graxos (INS 471), fermentos químicos: pirofosfato ácido de sódio (INS 450i), bicarbonato de sódio (INS 500ii), fosfato monocálcico (INS 341i) e carbonato de cálcio (INS 170i), conservadores: propionato de cálcio (INS 282) e ácido sórbico (INS 200)

VERBATIM TRANSCRIPTION → LIST OF INGREDIENTS

# Methods

## ADDED SUGARS (AS) identification

- ✓ Systematic literature review (types)
- ✓ Chemistry books
- ✓ Discussion with experts

## LOW-CALORIE SWEETENERS (LCS) identification

- ✓ Allowed by Brazilian food labelling law
- ✓ 15 categories (18 names)

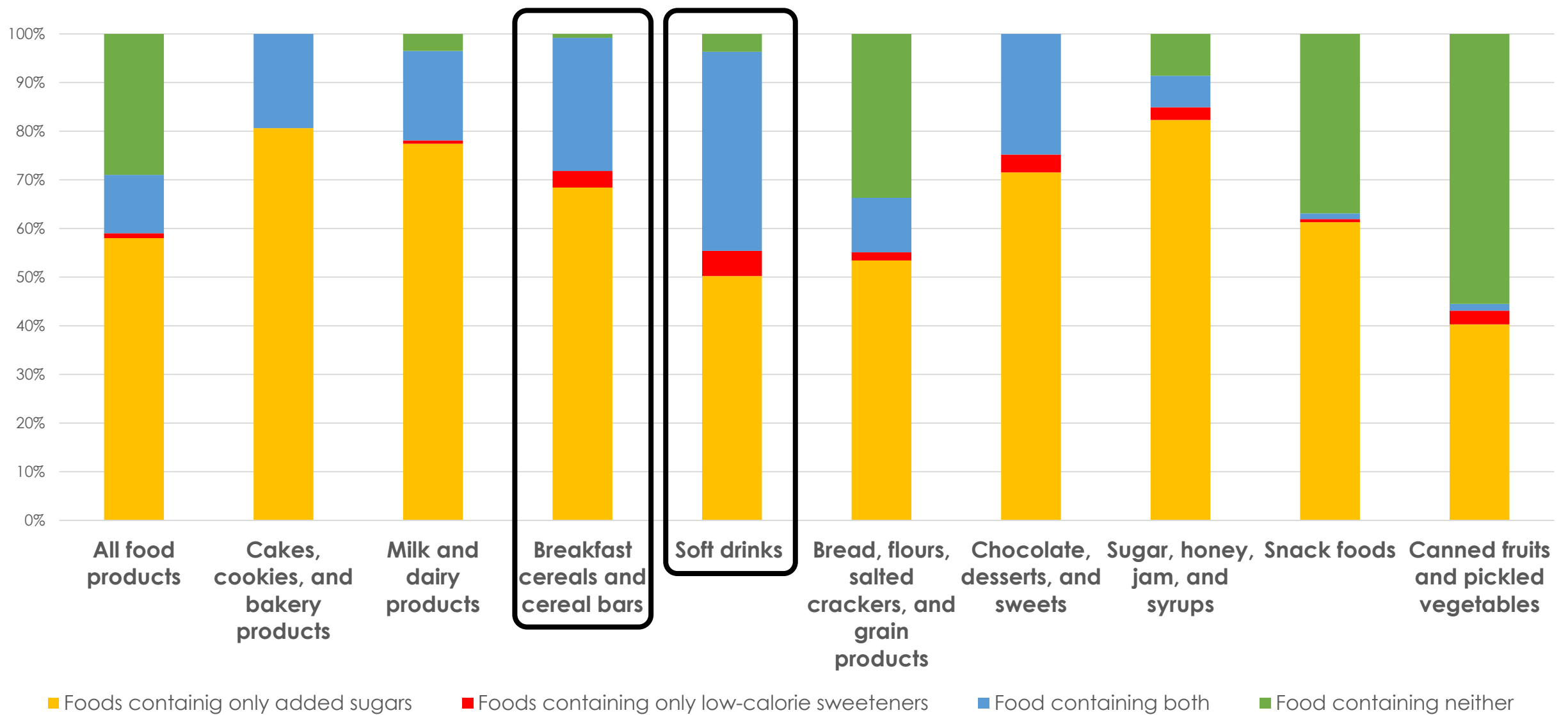
**SCREENING ON THE LIST OF INGREDIENTS → Cluster analysis**

# Results

4539 packaged foods and beverages analysed

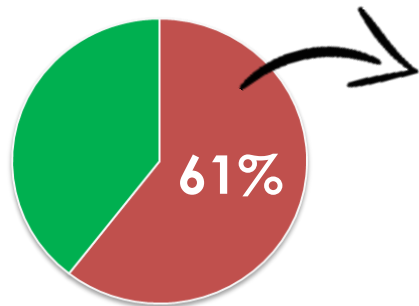


# Results

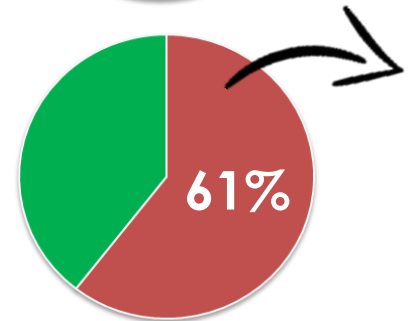


# Results

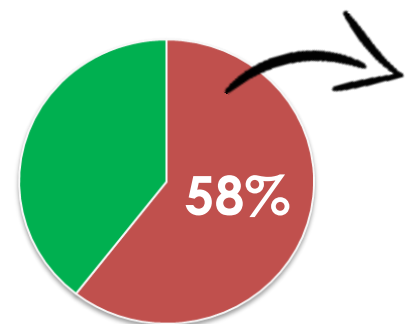
## Added sugars in SALTY FOODS



Processed meat:  
**AS presence**



Gravies, sauces, ready-made seasonings, broths and ready-to-eat dishes: **AS presence**



Canned vegetables:  
**AS presence**



# Discussion

71% of foods → AS presence



Nutrition Facts	
Serving Size 2/3 cup (55g)	
Servings Per Container About 8	
Amount Per Serving	
<b>Calories</b> 230	Calories from Fat 40
% Daily Value*	
<b>Total Fat</b> 8g	<b>12%</b>
Saturated Fat 1g	5%
Trans Fat 0g	
<b>Cholesterol</b> 0mg	<b>0%</b>
<b>Sodium</b> 160mg	<b>7%</b>
<b>Total Carbohydrate</b> 37g	<b>12%</b>
Dietary Fiber 4g	16%

NO SUGAR  
INFORMATION

LIST OF INGREDIENTS



Maltodextrin  
Glucose syrup  
Fructose



<10%

energy intake

How to  
calculate?

13% of foods → LCS presence

Twice → US (6%)<sup>1</sup>

2.6 times greater → Spain (5,1%)<sup>2</sup>

5.5 times greater → Canada (1,8%)<sup>3</sup>



Safety?

11% of foods → both AS + LCS

Why put together?



<sup>1</sup>NG et al., 2012; <sup>2</sup>SAMANIEGO-VAESKEN et al., 2018 ; <sup>3</sup>BERNSTEIN et al., 2016.

# Conclusion

The majority of packaged foods available for purchase in Brazil have AS, LCS or both in their composition

Information on these components need to be clearer on food labels

It is necessary the revision of the Brazilian legislation on food labeling by making the information easier to understand by consumers



## PRESENTATION WITH DATA FROM

Figueiredo, LS, Scapin T, Fernandes AC, Proença RPC. **Where are the low-calorie sweeteners? An analysis of the presence and types of low-calorie sweeteners in packaged foods sold in Brazil from food labelling.** *Public Health Nutr.* 2018;21(3):447-453.

Available on:

<https://www.cambridge.org/core/journals/public-health-nutrition/article/where-are-the-lowcalorie-sweeteners-an-analysis-of-the-presence-and-types-of-lowcalorie-sweeteners-in-packaged-foods-sold-in-brazil-from-food-labelling/>

Scapin T, Fernandes AC, dos Anjos A, Proença RPC. **Use of added sugars in packaged foods sold in Brazil.** *Public Health Nutr.* 2018;21(18):3328-3334.

Available on:

<https://www.cambridge.org/core/journals/public-health-nutrition/article/use-of-added-sugars-in-packaged-foods-sold-in-brazil/>

Scapin T, Fernandes AC, Proença RPC. **Added sugars: definitions, classifications, metabolism and health implications.** *Revista de Nutrição.* 2017;30:663-677.

Available on:

<http://www.scielo.br/pdf/rn/v30n5/1415-5273-rn-30-05-00663.pdf>

*Public Health Nutrition: 21(3), 447–453*

doi:10.1017/S136898001700283X

Where are the low-calorie sweeteners? An analysis of the presence and types of low-calorie sweeteners in packaged foods sold in Brazil from food labelling

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*Public Health Nutrition: page 1 of 7*

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Use of added sugars in packaged foods sold in Brazil

Tailane Scapin<sup>1</sup>, Ana Carolina Fernandes<sup>1,2</sup>, Adilson dos Anjos<sup>3</sup> and Rossana Pacheco da Costa Proença<sup>1,2,\*</sup>

Added sugars: Definitions, classifications, metabolism and health implications

*Açúcares de adição: definições, classificações, metabolismo e implicações à saúde*

Tailane SCAPIN<sup>1</sup>  
Ana Carolina FERNANDES<sup>1</sup>  
Rossana Pacheco da Costa PROENÇA<sup>1</sup>



# Researches on going

- 1. Systematic review of sugars information on food label and influence on consumer's understanding and food choice**
- 2. Focus groups with college students in regarding comprehension about sugars and food label formats – sugars information**
- 3. A randomized controlled trial with college students about formats of sugars information on food label and influence on food choice**

# Authors contacts

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**Research Gate:**

[https://www.researchgate.net/profile/Rossana\\_Proenca](https://www.researchgate.net/profile/Rossana_Proenca)

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[https://scholar.google.com.br/citations?user=\\_9lr3WMAAAAJ&hl=pt-BR&oi=ao](https://scholar.google.com.br/citations?user=_9lr3WMAAAAJ&hl=pt-BR&oi=ao)

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