SENSORY PROFILE OF DIET AND TRADITIONAL GLUTEN-FREE BUN

Morais, E. C*.; Bolini, H. M. A.; Rocha, G. A.

(1)State University of Campinas (UNICAMP), Campinas/SP, Brazil - Faculty of Food Engineering - Department of Food and Nutrition

*email: elisacm@fea.unicamp.br

Laboratory of Sensory Science and Consumer Research

INTRODUCTION

Celiac disease (CD) is a genetically based autoimmune enterophaty caused by a permanent sensitivity to gluten. It affects 0.5-1% of the population and the mainstay of treatment is life-long adherence to a gluten-free diet. Gluten-free breads contains less nutritional important ingredients than ordinary bread. It is so important to produce new gluten-free breads with added nutritional value and prebiotic action. The aim of this study was to determine the sensory profile of six samples of gluten-free bun, using the methodology of quantitative descriptive analysis (QDA).

MATERIAL AND METHODS

Material

- 6 formulations of gluten-free bun (raw sugar, fructose, sucralose, stevia, inulin and fructooligosaccharides)

Methods

- 12 trained panelistis
- 14 attributes covering appearance, aroma, taste and texture.
- sensory data were analyzed by ANOVA and Tukey test ($p<0.05$), using Statistical Analysis System – SAS (2008).

RESULTS AND DISCUSSION

- Formulations of gluten-free bun



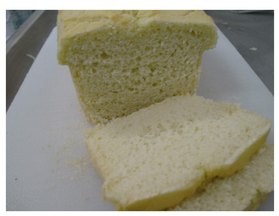
(a) raw sugar



(b) fructooligosaccharides



(c) sucralose



(d) stevia



(e) fructose



(f) inulin

Table 1. Sensory attributes and definitions used for the evaluation of the 6 samples of gluten-free bun.

SENSORY ATTRIBUTES	DEFINITION
Appearance	
Crumb color	Crumb characteristic color after baking
Crust color	Crust characteristic color after baking
Porosity	The extend of perforation of the bread surface, this encompassing the holes, cracks allowing the permeation of air.
Softness	Force necessary to compress the slice on a flat surface with one finger obtaining a deformation of about 50%.
Aroma	
Yeast	Characteristic aroma of yeast fermentation perceived by olfaction
Sweetish	Characteristic aroma of caramel perceived by olfaction
Traditional bun	Characteristic aroma of traditional bun perceived by olfaction
Taste	
Sweet	Characteristic taste of sucrose solution
Salty	Fundamental taste sensations elicited by sodium chloride
Fermented	Characteristic taste of yeast
Texture	
Chewiness	Number of chews required before swallowing
Adhesiveness	Force required to remove sample completely from the palate, using the tongue during consumption
Hardness	Force required to press a sample with the teeth
Rubbery	Persistent density perceived during chewing: time required to crumble and swallow a bite of bread

Table 2. Mean ratings for the 14 sensory descriptors of the 6 samples of gluten-free bun.

	SAMPLES					
ATTRIBUTE	A	B	C	D	E	F
APPEARANCE						
Crumb color	7.05 ^{b}	6.83 ^{c}	7.9 ^{a}	7.6 ^{a}	7.16 ^{b}	6.93 ^{c}
Crust color	6.77 ^{a}	6.55 ^{a}	5.66 ^{b}	4.81 ^{c}	4.92 ^{c}	4.80 ^{c}
Porosity	3.15 ^{c,d}	7.65 ^{a}	3.56 ^{c}	5.60 ^{b}	5.36 ^{b}	3.46 ^{c}
Softness	3.93 ^{a}	3.07 ^{c}	3.59 ^{b}	3.64 ^{b}	3.84 ^{a}	3.27 ^{c}
AROMA						
Yeast	6.87 ^{c,d}	7.06 ^{c}	7.65 ^{b}	8.12 ^{a}	7.83 ^{a,b}	7.89 ^{a,b}
Sweetish	1.65 ^{d}	2.31 ^{c}	1.63 ^{d}	3.09 ^{b}	3.51 ^{a}	3.69 ^{a}
Traditional bun	2.19 ^{c}	3.17 ^{b}	1.49 ^{d}	2.45 ^{c}	4.99 ^{a}	2.36 ^{c}
TASTE						
Sweet	5.45 ^{a}	4.79 ^{b}	3.22 ^{c}	3.93 ^{b,c}	3.99 ^{b,c}	4.03 ^{b}
Salty	1.65 ^{b,c}	1.76 ^{b}	1.52 ^{c}	1.97 ^{a}	2.01 ^{a}	1.56 ^{c}
Fermented	7.54 ^{b,c}	7.32 ^{c}	7.81 ^{b}	8.12 ^{a}	7.66 ^{b,c}	7.59 ^{b,c}
TEXTURE						
Chewiness	7.13 ^{c,d}	7.45 ^{c}	7.09 ^{d}	8.17 ^{a}	7.61 ^{b}	8.09 ^{a}
Adhesiveness	7.91 ^{b}	8.15 ^{a}	7.54 ^{c}	6.96 ^{d}	7.05 ^{d}	8.03 ^{a,b}
Hardness	6.98 ^{d}	7.37 ^{c}	7.56 ^{b,c}	7.82 ^{a}	7.23 ^{c,d}	7,09 ^{d}
Rubbery	6.99 ^{c}	7.39 ^{b,c}	8.02 ^{a}	7.86 ^{b}	8.07 ^{a}	7.55 ^{b,c}

Averages with the same letters do not differ significantly ($p<0.05$) in the same line, by Tukey test.

CONCLUSION

- sample E showed the highest aroma of traditional bun.
- samples were characterized by a rigid texture and fermented taste.

- **ACKNOWLEDGEMENT**: CNPq