

Impact of Storage Time on Consumer Preference of Chocolate WithHigh-Intensity Sweeteners

INTRODUCTION

The objective of the current study was to determine the acceptance of dietary milk chocolates after storage. Four milk chocolates were sweetened with sucrose, sucralose, rebaudioside, or neotame, and four other milk chocolates were formulated with the same sweeteners and using soy extract instead of milk (lactose-free chocolates).

MATERIAL AND METHODS

- . Eight prototypes (Table 1) were stored at 18C in individual aluminized packages for a period of 12 months.
- . The acceptance tests were conducted by 150 consumers, after 0, 3, 6, 8, 10, 11, and 12 months.
- . The consumer data were analyzed through linear regression for each sample over time and through an internal preference map using principal component analysis (PCA) to study the consumer preferences in relation to all of the samples after all of the storage times.

Ingredients (%)	MSA	MSU	MRE	MNE	SSA	SSU	SRE	SNE
Sucrose	43.00	_	_	_	43.00	_	_	_
Cocoa butter	21.30	21.30	21.30	21.30	22.30	22.30	22.30	22.30
Cocoa mass	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00
Dry milk	12.00	12.00	12.00	12.00	_	_	_	_
Nonfat dry milk	9.00	9.00	9.00	9.00	_	_	_	_
Soy lecithin	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
PGPR*	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Vanilla flavor	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Soy extract	_	_	_	_	20.00	15.80	15.80	15.80
Sucralose	_	0.075	_	_	_	0.075	_	_
Rebaudioside	_	_	0.215	_	_	_	0.215	_
Neotame	_	_	_	0.005	_	_	_	0.005
Polydextrose	_	17.00	17.00	17.00	_	21.20	21.20	21.20
Erithritol	—	26.00	26.00	26.00	—	26.00	26.00	26.00

TABLE 1. RECIPES USED IN TRADITIONAL AND DIET MILK CHOCOLATES

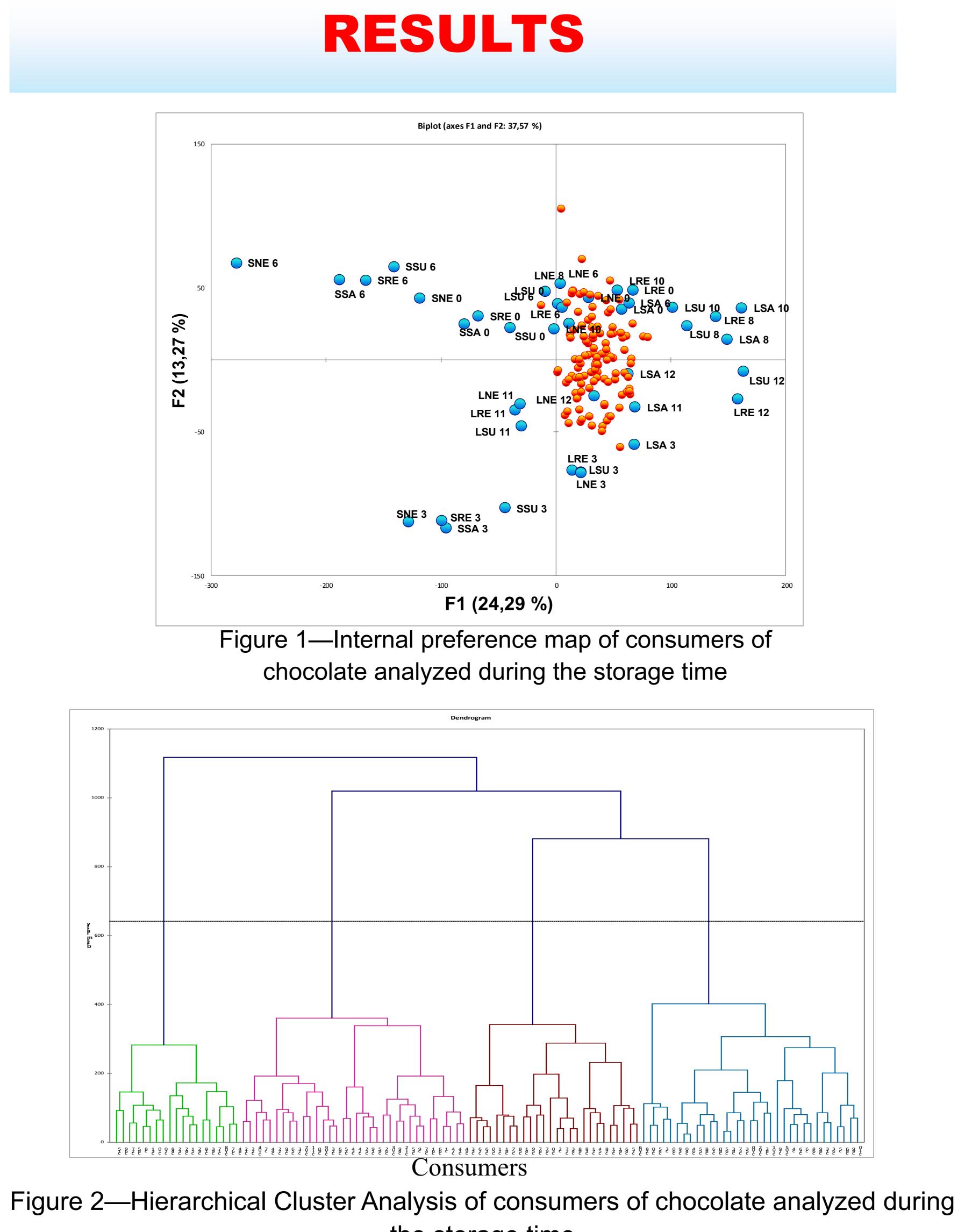
* PGPR (polyglycerol polyricinoleate).

Coded chocolates: MNE, milk neotame; MRE, milk rebaudioside; MSA, milk sucrose; MSU, milk sucralose; SER, soy rebaudioside; SNE, soy neotame; SSA, soy sucrose; SSU, soy sucralose.

Helena M.A. Bolini¹* and Alessandra B. Palazzo²

¹Phone +55 19 3521 4083, Fax: +55 19 3521 4060, e-mail: hellini@fea.unicamp.br, Laboratory of Sensory Science and Consumer Research, University of Campinas/UNICAMP, Campinas, Sao Paulo, Brazil. *Presenter author

²Phone +55 19 3521 4084, Fax: +55 19 3521 4060, e-mail: alebugatte@bol.com.br, Laboratory of Sensory Science and Consumer Research, University of Campinas/UNICAMP, Campinas, Sao Paulo Brazil



the storage time

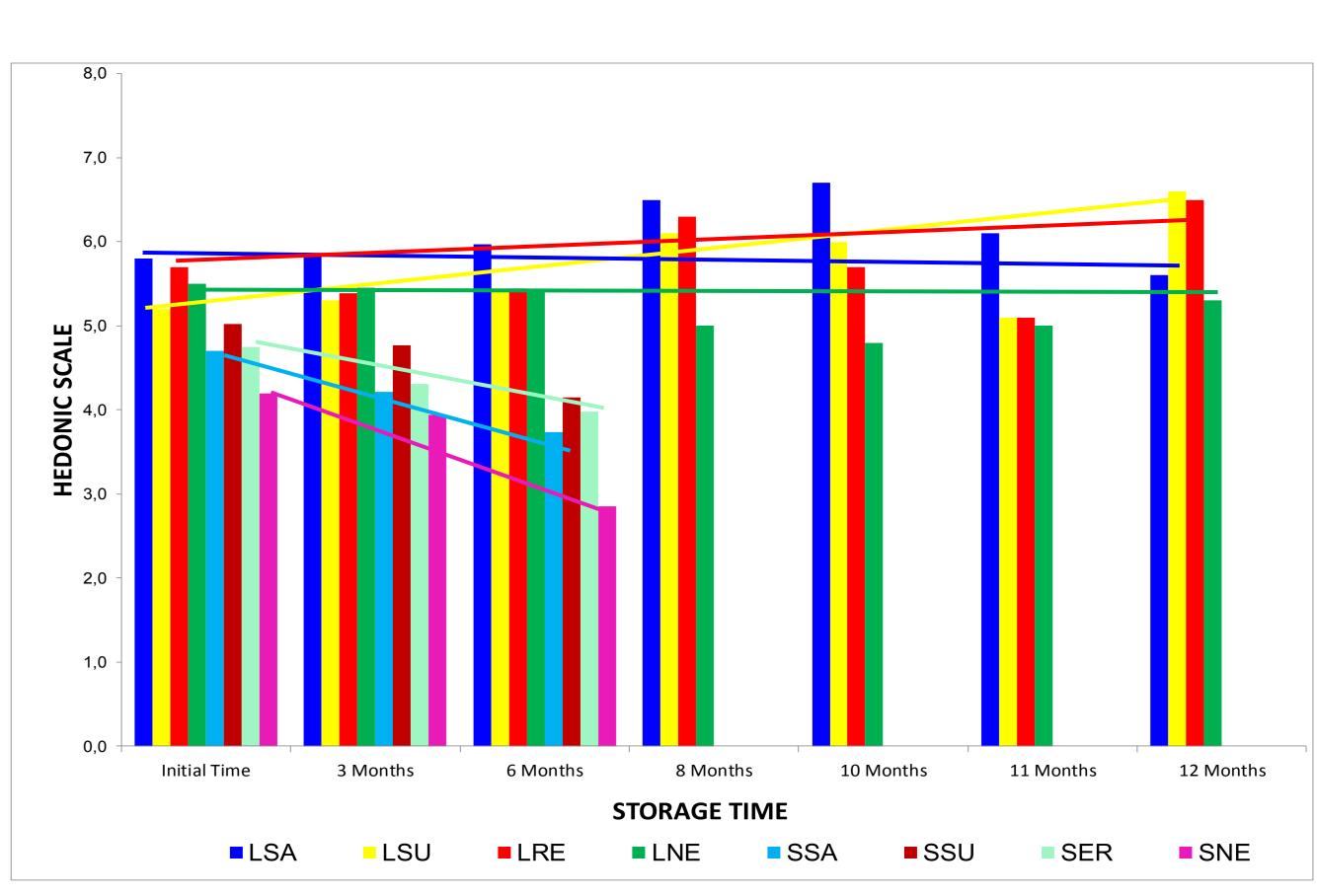


Figure 3—Acceptance means of chocolate analyzed during the storage time

The acceptance of chocolates with soy extract decreased after six months

The chocolate formulated with milk presented good acceptance and higher preferences at all storage times (up to 12 months).

extract in lieu of milk.

It is possible to suggest that the storage time of chocolate formulated with sucrose or other sweeteners is 12 months, whereas the storage time of chocolates formulated with soy extract



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CONCLUSION

The impact of the storage time on acceptance was higher for the samples formulated with soy

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