

Sensory Acceptance of Sweet Potato in Chips Format by Public School Students in Sertânia, Pernambuco, Brazil

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Abstract

Thus, the objective of this study is to evaluate the sensory acceptance of sweet potato in “chips” format by adolescents in public schools, aiming at is commercialization in this consumer market. Sweet potato was peeled; cut was performed with the aid of multiprocessor foods (Metvisa) for obtaining the chips. Sensory analysis is based on nine-point hedonic scale ratings: 9 = like extremely and 1= dislike extremely. The tasters attributed notes for the attributes appearance, aroma, flavor and color. The sensory attributes presented notes ranging from 5 (neither liked/nor disliked) to 9 (liked extremely). This shows that the sweet potato “chips” were well acceptance by the tasters. Being that approximately 96% of the testers attributed notes above 6 (liked slightly) to the sensory attributes evaluated. Results showing independently of the sex of the tasters the production of “chips” of sweet potatoes by the food industry have a great possibility of success, according to its acceptability among the tasters.

Keywords: *Ipomoea Batatas* L; Minimally Processing; Adolescents; Acceptability;

Introduction

Changes in food habits of the world population with regard to healthy foods, nutritious and easy to prepare come causing changes in agroindustry what vision to meet this new market niche consumer. Minimally processing products has been gaining featured year after year, as it is a food that maintains its organoleptic characteristics such as color, flavor and texture. In addition to other relevant characteristics for the product under analysis.

Sweet potato (*Ipomoea batatas* L.), an appreciated root vegetable in the world-wide, due to its nutritional value, presenting carbohydrates (~ 20 g/100 g), with to featured starch, which is responsible for approximately 65% of carbohydrates [1], besides being a source of antioxidants, potassium, calcium, iron, manganese, magnesium, zinc, vitamin A, vitamin C and beta-carotene [2, 3].

In Brazil, the sweet potato is among the four most consumed vegetables [4]. The sweet potato is consumed generally cooked in the northeastern region of the country. In addition, it can be used for the preparation of different dishes. However, the way it is, served may not be attractive to a determined type of consumer, especially the teenagers, who often does not care about the nutritional content of the food they consume.

According to Araújo [5], the production of new products becomes important in the diversification of products offered on the market and with greater possibility of consumer acceptance. These innovations allow the food industry to meet different public, where each consumer has their preferences.

The different acceptance test using a hedonic scale can measure the acceptance of the product with certain of security. Being possible, have an indication of the product with potential to become a success among consumers. In this way, the realization of the sensory analysis becomes a tool in the verification of the acceptance of the product by consumers.

Thus, the objective of this study is to evaluate the sensory acceptance of sweet potato in “chips” format by adolescents in public schools, aiming at is commercialization in this consumer market niche.

Material and Methods

Study location

This, study was carried out at the laboratory of agriculture of the State Technical School Arlindo Ferreira dos Santos, Sertânia - PE, Brazil.

Plant material and minimal processing

Sweet potato was, acquired in a house of vegetables in the city of Sertânia-PE. Potatoes were transported to the laboratory

of agriculture of the State Technical School Arlindo Ferreira dos Santos. They were, selected and washed in running water with the aid of a brush. After being washed were kept stored in a refrigerator at $5 \pm 2^\circ \text{C}$ for 24 hours.

The chips were obtained through the minimal processing of sweet potato. Potatoes were peeled cut was performed with the aid of a multiprocessor foods (Metvisa) for obtaining the chips. After obtaining the chips was performed sanitizing in water at $5 \pm 2^\circ \text{C}$ (containing 10 mg L^{-1} of active chlorine) for 10 minutes; immersion in chlorinated (containing 5 mg L^{-1} of active chlorine) for 5 minutes. Then, it was drainage performed for elimination of excess water from the product; was used soy oil for frying the chips. Then, carried out the sensory analysis of the product.

Sensory analysis of sweet potato chips

The sensory analysis was performed with 108 untrained tasters (54 men and 54 women) with age between 16 to 18 years, students from public schools who have visited the 5th Pedagogical show held on 23 and 24 November 2017, held at the State Technical School Arlindo Ferreira dos Santos.

The evaluation sheets were listed with three digits of random way. Acceptance testing was performed with the aid of a hedonic

scale nine points, liked extremely (9); liked much (8); liked moderately (7); liked slightly (6); neither liked/ nor disliked (5); disliked slightly (4); disliked moderately (3); disliked much (2); disliked extremely (1) [6]

The tasters attributed notes for the attributes appearance, aroma, flavor and color. Samples of sweet potato in the format chips were standardized and served to the testers who performed the testing in individual cabins so that there was no contact with other tasters.

Statistical analysis

The data obtained subjected to normality and homoscedasticity tests, analysis of variance (ANOVA), Turkey's test at 5% probability, using ASSISTAT version 7.7. The graphs were generated using Sigma Plot version 12. The averages were compared by Turkey test at a 5% level of probability.

Results and Discussion

Sensorial analysis showed that the color sensory attribute was the only one that presented significant difference at 5% probability among the sensorial attributes evaluated (Table 1). Where male testers attributed lower scores relative to females.

Table 1: Sensory analysis of sweet potato chips.

Tasters	Attributes evaluated			
	Appearance	Aroma	Flavor	Color
Men	8,19 ± 1,12 a	8,00 ± 0,00 a	8,11 ± 1,19 a	7,70 ± 1,41 b
Woman	8,49 ± 0,88 a	8,04 ± 1,21 a	8,33 ± 0,95 a	8,18 ± 1,03 a

Data are means ± standard deviation. Means ± S.D with the same letter in the column are not significantly different by Turkey test ($p < .05$). Sensory analysis is based on nine-point hedonic scale ratings: 9 = like extremely and 1= dislike extremely.

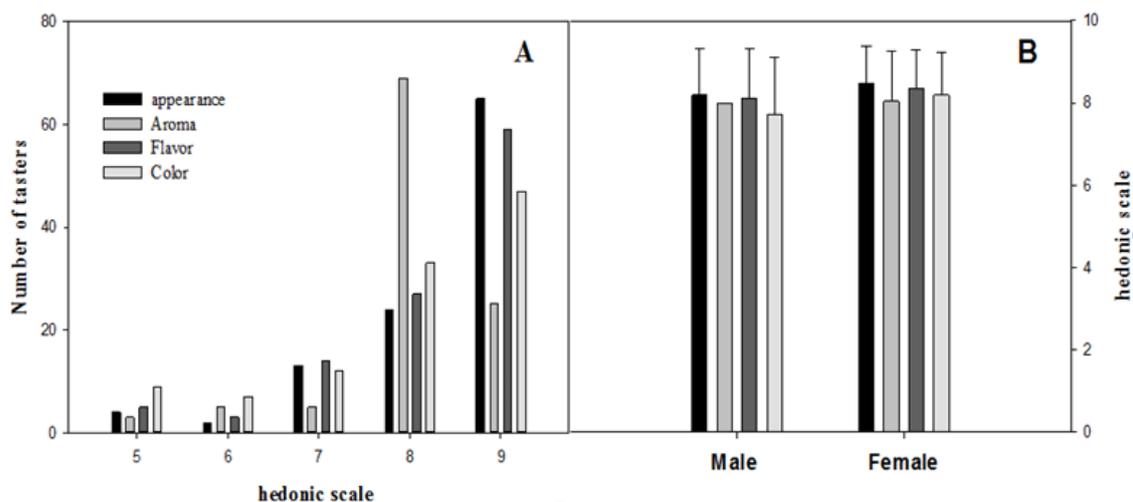


Figure 1: Notes attributed by tasters to sensory attributes (A) and Notes attributed by male and female tasters to the sensory attributes (B). Sensory analysis is based on nine-point hedonic scale ratings: 9 = like extremely and 1 dislike extremely. Data are means ± standard deviation.

Results corroborate with Araujo et al. [5] which by conducting sensory analysis of fried sweet potato in chip and toothpick formats, obtained significant differences between the average notes attributed by the testers in the color sensory attribute.

This significant difference in the notes attributed by the tasters with respect to color may be related to the frying time of the chips, in view that this may influence the color of the product and indirectly influence the assigned notes.

The sensory attributes presented notes ranging from 5 (neither liked/nor disliked) to 9 (liked extremely) (Figure 1 A). This shows that the sweet potato “chips” were well acceptance by the tasters, since the hedonic scale used in the sensory evaluation varied from 9 (I liked it extremely) to 1 (disliked extremely). Being that approximately 96% of the testers attributed notes above 6 (liked slightly) to the sensory attributes evaluated.

Independent of the sex of the tasters, it was observed average notes above 8 (liked much), as demonstrated in Figure 1 B, showing the acceptance of the sweet potato chips by the testers who performed the sensory analysis.

Different studies show that food products containing sweet potatoes as an ingredient, present in their analyses sensory good acceptance by the tasters, such products as, puree [7], cookies [8], bread [9], chips [10], ice cream [11], among others.

Conclusion

Through the results obtained in the sensorial analysis, we can affirm that the sweet potato fried in chips format was accepted by the students of public schools in the municipality of Sertânia. With age between 16 to 18 years regardless of gender, showing that the production of chips of sweet potatoes by the food industry has a great possibility of success, according to its acceptability among the tasters, becoming an alternative product to those already existing in the market.

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