Sensory evaluation of buffalo butter

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ABSTRACT: Butter obtained from buffalo milk was compared with commercial products obtained from cow milk. One buffalo butter and two cow butters were subjected to sensory analysis using non-trained panelists. The acceptance related to sensorial characteristics (color, flavor, and firmness) was evaluated through a 9 point structured hedonic scale varying from “I displeased extremely” to “I liked extremely”. Analysis of variance (ANOVA) was performed to evaluate the sensory characteristics and the means were compared by Tukey’s Test at 5% of significance. The buffalo butter received lower scores than the others for all attributes. The greatest difference was observed for color, as the buffalo butter exhibited a white color contrasting with the yellow color of commercial butters, which is the pattern expected by the consumers. For flavor and firmness attributes, the buffalo butter received scores similar to the commercial products. These results show. These results shows that the buffalo’s butter has a good acceptance on local market, and this could be improved through the correction of product’s color, what can be obtained by adding a dye.

Key words: Acceptance, Buffaloes, Butter, Sensory analyses.

INTRODUCTION - Butter is a fatty product where the watery phase is dispersed in the oily phase, forming a water/oil emulsion (Bylund, 1995). It's rich in phospholipids as lecithin and glycoprotein, and in fat soluble vitamins as A and D. (Schimidt, 2005). The dairy products industry is searching to maintain its competitiveness investing in new products and processes. Buffalo's milk presents high nutritional values high fat levels, proteins and minerals, being important as either non-processed product or raw material for transformation. The interest for buffalo milk production has been growing in Brazil in the last years, especially in south-eastern region states, where the animal's milk is almost totally designated to the mozzarella cheese production (Macedo, 2001). The high fat level in buffalo’s milk, more than 5.5% (Fernandes et al., 2005) indicates the possibility of using it for the manufacturing of milk cream products. However, little is known
on buffalo’s dairy products, such as butter. The objective of this trial was to evaluate the acceptance of buffalo’s butter in comparison with commercial bovine butter in relation to color, flavor, flavor and firmness.

**MATERIAL AND METHODS -** Two commercial products obtained from cow milk and one buffalo butter, were subjected to sensory analysis using a panel composed by 78 non trained tasters, chosen among the students and the employees of the Universidade Estadual do Sudoeste da Bahia, Itapetinga, Bahia - Brasil. A 9-point structured hedonic scale, varying from “I displeased extremely” (grade 1) to “I liked extremely” (grade 9) was used. The Analysis of variance (ANOVA) was performed to evaluate the sensory characteristics and the means were compared by Tukey’s Test at 5% of significance (Table 1).

### Table 1. Analysis of variance (ANOVA) for color, flavor and firmness.

| Source of Variations | DF  | Mean Sum of Squares |   |
|----------------------|-----|---------------------|---|
|                      |     | Color               | Flavor | Firmness |
| Butter               | 2   | 208.94*             | 28.24* | 14.21* |
| Resíduo              | 231 | 2.26                | 1.68   | 1.86   |

* P< 0.05.

### RESULTS AND CONCLUSION -** Significant differences were observed (P<0,005) between the products as the buffalo butter presented means lower than bovine butters for all attributes (Table 2).

### Table 2. Acceptance of butters for color, flavor and firmness.

| Butters           | Color | Flavor | Firmness |
|-------------------|-------|--------|----------|
| Buffalo butter    | 5,1a  | 6,6a   | 6,9a     |
| Dairy butter A    | 8,1b  | 7,7b   | 7,7b     |
| Dairy butter B    | 7,8b  | 7,6b   | 7,7b     |

Within columns a, b indicate significant differences at P<0.05 (Tukey’s test); include a measure of the variability around the means (either standard errors or standard deviations).

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The biggest difference was observed in the color parameter, being “indifferent” the average score of buffalo’s butter, when the commercial stamps’ scores were close to “I liked very much”. This difference is due to the fact that the buffalo butter was white contrasting with the commercial butter’s yellow color, which is an expected, wanted by the consumers. Although the grade’s average indicates that the consumers were indifferent to the buffalo’s butter
color, this attribute’s moda (grade 4 equivalent to “I displeased slightly”) indicates that most of the consumers had a negative acceptance, the opposite of the commercial stamp’s moda (grade 8 equivalent to “I liked very much”), what indicates a positive acceptance. This situation can be to “…reverted using a dye during the manufacturing, in order to correct the color of the butter. In relation to the attribute flavor the buffalo’s butter obtained grades between “I liked slightly” and “I liked moderately” whereas the commercial products received grades between “I liked moderately” and “I liked very much”. As to the attributes flavor and firmness, the moda of all the three evaluated samples was 8, what corresponds to “I liked very much”, indicating that the main difference observed between the products is associated to the color. These results indicate that, although bovine butters received higher scores, the buffalo product showed a good acceptance in the studied market, in relation to flavor and firmness. The product’s acceptability can be improved by adding a dye to give the expected color to the product.

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