

MICROBIOLOGICAL AND SENSORIAL EVALUATION OF THE "BABY BUFFALO" MEAT

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ABSTRACT

This work aimed to determine the microbiological and sensorial income of the "baby buffalo" meat, fattened in cultivated pasture, Para State, Brazil, being aimed at alternative to raise its income and standard of quality, buffaloes of 22 months old and 465 kg of weight in slaughter. Were taken samples of tenderloin, rump and round beef for the microbiological analyses (totals and fecal coliforms and *Salmonellas*). Sensorial analysis of rump and round beef of "baby buffalo" and precocious bovine was carried through, for comparison, for no-trained and trained tasters. Differences in the taste had not been detected, indicating that the buffalo meat is an excellent alternative, quality, with color, similar odor, flavor and texture to the bovine meat. The microbiological analyses presenting adjusted sanitary conditions to human consumption.

Key words: Amazon, microbiology, coliforms, salmonellas.

INTRODUCTION

Buffaloes are each time more popular in Brazil, because the flavor of its meat, as also for its mozzarella. Currently, the great news is the "baby buffalo", that in the Para State Brazil, is the animal that is good to be slaughtered when is between 18 and 24 months of age, weighing alive 450 to 500 kg. The meat has attractive flavor and contains less saturated fats and cholesterol, being indicated for people of all the ages, because is an excellent protein source, contains all the essential amino acids, and for people with high cholesterol tax, for containing reduced cholesterol level (3). The meat has been recognized as primary source of infection, when not adequately manipulated and associate as vehicle of pathogenic germs to human health, among them the *Salmonella spp.*, the *Staphylococcus aureus* and the coliforms (1). On the other hand, food is a system of multiple stimulations and its organoleptic characteristics determine its attraction to the consumer. The aspect, consistency and smell stimulate the vision, hearing, feeling, smell and palate, producing reactions that go from desire to rejection, not attributing only one criterion on this decision. Without despise the importance of health and nutrition, in normal conditions, at the moment to choose the food, the first and main consideration is the sensorial one, what determines the importance of measuring, evaluating or quantifying its quality in foods (2). The objective of this work was to evaluate the microbiological and sensorial characteristics of "baby buffalo" meat, proceeding from cultivated pasture, at Para State, in order to get information on the quality of this product, with consequent economical valorization.

MATERIAL AND METHODS

Were used "baby buffalo" of the Murrah race, raised in *Brachiaria humidicola*, in Para State, Brazil, until the age of 20 months old. The animals were slaughtered in abstinence of food and water diet.

The microbiological analyses of the meat were carried out in the Laboratory of Chemical Engineering of the Federal University of Pará and Moraes Foods, in Belém, Pará State, Brazil. The microbiological determination were effected in the cool product of three cuts (round beef, rump and tenderloin) for total and fecal coliforms, and salmonellas (7). In the sensorial analysis each tasters received a plastic plate, contains at random four numbered labels, one in each quarter of the container, where two types of meat (round beef and rump) of "baby buffalo" meat that were supplied in four samples, and also bovine meat proceeding from precocious steers, this acquired in local supermarket, for comparative effect of preference, after prepared in the roast form. As tasters were used pupils da University of Estado do Pará, Belém, Pará State, Brazil, being 33 not trained and 11 previously trained had been used, using Hedonic Scale of nine points, which varied from "like it a lot" (9 points) to "unlike it a lot" (1 point) (4). The trained tasters used this scale to consider the attributes smell, color, flavor and texture of the product, while the not trained, only the general acceptance (Figure 1).



Figure 1. Sensorial evaluation of the "baby buffalo" and bovine meats.

RESULTS AND DISCUSSION

The presence of total and fecal coliforms and salmonellas was not observed in the analyzed samples, demonstrating that the slaughter it was carried out in adjusted conditions of hygiene, including wash of the carcasses before freezing. Also, it is certified that the meat of "baby buffalo" was proceeding from animals without disease that could confer to the product undesirable microbiological characteristic. All the averages are situated in the hedonic scale of acceptance (values higher than 6 in the hedonic scale). There was no significant difference in the general acceptability of the samples regarding to species or the cuts rump and round beef. In taste test carried out in Belém, Pará, Brazil, also evidenced similarity between meats of buffalo and bovine, cozen or roasted (5), while in Trinidad (6) the taste of meats indicated more points in acceptability for the native buffalo, when compared to zebu and european mestizos. In the evaluation of the trained tasters it there was similarity between rightness and errors in the bovine meat, while in the buffalo the percentage of errors was superior, what can indicate confusion of tasters. However, the trained tasters had greater percentage of rightness in the buffalo meat. In the sensorial evaluation effected by trained tasters, referring to the attribute color, it is observed that there was no differences between the meats considering type and species. However, in Trinidad (6), the taste of native buffalo meat indicated more points in color and fat when compared to zebu and european mestizos. Referencing to the attribute of smell, identically, there was no differences between meats of the two species and of the two types, nor between species, independent of the type of meat, as well as between types of meat, independent of the species. The meats of the two species and two types were similar in the attribute flavor, in the same way that between species, independent of the type of meat and between types of meat, independent of the studied species. Differently, in Trinidad the taste of meats of native buffaloes indicated more points in flavor, when compared to the meats of zebu and european mestizos (6). The data indicated that the meats possess similar textures. In the same way, it is observed that the meats of the two considered species are similar in texture, independent of the type of meat, as well as between types, independent of the species. In Trinidad, the taste of meats of

European mestizos versus zebu versus native buffaloes indicated little difference between its textures. Fourteen tasters had chosen the buffalo, seven the European, five the zebu and two found buffalo and zebu better than the European (6). In Table 1 are the correlations between the attributes considered in the sensorial evaluation of the meats. Positive correlation and significant are noticed between color and odor and flavor and smell, what indicates association between these attributes, or either, the flavor seems to be influenced by the color and smell of the meats.

Table 1 - Correlation between the attributes of the "baby buffalo" and bovine meats.

Parameter	Color	Smell	Flavor
Smell	0,785**	-	-
Flavor	0,374ns	0,622*	-
Texture	0,258ns	0,304ns	0,312ns

The product has good microbiological quality and was derived of manipulation, transportation and storage practiced obeying rigid standards of quality, at slaughterhouse level. The sensorial evaluation indicated that the meat of "baby buffalo" got reply of general acceptability similar to the one of bovines, for the not trained tasters. The sensorial evaluation by the trained tasters on the attributes color, flavor, smell and texture of the samples was similar to the acceptability of the bovine meat, both with averages in the hedonic range of acceptance.

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