INFLUENCE OF THE ADDITION OF DIFFERENT PROTEINS ON THE SENSORY PROPERTIES OF PÂTÉ

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Abstract – Soybean allergy is one of the more common food allergies, especially among babies and children. The effect of different sources of protein on sensory properties of pâté was studied. A total of thirty samples of pâté [control (soybean protein) and modified batches (pea, lentil, bean and seaweed (*Spiruline* and *Chlorella*) protein) were assessed in this study. The preference test was conducted using a structured 6-point scale from 1 (most favorite) to 6 (less favorite). Acceptance and preference were evaluated by twenty-five panelists. Pâté samples enriched with bean and lentil protein showed the highest values among panelists, whereas samples with seaweeds presented the lowest scores.

Key Words –acceptances, legumes protein, preference, seaweed protein

I. INTRODUCTION

The functional protein and bioactive peptides are very important owing to their healthy properties [1] and it is recommended to combine animal and vegetable proteins in the diet [2]. The elaboration of meat food with vegetable and/or algae proteins incorporated could offer the consumer a new protein source with high added value. The aim of this study was to evaluate the sensory properties (acceptability and preference) of pâté elaborated with pork meat and enriched with protein from pea, lentil, bean and seaweed (*Spirulina* and *Chlorella*).

II. MATERIALS AND METHODS

Six batches of pâté (5 units per batch) enriched with different proteins [control (5% soybean protein), pea (5%), lentil (5%), bean (5%), *Spirulina* (5%) and *Chlorella* (5%)] were manufactured. To carry out the sensory analysis we applied the acceptance test in order to determinate how the panelists liked or disliked the final product according to Lago *et al.* [3] but in reverse order. The preference test was conducted using a structured 6-point scale from 1 (most favorite) to 6 (less favorite). Friedman two-way ANOVA assuming protein source and panelists were fixed as independent factor using SPSS package (SPSS 19.0) was performed and when a significant effect (P<0.05) was found LSM was used as a multiple comparison test.

III. RESULTS AND DISCUSSION

The average acceptance values are summarized in Fig.1. These results showed that pâtés enriched with seaweed protein (*Spiruline* and *Chlorella*) did not have good acceptance between panelists whereas; pâtés with bean and lentil had a good acceptance, even more than control group.

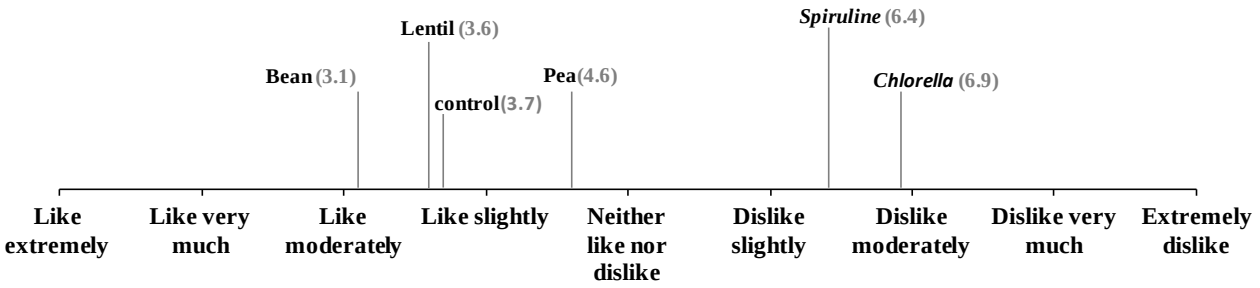

Figure 1. Global acceptance of pâté enriched with different sources of protein

Figure 2 shows the average percentage of preference of panelists (14) obtained from the pâtés manufactured. Pâtés with bean protein were the most chosen for the panelists together with pâtés enriched with lentil. Both of them had more acceptance than control. On the other hand, pâtés manufactured with pea protein did not like any panelists.

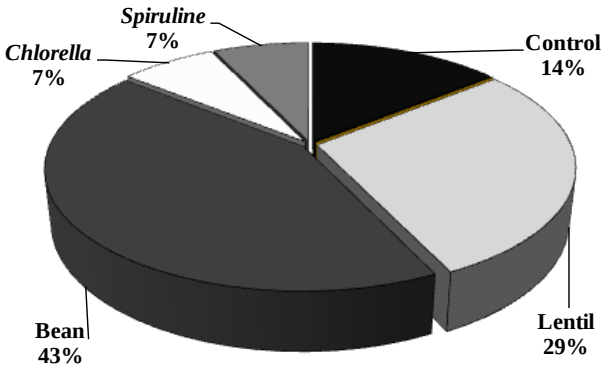

Figure 2. Percentage of panelists preference of pâtés enriched with different protein source

Total scores of preference obtained to ranking test (numbers in brackets in Table 1) showed that pâtés enriched with bean protein were the most chosen for the panelists and Friedman's test indicated that there were significant difference among studied samples (F_{test})>$F_{(\alpha=0,05)}$).

Table 1 Total preference values and LSD results obtained to pâtés enriched with different protein source

Sample most favorite					Sample least favorite
Bean (28)	**Control (35)**	**Lentil (37)**	**Pea (54)**		
			Pea (54)	***Spiruline* (67)**	***Chlorella* (73)**

Samples in the same raw not have significant differences (P>0.05) and samples in different raw show significant differences (P>0.05)
Numbers in brackets are ∑ score

The results of test LSD (Table 1) showed that pâtés enriched with bean and lentil had the same preference and we did not find differences with control group. The other group of samples was composed by pâtés manufactured with *Spiruline* and *Chlorella*, whereas pâtés manufactured with pea protein had the same preference in both groups.

IV. CONCLUSION

Regarding the analysis sensorial, it was found that panelists showed a higher acceptance for the pâtés manufactured with bean and lentil.

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