OPTIMUM SWEETNESS DETERMINED BY AFECTIVE TEST WITH JAR SCALE AND BY SURVIVAL ANALYSIS: A HEDONIC COMPARISON OF RESPONSE OF CONSUMERS OF PROBIOTIC PETIT-SUISSE CHEESE STRAWBERRY FLAVOR

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INTRODUCTION

The affective test with Just-About-Right scale (JAR) is one of the most applied for determination of ideal concentration of ingredients, when the consumers analyze samples and register their response in the specific scale (JAR).The obtained data are analyzed by simple linear regression between hedonic value and variable concentrations of the ingredient. Currently, the Survival Analysis (SA) has been applied to studies of consumer attitude to buy or to consume a specific food, and can be applied for the determination of optimum concentration of specified ingredients. The objective of this study was to determine the ideal concentration of sucrose for the optimum sweetness in probiotic petit-suisse cheese strawberry flavor by two different methodologies: 1st.) affective test with JAR and 2nd) survival analysis, to compare hedonic response in relation to the products in their respective determined sucrose concentration.

METHODOLOGY

•: Formulations of probiotic petit-suisse cheese strawberry flavor were prepared with five different sucrose concentrations (7.5%, 11.0%, 14.5%, 18.0% and 21.5%)

• Two different methodologies were applied to determine the optimum sweetness: 1) afective test with JAR scale and 2) survival analysis (SA). Both studies were carried out by 120 consumers.

RESULTS AND DISCUSSION

- In SA the products were tested by 120 consumers and the samples were formulated with the same sucrose concentrations. In JAR the consumers considered the sample with 15.2% sucrose as ideal sweetness (R^2=92,7). In SA the ideal sweetness was 12.7% of sucrose, established according to the result that 27% of consumer rejection occurred when the optimum concentration was considered low sweetness and 15.6% of rejections occurred when they considered the optimum concentration high sweetness. Two samples were formulated, one with 12.7% (best by SA) and other with 15.2% (best by JAR), and both were analyzed by 120 consumers by acceptance test with hedonic scale. The samples do not differ significantly according to Tukey test ($p<0.05$).

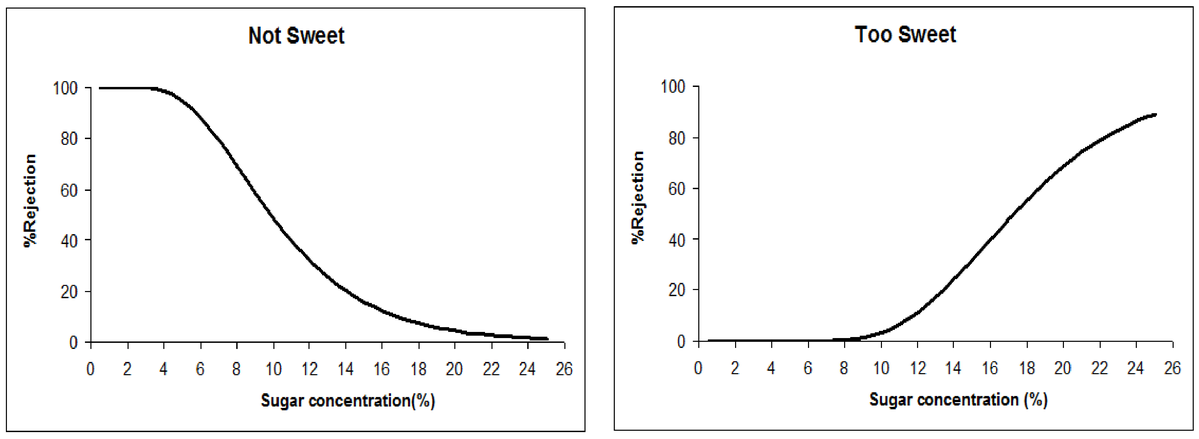

Figure 1: Percentage of consumers rejection of probiotic petit suisse cheese strawberry flavor versus sucrose concentration in not sweet function and in too sweet function

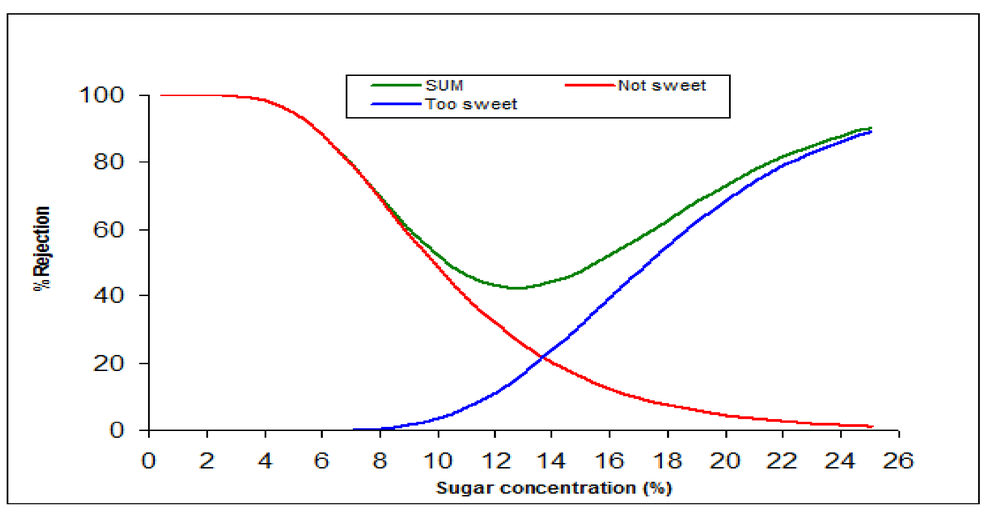

Figure 2: Optimum concentration of sucrose (Overlay curves of rejection)

Table 1: Optimum concentration of sucrose, its rejection parameters and standard errors

OPTIMUM SUGAR CONCENTRATION	TOTAL PERCENT OF REJECTION IN THE OPTIMUM	% OF REJECT BY NOT SWEET IN THE OPTIMUM	% OF REJECT BY TOO SWEET IN THE OPTIMUM	STANDARD ERROR BY NOT SWEET IN THE OPTIMUM	STANDARD ERROR BY TOO SWEET IN THE OPTIMUM
12.74	42.6	27	15.6	0.85	0.72

Table 2: Mean values of the attributes valued by consumers in probiotic petit suisse cheese strawberry flavored in diferent concentrations of sucrose

SAMPLES	APPEARANCE	AROMA	FLAVOR	TEXTURE	OVERALL ACCEPTABILITY
SA	5,618a	6,774a	6,298a	5,107a	6,079a
JAR	5,942a	5,693a	6,068a	5,554a	5,964

CONCLUSIONS

- In according the obtained results it is possible to conclude that this information can be important for food companies, showing that a lower concentration of sucrose, is a possible choice for formulations with the same acceptance, with reduction of caloric value and cost.

ACKNOWLEDGMENT