

PREFERENCE DRIVERS FOR RASPBERRY FLAVORED GELATINS: DETERMINATION BY MULTIVARIATE STATISTICAL ANALYSIS

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INTRODUCTION

Raspberry flavored gelatins were evaluated by sensory analysis to report the intensities of sensory characteristics determined by Time-Intensity Analysis (TI) and the overall impression obtained with affective test. The objective of this study was to analyze the correlation between the results of TI curves parameters of three sensory characteristics and instrumental texture parameters by Partial Least Square Regression Analysis, for to know the variables that can to contribute positively or negatively for the consumer acceptance in the product availed.

METHODOLOGY

- The products evaluated in this study were the most commercial gelatin samples in the market, which were purchased in supermarkets in the city of Campinas / SP / Brazil. Six different brands of raspberry flavored gelatin were assessed,

•The TI tests were performed for each of the attributes (sweet taste, acid taste and raspberry flavor). The samples were codified with 3 digit numbers. Analysis in 3 repetitions.

• All the sensory studies were carried out with the samples chilled (between 6 and 10°C). 5 mL, providing that the entire content was to be swallowed at once.

• The TI data were collected using the SCDTI (Time Intensity Data Acquisition System) program, developed in the Laboratory of Sensory Analysis of the Food Engineering University – UNICAMP.

• During these steps, each panelist recorded the intensity of the evaluated attributes in the 9 point scale of the computer. With the generated data, TI curves were constructed, with the following parameters: Maximum perceived intensity (I_{max}), time for maximum intensity (TI_{max}), total time of duration of stimulus (T_{tot}) and area of time curve x intensity (Area).

The statistical analysis included Analysis of Variance (ANOVA) and Tukey´s Test for means. The Program SAS and XLStat softwares were used for statistic analysis.

RESULTS AND DISCUSSION

- Panelists were selected on the basis of power of discrimination, repeatability and agreement with the team, verified by means of the values of significant F_{sample} ($p<0.30$) and non-significant $F_{repetition}$ ($p>0.05$) in relation to each parameter.

Table 1 Time – intensity analysis parameters.

	Attributes	AT	BT	CT	DT	AD	BD
SWEET TASTE	Tima	18.11^{a}	17.89^{a}	17.52^{a}	18.29^{a}	18.13^{a}	16.78^{a}
	Area	115.73^{bc}	125.29^{ab}	137.86^{a}	132.68^{ab}	105.32^{c}	129.85^{ab}
	Ttot	39.39^{b}	39.75^{ab}	40.53^{ab}	41.11^{ab}	38.71^{b}	42.17^{a}
	Imax	6.18^{c}	6.58^{bc}	7.39^{a}	7.40^{a}	6.12^{c}	6.78^{b}
	Attributes	AT	BT	CT	DT	AD	BD
ACID TASTE	Tima	18.14^{a}	18.02^{a}	17.05^{a}	18.79^{a}	18.79^{a}	18.33^{a}
	Area	76.35^{c}	81.84^{bc}	63.17^{d}	92.59^{ab}	62.52^{d}	101.84^{a}
	Ttot	35.05^{ab}	36.20^{a}	34.63^{ab}	35.25^{ab}	33.50^{b}	37.25^{a}
	Imax	5.45^{bc}	5.32^{c}	5.22^{c}	5.96^{ab}	5.08^{c}	6.41^{a}
	Attributes	AT	BT	CT	DT	AD	BD
RASPBERRY FLAVOR	Tima	15.67^{d}	17.93^{ab}	17.35^{abc}	18.58^{a}	16.17^{cd}	17.09^{bc}
	Area	67.99^{c}	110.24^{a}	106.56^{a}	98.23^{ab}	68.25^{c}	86.40^{b}
	Ttot	30.06^{b}	34.02^{a}	33.49^{a}	33.55^{a}	30.26^{b}	34.37^{a}
	Imax	4.24^{c}	6.41^{a}	6.26^{a}	6.30^{a}	4.47^{c}	5.64^{b}

In the same column. values with different superscripts within a row are significantly different ($p < 0.05$).

- The samples were evaluated individually by time-intensity analysis in relation to the three parameters, their results being analyzed simultaneously.

Table 2 Acceptance test with gelatin samples.

Samples	Appearance	Aroma	Flavor	Texture	Global impression
AT	6.67^{b}	4.73^{b}	5.57^{a}	6.49^{ab}	6.06^{ab}
BT	7.20^{a}	4.75^{b}	5.69^{a}	6.83^{a}	6.34^{a}
CT	6.89^{ab}	5.43^{a}	5.21^{ab}	6.58^{a}	6.15^{a}
DT	6.94^{ab}	5.78^{a}	5.53^{a}	6.52^{ab}	6.12^{a}
AD	6.22^{c}	4.58^{b}	4.78^{b}	6.07^{bc}	5.56^{bc}
BD	6.81^{ab}	4.32^{b}	3.64^{c}	5.89^{c}	5.15^{c}

In the same column. values with different superscripts within a row are significantly different ($p < 0.05$).

• The appearance results revealed that sample BT was the most accepted by the consumers, although it did not differ significantly from samples CT, DT and BD. All (with the exception of BT) of them were placed in the same region of the scale utilized, close to the answer: “I liked it very much”.

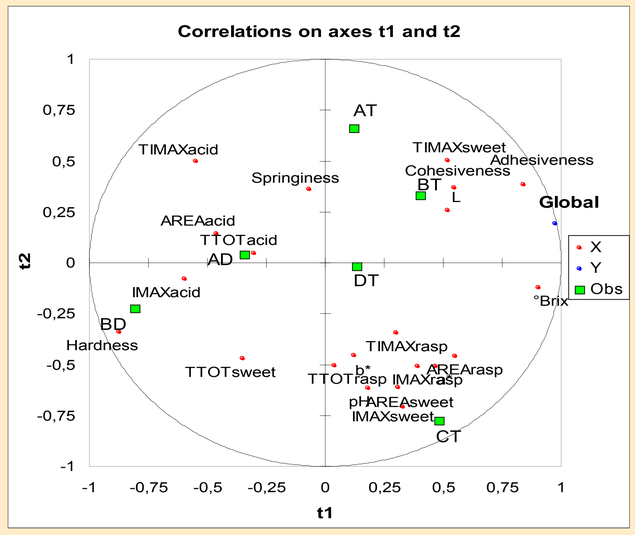

Figure 1. Correlation T-I and instrumental parameters and overall impression of consumers.

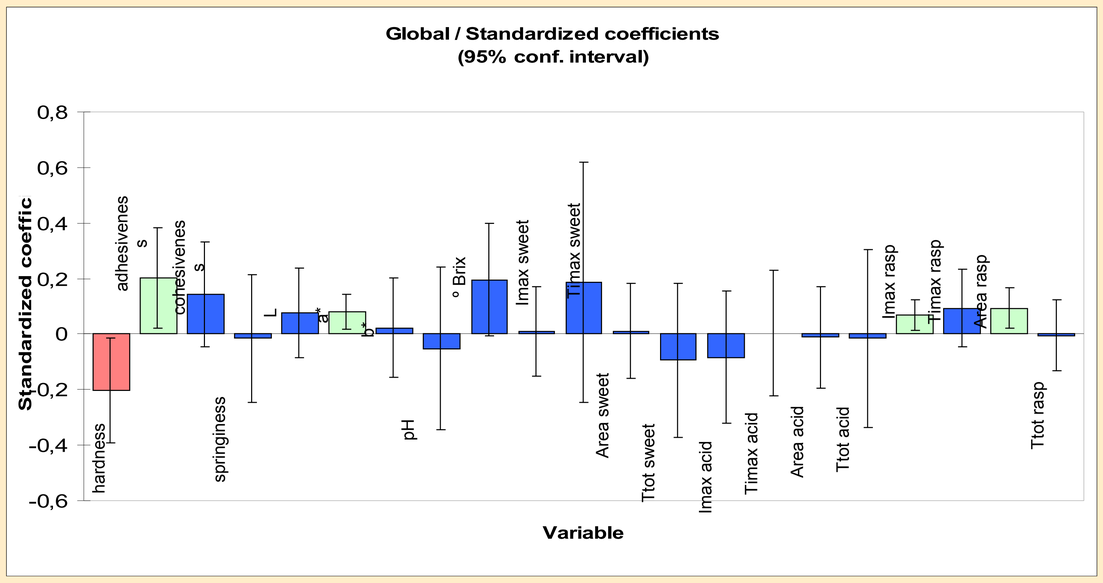

Figure 2. Indication of significant characteristics of raspberry gelatin samples with positive or negative importance in overall impression for the consumers.

Conclusion

The results showed that the attributes adhesiveness, red color (a*), raspberry maximum intensity (IMAXrasp) and raspberry area (AREArasp) contribute positively to consumer acceptance. On the other hand, the hardness contribute negatively for the acceptability of the gelatins. The others parameters do not caused significative interference in consumer acceptance ($P<0.05$).

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