

Sensory evaluation of bakery products and its role in determining of the consumer preferences

Crina Muresan^{*}, Laura Stan, Simona Man, Stancuta Scrob, Sevastita Muste

University of Agricultural Sciences & Veterinary Medicine Cluj-Napoca,
Faculty of Agriculture, 400372, 3-5 Manastur Street, Romania

Received: 30 September 2012; Accepted: 15 November 2012

Abstract

The purpose of this paper work is the sensorial analysis of bread types (graham type and bread with eggplant and oregano) in order to fit the products in quality class and establish consumer preferences. It's been used the method for assessing the average number of points (20) and hedonic scale method

Keywords: bread, sensory analysis, hedonic scale

1. Introduction

In terms of nutrition, bread reflects largely the nutritional value of flour and other raw materials from which it is obtained. Therefore, to ensure proper nutrition, specialists have designed and produced a wide assortment of bakery products. Depending on the nature of the ingredients and their biological role, bakery products can be classified in conventional products, functional products and products for particular nutritional uses.

Functional products, declared safety food, are natural products that contain biologically active compounds that will positively affect key functions of human organism, relevant to health or reduce the risk of chronic diseases.

These compounds may be biologically active components of food or quantity can be added through technological intervention [1].

Functional food concept dates back over two centuries. So, Grahamista movement, although it didn't resisted, contributed to a new approach to food, from a scientific basis. Since 1968 stated that food fortification vectors are most commonly used in cereals and derived products.

The purpose of this paper is to evaluate two types of bread, for framing products into quality classes and establish consumer preferences.

The sensorial quality of food products plays an important role in the choice of food. Hedonic testing is often used to determine consumers attitude towards the food by measuring a degree of acceptance of a new product or improving the existing food product [3,4].

The methods used in sensorial analysis of food products that are based on the total properties of food, which, overall, is their quality, are broken down into different components (criteria, characteristics) which are then measured. The measure of these different properties is determined by certain values (points, percentage, speed). The sum of these values then forms the total amount of quality. Sensory analysis methods used to assess food quality are divided into two groups: analytical and preferred [2].

The use of either method depends on the purpose, the nature of qualitative characteristics studied, the potential for statistical analysis and interpretation of results.

^{*} Corresponding author: e-mail: crinartn@yahoo.com

2. Materials and methods

Samples: Graham bread and bread with eggplant and oregano samples were made after own recipes without the use of improvers.

Eggplant and oregano bread was obtained by baking a dough made from wheat flour type 550, yeast, water, malt, eggplant, olive oil, oregano and graham bread was obtained using graham flour, wheat flour type 550, yeast, water and salt.

Technological parameters used are presented in table 1.

Table 1. Technological parameters:

	Graham bread	Bread with eggplant and oregano
kneading	10 min. 29.6 °C	12 min. 30 °C
second kneading	1 min.	-
ferment	80 min. 30.2 °C	80 min. 31 °C
final proofing	30 min. 35 °C	20 min. 35 °C
ripening	35 min. 220 °C	40 min. 220 °C

*Sensory analysis:*The samples were evaluated by 15 (the points test) or 80 (for hedonic scale) evaluators, aged 20-25 years students control and food expertise, Faculty of Agriculture, University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca.

Attributes recognized by the sensory panel as describing the sensory properties of the bread products were: appearance of the shell, appearance of the core, odor, taste [2].

Two tests were applied: test for assessing the average number of points and hedonic scale test.

The purpose of these tests were:

- test by points (20 points) - to evaluate the sensory characteristics and quality grade product fit;
- hedonic scale - to assess the acceptability and identify favorite product.

In the point panel test were involved 15 trained persons. All panelists had previously been trained for the assessment of the sensory properties of bread graham and bread with eggplant and oregano.

Table 2. Quality classes were established for these products, according to the obtained score.

Number of points	Qualifying
18,1-20	Very good
15,1-18	Good
10,1-15	Satisfactory
7,1-10	Unsatisfactory

The hedonic scale has 9 levels: the first four levels (1-4) show the positive sensations and the last four (6-9) show the negative sensations. It uses a large number of inexperienced panelists, and the percentage of "I dislike" is calculated.

The results are statistically analyzed using multiple correspondence analysis.

3. Results and Discussion

After the obtaining products, these were sensory and physicochemical analyzed.

In terms of physical-chemical parameters were determined freshness and integrity, values obtained are presented below(Tables 3 & 4).

Table 3. Physicochemical characteristics for Graham bread.

Characteristics /m.u	Graham bread
Porosity,%	80.18
Moisture,%	36.00
Acidity°	3.00
NaCl, %	1.09

Table 4. Physicochemical characteristics for Bread with eggplant and oregano.

Characteristics /m.u.	Bread with eggplant and oregano
H/D, cm	0.46
Elasticity, %	95.38
Porosity,%	87.59
Moisture,%	40.13
Acidity°	1.80
NaCl, %	1.20

For the sensory analysis, there were two types of tests used to determine grade, to correlate results with those physicochemical and to determine consumer preferences.

In terms of assessment test points, as can be seen in Table 5, both samples, the Graham bread and the bread with eggplant and oregano were rated as superior class getting very good rating.

Table 5. Medium test results obtained from processing of assessment points.

Sensory characteristics	Graham bread	Bread with eggplant and oregano
appearance	2.70	2.68
appearance of the shell	2.61	2.80
appearance of the core	6.39	6.50
odor	2.94	2.81
taste	3.72	3.80
total	18.36	18.59

The results obtaining were represented in figure 2, 3 and table 6.

Table 6.

Degree of appreciation		Graham bread	Bread with eggplant and oregano
Extremely nice	9	12	19
Very nice	8	25	24
Nice	7	15	27
Least liked	6	20	8
Indifferent	5	3	1
Slightly unpleasant	4	4	1
Half nice	3	0	0
Completely unpleasant	2	1	0
Extremely unpleasant	1	0	0
Total		80	80
Average		7.07	7.61
% „I dislike”		3.18	0.16

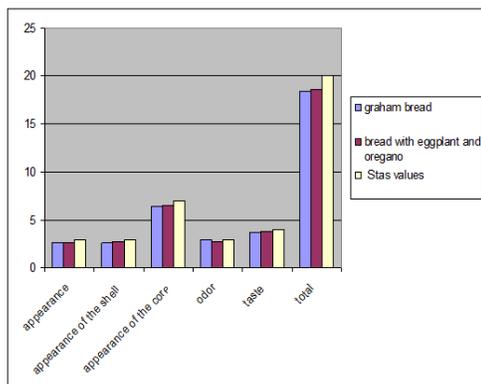


Figure 1. Comparing the medium values STAS [5]

In figure 1 are compared to values obtained with the standardized sensory characteristics [3].

Regarding the preference test, both samples were accepted tasters (with one exception for the bread with eggplant and oregano and 5 tasters for graham

bread) and in terms of degree of preference – bread with eggplant and oregano was preferred.

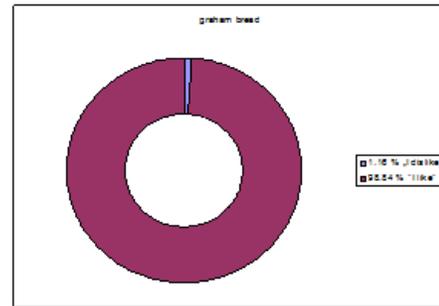


Figure 2. Preferences for Graham Bread

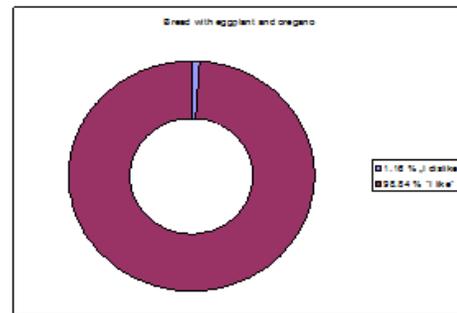


Figure 3. Preferences for bread with eggplant and oregano

4. Conclusion

We can say that sensory analysis techniques have been developed into powerful tools for understanding how sensory attributes emphasize product quality and consumer preferences. Modern techniques of sensory processing can be very useful for optimizing, motorized and developing new bakery.

Graham bread and the one with eggplant and oregano proved adequate in terms of quality and very attractive tasters.

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