

## A BETTER START IN BREAD QUALITY-ULTRA FIBER AND OTHER PLANT INGREDIENTS

Dana TAPALOAGA

University of Agronomical Sciences and Veterinary Medicine, Mărăști 59 Ave., Bucharest,  
Romania

Corresponding author email: drtapaloaga@yahoo.com

### **Abstract**

*Bread is considered to be a fermented confectionery product produced mainly from wheat flour, water, yeast and salt by a series of process involving mixing, kneading, proofing, shaping and baking. The consumption of bread and other baked goods such as biscuits, doughnuts and cakes produced from wheat flour is very popular, but the low protein content of wheat flour, which is the most vital ingredient used for the production of different kinds of baked goods has been major concern in its utilization. That is why, most of the bread producers tried to enrich the bread composition adding different ingredients so the nourishing quality of the final product being superior and best for the human being life. The present study has as view the comparison of the quality of two sorts of bread, special ones, enriched with ultra fiber and plant ester so that the consumers improve their health status. The first sort of bread is a major help to the diabetic people due to its high content in fibers and the second bread sort is a better support to human beings affected by cardiovascular disorders, due to the plant esters which reduce the serum cholesterol. The study tried to emphasize the main physical and chemical parameters of the two sorts of bread and to compare them to other frequent sorts in the Romanian market.*

**Key words:** sparkling wine, chemical, physical, sensorial parameters, Romania.

### **INTRODUCTION**

In every people history and civilization, bread is considered as symbol of a spiritual matter, a link between God and human being. All the early advanced civilizations knew bread and honored it like a gift of God. In Romania, it could say about the industrial processing of bread at the end of the IX<sup>th</sup> century and the beginning of the XX<sup>th</sup> century, this doing in the army, in towns and workshops. The importance of bread products in population requiring is a factor that determines the development of the Romanian bakery sector, in an accelerate trend. Lately, there were built new modern facilities, of large capacities, with a wide range.

### **MATERIALS AND METHODS**

The material researched in the present paper is represented by five batches of two bread sorts with rye flour, which have contributions in cholesterol reducing by added plant stenol, being recommended to the people with cardiovascular disorders and diabetes, but also to the ones who want a healthy style of life. We wish to emphasize their quality aspects, regarding sensorial and chemical parameters, as

humidity, acidity, porosity, NaCl content, fat and insoluble ashes. The research methods were made by stipulated standards, also having in view the checking of wrapping, packaging, and marking, including the checking of the final products. The sensorial parameters represent for the large mass of consumers the most important factors of a food product analyses. The main sensorial features are: appearance, volume, color, smell, crust appearance, foreign corps and taste. The examining was done with the aid of senses, at natural light, in clean rooms, with specialized staff. The chemical and physical parameters were made by classical methods, conformingly SR.91/2007.

### **RESULTS AND DISCUSSIONS**

Based on the carried out study on the recorded data and the analyze bulletins we have established the mean values for the chemical and physical parameters in five batches of two different sorts of bread. The first sort is represented by a specific sort with plant oil added (sort A), and the second one is

represented by a sort of bread with a low content in sugar (sort B). The sensorial exam demonstrated that the bread in the five batches is framed in ISO standards, having no alternative disorders and normal sensorial parameters during the control analyses. The physical and chemical exam proved low variations of the analyzed parameters, comparable with the ones in the special standards (Petcu, 2006; SR.91/2007). Humidity percentage carrying out is made in most of the bread products, and the method of

drying in the oven represents the most precise and compulsory method (Petcu, 2006; SR.91/2007; Tapaloaga, 2008). The mean value of the humidity percentage in the sort A is 44.16%, a value framed within the maximum admitted limit by the standard. (45%). Regarding the sort B, the mean value of humidity percentage is 46.96%, with a maximum value of 48%, as in the standards. In the chart 1, the Humidity dynamics in the analyzed sorts is shown.

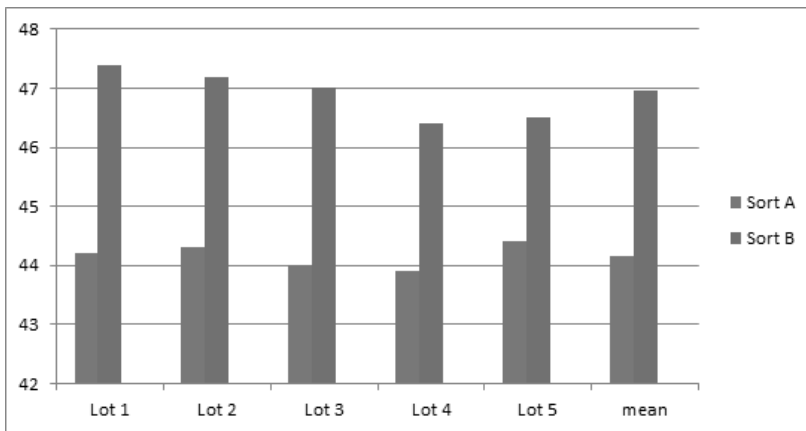


Figure 1. Humidity dynamics in the analyzed sorts

Sort A bread is framed within the ISO admitted limited, having a mean value 3.22°/100g product. During the laboratory analyzes there were recorded oscillation within the normal parameters, the maximum value being 3.5°/100g product. Sort B bread is framed

within the ISO admitted limited, too, having a mean value 5.08°/100g product. During the laboratory analyzes there were recorded oscillation within the normal parameters, the maximum value being 5.4°/100g product. These values are shown in chart 2.

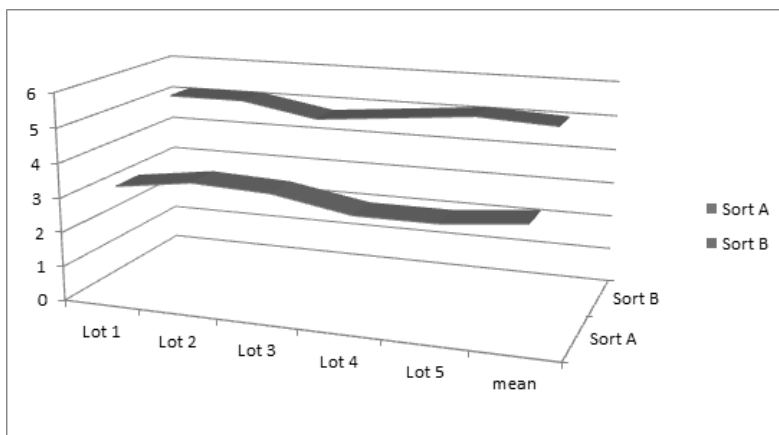


Figure 2. Acidity dynamics in the analyzed sorts

The elasticity is framed within the admitted limit, the mean recorded value on the five batches is 91.2, for sort A. The variations of this parameter are low, the minimum standard value being 89. For sort B, the mean recorded

value is 97.4, being framed within the normal values, the minimum standard being 95. The graphic presentation of this parameter is illustrated in chart 3.

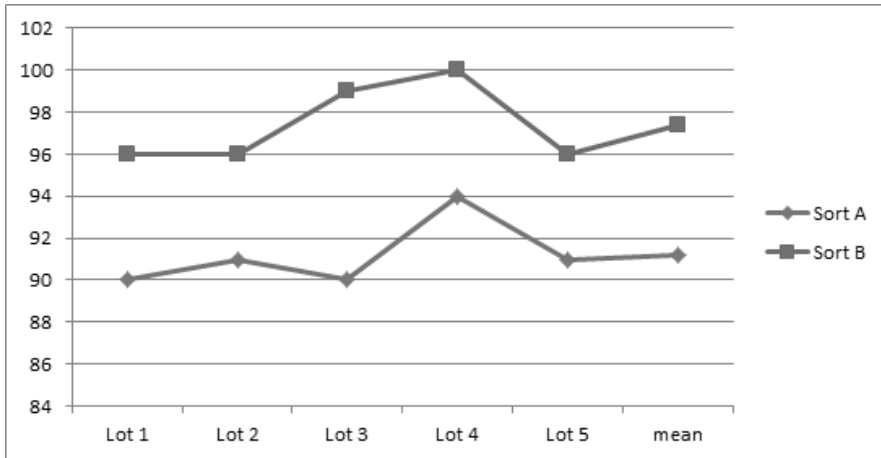


Figure 3. Elasticity dynamics in the analyzed sorts

Analyzing the total volume of the pores in the total core volume, knowing the density and the weight of core, we noticed that the porosity is 86.7%, framing within the standard, the minimum value being 85%, for the A bread

sort. The sort B recorded the mean value of 87.12%, with a minimum standard of 82%. The graphic interpretation is presented in chart 4.

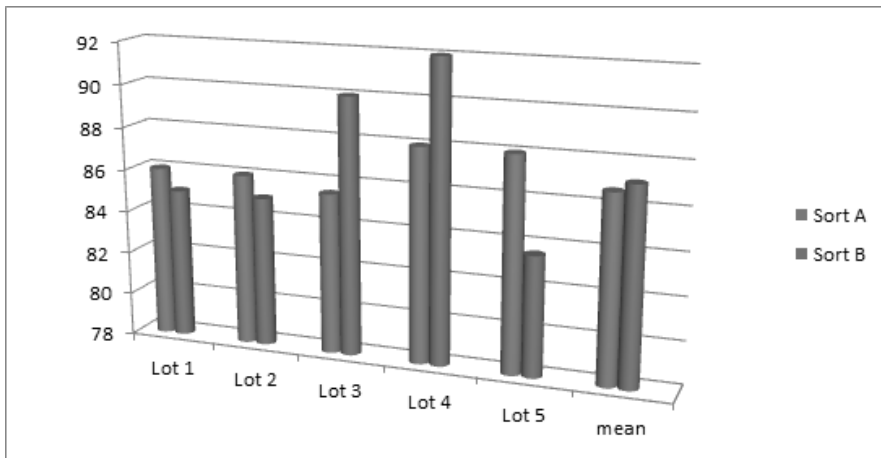


Figure 4. Porosity dynamics in the analyzed sorts

Following the laboratory analyses, it was noticed that the sodium chloride content is in normal parameters, with a mean value of 0.54%, for the sort A bread and 1.128% for

the sort B bread, the maximum value being 1.2% for both bread sorts. The variation of this parameter in the five batches of sort A and B is presented in chart 5.

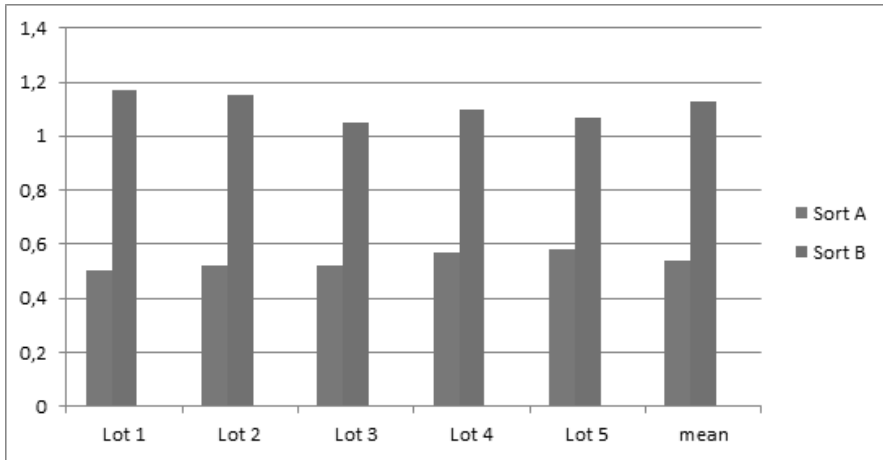


Figure 5. NaCl concentration dynamics in the analyzed sorts

By the sample calcinations and filtering of the insoluble substances in HCl, we noticed that the mean value of the ashes content is 0.17% for sort A bread and 0.176% for sort B, both

mean values being framed within the standard norms, the maximum admitted limit being 1.2% for the two sorts. The graphic expression is shown in chart 6.

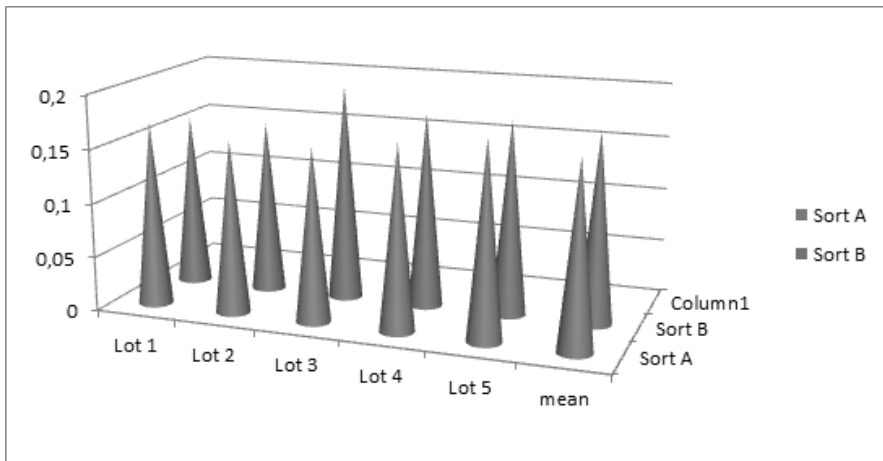


Figure 6. Insoluble ashes content dynamics in the analyzed sorts

The average value of the volume determination is 574 cm<sup>3</sup> for the five batches of sort A bread, with a minimum standardized values of 500 cm<sup>3</sup>, and 480 cm<sup>3</sup> for the five batches of sort B,

with a minimum standard of 520 cm<sup>3</sup>. The graphic presentation of these parameters in all the studied batches is shown in chart 7.

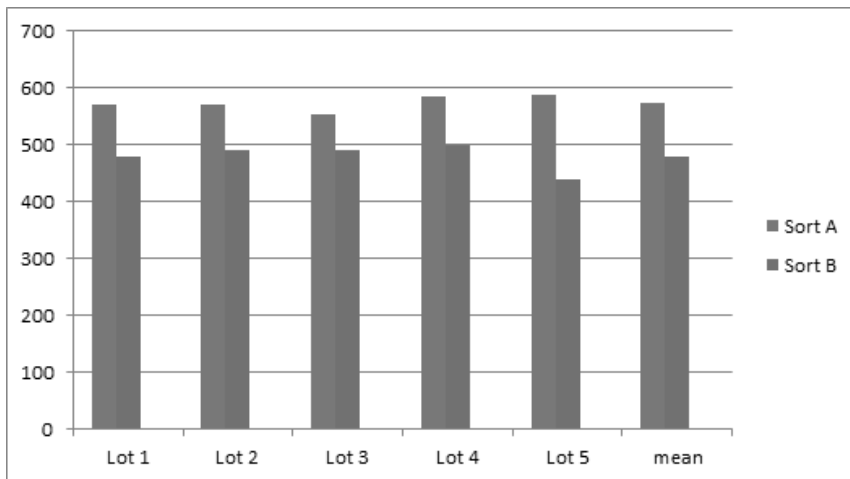


Figure 7. Volume dynamics in the analyzed sorts

The sensorial exam of the studied samples demonstrated that the analyzed bread does not present alterations regarding the shape, appearance, color, smell, taste, core, having all the sensorial qualities in normal conditions during the whole checking period.

The chemical and physical analyses demonstrate that the analyzed parameters are conformingly the reference standard.

## CONCLUSIONS

After the sensorial, physical and chemical laboratory analyses we can conclude the following:

The taste in both bread sorts is a pleasant one, characteristic to the used ingredients, without foreign smell.

The core in the sort A bread is lighter brown and no wet, while the one in sort B is darker and a little wet.

All the values of the sensorial parameters are framed within the SR 91/2007 standard.

The humidity percentage in sort A bread is higher due to the technologic process.

The volume is smaller in sort A bread beside sort B bread.

The bread porosity percentage is higher in sort A bread due to the larger content in gluten, the mean recorded value is 87.12%, with a minimum of 82%, while sort b bread had a mean value of 86.7%, with a minimum value of 85%. Both values are framed in SR 91/2007.

The bread elasticity is lower in sort B bread, due to the added plant esters, even the recorded values framed within SR 91/2007, with a mean value of 86,7% and a minimum imposed value of 85%. In sort A bread, the mean value is 97.4%, with a minimum of 95%;

-bread acidity is higher in sort A, with a mean value of 5.08°/100g, beside 3.22°/100g, in sort B, with a maximum value of 3.5°/100g in this last sort.;

-NaCl content is higher in sort B bread beside sort A bread, the recorded mean values being 1,128%, beside 0,54%, due to the necessity of a large content because the dough is more sticky and needs more salt.

-the ashes content in sort B bread is 0.176%, with a maximum value of 1.2% and in sort A is 0.170% with the same maximum imposed value. This thing is explained by the larger content in flour 650 in the composition.

Sort A bread is a healthy bread, with a large availability term, without preserving. Due to the controlled carbohydrates content and also fibers, is a real help to the overweight people and the ones with diabetes. The sort B bread is the most low carbohydrates content bread made by rye flour, having a plus of plant esters. So, for avoiding some organism's disorders due to less healthy food, it is indicated to replace normal bread with special created sorts.

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