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STUDY REGARDING THE UTILIZATION OF THE APPLE MACERATION EXTRACTS FOR THE OBTAINING OF BREAD

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Abstract

The science in the area of food industry evolves continuously being found new techniques for obtaining innovative products that would satisfy the demands of the consumers which are more and more. The bread making, as branch of food industry is in this context of evolution, being found new techniques of production and additive adding to the bread and bread making products, for the purpose of obtaining some competitive products on the market and which would respect the demands of alimentary safety. In the same train of thought is also this study which proposed to use three types of flour for the dough making, replacing the classical agent of fermentation beer yeast with a maceration obtained from apples that replaced the water in proportion of 100% in the composition of the dough and the evaluation of the quality of the finished products and the freshness. In order to accomplish the above mentioned objectives were created three experimental versions. The difference among them being the type(s) of flour used. During the process of obtaining, the same for all the experimental version, was observed the different behavior of the three types of flour and on the determinations performed on the finished product was observed a modified taste formed of apple and wheat flour Spelta and modifications of structure, volume and aspect of the finished product.

Key words: bread, wheat flour, Spelta flour, rye flour, apple maceration

INTRODUCTION

The bread, an important food in the people's alimentation was and is a permanent preoccupation of the people from the oldest times. These products are indispensable in the daily alimentation, due to the nutritive properties and the content in substances that produce energy.

In România the most consumed is the white bread which represents a valuable source of complex glucides (especially amylum) that occupy the largest proportion in the composition of flours, fibers that represent the main component with role in reducing the cholesterol from the blood, iron and vitamins, from the group B which are: thiamin, riboflavin, niacin and folic acid, having also a decreased content of fats with an important role in the technological process (Bei M.F., 2015).

The other sorts of bread present a similar input depending on the raw materials used and the sort, the strengthening of the flour not being a very spread practice in our country compared to other countries where it is used on a large scale flours of great extraction and of whole flour (Rosan C., 2015).

In the present, there is the completely wrong idea that the bread and the products of bread makes you fat. In this regard, it should be considered the quantity in which is consumed, which has to be small and the type of bread consumed. A loaf of bread or a sandwich being sufficient on a meal, the excess producing real gaining in weight.

MATERIAL AND METHOD

The fermented water or the apple maceration was obtained from apples with a rich content in carbohydrates and namely: glucose, sucrose and fructose. Thus, in order to obtain the maceration was selected the Gala type of apples, of which we chose 4 apples, that were washed, were cut in quarters which we placed in glass jars over which we added water up to their total covering. In order to obtain a maceration of quality the quantity of water added over the fruits has to be approximately equal with that of the fruits. The jars are closed air-sealed after which are left in the light, warm air and sun in order to be able to initiate the fermentation. Once the fermentation is began we can analyze periodically the power of fermentation of the maceration by mixing some equal quantities of water with flour that are left for a few hours at the normal temperature of fermentation of the dough. In these conditions, if the mixture formed is doubling the volume the fermented water can be used for the preparation of the dough because it represents an indicator that the power of fermentation of the dough is optimum. In case the optimum period of maceration/fermentation is exceeded the fermented water will become cloudy and sour and can't be used for the preparing of the bread because it doesn't participate at the forming of the dough and impresses unpleasant sensorial characteristics.

For the accomplishing of the proposed objective we studied three types of flours (white, rye and of spelt) added in different percentages as the following: V1 – white flour 100%, V2 **–** white flour+rye flour in percentage of 1:1**,** V3 - white flour+spelt flour in percentage of 1:1**,** maceration of apple and salt.

For the preparing of the dough was chosen the direct method that consisted of mixing all the ingredients in the beginning of the operation and their kneading. The experimental versions were kneaded approximately 10 minutes until the dough was detached easily from the hands and the margins of the kneading bowl. It was left for fermentation 40-60 minutes at the temperature of 28-30ºC. At the end of the resting period the obtained dough from the quality maceration needs to have a volume doubles or tripled, this representing an indicator of quality for the maceration. After this stage the dough is kneaded again, stage that lasts less than the real kneading and afterwards it is placed in the cooking form and is left the same period of

time and temperature for fermentation. When the dough has increased up to the margin of the form, is varnished and is introduced in the previously heated oven at the temperature of 250ºC in the first 20 minutes, and then is reduced the temperature at 200 ºC for 20-30 minutes. After the baking is varnished once more. For the sort of bread in mixture of white wheat flour with rye flour and that of white wheat flour with Spelta flour, the time of baking is greater with approximately 5-10 minutes.

RESULTS AND DISCUSSION

The quality of the bread from the three experimental version was made on the basis of the diagram of punctuation what provides minimum standards which the bread has to accomplish in order to be given for consumption. Thus for the appreciation/calibration was applied the method of appreciation of the quality based on the diagram of 30 points. This includes the main qualitative indicators of the product, combining the sensorial examination with the physical-chemical one. For each of these indicators is given the maximum punctuation and while the quality decreases are reduced also the points correspondently.

Table 1

The analysis of the main indicators from the products

The indicators of the product	**Characterization**		
	V1 White flour 1100%	**V2 White flour +Rye flour 1:1**	**V3 White flour +Spelt flour 1:1**
Forma and volume of the product	Fluffy core, increased volume and well outlined form, well raised.	Proportional volume to the weight of the product, well raised, well outlined form.	Proportional volume to the weight of the product, characteristic, well outlined form.
Color and aspect of the crust	Plain crust, yellow-goldish, plain surface, without rugosity, specific to the product.	Plain crust, brownish, plain surface, without rugosity, specific to the product.	Plain crust, dark brownish, plain surface, without rugosity, specific to the product.
The degree of baking, the condition and aspect of the core	Well baked, porous core and fluffy, with uniformity.	Well baked product, uniform and fluffy, with acceptable porosity, with uniformity.	Well baked product, uniform and fluffy, with acceptable porosity, with uniformity.
Porosity of the core and structure of the pores	Good porosity, the structure of the pores well defined, well divided and uniform.	Good porosity, the structure of the pores well defined, well divided and uniform.	Good porosity, the structure of the pores well defined, well divided and uniform.
Flavor (smell)	Pleasant, soft of apples, of fresh and well baked product.	Pleasant, soft of apples, of fresh and well baked product, characteristic to the product.	Pleasant, soft of apples, of fresh and well baked product, characteristic to the product.
Taste and acidity	Appropriate salty taste, soft taste of apples, characteristic to the product, without foreign taste, sour or bitter.	Appropriate salty taste, soft taste of apples, characteristic to the product, without foreign taste, sour or bitter.	Appropriate salty taste, soft taste of apples, characteristic to the product, without foreign taste, sour or bitter.
Humidity	Product with normal aspect and humidity, without excessive humidity.	Product with moderate aspect and humidity, fit to the product.	Product with moderate aspect and humidity, fit to the product.

Table 2

The results regarding the degree of freshness or ageing of the bread in time

Experimental versions	Indicators	Period of preservation in time (h)					
		4	**8**	**12**	**24**	**48**	**Total**
V1 White flour 100%	taste	4	4	4	3	2	**3,4**
	smell	4	4	4	3	2	**3,4**
	strength of the core	5	5	5	4	3	**4,4**
	elasticity of the core	4	4	4	3	3	**4**
	disintegration	4	4	4	2	2	**3,2**
V2 White flour + Rye flour 1:1	taste	5	5	4	4	3	**4,2**
	smell	5	5	4	4	3	**4,2**
	strength of the core	4	4	3	3	3	**3,4**
	elasticity of the core	4	4	3	3	2	**3,2**
	disintegration	4	4	4	3	2	**3,4**
V3 White flour + Spelt flour 1:1	taste	5	5	4	4	3	**4,2**
	smell	5	5	4	4	3	**4,2**
	strength of the core	4	4	4	4	3	**4,2**
	elasticity of the core	4	4	3	3	3	**3,4**
	disintegration	4	4	3	3	2	**3,2**

CONCLUSIONS

A first conclusion of this study would be the different behavior of the three types of flours during the kneading and baking, V2 and V3 needing a large quantity of maceration on kneading and a larger time of baking.

From the organoleptic point of view the utilization of the apple maceration impresses to the finished product the taste and flavor of the fruit from which it comes and from the physical chemical point of view V1 presents higher characteristics to the other versions.

From the determinations performed is concluded that the type of flour represents the main element in this experiment and the products obtained with the apple maceration are acceptable from the organoleptic point of view with the specification that they have to be consumed in maximum 24 hours from the preparation because after this period they become distasteful.

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