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EFFECT ON THE VOLUME AND PROTEINIZĂRII FLOUR CRUMB POROSITY

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Abstract

The quality of bakery products can be achieved by improving the technological characteristics of the flour so that dough leads to optimal characteristics, which produces high quality products. With this purpose are currently using some materials that affect the improvement or invigorating. More recently, however, the trend of global expansion, says the use of novel food products and substances, enzyme preparation, as well as substances that enhance the quality and nutritional value of products.

Key words: enhancers, sodium caseinate, fortified

INTRODUCTION:

Food is one of the most important physiological needs. It is the incorporation of environmental substances in normal metabolism and is one of the major external factors determining the health and condition of the individual.

Of the multitude of existing substances in the environment, man to take only those that are or may be made similar to its own substances that are water, protein, minerals, vitamins, fats and carbohydrates. These substances are called nutrients and bodys are supplied by food.

Bread is one of the staples of the human being indispensable in the daily diet, due to the nutritional properties and content in heat-producing substances. This important food was and is a constant concern of people in ancient times.

Getting the bread is characterized by long periods of rest between kneading and shaping the final, before fermentation. It is found today in a wide range of types, which are commodities in the daily diet of man and therefore knowledge of the nutritional value of bread and developed calorific value, is of particular importance in establishing a rational diet, scientifically.

The nutritional content of flour is given in the main chemical components, namely: carbohydrates, proteins, lipids and is highlighted by the calorific value produced in catabolic and anabolic processes.

Processes oxibiotice, carbohydrates, proteins, lipids are not fully processed and therefore some are used for reconstruction anatomical of the cell and another parts are stored in various forms or eliminated.

The practical determination made was established that the burning body of a gram of carbohydrates resulting from burning 4.1 calories a gram of glycerides resulting 9.3 calories, and by burning a gram of protein resulting 4.35 calories.

Substances protein flour, along with that from other foods, are of particular importance in human nutrition momentum primarily plastic role, contributing to the formation and regeneration of tissues.

Protein substances that are found in foods consumed daily must contain a number of amino acids such as arginine, cystine, phenylalanine, histidine, isoleucine, leucine, lysine, methionine, tyrosine, threonine, tryptophan and valine. The daily human needs amino acid shown in table 1.

Table 1

The daily human needs in essential

Aminoacizi	**The daily human needs (g)**	**Aminoacizi**	**The daily human needs (g)**
Arginina	3,5	Lisina	5,2
Fenilalanina + tirozina	8,5	Metionina + cistina	3,8
Histidina	2,0	Treonina	3,5
Izoleucină	3,3	Triptofan	1,1
Leucină	3,1	Valina	3,8

To improve the nutritional value of flours recourse to use proteinizarea,vitaminizarea and raising mineral concentration Bread flour is consumed as an important part in ensuring the protein requirements.

White flour, which occupies the highest proportion for human consumption because it originates mostly from the central grain of wheat, is low protein flour than black. Therefore it is necessary to enrich flour with protein in general and the white in particular.

To raise the protein content of flour in the world are addressed in various ways, ranked that order of priority, depending on the opportunities and conditions. The first way is the creation of new varieties by cereals rich in protein and with a higher content of essential amino acids deficient, particularly in lysine and tryptophan.

The second way is to separate the technological flow normally from a die, the usual meal of bread containing 10-12% protein content of fractions with a much higher, 18-20% protein respectively.

Casein is the best animal protein with technological performance both on very good product consistency and degree of fat emulsifying, stabilizing well water system water→ fat→ protein and does not affect product taste.

Place in food by 15%/1kg product is obtained by caseine precipitation at pH 4.6 of skimmed milk. At this pH, colloidal calcium

phosphate is dissolved and the various proteins of casein precipitated. I then applied several washes to remove soluble salts, lactose and whey proteins. Caseine precipitates are dissolved by neutralizing again with sodium hydroxide solution at pH 7. After spraying the resulting dry it the sodium caseinat.

The sodium caseinat is used both in food and pharmaceutical properties in its major emulsion and binding.

The chemical composition of sodium caseinates contains nine essential amino acids: histidine, isoleucine, leucine, lysine, methionine, phenylalanine, threonine, tryptophan and valine. Because the composition of the essential amino boat this protein provides a significant nutritional value. The nine amino acids of casein structure are regarded as the standard daily survival needs of the body.

MATERIAL AND METHODS

Research on improving the nutritional value of flour by proteinizing it with the sodium caseinate was achieved in bakery SC. VATRAPAN. SRL in Oradea.

He used sodium caseinate product SC Supremia Group SRL, was certified to the standard product business 219/2006 SF.

To achieve this it was established using variants of the sodium caseinate in three different proportions - 3%, 6% and 9%, the products will be compared with the normal product of the company.

The organization is presented in Table 2.

Table 2

The organization mod

Specification	M	V1	V2	V3
Flour, g	2000	1940	1880	1820
Sodium caseinate, g	0	60	120	180
Yeast, g	30	30	30	30
Salt, g	20	20	20	20

Procedure: there were prepared samples were stirred on all the 4 versions approximately every 10 -15 min.

They then left the yeast then were kneading again and have 10-15 minutes left in May.

Dividing the dough was made on experimental variations, resulting in 3 pieces for each variant. They have been shaped, labeled and placed in the fermentation room. After about 40-50 minutes. Were placed in the oven, baking time is approximately 40 minutes.

A first distinction between samples occurred in processing.After kneading the dough from the first experimental versions 1 and 2 (before

kneading again) looked old compared to variant III.The products were analyzed in laboratory faculty.

Experimental analysis was to determine the physicochemical properties that bread volume and porosity of those 3 core samples fortified bread and a blank sample as (according to STAS 91-82 and SR 878).

RESULTS AND DISCUTION

Following quality indicators and results obtained (Table 3 and 4) and plotted (Fig. 1 and 2) for the three variants compared with blank test can find the positive influence of the addition of sodium caseinate in some experimental variations

Table3

Values determined for the volume of core samples analyzed

Nr. Sample	Volume area [cm^3/100g]
V1 – 3% sodium caseinate	322
V2– 6% sodium caseinate	337
V3– 9% sodium caseinate	377
WITNESS	339

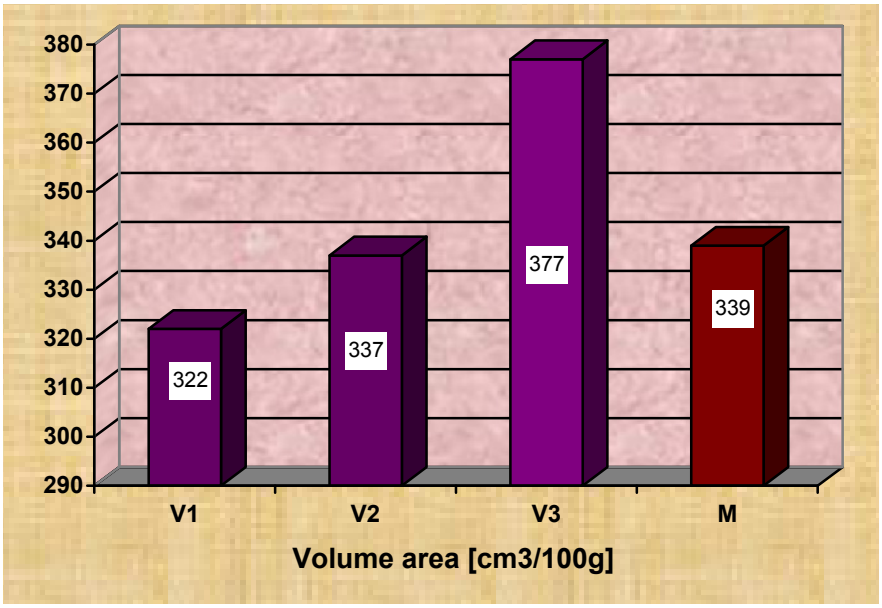

Fig. 1 Changes in volume compared with that of samples analyzed blank

According to experimental results presented in Table 3 and plotted in Figure 1 is observed the following:

- sample with added the sodium caseinate than recorded a volume slightly lower than the blank (322 cm^3/100g to 339 cm^3/100g);

- increasing levels of sodium caseinate causes a similar increase in bread volume, V_2 sample having a volume almost equal to the witness (337 cm^3/100g) and V_3 sample exceeding an additional control option 38 cm^3/100g.

About determined porosity of samples can be analyzed following statements:

- ranges from 76.29% to 83.01% at version V_2 and V_3 version, all variations falling within the experimental requirements (min 73%);

- the lowest values recorded in variants with a low- sodium caseinate.

Table 4

Determined values of the porosity of samples analyzed

Nr. sample	Porosity determined [% vol]
V1 – 3% sodium caseinate	77.46
V2– 6% sodium caseinate	76.29
V3– 9% sodium caseinate	83.01
WITNESS	82.38

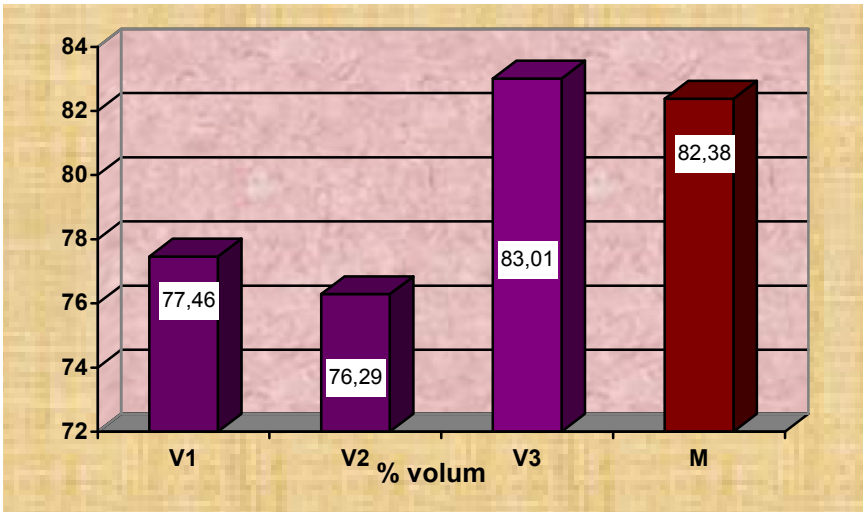

Fig. 1 Changes in porosity compared with that of samples analyzed blank

CONCLUSIONS

A first distinction between samples occurred in processing. After kneading the dough from the first experimental versions 1 and 2 (before kneading again) looked old compared to variant III.

Sample with added sodium caseinate than recorded a volume slightly lower than the blank (322 cm^3/100g to 339 cm^3/100g), increased sodium caseinate content results in a similar increase in bread volume, sample V_2 Having witnessed an almost equal volume (337 cm^3/100g) and V_3 sample exceeding an additional control option 38 cm^3/100g.

About determined porosity of samples can be analyzed following statements: range from 76.29% to 83.01% at version V_2 and V_3 version, all variations falling within the experimental requirements (min 73%), the lowest values recorded in variants with a low-sodium caseinate.

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