

RESEARCH REGARDING THE INCREASING FIABILITY OF BAKERY PRODUCTS WITH REDUCTING EFFECT ON ESSENTIAL PROTEIN BY WHEAT FLOUR

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Abstract: By adding the bran and wheat flour germs additive it was establish the qualitative and nutritional growth of diet brad. The economically solution is adding bran in limits of: 10-30% wheat flour. For a normal efficiency of technological results is necessary: yeast 5%, NaCL 2%, germs of wheat flour 1,5%.

Keywords: diet brad, fermentation process, bran, germs of wheat.

1. INTRODUCTION

The development of the scientific branch through modern process and new technology lead in obtaining of large type of bran and „diet bread”.

In nutritional way is absolutely necessary the completion of nourishment by mineral salts and vitamin B type from wheat peel.

The reason of this research are the economically and health purpose, like: the bran is a byproduct from miller industry witch is not used in optimum parameters, through has a chemical composition with a large content of fibres; another reason is the resistant to intestinal flora, making possible the used in prophylactic and therapeutic nourishment.

The feeding fibre also has an action of starch, improving the tolerance to grape sugar and diminishes the iletin. By consuming the „diet bead” the nourishment value are growing each day.

The purpose of research is the capitalization of byproduct from milling process, the bran and the wheat germs. By using the bran, can solve two problems: the capitalization of byproduct resulted from wheat flour technology and the obtaining a product with nutrition content improve, therefore the diet bread by using the bran..

The adding of wheat germs is important thanks to the content of essential fat acids and vitamin E.

2. MATERIALS AND METHODS

For the realization of the research program has been used the method of programming the experiences in rotating cantered system of order II with 4 variables. The independent parameters witch constituted the dominant variables in baking process is shown in table no.1.

Table .1

Xi	Independent variables				
	-2	-1	0	1	2
Bran, %	10	15	20	25	30
Yeast, %	3	4	5	6	7
Wheat germs, %	0,5	1	1,5	2	2,5
NaCL, %	0	1	2	3	4

(*)- reported to the total wheat flour

The independent variables parameters are: bran content 10-30%, the bakery yeast 3-7%, the wheat germs 0,5-2,5% and the NaCL quantity 0-4%.

It was mentent steadfast: the water quantity 50 mL/100 g among, fermentation temperature 40⁰C, fermentation duration 2h.

The dependant following parameters in this research are: acidity degree (mL NaOH 0,1 N/ 100 g dough), deformation degree $(D_f - D_i) \times 100 / D_i$ %.

3. RESULTS AND DISCUSIONS

To determine the necessary optimum condition for finalising the technological recipe in obtaining the bakery products with addition of bran it was chosen the statistic mathematical explanation based on the regression equations shown in table no.2.

Table 2

Regression equations	
Dependent parameters	Equations
Acidity degree, NaOH 0,1 N/ 100 g dough	$Y = 0,256 + 0,013X_4 - 0,004X_1X_4$
Deformation degree	$Y = 16,24 + 2,625X_1 + 2,458X_2$

The influence of working parameters over the dependent variables regarding the quality of final product it's shown in figure no.1,2,3.

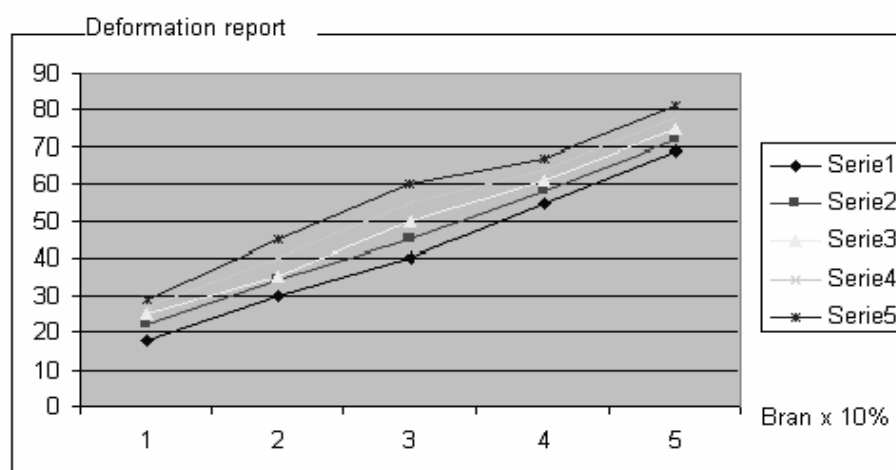


Fig. 1. The influence of bran and bakery yeast content of growing process when the NaCL is used in 2 g quantity and the wheat germs in 1,5 g quantity

Serie 1 - 3 g of bakery yeast, Serie 2 - 4 g of bakery yeast, Serie 3 - 5 g of bakery yeast,
Serie 4 - 6 g of bakery yeast, Serie 5 - 7 g of bakery yeast

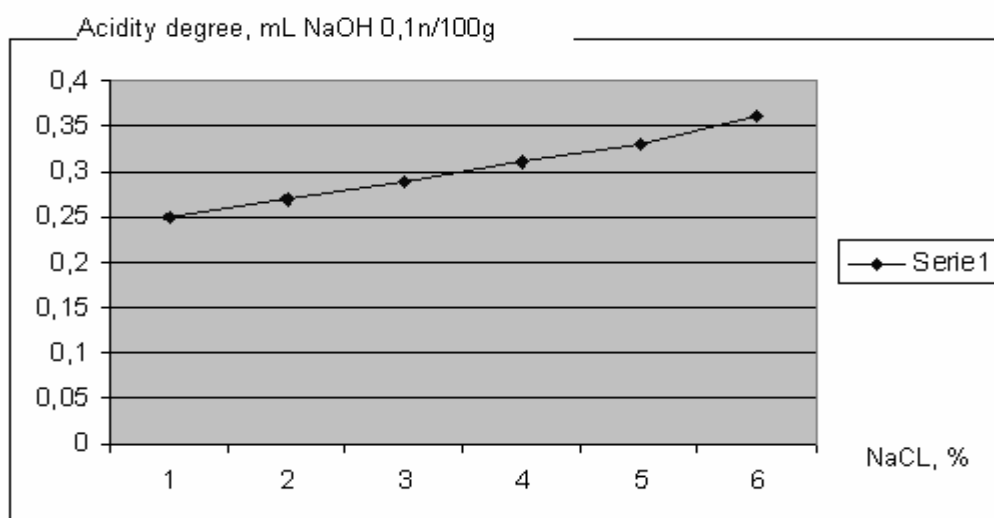


Fig. 2. The influence of NaCL content of acidity degree when: quantity of bran is 20 g, the bakery yeast is 5 g and he wheat germs is 1,5 g

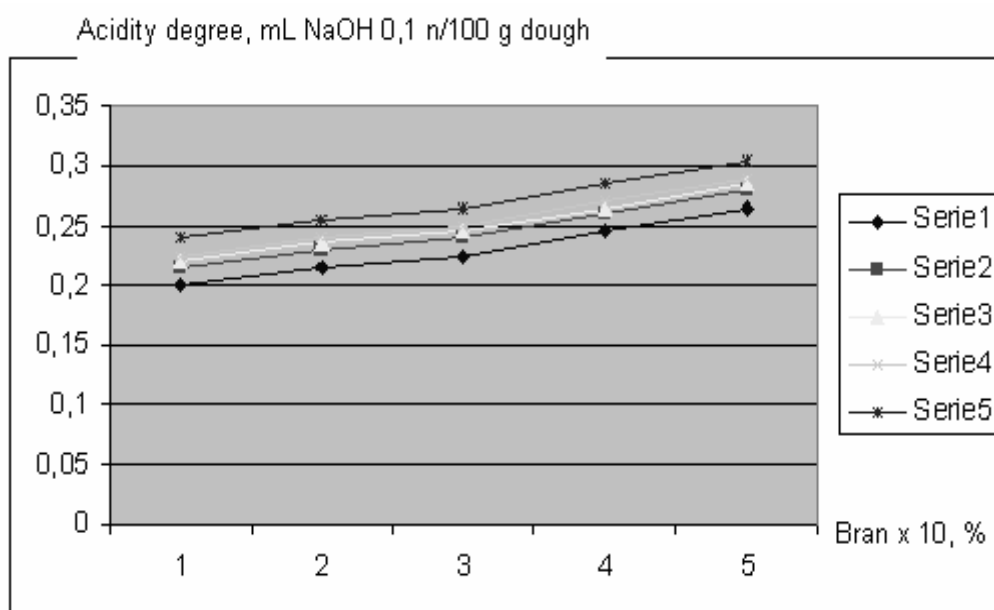


Fig. 3. The influence of bran and NaCL content of acidity degree when the bakery yeast is used in 5 g quantity and the wheat germs in 1,5 g quantity

Serie 1 - 0 g of NaCL, Serie 2 - 1 g of NaCL, Serie 3 - 2 g of NaCL,
Serie 4 - 3 g of NaCL, Serie 5 - 4 g of NaCL

The exactness experimental program and the results obtained through the determination average quadratic abbots with next values: for acidity is 0,0266 and for dough deformation is 4,889.

The acidity and the deformation level were presented as an equation like:

$$Y = b_0 + b_i x_i + b_{ij} x_i x_j + b_{ii} x_i^2$$

It was established that an adding until 30% bran determines a optimum growth of dough up to 80% if the content of yeast bakery is to 7%.

The adding of bran with an maximum in 30% influence the acidity of dough if the adding of germs wheat is 1,5%, bakery yeast is 5% and the NaCL are an variation between 2 and 4%.

4. CONCLUSIONS

An adding of bran in values between 10-30% represent an economically and benefit solution.

The adding of bran determines the subtraction of fabrication cost and can obtain a superior product in qualitative and nutritive whey.

For normal technological results is recommend an adding of 5% of bakery yeast, 2% NaCL, 1,5% wheat germs, last one component don't influence the define of dough but contribute to increase of nutritive substance from bread.

5. BIBLIOGRAPHY

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