# STUDIES REGARDING THE FERMENTATIVE ACTIVITY OF SOME SORTS OF BAKERY YEAST

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**Abstract**

*The dynamics of glucide fermentation in the dough during the latter's fermentation is in close relation with the commercial form of the Sacharomyces cerevisiae bakery yeast used in the technological processes to obtain bakery products. In this way, the fermentative activity of the studied types of yeast had in view to appreciate directly the measurement of the exhaled volume of freed* $CO_2$

**Key words:** flour,bakery yeast, carbon

## INTRODUCTION

Nowadays the most commonly used micro organism in the food industry is the baker yeast. Its introduction in the dough is made with the aim to met the dough in order to obtain high volume products and a certain porosity. In order to achieve this aim a lot of research has been done for many years to select more yeast species and stems with a high potential to form the carbon dioxide and which can adapt to the conditions existent in the dough environment.

According to the classification issued by Hansen in 1904, nowadays the most commonly used yeast belongs to the *Saccharomyces cervisiae* species, a superior fermentation yeast, a kind of yeast from the *Saccharomyces* type, of *Saccharomycetaceae* sort, of the order *Endomycetales,* subdivision *Ascomycotina.* This type of yeast is commerced and traded under many forms; (fresh) compressed yeast, active dry yeast, protected active dry yeast and instantly dried yeast. When choosing a certain type of commercial yeast one should take into consideration the following: if we are talking about the final consumer then on the first place there is the cost of the yeast and if we are talking about a producer the latter is interested in the quality of the yeast, in the decrease of the production costs, in the possibility to control and to automatize the technological flows of production.

The technological quality of the bakery yeast depends on the speed with which it adapts to the dough conditions (the content of sugars, temperature, pH, content of oxygen, water activity, etc) that must be clearly established so that a higher quantity of gases can be produced and a more uniform fermentation can be ensured during the dough's fermentation.

This study also heads to this direction following the fermentation ability of two commercial bakery *Saccharomyces cerevisiae* types of yeast already to be found in the trade net and produced by three different producers. We have followed the way in which this type of yeast ferments the sugars existent in the dough.

## MATERIAL AND METHODS

In order to achieve the proposed aim, the dough has been kneaded with each of the 6 types of bakery yeast produced by three different producers (PAKMAYA yeast, BUDAFOK yeast, DR. OETKER yeast).


Fig. 1. The types of bakery yeast taken into study

The dough formed with compressed yeast had the following composition:: 12,5g yeast, 250g flour, 130ml water, 0.25g salt; and the one with dry yeast: 3,5g yeast, 250g flour, 130ml water, 0.25g salt. The flour used to prepare the dough is wheat flour of type 650, also purchased from the commercial net. The kneaded dough has been introduced in graded cylinders of 1000 cm.

The registration in time of the gases formed at the fermentation of a dough made of flour, water, yeast and salt, in the known temperature conditions, has been performed according to the experimental plan.

The evolution of the carbon dioxide release has been done through the measurement of the increasing volume. The moment the chronometer started represents minute 0, meaning the moment the dough was introduced in the cylinder. In order to establish the flour's ability to form and to store gases during the fermentation we have studied the development of fermenting dough sample by measuring the height of the dough.

**RESULT AND DISCUSSION**

In order to obtain quality bread there must be high release of carbon dioxide in the dough during the whole technological process. The dough must have good rheological features which may allow it to better store and retain the gases in the dough and which also allows the gluten to be of a good quality.

The dough obtained with dry yeast registers a constant production of gases during the whole fermentation period; in the first half of an hour a smaller quantity of $CO_2$ was produced but in the end a higher quantity of $CO_2$ was produced.

During the monitored period, the dry yeast registers lower values of $CO_2$ (Budafok(950 ml), followed by Dr. Oetker (790 ml) and by Pakmaya (810ml) which shows that the compressed yeast represents the most intense fermentative activity from the three analyzed yeast samples.

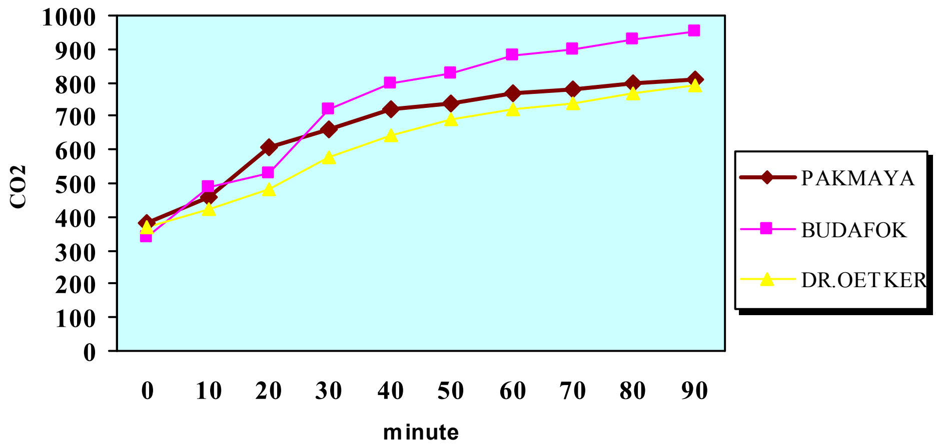


Fig. 2.The evolution of the $CO_2$ release in the dry yeast

The volume of the dough samples with compressed yeast develops suddenly in the first 20 minutes of fermentation after which the development is insignificant. The quantities of carbon dioxide released have got the highest values for the compressed yeast produced by Budafok ($1060cm^3$) followed by Dr. Oetker ($1010cm^3$) and by Pakmaya($880cm^3$).

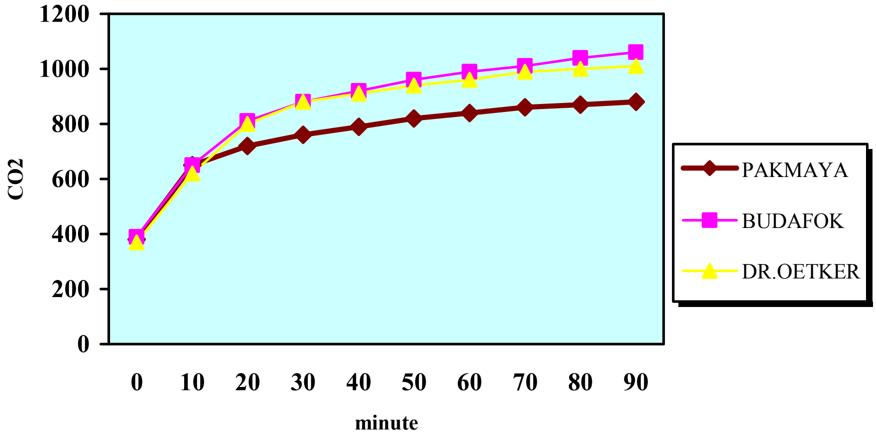


Fig. 3.The evolution of the $CO_2$ release in the compressed yeast

The carbon dioxide release is higher only in the first part of the fermetation process in the case of those types of flour that have a small ability to form gases and the obtained products are not of quality whereas at high quality types of flour the gases formation happens during the whole fermentation process.

**CONCLUSIONS**

The carbon dioxide quantity formed during the fermentation time has been influenced by the form in which the used yeast is presented and by its source (its producer).

Following the fermentation of the prepared dough with different commercial forms of yeast over a 90 minute process it has been noticed that, in comparison with the dry yeast, the compressed yeast presents the highest fermentation activity releasing the highest quantity of $CO_2$.

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